

SECTION V

e-Governance Success Stories G2C Initiatives

Online Scholarship Management System (OSMS)

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I) Overview

For the first time in the history of the country a totally transparent and simplified online workflow automation system ‘**Online Scholarship Management System (OSMS)**’ was designed, developed and successfully implemented way back in 2006-07.

This project became a role model in the country for all student scholarship computerization systems in the country. The application is generic in nature i.e., the same application can be easily customized to suit any type of students’ scholarship management system without much changes in the software. The application is uni-code compatible so fully compatible with Indian languages without changing the code. It has been developed using open source technologies and tools. The application has been deployed at Govt. of India, NIC Data centre to avoid overheads and associated additional expenditure.

This is the only online scholarship management system in the country catering to the students of primary school to the Research Scholars i.e., First class students to PhD students.

The entire workflow has been made paperless, as all the required documents/certificates/testimonials are being scanned and uploaded by the students. The

system is Aadhaar compliant so it can be interfaced to upcoming Aadhaar identity framework in the country.

This is the first tamperproof system in the country for managing student scholarships. Right from the first year of its implementation its impact is visible as it is fully linked to the authenticated sources of information such as School Directorate, Universities, College Directorate etc., so that bogus students and bogus educational entities get checked even at the entry level of the system.

It has brought total transparency and process efficiency improved several folds. This is the first system in the country to reduce cumbersome twenty four plus processes of manual system to simply six processes. This is the first open source system in the country with multiple technical features such as. Indigenous and Secure Online Payment Gateway Interface to Banks.

- Low-Cost SMS Gateway Interface to Mobile phones of Students/Parents/guardians,
- Online Web-Services Interface other legacy and peer systems for automatic verification / authentication & local language interface with Uni-code compliance,
- Very simplified user friendly interface so that teachers/parents of even Urdu medium primary schools from remote villages are able to apply online (for and on the behalf of primary and secondary students).
- Has high-performance and low-cost architecture to serve peak scalability of a few lakh hits per day.

In view of uniqueness and novelty, delegates from US, Israel, Pakistan, Middle-East have visited and studied the system. Even Japanese have shown interested and invited to Tokyo for presentation of the project.

1. To improve transparency of the pre-matric and post-matric scholarships management system for students of minority community.
2. To develop an online 24X7 application submission system, so as to facilitate submission of application from anywhere.

3. To develop an automatic, objective rule based transparent scholarship and fee re-imbursement calculation system.
4. To develop efficient, effective, accurate, speedy scholarship disbursement system avoiding delays in disbursement, errors, scams, subjectivity in awarding scholarships, redundancy etc.
5. To enable students to track status of their application online.
6. To publish the details of beneficiaries online.
7. To enable the authorities at different levels to access the data online for verification and other purposes.
8. To eliminate subjectivity and human factor and associated problems.

Earlier there was lot of problem in reconciliation of amount sent to the colleges and the students through the banks in the manual system. Therefore we obtained limited connectivity between (NIC) Server and Banks' Server so that online proceedings are being sent to the banks and in turn the banks transfer the amount to the concerned student's account online and send the file back to NIC server and as soon as the file is received, automatically the amounts sent by the banks along with date appear in the appropriate box before the name of the student. This has made the reconciliation process very easy.

Earlier hundreds of students were enquiring daily in the District Offices and even in Head Office regarding sanction and release of their scholarship and tuition fee and our Officers had to struggle to give them satisfactory reply. This problem was overcome by online system of oost matric scholarships for minority students by giving them facility of tracking the status of their applications online by just filling their token number on our website – www.apsmfc.com, and they can know the status of their application.

Earlier students were not able to write their correct course and University to which their college was affiliated. To overcome this problem we have prepared College Masters so that the students after selecting the University, get the drop down list of colleges affiliated to the University and by selecting the college, get the list of courses available and they have to select their own course in which they are studying. This has made the filling up of the scholarship application very simple and user friendly.

Through our Online Scholarship Management System we have served 1875585 students and disbursed total amount of Rs. 751.83 crores.

The Online Scholarship Management System (OSMS) for Minority Students is taken up to enable the students of Pre Matric from Class I to Class X and Post Matric students studying from Class XI upto Ph.D. including all professional courses viz; B.Tech, M.Tech., MBA, MCA, MBBS, MS, MD etc. to apply for the fee reimbursement and scholarship scheme online through our Website – www.apsmfc.com and to get rid of the old manual system of filling the application forms. In this system, the student applies online through our website-www.apsmfc.com and after filling the application, he/she takes out the print and along with required 2 to 3 documents, submit the application form to the college and the college authorities in turn will fill up the Bonafied Certificate and write their online Account number for the reimbursement of tuition fee , then these forms come to the District Offices/Executive Directors of Andhra Pradesh State Minorities Finance Corporation (APSMFC), where it is validated online and all the information furnished by the students are validated with respect to the printout and online sanction is given by the ED, APSMFC of the concerned district and the online advice is sent to the bankers to transfer the fees amount directly into the bank account of the college and the scholarship amount directly into the bank account of the student and in turn the bankers transfer the amount online as per the advice and after execution of advice, they send back the file online to our server and the executed action of the banker is updated online in our system. Students and the colleges have been given online facility for tracking their online application by typing unique token number issued to the students on our website, where he is able to see the status of his application. Similarly colleges have been given password and they can download the sanctioned proceedings online and they can also know as how many students have been sanctioned scholarship and to how many students the tuition fee and scholarship is pending due to want of which certificate. SMs and E-mails are also sent to the students giving them information regarding sanction of their fee reimbursement and scholarship.

The system is unique and innovative in the country by harnessing state-of-the-art Information and Communication Technology in the following areas.

1. **Electronic Payment:** Never before in the country any student of minority community has been delivered the scholarship amount directly to his bank account in a transparent manner electronically and securely. By establishing a unique disbursement gateway which interacts with the bank payment gateway, the scholarship amount is being credited automatically to the accounts of the students.
2. **Automatic Reconciliation:** With unique automated feed-back system established with the banks, the reconciliation is happening within 24 hours - which hitherto used to take several months.
3. **Efficiency Transparency:** The entire workflow has been made 100% transparent, which eliminated all disputes. The workflow status gets updated automatically and corresponding reports are published online. Nearly twenty four processes in the manual system were reduced to six processes. There is 75% increment in the efficiency due to automation of 3/4th of the processes.
4. **Accuracy:** The automated rule engine is incorporated in the software to make all the calculations 100% automatic and accurate. Very complicated course specific fee structures on one hand and the eligibility rules on the other hand are incorporated to prepare the rule engine to make the automatic calculations and achieve 100% accuracy.
5. **Empowerment:** By making students to apply online, every eligible student is empowered to submit his/her application directly to the system.
6. **Ease of Use:** Each key stakeholder has a single and simple interface to operate the system. Thus usability is maximum.
7. **Authentication:** Very reliable and less time consuming online processes introduced to ensure authenticity of the content.
8. **Verification:** A very unique database referential integrity technique has been successfully applied to ensure verification of the credentials of students. This has resulted in eliminating several bogus records.
9. **Errors Elimination:** By collecting and creating the master data of thousands of educational institutes and course details and similarly standardizing the inputs based on the previous applications, master databases have been created which has resulted in eliminating the scope of data entry and associated mistakes to a very large extent.

10. **Timely SMS Alert:** As and when the student tuition fee amount is credited to the Educational Institute's bank account, automatically an sms alert goes to the student's mobile number. So that educational institute cannot harass students regarding tuition fee again in view of the sms alerting system.

The programme is innovative because never before the minority students were able to apply for the scholarship online and monitor their status of application online. In the earlier system they were not able to get the information regarding the receipt of application, its sanction and release of scholarship and fee reimbursement amount to the colleges and students. If the applications submitted by the students were found defective it was difficult for the officers to communicate to the college and the students for rectification of defects and also the students were not able to know whether their scholarship is sanctioned or not and after sanction of scholarship, money was released to the colleges and the students were not aware about the same. Sometimes some colleges were collecting the fees also from the students inspite of release of fees by the Government. In this system the students are able to know the status of their application and when the amount is sanctioned – they can see the status and even the date on which and how much amount has been sanctioned, date on which the amount is transferred from the bank to their College account and to their own Account. Therefore this innovation has made the whole system transparent, user friendly and innovative.

II) Result Indicators

1. Key Performance

a. Service Delivered (G2C,G2B,G2G,G2E) with benefits

Benefits Delivered:

The system is highly scalable and capable of catering to thousands of students concurrently. The system scaled up to the load and served a few lakh students online with respect to accepting the applications (write operations). The system is tuned to serve over one lakh transactions per day at present. This configuration is good enough to serve the Minority student community. The Data centre of NIC which has high scalability, security and reliability is being used to host the application. The Storage Area Network is capable of storing several lakhs of student records online for any required duration of time (years).

The students who are beneficiary of this scheme and major stakeholder are able to submit their application online and track the sanction and release of fees and scholarship to them. If there is any deficiency in their application that is also shown online with their Token No. and hence they are able to rectify defects pointed out. So that their Scholarships and Fees Reimbursement is sanctioned.

The next stakeholder is the college where the students are enrolled and studied. The colleges have been given link to the software so that they can download sanction proceedings and to know about how many students have been sanctioned Scholarship and Fee Reimbursement and how much.

Moreover SMS Messages are also being sent to students about sanction of Reimbursement of Fee and Scholarship through our online messaging system.

b. Implementation Coverage

All the students of Minority Community belonging to all the (23) districts of Andhra Pradesh and students of Andhra Pradesh studying in National Institutes like IITs, NIITs etc. throughout the country. **Therefore geographical reach is all India.**

2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

Due to online system following impact on cost incurred is observed.

1. Printing of Application forms has been disbanded.
2. Information is following through online in place of paper advertisements and notifications.
3. Students need not travel long distances for obtaining and submission of application forms.
4. Students need not travel long distances for knowing the status of their application forms, now status can be known online from any place.

5. Sanction proceedings need not be taken in hard copy and not to be dispatched to the colleges, as colleges have been given facility to download sanction proceedings online.
6. Reconciliation of expenditure need not be done manually taking long no. of mandays now. It can be done online
7. Processing time has been reduced drastically.
8. Due to facility provided by online system no. of students increased.

Figure 1: No. of Students covered

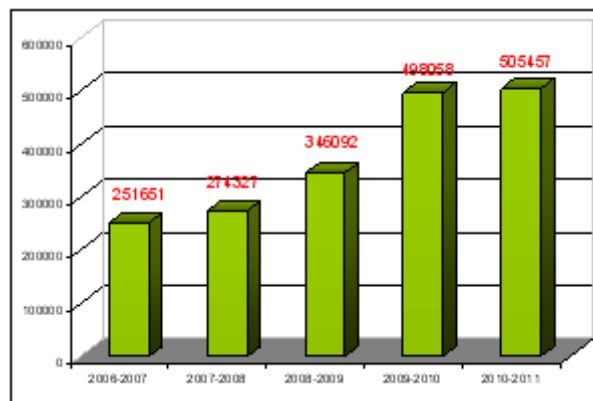
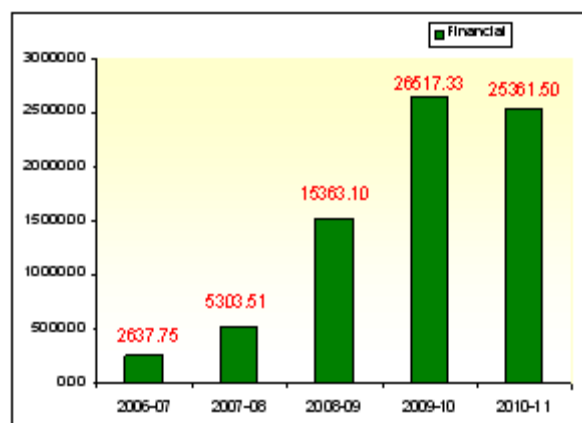


Figure 2: Year wise Budget released (Financial Rs. In Lakhs)

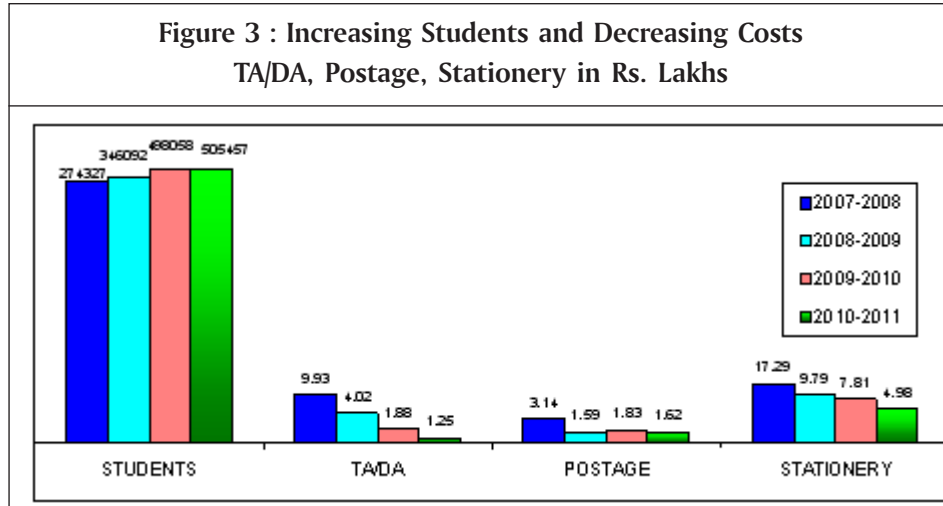


9. Rate of dropout of minority students is reducing year by year.

b. Innovative Ideas Implemented

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c. Integration with Other Systems

First system in the country with full extended integration.

1. Fully integrated with school education system by sharing same education institutes Master data CBSE, ICSC
2. Sharing SSC & Inter & Eamcet etc., common entrance results system.
3. Integrated with fee structure of Universities courses.
4. Integrated with Government of India Post Matric, Pre Matric scholarship system.
5. Integrated to B.C Welfare system through web services for de-duplications automatically.
6. Integration with Bank's payment gateway system to credit scholarship to students accounts directly.

III) Enabler Indicators

1. Processes

a. Major non-ICT front end process changes

1. One stop non-stop simplified single online interface to all stakeholders which is operational 24 hours as per the announce schedule.
2. SMS alerts to students.
3. Online Help desk for grievance redressal

b. Major non-ICT back end process changes

ICT : Linkage with educational institutions database system, SSC, Inter, Counseling database system. Fee structure data base system.

Database system of school education, college education department, universities etc., Student rule engine for calculation fee structure database.

E payment Gateway & Messaging services.

Non-ICT : NGO camps to sensitize students to open zero balance bank accounts, apply online assistance with Internet Kiosk etc.

Above Plans implemented.

2. People and Resources**a. Project Management and Monitoring**

A team has been formed to monitor the core project and suggest suitable measures for its improvement time to time. This team consists of Programmers and Officers of A.P. State Minorities Finance Corporation who are working day and night for the betterment and monitoring of the project.

Resistance envisaged. However, step by step manner training given and employees were trained and motivated to use it to overcome work load. As they started using ICT from 2006 in the process transparency brought automatically.

b. Training -Plan and Status

Regular trainings, Seminars and Workshops are being organized for the programmers and the staff members who are working on this system and whenever there is any change in any application, special training programmes are also organized. Sensitization and training given role based to internal staff. Manual process stopped. Software made user friendly. So project continued & sustained due to cost effectiveness.

c. Change Management strategy

Due to change in the system from the manual system to the online system the whole strategy and mind set has been changed and in place of non-computer

Figure 3: OSMS Workflow

d. Leadership Support and Visibility

e. Financial Model

The Online Scholarship Management system is applied for scholarship and fee reimbursement schemes of Government of India as well as State Government of Andhra Pradesh. For the State Government Scholarship scheme, the funding is

100% from Government of Andhra Pradesh and for the Scholarship scheme of Government of India (GOI) i.e., for the Post matric and Merit-cum-Means Scholarships funding is 100% from GOI and for Pre matric GOI scholarship scheme, 75% funding is by GOI and balance 25% is from Govt. of A.P.

3. Technology

a. Strategy for Disaster Recovery and Continuity

The whole scholarships system for minorities is being implemented through National Informatic Centre (NIC) and they are taking all the care for the disaster recovery.

The disaster recovery and business continuity plan has already prepared and being implemented.

b. Solution Adopted and NeGP compliance

As discussed earlier the online scholarship management system for minorities is very cost effective and very less cost is required for its maintenance. Earlier huge man power was required for dealing with lakhs of applications of the minority students for scholarships whereas through online scholarship system, the man power is reduced considerably and it has become very efficient and cost effective and user friendly and it is being maintained.

c. Solution Adopted and NeGP compliance

Yes

IV) Value Indicators

1. Digital Inclusion

To a large extent eExclusion addressed.

Minority students were encouraged to open no-frills bank account facilitating financial inclusion. Simplified online system sensitized them to empower them to use internet. NGOs opened Kiosks.

Steps taken to address this factor

Temporary kiosks to reach the unreached.

Muslim women started applying for themselves & their children.

2. eParticipation

Addressed fully

Steps taken to address this factor

Department encouraged NGOs in operating special camps to help minority students to apply online & scan & upload documents & open bank accounts.

Over 50 camps organized in remote areas. Besides usage of online E-Seva centres, Public Kiosks etc.,

3. eWaste

- We have eliminated procurement of additional Hardware to a large extent.
- We made the best use of the available resources.
- We have avoided stationery for consumption to a large extent.
- TA/DA also reduced.

Steps taken to address this factor

- Bare minimum hardware are being procured
- We are upgrading the systems time to time in place of disposing there off.

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CHAPTER 22

Tourism Project Government of Andhra Pradesh

Shri Jayesh Ranjan

I) Overview

The Tourism department, Government of Andhra Pradesh has taken up a unique project of giving a high end audio & video pda for the visiting tourists to the renowned Golconda fort. This concept includes providing a device on rental basis at the heritage sites which will offer tourists a rich audio-visual experience. The higher-end devices which will offer audio and video content will have a pda-like user-interface that is intuitive and requires minimal familiarity with technology. The content itself will draw upon the rich heritage and history of the specific monument and will be comparable in scope, coverage and depth to what is available at some of the best heritage sites in the west. Furthermore, will differentiate the content by having narration of short passages from books written by famous authors, re-enactments of historical events, music clips from a particular era and an ensemble' of rare photographs and other artifacts. Currently, there is no comparable solution that comes even remotely close to delivering this kind of rich experience. This project is taken up by the state with the help of central financial assisted under computerization and its schemes.

First of its kind initiative in India is taken by the state under pilot basis at Golconda Fort. Tourists would be able to select their preferences and also indicate how much time they have to visit the site. Accordingly the software will recommend

specific points of interests within Golconda and make a customized route map for them. These points of interest would each have multimedia content developed for them. The story would be told using tools such as videos, pictures, maps, graphics, audio and text. Total content length is expected to be around one hour. It will be give a live walk through feel and effect through the fort, with subjective camera movements (use of steady cam equipment) or the actors/presenters taking you through the locations.

For the **first time in India, if not the world**, a **Smartphone GPS-Video Tour** has been developed for a heritage site giving travelers an independent, intuitive and rich experience. As of now audio guides have been popular globally. However, the power of video cannot be underestimated in delivering a world-class memorable experience to the tourist. AP Tourism, along with an ISB-incubated innovative Hyderabad company, My IndiEye, has come up with a mobile product which is delivered both online, on Google's Android platform, and offline. The application has been ingeniously designed to **cater for numerous customers still without smartphones**. The initiative is innovative right from its PPP business model, to solution conceptualisation, technology development, human-science design features, end marketing and distribution and feedback collection. Overall the impact of this project is massive as it can be scaled fast across the country.

In general, tourists in India face key problems:

1. Lack of **Quality and Quantity of information** – Variable and Unreliable
2. **Language barriers** and the communication problems thereof
3. Lack of multimedia options during the day for tourists (Light and Sound show in the evenings)
4. Lack of **effective distribution mechanisms** for high quality multimedia content
5. **Pestering of tourists** who want to be left alone
6. **Overcharging** due to lack of standardization in pricing mechanism

The **criticality of need is high** is because of the expectations of tourists when they come to a particular site. They are discerning individuals who have a keen interest in knowing in depth about the site they are visiting. The only mitigating

factors are the reference books they have or the information they might have downloaded from the web. As Tourism has been growing at a remarkable pace since 2001, sailing through recessions, and contributing to 8.6% (~118b US\$) of India's GDP, it is expected to be a key growth driver for India's overall economy, it becomes imperative for us to embark on key initiatives which make a quantum leap in the overall quality of experience of tourists.

Ministry of Tourism had commissioned a market research study to AC Nielsen to understand foreign tourists better and following insights were reported:

1. The majority of foreign tourists visiting the country are individual travelers
2. Majority of the foreign visitors have indicated that they consider India as a destination of rich cultural heritage
3. Heritage of the country is the most pre-dominant factor considered by the foreign tourists prior to their visit in India
4. According to the tour operators, the major problems faced by foreign tourists who wish to visit the country are the cumbersome immigration procedures at airports, inadequate frequency of flights to various destinations in the country, poor road infrastructure, insufficient hospitality services, inadequate medical facilities, lack of appropriate entertainment/recreation amenities at certain location and unsatisfactory modes of conveyance
5. In order to increase foreign tourist inflow to the country, the tour operators feel that the Government should play a more pro-active role in Tourism enhancement
6. The Hong Kong Tourism Board in particular suggested that India should package and market its destinations in a professional manner.

Overall the key premises and **areas of value-addition** on which this ICT Project was built were as follows:

1. Research showed tourists were returning dissatisfied from their visits to heritage sites
2. Research also showed people prefer video content and find it more interesting; also, they wanted independent navigation to be free and empowered

3. The differently-abled – hearing and visually impaired, were less able to enjoy and explore our rich cultural heritage and history
4. Smartphones are proliferating and platform winners are emerging – Android; iPhone etc.
5. 3G roll-out is on its way and the entire mobile-telephony landscape is changing
6. The market and situation called for development of a product which solved existing problems and created a technological asset which could be scaled up across the country.

II) Result Indicators

1. Key Performance

Table 1	
1	Exceptional industry, media and customer feedback/reviews – from hoteliers and tour operators to foreign and domestic tourists across demographic profiles (ages/genders/occupations etc.)
2	Project commissioned on a PPP model with Indian School of Business (ISB, Hyderabad) incubated company – My IndiEye Travel Companions Pvt. Ltd. Plans to expand project to other Heritage properties in AP (Qutb Shahi Tombs; etc.)
3	Cross-functional innovation team comprised of award-winning historians & film-makers; top-management, technology and design experts; Tourism industry experts; Government personnel
4	Overall the initiative is innovative along multiple dimensions – PPP business model; team configuration; project conceptualisation; technology; marketing and distribution mechanisms; sustainability integration; long-term scalability and impact prioritization

Table 2		
#	ISSUES FACED BY TOURISTS TODAY	DIRECT IMPACT OF INNOVATION
1	Lack of quality, accurate, media content/ info on the heritage, history and stories associated with the Fort	Positive impression on tourists; strong visual memories for tourists to carry back home versus images of poverty that is the norm (Eg. Slumdog Millionaire)
2	Insufficient highly trained , educated top quality human tour guides to cater to the fast increasing tourist population	Innovation can take care of any number of tourists without compromising on quality. Devices can be increased in inventory; Online download also available

3	Lack of quality and pricing standardization for guides/information distribution mechanisms	Non-negotiable centrally controlled standardized pricing on the same distribution channel
4	Language barriers across information dissemination mechanisms	Barriers eliminated. Multiple languages option easily implementable using subtitles/dubbing
5	Lack of independent navigation aids (Google Maps does not map Golconda Fort) on site	Independent unassisted navigation using GPS without physical installations at fort ruining its authenticity
6	Lack of inclusive multi-format content – audio/visual/textual	Inclusive product to enable the disabled (hearing/visually impaired) to enjoy the site better
7	Lack of feedback mechanisms to improve products/ services and features	Continual feed of data to allow for sustainable improvements and enhancement of experience
8	Lack of products developed in a modular and scalable manner so more sites can be enjoyed in a high quality and empowered way	Using latest technologies to enable fast and capital-efficient expansion to make more effective use of public resources. Content for more sites can be added cheaper and faster on the same platforms/devices.

Tourist Reviews

- “The product by My IndiEye adds a new dimension to Tourism. It allows the user to practically travel back in time to understand the historical context and meaning of a landmark or artwork, through the use of National Geographic-style dramatizations, computer graphic simulations and content-rich scripts that can be thoughtfully customised to individual preferences.”*

Victor Ng, Singapore
- “It is a very easy to use, handy device which enabled us to better appreciate the history and significance of the fort we were about to visit. There is an amazing level of attention to detail, which can only be understood once used.”*

Armaity, Hyderabad, India
- “The concept of video-guides is still new in India and the way the tutorial is conducted is very impressive. Even the elderly were comfortable with the device, thanks to your instructions. The content loaded on the device had a perfect blend of history, facts and illustrations and wasn’t crammed with too much information.”*

Pratap Gupta, Kolkata, India

- “I had taken the My IndiEye Tour out of curiosity and it turned out to be a big boon for my travel trip. Very easy to use and creatively done, I enjoyed the voiceovers, and the videos were very nice. They could tell the story in a very nice manner for each location of the fort and I could enjoy the fort at my own pace. The GPS was very effective and it kept updating itself every time.”

Punita Mittal, Delhi, India

2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

Table 3		
	EFFICIENCY IMPROVEMENT FACTORS	HOW INNOVATION INCORPORATES EFFICIENCY ENHANCEMENT AT VARIOUS LEVELS
1	Business Continuity, Scalability & Resource Utilisation Efficiency	The architecture of the innovation is modular and scalable and on solid technological platforms backed by top firms (Google; Samsung etc.). As history does not change, the content is not expected to change, accruing the benefits from innovation for a long time (> 10 years). Faster & cheaper to build additional tours as platform is scalable – highly efficient capital use
2	Greater Social Equity	Innovation is inclusive of lesser privileged populations (differently-abled hearing/visually impaired). They can either see/hear the stories. The solution is not perfect; however, is a step in that direction
3	Improved Economy	The innovation better meets the expectations of tourists and thus commands a notable price premium in the market boosting the Tourism economy towards extracting greater value from high-value-seeking tourists (both foreign and domestic)

4	Enhanced Employment	Boosts higher-value higher-impact and creative industries employment opportunities in the sector
5	Superior Environment/Climate Change Handling	Reduced dependence on paper/ printed guides by providing the experience in electronic form

b. Innovative Ideas Implemented

1. Unparalleled Application Functionality: GPS navigation enabled on 3D Artistic Map of the Fort which is on undulating terrain. Customised route generation as per the time availability (2hrs; 1.5hrs; 45mins) and preferences of the tourist (history; architecture; culture; non-climbing). Server-based QR Code scanning authentication mechanism on devices using data-cards for hassle-free experience and smooth operations and MIS. Time-tracker function to help tourists plan time. Feedback taken electronically and uploaded immediately from all tourists post tour. v2 of the product will have 3G-enabled features implemented – social networking; tour-blogging; picture/audio/video capture etc.
2. Human-factors Design & Remarkable Content - User-interface design, aesthetics and content production has been done using the ‘human factors science’ approach – elements such as size of touch buttons to enable easy product use for people with large fingers. Since the product uses audio and video mechanisms it is more inclusive for the hearing/visually impaired. Video stories developed by award-winning historians and film-makers on recommended points of interest across the fort.
3. Scalability - App developed on the Google Android platform and made available both online (Android mkt) and offline (via touch-screen devices) to cater to tourists without Android phones. Anywhere; anytime (24/7) service as the app can also be used to take a fort virtual tour. Product designed in a modular manner to enable addition of languages with ease. Day-alternative to the light and sound show which happens in the evening at the Fort.

III) Enabler Indicators

1. State Policy and Strategy

Andhra Pradesh Tourism Policy

Besides providing various incentives & subsidies to a private promoter, the State Government also undertakes the complete responsibility of providing land on lease, obtain all clearances & permissions and support in promotion through websites, travel fairs, etc.

Andhra Pradesh is thus guaranteeing land availability and hassle free clearances to a private promoter as part of its Proactive Tourism Policy.

Future Strategies

1. Customized tours
2. Development of Minimum infrastructure at most visited sites (toilets, snack kiosk, souvenir shop, information counters)
3. Water bodies as Tourism destinations (Jalyagnam). 41 places have been identified for taking up Tourism activities.
4. Development of Beach resorts (@ 1-2 / Coastal Districts)
5. Development of Brindavan Gardens at Nagarjunasagar.
6. Development of New Shilparamam at 5 locations (Medak, Puttaparthi, Vijayawada, Warangal & Nellore)
7. Adventure Tourism Academy at Ananthagiri, RR Dist
8. Highway amenities
9. Rural Tourism
10. Thematic Museum (Forts, Textiles, Tribal, Boats, British / European)
11. World Heritage Status for Qutub Shahi precincts & Kakatiya group of monuments in Warangal District.
12. Development of Qutub Shahi Tombs.
13. Conversion of R&B Guest Houses into Chain of Budget Hotels
14. Promotion of Hyderabad as Convention Capital.
15. Promotion of Hyderabad as Medical Tourism Capital.

16. Constitution of 2 separate Government driven societies with all stakeholder for above 2 to achieve synergies.
17. Film Tourism
18. Heli Tourism
19. Strengthening existing circuits by bringing in new Tourism products.
20. Southern Splendor Train
21. Luxury cruise from Vizag to Andamans.
22. Archaeological Museums in left over districts
23. Shilpalayam near Shilparamam, Hyderabad.
24. Construction of New Convention Centre with GOI assistance

The Golconda pilot fund requirement is outlined as under:

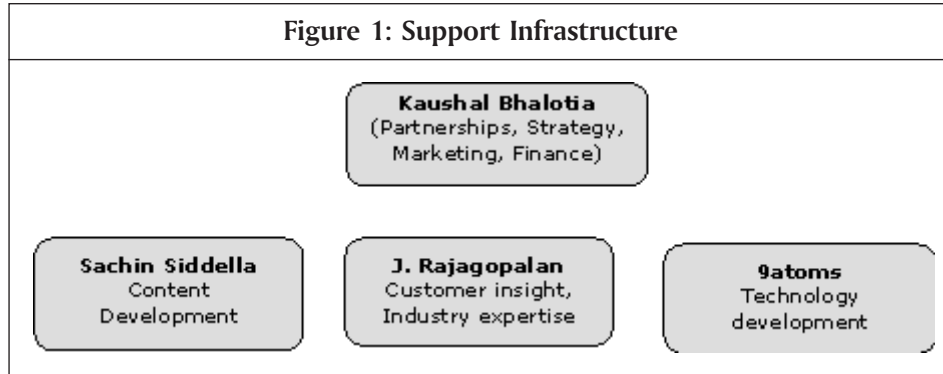
Table 4	
Description of Item	Anticipated Costs
Content scripting, filming and production (Expert estimate)	12,00,000
Portable Mobile Device (50 pcs @ Rs.16,000 each - Mkt. Price)	8,00,000
Total	20,00,000

Deliverables and Quality Assurance

From the funding obtained from APTDC My IndiEye will create the content for Golconda and will procure 50 devices from the market for deployment. Before the devices are deployed explicit approval will be sought from the Secretary of Tourism to ensure overall content quality of the product for tourists in AP.

2. Cost Effectiveness and Support Infrastructure

Project commissioned on a PPP model with Indian School of Business (ISB, Hyderabad) incubated company – My IndiEye Travel Companions Pvt. Ltd. Plans to expand project to other Heritage properties in AP (Qutb Shahi Tombs. etc.)



IV) Value Indicators

1. Digital Inclusion

- a. Extent to which the project has addressed the factor of “eExclusion/eInclusion”

Table 6		
1	Greater Social Equity	Innovation is inclusive of lesser privileged populations (differently-abled hearing/visually impaired). They can either see/hear the stories. The solution is not perfect; however, is a step in that direction. Physically limited tourists who cannot climb ~400 steps can exercise the non-climber tour option and utilize the product as per their convenience
2	Bridging the Digital Divide	The application has been ingeniously designed to cater for numerous customers without smartphones. Enables them to experience the benefits smartphones can potentially bring to them across domains.
3	Scope for enhancing inclusion	The project can easily be extended to include multiple languages, subtitles (for the hearing impaired), sign language in inset (for the hearing impaired and uneducated)

b. Extent to which the project has addressed the factor of “eParticipation”

Table 7		
1	Feedback mechanisms to improve products/services and features	Continual feed of data from each customer has been implemented to allow direct participation for sustainable improvements and enhancement of experience
2	Choice exercised by consumer to adapt the product to their tastes, preferences and requirements	Customised route generation as per the time availability (2hrs; 1.5hrs; 45mins) and preferences of the tourist (history; architecture; culture; non-climbing).
3	Improved Economy	The innovation better meets the expectations of tourists and thus commands a notable price premium in the market boosting the Tourism economy towards extracting greater value from high-value-seeking tourists (both foreign and domestic)
4	Enhanced Employment	Boosts higher-value higher-impact and creative industries employment opportunities in the sector
5	Business Continuity, Scalability & Resource Utilisation Efficiency	The architecture of the innovation is modular and scalable and on solid technological platforms backed by top firms (Google; Samsung etc.). As history does not change, the content is not expected to change, accruing the benefits from innovation for a long time (> 10 years). Faster & cheaper to build additional tours as platform is scalable – highly efficient capital use. This will enable much faster participation of maximum number of people in the e-revolution.

c. Extent to which the project has addressed the factor of “eWaste”

Table 8		
1	Superior Environment/Climate Change Handling	Reduced dependence on paper/ printed guides by providing the experience in electronic form

Shri. Jayesh Ranjan, IAS, Secretary to Government, Tourism, Archaeology & Museums, Government of Andhra Pradesh, Email: secy_trsm@ap.gov.in & jayesh_ranjan@hotmail.com

*ePASS (Electronic Payment and Application System of Scholarships)**

Dr M Padma and Shri. Chakradhar

I) Overview

Post Matric Scholarships (PMS) is one of the important welfare measures of the Government aimed at providing financial assistance to students of all weaker sections such as scheduled castes, scheduled tribes, backward classes, economically backward class, disadvantaged classes and minorities to pursue post matric courses. The scheme is operated on a saturation basis wherein all weaker sections whose family income is less than Rs. One lakh are eligible for a scholarship. The post matric scholarship is fully administered through an online system wherein the tuition fee reimbursement is made directly to colleges and the maintenance fee is made directly to the student after due verifications into respective bank accounts. The scheme currently covers 26 lakh students amounting to Rs. 4000 crs. per year to the state exchequer. Rs. 3000 crs. goes towards reimbursement of tuition fee payable to colleges and Rs. 1000 crs. towards maintenance fee of students. This perhaps is one of the most complex and large scale project of its kind in India. The complexity of the PMS system spanning over 5 departments can be seen by the magnitude of the dimensions involved:

1.	Total Students	- 26 lakhs
2.	Total Colleges	- 12000; 64000 courses
3.	Total Fee Structures	- 1,44,000

* Winner of CSI-Nihilent e-Governance Awards for the year 2010-11.

4.	Total Field Officers	- 350
5.	Total District Welfare Officers	- 100
6.	Total Treasury Offices	- 40
7.	Total Banks	- All
8.	Total College Attached Hostels	- 2000
9.	Total Department Attached Hostels	- 790
10.	Total Universities/Boards	- 60
11.	Total Disbursement Amount	- Rs. 4000 Crores.

The urge to achieve improved transparency, speedy information dissemination, higher administrative efficiency and improved public services while disbursing the Post Matric Scholarships is motivating enough to design and develop ePASS (Electronic Payment and Application System of Scholarships). ePASS is web based G2C (Government-to-Citizen) and G2G (Government to Government) service, administering the online transfer of Post Matric scholarship money to students below the Poverty Line. The deployment and nurturing of this initiative has led to the overall impact of:

1. Ease of access by the students and citizens to the department through the Internet, to access the scholarship enabling speedier delivery of services and dissemination of information by the department, enable uniform set of procedures and rules for applying for a scholarship across departments.
2. Reduction of the cases of corruption as accountability and transparency is increased and the department's activities are easily monitored.
3. Equal opportunity to access to information is provided regardless of one's physical location and physical disability. Reach all the stakeholders who need government services regardless of their location, status, language,
4. Enabling each application as unique through the use of the SSC certificate number and year of passing, thereby reducing double and bogus claims.
5. Breaking the barriers of bureaucracy through systematic business process re-engineering and bring into the fore a system of registering colleges which are active in imparting education.
6. Facilitate interdepartmental exchange of information.

7. Reduced transaction costs for all departments as the system is operated through a central server and inter-linkage with other department servers for verification and validation of data.

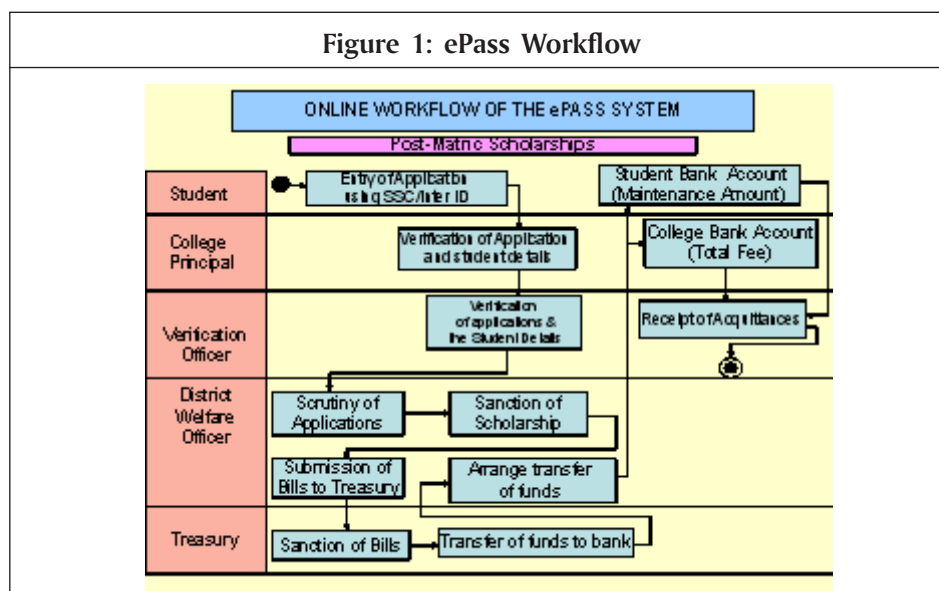
Thus the overall positive impact has helped in sustaining the initiative in a transparent and accountable manner leading to good governance in the administration of scholarships. Direct payment into bank accounts, increased accountability and transparency and reduced risk of corruption has raised the perception of good government among citizens, thus bringing lot of credibility to the Government's image of making the poor students become a part of the main stream education thus contributing to overall development and making economic growth truly inclusive.

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

1. Putting the student at the centre of operations.
2. Expediting payments and disbursement cycle to ensure timely and correct payments to students/colleges.
3. Providing a system driven accountability mechanism, wherein there is no scope for any discretion.
4. Ensuring open access to information to all stakeholders.
5. Enabling reliable, timely and comparable information from the "ground-up".
6. Minimizing leakages to ensure that the benefits reach the students / colleges.

Manual Disbursement: Earlier during manual disbursement of scholarships there was no scope for systematic monitoring and maintaining transparency in transactions. The whole process was cumbersome and time consuming. Checks of students were given to colleges who often collaborated to misappropriate. So misappropriation, embezzlement, fictitious claims, irregular and irrational drawals of scholarship amounts by certain unscrupulous persons resulted in depriving of scholarships to genuine SC, ST and BC students besides leading to major scholarship scams.

Online Solution: The Online scholarship system was envisaged by the government to ensure speedier disposal of scholarships through very minimally staffed welfare departments. Given the magnitude of disbursement and the accumulation of arrears of Rs. 2183 Crs of the year 2009-10 in the year 2010-11 coupled with the demand of 2010-11 only ushered the urgent need to evolve a complete end to end student / college centric G2C ICT (Information and Communication Technology) solution will build the much needed confidence among the stakeholders and confirm the seriousness of Government in its commitment to welfare.



ePASS has been developed as a complete workflow driven module which includes online filing, verification, sanction and disbursement. Role based logins have been created for 26 lakh students, 10,944 colleges, 4,500 verification officers, 5 departments and treasury. Under the system, the students have to apply online through the website and furnish applications to the college, which in turn has to verify the details on line and forward the documents in physical and electronic form to the verification officer. Once the verification officer does a physical and documentary verification, the scholarship applications are forwarded online to the welfare officers of the concerned department, who in turn will sanction the scholarship online and forward it to the treasury. The treasury passes the bills

online and uploads the amounts for disbursement through the corporate internet banking interface into college and student accounts which have been registered and authenticated on the website.

II) Result Indicators

1. Key Performance

a. Service Delivered (G2C,G2B,G2G,G2E) with benefits

G2C: The project mainly focuses on students. Students can access from any internet kiosk online and file an application or verify the status of the application. The fee structure collected from all universities and boards are populated on the public domain. All procedures and processes have been standardized. Students can not only view the details of the fee payment to the college but also view their disbursement in their bank accounts. Application dates for fresh and renewals are well publicized. Colleges and students have been provided a comprehensive MIS to view all sort of reports on the progress of applications, sanctions and disbursements ensuring transparency at all levels.

G2G: The ePASS is multi-departmental enabling access to all welfare departments, the finance department and the banking system. Standardization of procedure across departments, simplifying the hierarchy of sanctions, cutting short delays at the welfare departments and the treasury through web linkage and a comprehensive set of MIS reports, has not only reduced time but has fostered greater transparency at all levels of Government. The monitoring of the process has been made easy at all levels. The online workflow has reduced the paper work and movement of files as everything is captured on the online system. The calculations for projecting budget requirements are done within seconds and are based on actuals.

The services offered through ePASS are—

1. College Registration Module for colleges
2. Student Scholarship Application On-line Registration module
3. On-line Verification and Forwarding module for verification officers
4. On-line Scholarships Sanctions module for District Officers

5. Payment release module with Internet Banking Payment system through the Treasuries and Accounts department
6. User Interfaces (Dash Boards) to all HODs of Client Departments with various MIS reports such as
 - Financial Report – Budget received Vs Releases Status
 - MIS- Performance Reports (Field Officers wise/DAH) and GroupWise Financial Report
 - Reports – Abstract report on Students, Amounts. Bank wise and College wise Releases
7. Project Management Team (PMU) with necessary User Interfaces in the software to administer certain roles such as addition of new colleges, courses, fee structures, release of installments to various courses, updation of data pertaining to colleges / universities / boards, resetting of passwords of Field/District Officers and any other activity which is related to domain.
8. General reports for public view such as Scholarship status, Application number, valid and invalid college accounts etc. to name a few.

The initiative was implemented from May/June 2010 in all the 23 Districts of the state. In May 2010, the pilot for disbursing Tuition Fee into college accounts was taken up in Ranga Reddy District and in mid June it was scaled up to all the Districts. From July 2010 onwards maintenance fee was also disbursed into the students' accounts.

Future Plans - It is planned to bring the intermediate nominal rolls also under ePASS, have link with aadhaar database and further have direct link with CET databases through web services. Also digital certification will be introduced and the District officers will have to upload sanctions by using digital signatures. Other services include:

1. SMS based services
2. Mobile based services for accessing status
3. Online customer management system
4. Data-warehousing for digital dashboard and business analytics

5. Use Aadhar compliant database for identification and authentication
6. Computerization of the nominal roles

2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

Time - The manual process of scholarships was not only time consuming but fraught with innumerable problems ranging from delays in hierarchical sanctions, cumbersome procedures, influence of middle men and mischievous colleges which often connived to misappropriate besides enabling the scope for bogus students and colleges.

The simple and user friendly workflows in ePASS help the District officers to quickly process the applications and pay the scholarships.

The introduction of web service between the ePASS & treasury server in June 2010 has enabled complete online integration thereby enabling the processing of bills by the treasury and upload of amounts into the online banking interface to disburse amounts into student and college accounts. This has led to substantial reduction of time from a month to less than a week.

Cost: The transaction cost for a student is reduced to the bare minimum of paying the costs for uploading the application and documents to the internet kiosk. Middlemen are eliminated. Application by the student is directly received online and sanctions are given as per time schedule. Status can be verified online thereby saving the time, effort and money needed for such trips to the offices as was done in the past. The application is web based. Students can browse for information from their place of stay and irrespective of location or time all the stakeholders can seek information and offer their feedback for further improving the system. Personalized services through call centre and help desk at PMU has helped to reach out to the students and colleges whenever they do not have access to internet and immediately need information.

Efficiency: The computer based acceptance of applications ensures that it is complete in all respects since the inbuilt validations do not allow the application to be saved unless all the parameters are fulfilled. The transaction based reports are helping in improving the efficiency of the system. As the information is

readily available in web site and a call centre is established at PMU, the field officers are getting quality time to concentrate on their inspections and increase their output.

Improvements in delivery of services:

Fairness and equality : The student applies online without interference from any one and the onward processing of the application happens automatically without any individual discretion. Once the sanctions are given by the District officer, the sanction proceedings and the bills are auto generated based on the fee structure available in masters. So students studying in the same college, same year and same course get the same fee and all the students who applied are given scholarships unless they are disqualified for sanction.

Accountability : Details of personnel and officials involved in implementation at each stage are being logged into the system increasing the accountability. Time lines for each stage of processing are set in and strictly monitored. Alerts in the individual logins and exception reports to higher officials help in streamlining the administration.

Effective Decision Support System to avoid slippages in implementation. Earlier while calculating the demand under PMS programme the following projections were made.

Table 2							
	Annual growth %	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
SW	10%	565134	602161	662382	728618	801369	876056
TW (@)	10%	269181	300121	330133	363146	399460	439406
BCW	(*)	1350392	1620470	1944564	2333476	2683497	3086021
EBC		280743	336567	403881	484657	557355	640959
DW	10%	3309	3640	4004	4404	4844	5328
MW	(**)	150842	196000	245000	306250	382812	478515
		2619601	3058959	3589964	4220551	4829337	5526285

The projection for number of students who would apply in 2010-11 was 30,58,959. But when the students actually applied online for fresh and renewal it is found that during 2010-11, the total count is coming to 24,47,168 and accordingly budget is released.

Minimizing fraud: Since the entire expenditure is traceable to the student/college, time and date, incidents of fraud, misappropriation are immediately identified and tracked down to the responsible persons. This has helped greatly in putting remedial measures in place and minimizing fraud. Several validations are built into the system so that same bill cannot be passed twice. As a result during 2009-10 arrear payments being made during 2010-11, the system was able to weed out duplicates / double claims and save to a tune of 1 cr. Similarly by integrating with PMS web application of minority Dept developed by NIC, during the year 2010-11, 4,300 duplicate claims in e-PASS could be identified and weeded out. Further efforts are being made to have Ration Card link up for cross check and verification and in Making the Database UID compliant.

b. Innovative Ideas Implemented

This initiative is *first of its kind in India* covering 5 major welfare departments (SCs, STs, BCs, OBCs, and Disabled) and linking Treasury and Banks. It is also for the *First time* that maintenance fee is disbursed using *eZ-Pay (Pre-loaded) ATM cards* of SBI for student bank accounts. 16.5 lakh accounts of eZ pay cards are being operated. Change requests from HoD's are gathered through email and call centre is established for grievance redressal of students, colleges, officers. VPN for security is established between CGG and Treasury also among the sanction level officers *using APSWAN*. Interface through web-services with Universities/Boards for Attendance, Performance, Fees etc and Interface with Counseling Center's is being developed for getting direct access to the data thereby minimizing data entry errors and saving lot of time that was otherwise spent for getting the data.

This is a simple and easily replicable total web based initiative from Student application to transfer of Tuition / Maintenance fee to College/Student bank accounts directly. The disbursement of fees to students studying in national institutes outside the state also takes place through this system. The students apply for fresh registration and renewals online by keying their SSC/Inter Hall Ticket Number through which their name and other personal details are retrieved. They must have a bank account and those who do have an account are given eZ pay card of SBI (State Bank of India). Scanned images of photo and testimonials are uploaded, thus avoiding earlier problem of District officers not receiving the hard copies of the application forms. Students can access the site through a user id (email id) and password (sent to email accounts) and know the status of their application and the stage of funds transfer.

Colleges must register on the website. Give details of recognitions, capacity, bank accounts, management details etc. Principals of colleges will have to verify each of the student applications, print and prepare booklets for fresh and renewal students department wise and contact the verification officer for getting the verification done for sanction of scholarships. Since the workload is heavy and meager staff of welfare departments cannot complete the work within the short time, the verification officers are drawn from other departments also and appointed by the collector. Results of verification are updated online. Recommended candidates are sent to the district officer. Rejected applications are either sent to the colleges or students for rectification.

Processing & Sanction of bills online happen at the District Officer level and the bills are forwarded to treasury through the web service established between ePASS and treasury server. From treasury the money is released directly into college/student accounts through common internet banking interface and return confirmations is obtained to track the success/failure of the transactions.

c. Integration with Other Systems

Web Services/SFTP established with the following

- Treasury – for online transfer of Scholarship Bills.
- Minority Departments' scholarship website developed by NIC – for avoiding duplicates while sanctioning the scholarships.
- SBI – For uploading the details of students needing eZ pay cards.

III) Enabler Indicators

1. Processes

a. Major non-ICT front end process changes

Pushing the funds directly into the account of the end user was planned and implemented by establishing web services with treasury department. In this regard, the entire process of disbursing Post Matric scholarships is automated through workflows and the treasury department does not accept the hard copy of the bill unless it is generated online and system generated TBR number is obtained. Unlike some initiatives wherein SRS is developed and strictly adhered to while implementing, ePASS is developed as per emerging needs. Whenever a policy change or a process change is proposed it is immediately reflected in the software application and manual overrides are strictly not allowed. SMS based

and email support is given for collecting the change requirements and are immediately attended.

b. Major non-ICT back end process changes

All the backend non ICT processes are analysed and suitably re-engineered to ensure their rationality and simplicity. These process changes are followed by instructions in the form of Govt orders to give authenticity and legality to the changes. Capacity building workshops are arranged for quicker dissemination of process changes.

2. People and Resources

a. Project Management and Monitoring

The Group of Ministers provide the policy framework for the scholarships. The Principal Secretary Social Welfare as the nodal officer for Scholarships, coordinates with all departments the Group of ministers and the PMU to Streamline and Implement the Scholarships online in the State. The PMU translates all decisions to actionable processes in the online system. Each change is backed up by relevant government orders to bring in the clarity of the process and the change.

Key to the project are:

1. J. Raymond Peter IAS, Principal Secretary, Social Welfare and Nodal Officer for Scholarships
2. Dr M Padma, IAS – Head, ePASS Project Management unit
3. Mr Chakradhar, Project Manager, ePASS PMU, Centre for Good Governance
4. Mr Madhusudhan, DD (SW) ePASS PMU, Commissionerate, Social Welfare

b. Training -Plan and Status

At the time of roll out during June 2010 one training was given to the welfare Department officers. Thereon during each Video conference held every month the enhancements and version changes are explained and doubts cleared. Three major workshops were held with welfare dept officers and 2 workshops with Education department officials and 2 meetings with Health officers.

c. Change Management strategy

The Change Management is constantly brought about by the Group of Ministers which meet at frequent intervals, at the policy level and the Principal Secretary Social Welfare Shri. J. Raymond Peter as the agent of change who monitors and ushers in the reforms needed for the scholarship system both technically and administratively. All changes are documented and enabled through the online system with regular and frequent video conferences, press and media briefs. The design of the online workflow has mandated each department to follow only one path of the sanction and disbursement process. Capacity building at all levels through workshops, video conferences and state / district level conferences have enabled greater awareness of the departments. District wide conference with college managements and student associations have also enabled the awareness.

d. Leadership Support and Visibility

Total political support is garnered by Chief Minister who reviews the outcomes as the scholarships is a flagship program of the state. The Group of Ministers review the project every month and take key decisions to streamline the administration of scholarships and take key policy decisions.

Mr J. Raymond Peter, IAS, Prl Secy, SW Dept is spearheading the project, the social welfare department being the nodal agency for implementation. His inspiration, support and guidance at all stages has enhanced the commitment levels of the implementing officers, enlivened the team spirit and garnered the support of all the stakeholders. Further the officials of 5 implementing Welfare Departments of PMS programme, Departments of Education Sector and Finance Department support is available.

e. Financial Model

Regular budgetary support given from GoAP. Transaction based charges are paid to the CGG where the application is being developed and hosted. Online support services and service level agreements have been entered with the CGG for delivering the service.

3. Technology

a. Strategy for Disaster Recovery and Continuity

Recovery is done every day and it will be kept at remote location other than Data Centre.

b. Solution Adopted and NeGP compliance

To bring the overall cost of ownership to the bare minimum and also reduce recurrent costs besides having a robust system, the department has developed the online system on open source softwares. The program has been developed on Java 1.6, Struts Framework 2.0, Tomcat 6.0 is the Application server and the database is on PostGre/SQL.

c. Security and Compliance Standards

All Application level security levels are implemented. Network and client level securities are also taken care. All database level securities are implemented. Quarterly security audit is planned and done by the 3rd party agency. Weekly security audit is done for new changes.

Further once a student registers, his ID and password is sent to his email. In case he forgets his password he has to click on “forgot ID or password” and get his details through email.

Dr M.Padma, IAS, Head, PMU, ePASS, Dept of Tribal Welfare, Govt of Andhra Pradesh, Andhra Pradesh, padmanir@yahoo.com & Mr Chakradhar, Project Manager, ePASS, Centre for Good Governance (CGG), Andhra Pradesh, chakradhar@cgg.gov.in.

*National Portal of India – A Gateway to Indian Government Cyber Space**

Neeta Verma and Alka Mishra

I) Overview

Governments globally are embracing Information and Communication Technologies (ICTs), especially the Internet and the World Wide Web, to reinvent their routine functioning, processes and service dissemination methods. As of today, there are over 7000 Indian government websites and portals existing in the internet space and this number is constantly on the rise.

It is imperative to ensure that a common citizen is able to access the information and services provided by these numerous websites in the most convenient and friendly manner. And, this is where the National Portal of India (NPI) (india.gov.in), a Mission Mode Project under the National e-Governance Plan (NeGP), has emerged as a tool to provide the much needed single window access to the plethora of online information and services by the Indian Government.

In its endeavor to cater to most of the citizens' needs, the NPI plays host to over 1900 services from various states/ministries/departments which are all packaged under the 'How Do I' section of the portal. It is also a central repository for numerous Government forms, documents, acts, rules, schemes and policies.

The portal receives overwhelming feedback on a daily basis through its various sections, which actively solicit suggestions, complaints and comments from users.

* Winner of CSI-Nihilent e-Governance Awards for the year 2010-11.

With over 13 lakh visitors per month, and 24 lakh hits per day (approximately), the portal is scaling new heights of popularity and visibility.

A citizen's single-window access to all there is to know about the Government and its subordinate bodies and authorities, <http://india.gov.in> stands at the apex of India's ICT pyramid. With numerous interactive tools, services and static content repositories, the National Portal of India, now in its sixth year of existence, can be aptly termed as the one and only cyber facet of the Indian government which is complete in all aspects.

These features and achievements render <http://india.gov.in> a suitable nominee for CSI-Nihilent e-Governance Award for Excellence in the Project Category.

In the past few years, a large number of websites belonging to various constituents of the government have been published, offering a plethora of information and services to the citizens. However, all of these websites follow different technology standards, design lay-outs and navigation patterns that in turn cause the citizens a lot of inconvenience. The end-users are required to learn a lot to be able to peruse through such a wide range of web entities. They find it difficult to access the services provided for their benefit, thus defeating the very purpose of the initiative.

Keeping this scenario in mind, a need was felt to establish a one-stop source for all the government information and services. This led to the genesis of National Portal of India – a gateway to over 7000 Indian Government websites facilitating a single-window web-based access to government information and services.

A Mission Mode Project under the exhaustive National e-Governance Plan, the National Portal of India plays host to a huge content repository which is a culmination of collaborative efforts. Content on NPI is being contributed by varied sources – right from every ministry/department in the Central Government to State Governments as well as District Administrations.

The first government website designed to be accessible to all users – irrespective of the device in use, technology or ability – the National Portal has as of now approximately over 80,000 registered users availing regular services provided

therein, with an increase of at least 10% per month.

Apart from faring superbly in all the objectives of e-Governance, <http://india.gov.in> has been mandated to act as a catalyst in enabling quite a few ICT initiatives such as Sixth Central Pay Commission Public Consultation Process, NGO Participation System (NGO-PS), the Central Information Commission Online (CIC Online) and the most recent Public Partition on National Testing Scheme (NTS).

The aim behind National Portal of India is to further strengthen the effort towards good governance through anytime, anywhere delivery of government information and services for the benefit of citizens, businesses and other stakeholders, both within India and abroad. By providing a unified interface and acting as a logical front-end to the e-government initiatives, the edict of the portal is to facilitate the foundation of a healthy relationship between the Government and the citizens through the conjoined efforts of various administrative units/authorities of the Government.

II) Result Indicators

1. Key Performance

a. Service Delivered (G2C,G2B,G2G,G2E) with benefits

Benefits Delivered:

The broad scope of this project was to establish a single-window access to information and services being delivered by any Government of India constituent, enhancing interaction between Government and Citizen (G2C), Government and Business (G2B), Government and Employee (G2E), within Government Departments and acting as an integral part of the overall mission of practicing 'good governance'.

By virtue of being the National Portal, 'india.gov.in' has nationwide coverage in terms of information – even from districts and panchayats – and a worldwide reach for its target audience and beneficiaries namely:

1. Citizens of India of all age groups and demographic backgrounds
2. Government ministries, departments and associated offices and the officials therein

3. State Governments, UTs, District Administrations and Panchayats
4. Legislative and Judicial Institutions of the Government
5. Public sector enterprises and organizations
6. Corporate sector and Business Establishments
7. National and International Media Agencies
8. Non-Resident Indians and Persons of Indian Origin
9. Public at large, all across the globe

Stakeholders and Benefactors:

- **G2C :** Government and to - citizen interaction is where electronic delivery and exchange of information and services takes place through the portal, thus fulfilling the primary objective of e-governance. Services available on the portal have rendered transactions such as obtaining certificates, renewing licenses, paying taxes/bills and applying for benefit schemes less time consuming and convenient. Also facilitated through the portal is the key component of citizen participation in the processes and policy formulation by the government.
- **G2B :** Government-to-Business interaction through the portal has not only facilitated the transaction and exchange of information between the government and the businesses regarding licenses, taxation and policies issued for various sectors, but has also led to improved and efficient procurement of goods and services by the government from the commercial business entities. The authentic information from starting a business to closure/graceful exit has been provided in simple and understandable terms. The Online Government Tender Information System has seamlessly been integrated to the portal, which has made the entire Government tender procedure extremely simplified, transparent and convenient for the stakeholders.
- **G2G :** Government-to-Government interaction through the NPI has led to seamless sharing of data and conduct of electronic exchanges amongst various government departments and other entities. This exchange is both intra and inter agency in nature.

- **G2E** : Government-to-Employee interaction through the NPI has facilitated information exchange about employment opportunities, work guidelines, rules and regulations, benefits and services. A special section in the portal known as the ‘Employee Corner’ caters to the specific information needs of Government employees. It provided up-to-date information/status on preparation as well as implementation of Sixth Central Pay Commission report.

b. Services Enhanced/Introduced Plan vs Status

Prime Features:

- **One-Stop Source (Single -Window Service)** : The services offered by various government bodies are spread over hundreds of websites at various levels of navigation hierarchy, and thus many of them remain largely unnoticed. The portal acts as a platform to connect all these services in a manner that these are easily accessible and available to the citizen as well as other stakeholders. To augment the huge information resource available in the portal, a state-of-the-art search facility has been provided for that is able to index and organize vast amounts of information optimally.
- **Comprehensive Content** : The National Portal presents comprehensive information on all aspects and constituents of the government whether central, state or local bodies. In other words, the portal does not belong to just one group or sector of government, its mandate includes complete and comprehensive information from the various entities including Legislature, Judiciary, Executive, Apex Institutions, Local Government Bodies, Public Sector Undertakings, Government Institutions, Organizations, etc.
- **Citizen Orientation** : NPI has been built from the ‘users’ or ‘citizens’ perspective, rather than from the perspective of the government. In other words, instead of presenting and categorizing the information and services on the basis of government departments, information is presented in a manner citizens would like and comprehend better. The various components of the portal have a common look and feel to ensure ease of navigation with enhanced user experience.

- ***Bi-Lingual Content*** : The content on the portal is also available in Hindi language, apart from English. The navigation interface of all the sections in the portal is available in Hindi while the process of making the same available in regional languages of India is also underway. This effectively ensures a much wider reach of the information and services being provided by the National Portal of India.
- ***Content Management System*** : Since NPI is the repository of a huge amount of content being sourced from as well as maintained by multiple sources and different teams at different geographic locations, a comprehensive and secure web-based Content Management System (CMS) to effectively manage the content has been developed for the portal, which is useful for not only carrying out future modifications and updates of the portal content but also allows the flexibility of a convenient change in the content architecture of the portal.

c. **Implementation Coverage**

The Year Gone By

The year gone by witnessed many a prized development and enhancement in the overall service delivery of the National Portal of India. It consistently attracts visitors to its new and updated information and services – <http://india.gov.in> is in action always.

- ***Rating of Content and Services (Enhancing Interactivity)*** : In its endeavor to cater to most of citizens' needs, the NPI plays host to over 1900 services from various states/ministries/departments which are all bunched under the 'How Do I' section of the portal. With new services being added on a daily basis to the huge repository already available, user feedback plays an all important role. To harness the same, a Rating Module has been introduced in the 'How Do I?' section on <http://india.gov.in>, which will enable users to assess the services provided therein. It would help the service provider to improve upon and gauge the service maturity to improve upon.

The users are asked to rate a particular service on the basis of two main aspects, these being 'Usefulness' and 'Ease of Access'. A provision is also made within the same interface for surfers to be able to view the current rating enjoyed by the said service. Any comments or suggestions from the users' end can also be posted within the same application window.

Instant feedback and rating of a service or content/information published on the portal can be given by a visitor. This has been introduced to take public perception on a particular content published on the portal and enhance suitably.

- ***Universally Accessible*** : Making the portal universally accessible to all users, irrespective of device in use, technology or ability, was another very crucial aim that was achieved with much fanfare and success. NPI meets priority 2 (level AA) of the Web Content Accessibility Guidelines (WCAG) 2.0 laid down by the World Wide Web Consortium (W3C).
- ***Furthering Customization*** : Surfers can now choose from a select array of colorful theme options to lend the Home page of National Portal Of India a unique, personalized touch. Each theme comes with its own specially designed banner and background data display options.
- ***Nurturing New Initiatives*** : The National Portal of India has acted as a catalyst to help citizen participation in the process of governance by leveraging demand-based citizen centric initiatives like the NGO Partnership System, the Central Information Commission (CIC) Online and the most recent is on Public Opinion on National Testing Scheme (NTS).
- ***Awardees Repository*** : The improved version of the 'My India, My Pride' section provides search-based access to its Awardees Repository, an exhaustive listing of all distinguished citizens of India who have been decorated with various awards for their dedicated service to the nation since 1954. Along with Gallantry Awards, NPI also provides roll of all brave children of India who have been honored for their exceptional display of courage.
- ***Guidelines for Indian Government Websites*** : On of the mandate of the National Portal of India is to introduce standards for government websites and portals. In view of this, Guidelines for Indian Government Websites (GIGW) have been developed and published for the government departments to comply with and the same has been included as an integral part of the Central Secretariat Manual of Office Procedures (CSMOP) by the Department of Administrative Reforms and Public Grievances (DARPG).
- ***Statistics Speak*** : The National Portal has as of now approximately over 80,000 registered users, with an increase of consistently at least 10% per month, availing regular services provided therein. With over 24 lakh hits per

day (approximately) the portal is scaling new heights of popularity and visibility. Presently there are around 7,300 Forms, 6300 Documents, 1,900 Services, 1,400 Schemes, 2,300 Acts, 1,500 Rules and 1,4000 Announcements uploaded to its repository from across the country on the NPI. Hit statistics, registered user trend and appreciations etc. are given in the following pages for ready reference:

Year-Wise Hits and Trend of Registered Users for the National Portal of India

Figure 1: Year-Wise Millions of Hits (2006 to 2010) of NPI

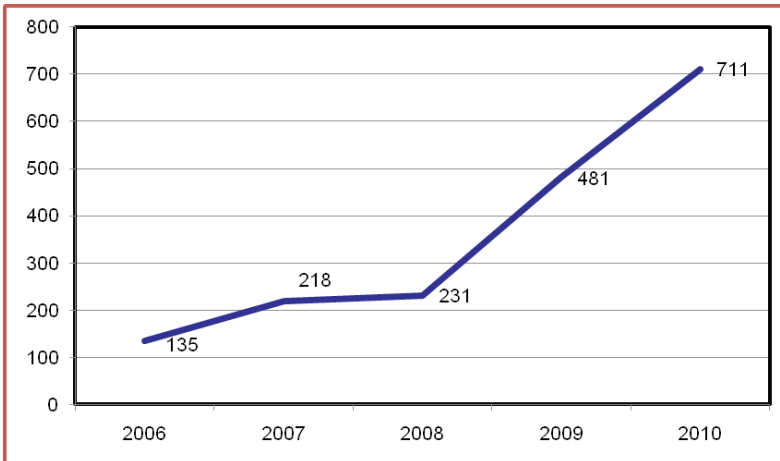
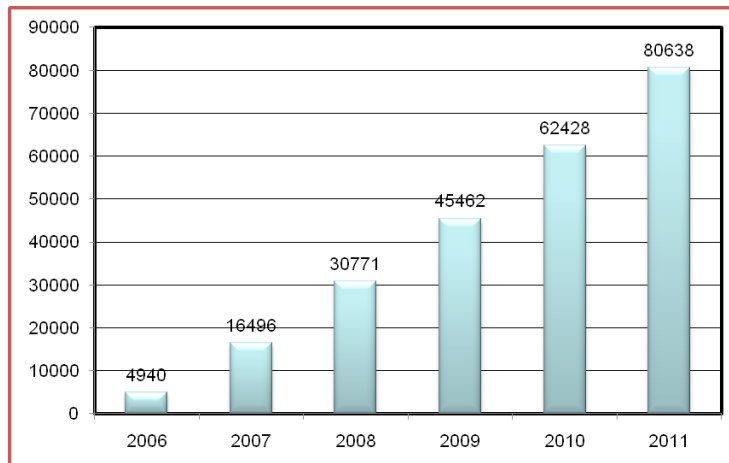


Figure 2 : Year-Wise Trend of Registered Users (2006 to August 2011) of NPI



2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

The National Portal of India comes adorned with unique features and technology to facilitate ease of access apart from providing convenient single-window access for multiple Government information and services.

- Query through 'Advanced Search' module for Services, Documents, Schemes, Forms, etc. helps users elicit targeted results as per their specific requirements.
- An attempt has been made through the portal to provide comprehensive, accurate, and reliable one-stop source of information about India and its various facets.
- The information in the portal has been well classified into distinct modules, which are also interlinked at relevant places to provide the visitor with a holistic view in minimum time and clicks.
- The portal is developed using Open Source tools and has been hosted in the National Data Center thus drastically cutting down cost on licensing and hosting requirements.
- The National Portal Project has been developed in the interest of the citizens of the nation and hence is not based on any revenue generation model.
- The Project has been funded by the Department of Information Technology from the funds allocated for the implementation of this Mission Mode Project under the NeGP.

b. Innovative Ideas Implemented

- The National Portal of India has not only ended up immensely benefiting the end-users or common citizens, but also fulfilled – and continues to do so - the other basic objectives of electronic governance including enhancement of transparency & accountability in functioning of governing authorities.
- The Portal is gateway to scores of other Indian Government Websites and Portals and thus ensures provision of comprehensive information and services for the benefits of the citizens and other stakeholders.

- Another very important initiative of the Portal has been its 'Visitor Relationship Management System', where every feedback, suggestion, queries received through the portal is attended and responded to or forwarded to respective departments for necessary action and further communication to the sender directly, if they like to do so.
- A recently-added 'Rating Service' for content and services available on the NPI enables surfers to directly rate each of the services provided by different sectors of the Government and its affiliated authorities. User feedback not only facilitates NPI in improving and improvising, but also aids direct Citizen to Government dialog.
- Universally Accessible on content on the portal ensures that people from diverse backgrounds and varied physical abilities can also make use of the services provided.
- Since most of the content on the NPI is available in both English and Hindi, its reach is much more widespread and exhaustive.
- Publication of information and documents on the Net and speedy online access to citizens on information and services such as government tenders, policies, citizen charters on the portal, as well as status of applications submitted for various government services also lead to improved efficiency in service delivery, reduced corruption and increased public participation.

c. Integration with Other Systems

- The National Portal has provided a readily available base infrastructure to the government departments/organizations for launching their e-governance initiatives for the benefits of citizens, businesses and other stakeholders. The public participation in drafting the Sixth Central Pay Commission Report, NGO Partnership System, Central Information Commission (CIC) Online and the most recent National Testing Scheme (NTS) are cases in point.
- The feedback received by the NPI team are forwarded to the concerned ministry/department/governing body, which in turn helps them to improve and improvise upon the service delivery on their individual portals.

III) Enabler Indicators

1. Processes

a. Major non-ICT front and back end process changes

1. **Front-End Processes:** These processes comprise attributes that are visible at the user's end, and of which the surfer is the direct consumer.
 - **Service Delivery :** The National Portal has a Comprehensive Content Repository that is cohesive and ensures a single-window access to scores of services provided by different departments/states/bodies of the Indian Government.
 - **Ease of Access :** The content of National Portal is not only comprehensive, but also interlinked at crucial junctures to give the user a holistic view of the information available. Moreover, usability and universal accessibility of the content on NPI ensures that people from diverse backgrounds and varied physical abilities can also make use of the services provided. It has received the Web Site Quality Certificate provided after assessment by STQC (http://india.gov.in/images/hp/website_quality_certificate.pdf).
 - **Citizen Orientation :** The National Portal has been built from the 'users' or 'citizens' perspective, rather than from the perspective of the government. It is amenable to personalization and customization that makes targeted delivery of information much simpler. An effective Visitor-Relationship Management System and numerous Feedback/Interactive Modules also ensure seamless exchange between the portal and its users.
2. **Back-End Processes:** These processes comprise basic elements that go into making the infrastructure of the portal thoroughly sound and available, over which efficient delivery of the website rests.
 - **IT Architecture :** NPI leverages upon open source technology being hosted at the ISO 27001-certified NIC Internet Data Center, whose state-of-the-art infrastructure ensures 24*7*365 availability of the website.

- Content Strategy : In order to populate and maintain content in the Portal a Content Advisory Committee (CAC) has been set up under the Chairmanship of Additional Secretary, D/o Administrative Reforms and Public Grievance (DARPG). The committee constitutes members from ministries, departments and states. It meets regularly for formulating policies for content contribution from across the country and its subsequent approval. All information on the NPI is presented in a manner citizens would like and comprehend better.
- National Portal Coordinators (NPCs) at the level of Addl. Secretary/ Jt. Secretary in the Ministries/Departments and IT Secretaries in the States have been nominated to oversee content contribution and maintenance for their respective jurisdictions. NIC Coordinators for the NPI (NCNPs) have been nominated as nodal offices from NIC side to assist NPC on their functioning. Moreover, a few of the States have engaged a Content Service Provider (CSP) for content contribution to the portal.
- A comprehensive and secure web-based Content Management System (CMS) has been developed for the portal, which is useful for not only carrying out future modifications and updations but also allows for immense flexibility. Apart from this, various Content Management Policies, such as Access Control Policy (ACP), Content Flow Process (CFP), Content Moderation and Approval Policy (CMAP), Content Review Policy (CRP), Content Archival and Exit Policy (CAEP) and Content Consumption Policy (CCP) were devised and published as Content Framework for the NPI (<http://india.gov.in/cfw>), which is followed by the NPI team to ensure that the National Portal is always up-to-date on the content front.

2. People and Resources

a. Project Management and Monitoring

National Portal of India is a comprehensive repository of content related to government services that is being contributed by a number of authorized content contributors across the country (*as mentioned under Enabler Indicator->Processes->Back-end Processes->Content Strategy*).

In order to retrieve the relevant, meaningful content easily from the portal at the optimum time, certain crucial Content Management Policies have been laid down. This would ensure that the portal users extract the content in a correct and consistent manner without facing any inconvenience of having to navigate a number of websites of different look and feel. These Content Management Policies, outlined in the Content Framework of the NPI (<http://india.gov.in/cfw>), follow the content contribution process, the procedure of content moderation and approval, content review, expiry and archival of content as well as the content consumption process.

The National Portal is hosted at the ISO 27001 certified NIC Internet Data Centre with state of art infrastructure to deliver citizen centric services with primary commitment of providing a system with high availability, scalable, secure, accessible and manageable system. Since the Portal delivers services, which are accessed by millions of users, its availability for 24*7*365 is one of the critical components.

b. Training -Plan and Status

As a strategic move, a comprehensive training and was enforced during the implementation phase. Workshops, trainings, seminars were organized at the central as well as state/UT level to appraise on the web-based content management system (NPI-CMS). This is basically on information architecture (IA) of the NPI and content classification and metadata preparation for contribution content through the CMS. A comprehensive guide on the same has been prepared for the contributor as well as the moderator for getting quality content for the NPI.

Apart from the above regular internal hands-on training of the content, technical teams were organized for managing the day-to-day functioning of the National Portal of India at the headquarters.

NIC has developed the CMS to address the entire lifecycle of a piece of content on the NPI, right from its conceptualization to design, development, maintenance and management.

c. Change Management strategy

There is a comprehensive change management process in place for updating any content within the Content Management Framework of the NPI.

d. Leadership Support and Visibility

Being one of the mission-mode projects under the National e-Governance Plan (NeGP), the National Portal of India enjoys the support and backing of the Central Government and all its affiliated governing bodies. The principal cyber face of the Indian government, NPI is a one-stop window for all that the government wishes to impart to its citizens.

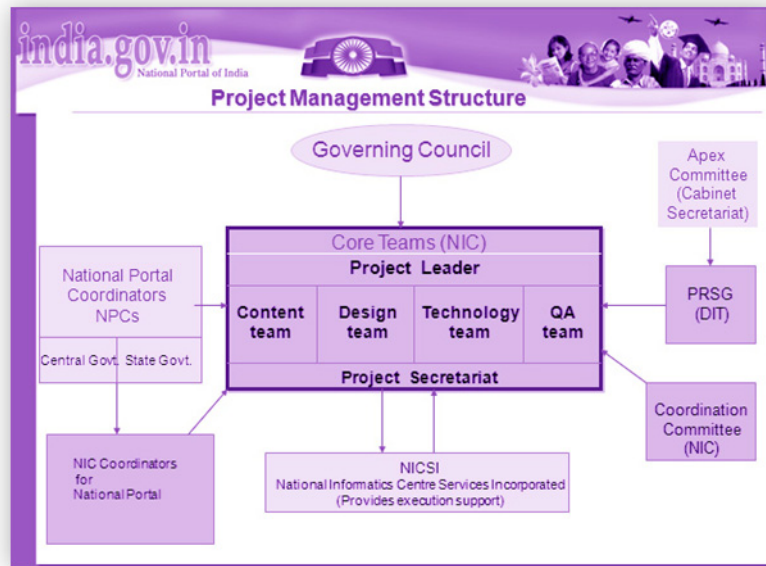
Following institutional arrangements are done for development and management of the NPI:

- The Apex Committee headed by the Cabinet Secretary to the Government of India.
- Project Review and Steering Group (PRSG) is headed by the Secretary to the Government of India for the Department of Information Technology
- The Content Advisory Council (CAC) headed by the Additional Secretary, D/o Administrative Reforms and Public Grievance (DARPG) constituted with senior level officers from ministries, departments and states.
- Coordination Committee at the level of NIC constitutes domain experts from majority of sectors of the government and is headed by the Director General, NIC.
- National Portal Coordinators (NPCs) are nodal officers from the central government ministries/departments as well as states/UTs to oversee content contribution activity of the National Portal.

e. Financial Model

The National Portal Project has been developed in the interest of the citizens of the nation, and hence philosophically not based on any revenue generation model. The project has been funded by the Department of Information Technology from the funds allocated for the implementation of MMPs under the NeGP. This project is directly executed and implemented by the National Informatics Center (NIC) under the D/o IT, M/o Communication and Information Technology.

Figure 3: Project Management Structure of NPI



3. Technology

a. Strategy for Disaster Recovery and Continuity

National Portal of India has a huge structured central content repository and consists of very valuable citizen services and information. Thus securing them from storage/hardware failure is another core objective of the deployed hosting infrastructure. The active components of the portal are devised to function in fail-over mode, and have built-in redundancy with an up and running BCP. Moreover, during any natural disaster, the Disaster Recovery (DR) System located at Hyderabad, ensures the portal's seamless availability and takes care of data security. The portal data herein is replicated asynchronously over WAN using FC-IP protocol.

b. Solution Adopted and NeGP compliance

1. **Multi-Layered Architecture:** The portal application, database and front-end servers are fully independent of each other. Therefore bringing about change in any of the layers doesnot affect the other layers. Hence, the architecture

facilitates high system availability by adding additional node/module with zero down time.

2. ***Clustered Server Components:*** In order to cater to millions of users and to deliver meta contents to various state portals, multiple server nodes are clustered for processing the user request simultaneously. Also, the clustered system ensures the availability of the portal during any node failure. The state-of-the-art load balancing at network level distributes the users request to the cluster nodes to decrease the system response time and increase its availability.
 3. ***Storage Area Network:*** To meet the exponential data growth of India portal, all server nodes are equipped with SAN Storage System which is accessible through high speed up to 1Gbps network ensuring that the system is highly scalable in terms of storage to meet additional requirements.
 4. ***Pre and Post-Production Auditing:*** The process of auditing the application modules of India portal before and after production includes testing security, performance, usability and accessibility – hence ensuring the portal's security and performance. Similarly, any new hardware component which needs to be added is also tested and tuned before integrating it in production environment.
 5. ***Open Source Technology:*** National Portal of India is developed and hosted in open source platform such as Linux, Apache, MySQL, PHP, XML and JavaScript. Hence, the system is completely flexible and can be easily configured/upgraded for any additional functionality.
- c. **Security and confidentiality standards defined and implemented**
1. The NIC Data Center at Delhi is ISO 27001-certified. The ISO certificate is available at <http://india.gov.in/iso.pdf> for public view.
 2. The NPI has been designed using XHTML 1.0 Transitional and meets priority 2 (level AA) of the Web Content Accessibility Guidelines (WCAG) 2.0 laid down by the World Wide Web Consortium (W3C).
 3. The National Portal of India fulfills the requirements of 'Software Product Evaluation and Certification Scheme' of GoI. This certification covers three ISO standards, namely ISO 25051, ISO/IEC 9126-1 and ISO/IEC TR 9126-2.

IV) Value Indicators

1. Digital Inclusion

Language, demographic and cultural differences may result in certain types of stakeholders not getting fully benefitted from e-Governance initiatives. This factor of digital inclusion is relevant to this submission.

Specific steps taken to address this factor

- NPI has been built on the basic principle of inclusiveness from the ‘users’ or ‘citizens’ perspective, rather than from the perspective of the government.
- The content on the portal is also available in Hindi language, apart from English. The navigation interface of all the sections in the portal is available in Hindi while the process of making the same available in regional languages of India is also underway. This effectively ensures a much wider reach of the information and services being provided by the National Portal of India.
- The portal has also been made universally accessible to all – irrespective of the device in use, technology in operation or physical ability of the user. NPI meets priority 2 (level AA) of the Web Content Accessibility Guidelines (WCAG) 2.0 laid down by the World Wide Web Consortium (W3C).

2. eParticipation

Steps taken to address this factor

The factor of eParticipation in the decision making process of the nominee is relevant to this submission.

1. Pre-Launch Interaction:

- The pre-launch deliberations on the project involved the participation of numerous officials from various levels of government all over India. Representatives from various ministries, states and local governing bodies came together to advice upon and subsequently formulate the portal architecture and its prime mandates.
- All committees mentioned in pre-page (Enabler Indicator->People & Process-> Leadership Support.....) met regularly during the development of the

Information Architecture (IA) of the portal. Inputs from various quarters of the country were considered in order to render the project comprehensive and feasible to all strata of users.

2. Post-Launch Interactivity:

- The National Portal of India has not only ended up immensely benefiting the end-users or common citizens, but also fulfilled – and continues to do so – the other basic objectives of electronic governance including enhancement of transparency and accountability in functioning of governing authorities.
- A very important dimension of the portal has been its ‘Visitor Relationship Management System’, where every feedback, suggestion, queries received through the portal is attended and responded to or forwarded to respective departments and tracked.
- A recently-added ‘Rating Functionality’ for content and services available on the NPI adds manifold to user interactivity, as herein surfers can directly rate each of the information and services provided by different sectors of the Government and its affiliated authorities hereby encouraging eParticipation for evolving the Portal.
- The national portal has provided a readily available base infrastructure to the government departments/organizations for launching their eParticipation initiatives for the benefits of citizens, businesses and other stakeholders. The public participation in drafting the Sixth Central Pay Commission Report, NGO Partnership System, Central Information Commission (CIC) Online and the most recent National Testing Scheme (NTS) are cases in point.

3. eWaste

Steps taken to address this factor:

National Portal of India boasts of an intricate web-based system of connectivity and data sharing that ensures very little to zero paperwork and file transfer. A comprehensive Web-based Content Management System, User Relation Management System, Rating System, etc., enables various stakeholders to submit

content/feedback/reviews via the online medium, hence minimizing the use of paper to the largest extent possible.

‘<http://india.gov.in>’ is the quintessential National Portal, which offers a kaleidoscopic view into the country’s myriad affairs – including all Governmental operations, citizen information and services, Indian culture and heritage, and a host of other activities - within a state-of-the – art technology framework.

Simply put, the strength of the National Portal lies in the assimilation of rich and comprehensive content amassed through meticulous study and investigation, and a unique user-friendly way of presenting that information. With numerous interactive tools, services and static content repositories – the National Portal of India is the one and only cyber face of the Indian government which is complete in all aspects and acting as a gateway to over 7000 Indian Government websites/portals.

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*VAHAN- AN ICT-based Solution for Vehicle Registration**

Dr. Mahesh Chandra and Shri Nitin Gokarn

I) OVERVIEW

VAHAN, an ICT-based solution for vehicle registration is an application software for enabling the processes of vehicle registration and allied activities to get computerized, is one of the best examples of horizontal transfer of ICT-based best practices. The VAHAN is integrating smart card infrastructure with ICT to generate smart card-based RCs. It also integrates mobile/telephony network for status tracking, anywhere basis service delivery, etc. This project caters the need of urban as well as rural public and smoothenes the functionality of department itself. The Department of Road Transport is governed by both Central Motor Vehicle Act (CMVA) 1988 and state-specific Motor Vehicle Rules (State MVR). Consequently, VAHAN was conceptualized as a workflow-based software package that takes care the functionalities as mandated by CMVA as well as state MVRs. Customization is done in the core product to suit the requirements of the states. This project has enhanced the face image of the department in the eyes of their stakeholders and citizens. It also smoothenes the day-to-day activities of RTO officials/staffs.

Over the past decade or so, there had been islands of e-Governance initiatives by the State Transport Authority of different states in the country. The experience with these IT initiatives had been very good and is extremely beneficial in making the Transport Department services accessible to the common man in his locality

* Winner of CSI-Nihilent e-Governance Awards for the year 2010-11.

through various service delivery outlets. It also ensures efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man. To support these initiatives Ministry of Road Transport and Highways (MoRTH) had envisaged a project for computerization and interlinking of about 975 RTOs/DTOs across the country. The department of Road Transport is governed by the CMVA 1988 and State MVR. VAHAN is conceptualize the to take care of the functionalities as mandated by CMVA 1988 as well as State MVR. VAHAN can be used to issue registration certificate, fitness certificate and permit, etc.

Modules of VAHAN

1. Vehicle Registration
 - New Vehicle Registration
 - Renewal of Registration Certificate
 - Transfer of Ownership
 - Change of Address, Termination of Hypothecation, etc.
2. Permit and Taxes
 - Issuance of Home State Permit, National Permit and All India Tourist Permit
 - Renewal of Permit
 - State-specific Road Tax Calculation and Collection
3. Fitness
 - Issuance of Fitness Certificate
 - Renewal of Fitness Certificate
4. Enforcement
 - Issuance of Challan
 - Settlement of Penalty Amount
5. Implementation of VAHAN was divided into four subgroups :
 - **Computerization of all the RTOs/DTOs across the country:** VAHAN is being implemented at all RTOs/DTOs across the country for computerization of all vehicle registration-related processes in all the RTOs/DTOs.

- **Connectivity at all the RTOs/DTOs across the country:** For sharing of information between all the RTOs/DTOs across the country, adequate network connectivity is the major requirement. All the RTOs/DTOs are being connected through the Leased Line/VPNoBB.
- **Establishment of State Register (SR) and National Register (NR):** State level data repository called State Register (SR) has been established at every state. All the information being captured at RTOs/DTOs level will entirely go to SR, so as to avoid any dependency of introducing new services on the level of information available at the state level. SR is connected to all RTOs/DTOs through Leased Line/VPNoBB connectivity. This supports the data replication from RTOs/DTOs to SR and vice versa. SR will provide real time information to State Transport Department, RTOs/DTOs, automobile dealers, police department and other G2C services regarding Vehicle Registration.

National Register (NR)–VAHAN– a Centralized Database for Registration Certificate has been created out of all the SRs from different states, to act as central repository for all crucial information related to vehicle registration. NR has been established at NIC Data Center, Hyderabad. Its architecture has been designed for high availability, reliability and scalability. It will also act as a database backup for State Registers and is connected through high availability NIC Network(NICNET) bandwidth. High availability network bandwidth supports the real time data replication from State Register to National Register and vice versa.

- Development of web application in order to roll out the services from SR/ NR: A web portal, i.e., <http://vahan.nic.in> has been designed and developed by NIC to deliver G2G, G2C, G2B services related to vehicle registration from State and National Register. It also aims to provide “Anywhere Anytime Basis Services” to various stakeholders as well as citizens at large. It also aims to provide online services related to National Permit for Goods Vehicle.

II) Result Indicators

1. Key Performance

a. Service Delivered (G2C,G2B,G2G,G2E) with benefits

1. Ministry of Road Transport and Highways
2. National Informatics Center
3. Department of Information Technology, Ministry of IT, GoI
4. Department of Road Transport
5. DTOs/RTOs/RLAs/SDMs/MLOs, etc.
6. Dealers
7. Insurance Companies
8. Bankers, Manufacturers etc.
9. Law Enforcement agencies like Police Department, NCRB/SCRB, etc.
10. Citizens.
11. Agencies working on road safety measures.

1. Government to Citizen (G2C) Services:

- Application for issuance of Registration Certificate (RC)
- Application for change of address in RC
- Application for transfer of ownership
- Application for noting/terminating hire-purchase/hypothecation/lease
- Application for clearance certificate
- Application for No Objection Certificate (NOC)
- Application for issuance of duplicate RC
- Reservation of an advance registration number
- Online payment of fees, tax, etc.
- Application for issuance of National Permit for goods vehicle

- Status tracking of application
- Online search of vehicle information based on registration number and engine number or chassis number.

2. **Government to Government (G2G) Services:**

VAHAN has enabled the Ministry for delivering various G2G services for departments like Police, NCRB/SCRB, etc. by sharing the information like complete vehicle information, vehicle permit details, etc through the website using the authorized login id and password.

Vehicle Search: It provides a nationwide search over the digitized data of Registered Vehicles. Stakeholders may view the information based on the following parameters :

- Registration Number either full or partial
- Chassis Number
- Engine Number
- Body Type
- Fuel Type
- Vehicle Color
- Name of the Manufacturer
- Make/Model, etc.
- Reports on Registered Vehicle
- Year and Month-wise reports of registered vehicle in various states
- Year and Month-wise reports of registered vehicles in various DTOs
- Vehicle class-wise reports in various states

3. **Government to Business (G2B) Services:**

Automobile dealers may submit online application for vehicle registration, pay taxes, etc. through dealer point registration module of VAHAN.

- Web Modules for Dealers

- Application for new registration
- Payment of fees and taxes etc
- Status Tracking
- Sharing of relevant information with insurance companies, manufacturers, banks, etc.
- b. Benefits to various stakeholders**
 - Improved quality of services
 - Improved law abidance
 - Reduced turnaround time of various G2G, G2C, G2B services
 - Anytime Anywhere basis services viz.
 - Online application submission for issuance of Registration Certificate
 - Online payment of Tax and other fees related to vehicle registration
 - Status tracking of various applications related to RC
 - Application for issuance of National Goods Permit
 - Application for endorsement of name, address, etc. on RC
 - Status tracking through mobile phone
 - One time document submission
 - Availability of hassle-free services
 - Availability of MIS for decision making
 - Quick and easy availability of information to other government department
 - Quick and easy tracking of stolen vehicles
 - Easy detection of malpractices
 - Quick and easy availability of information related to tax due date, fitness due date, RCs renewal due date, etc.
 - Quick and easy sharing of relevant information with insurance companies, banks, etc.

- Availability of SMS-based services.

At present 100% of VAHAN services are being delivered through computerized RTOs/DTOs etc. National Permit Portal has been implemented for issuance of National Permit for goods vehicle and has been operational since September 2010. All the National Permits are being issued online. As of now about 6.50 lakh national permit have been issued online. Integration of payment gateway has also been done for Department of Transport, West Bengal and is under process for the rest of the country. Enforcement services, dealer point registration, online application for vehicle registration, SMS-based services for vehicle information, etc are planned for release in this current financial year.

c. Implementation Status:

- 100% implementation of VAHAN has been achieved in 31 States/UTs.
- VAHAN implementation status – implemented at 945 RTOs/DTOs out of 975 RTOs/DTOs
- 100% connectivity achieved in 31 States/UTs
- State Register has been established in all the States/UTs
- 97% of RTOs data replicated to SR
- National Register has been established at NIC Data Center, Hyderabad
- 94% of RTOs data replicated to NR.

2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

Table 1			
S.No.	Name of the Services	Delivery Time Through Manual System	Delivery Time Through VAHAN
1.	Information related to Vehicle Registration	3-4 Hours (After visiting the RTO office or through agents)	Immediately from the Web
2.	New Vehicle Registration	> 10 Days	3-4 Days
3.	Issuance of Duplicate RC	> 7 Days	Same Day
4.	Change of Address in RC	> 7 Days	Same Day

5.	Re-registration of Vehicle	> 15 Days	3-4 Days
6.	Transfer of Ownership	> 7 Days	Same Day
7.	Hypothecation Endorsement in RC	> 5 Days	Same Day
8.	Hypothecation Cancellation in RC	> 7 Days	1-2 Days
9.	Issue of No Objection Certificate (NOC)	> 5 Days	1-2 Days
10.	Renewal of RC	> 7 Days	1-2 Days
11.	Issuance of National Goods Permit	> 7 Days	Same Day
12.	Renewal of Permit	> 7 Days	Same Day
13.	Cancellation of Permit	> 7 Days	Same Day
14.	Transfer of Permit	> 7 Days	Same Day

6. After implementation of VAHAN, the staff at RTOs/DTOs are able to produce more output in a day so the revenue generation has increased to 200% of the department.
 7. Data is more accurate and easily available to the higher authorities for decision making.
 8. Presence of agents at various RTOs/DTOs location across the country are reduced.
 9. Before the implementation of VAHAN, citizens were forced to take the services of agents or travel to the respective RTO office (3-5 times) to avail the service. Now every applicant is able to save at least Rs. 1,000 by avoiding agents or multiple visits to RTOs.
- b. Innovative Ideas Implemented**
1. Development and establishment of SCOSTA
 2. Uniform software development for the country
 3. Concept of state-based customization of VAHAN
 4. Replication of customized VAHAN using PPP model by many states
 5. NIC in association with MoRTH could extend s/w management and support

6. Integration with SMS gateway for information dissemination through SMS
7. Integration with payment gateway for online payment of taxes and fees

III) Enabler Indicators

1. Processes

a. Major non-ICT front end process changes

1. Detailed system study was done by NIC, report was prepared and submitted to MoRTH
2. MoRTH organized many conferences and workshops for all the state and UT level officers in explaining the project goals and the roles of various agencies involved to achieve the final objective
3. NIC developed the VAHAN application and customized as per the State requirement for pilot implementation. After the success of pilot implementation and fulfillment of state requirement respective state was asked to certify the same for replication of VAHAN in other RTO offices.
4. State governments identify the agency for implementing the VAHAN using any financial model or they may ask the financial support from MoRTH for the implementation of the same
5. RTOs supervise and implement with full effort for carrying out their daily functionality with respect to vehicle registration.
6. Other service delivery model like dealer point registration, integration with payment gateway, etc. is worked out
7. Online issuance of National Permit for goods vehicle has been implemented
8. State Register and National Register of VAHAN have been established for data sharing between various RTOs/DTOs across the country as well as with other government departments, enforcement agencies, and MoRTH, etc.
9. Unified form for vehicle registration has been introduced
10. Unified visual design for smart card based RC has been designed and approved by MoRTH
11. VPNoBB/LL connectivity is being used for replication of data from DTOs/ RTOs to SR and NICNET connectivity is being used to replicate the data from SR to NR

12. SR and NR of VAHAN are being used for providing the online services
13. The RTO data are pooled at the end of the day or at a definite period at the state level by specialized software and state level services are provided on the Registration Certificate.
14. The State Wide Area Networks (SWANs) that are developed are used for compiling the data from many RTOs at the State level for consolidation.
15. The NICNET is used to bring the consolidated data of Registration Certificate to build the National Register of Registration Certificate.

2. People and Resources

a. Project Management and Monitoring

1. Full time project management unit has been established at NIC HQ for project monitoring purpose
2. A nodal officer has been appointed at every state headquarters for implementation of the project
3. Daily videoconference with all nodal officers is conducted for the monitoring of the implementation
4. A specially constituted team within MoRTH and NIC review the progress of the implementation periodically with the help of the state transport department
5. Hon'ble Minister of Road Transport and Highways himself conducted these type of reviews personally with the Transport Ministers of all states and a handful of MPs.

b. Training -Plan and Status

Training has been given to the local staff of State Transport Department so that they can make the full use of it.

- c. Leadership support (political, bureaucratic) and its visibility
Full support was given by the top authority to implement the project
- d. Financial Model (funding pattern, business model PPP, etc.) defined and implemented

This project has been implemented in multi-mode financial model.

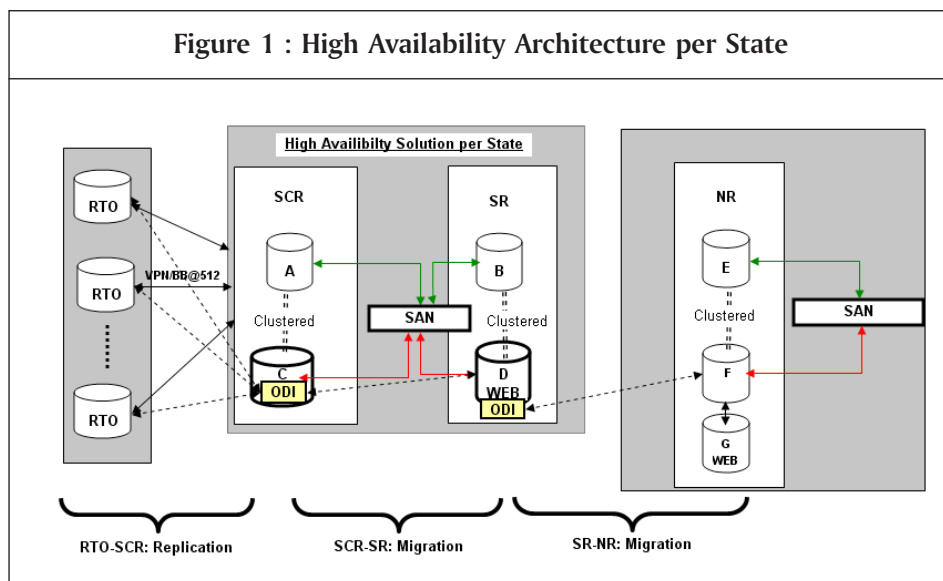
MoRTH has funded the cost for the establishment of SR and NR, connectivity of various RTOs/DTOs with SR/NR, funded capital expenditure to about 19 States for ICT infrastructure.

Business model PPP has also been opted by various state transport departments for project sustenance.

3. Technology

a. Strategy for Disaster Recovery and Continuity

The project has been implemented in high availability architecture as shown in the figure 1.



Dr. Mahesh Chandra, Dy. Director General, Transport Department, National Informatics Center, mchandra@nic.in and Mr. Nitin Gokarn, Joint Secretary (RT&H) Ministry of Road Transport & Highways Transport Bhavan, 1, Parliament Street, New Delhi-110001. email: nr.gokarn@nic.in

*Hon'ble CM Narendra Modi's
website: www.narendramodi.in*

Dr Hiren Joshi

I) Overview

‘Good Governance cannot be merely a Philosophy. Concrete Steps have to be taken to realize its goals.’ Says the CM who has a vision goal to implement ICT in Gujarat and adopts the Technology with embraced arms.

Instituted by eGov magazine, Hon'ble CM Narendra Modi (www.narendramodi.in) got the prestigious eGov 2.0 award for the ‘Most innovative use of social Media’.

The website is largely responsible for his dynamic presence on the web and adds to his increasing influence by making Hon'ble CM accessible to every citizen online as he adopts E-readiness initiatives and enhanced ICT that facilitates greater people participation.

www.narendramodi.in - The portal provides a comprehensive portrait of Shri Narendra Modi's long and illustrious social and political life. It presents his views on various national issues, his books and articles, interviews and speeches. The portal provides latest information about his initiatives, speeches, statements, etc.

The portal that offers Transparency, connects the people with their beloved leader and effectively engages them with the cause “Development of Gujarat for the development of Mother India”.

While many political personalities have a web presence, the portal www.narendramodi.in is 'Class Apart' and unique with richness of content, the range of interactivity, and visual appeal. The portal has over 200 videos, 250 audios, 21 ebooks (full text), over 2000 photographs and more than 800 pages of properly categorised textual content.

More importantly, this is the only website of a political leader which is available in five languages: English, Hindi, Gujarati, Marathi and Sanskrit.

This is the first Sanskrit website of any leader.

The accompanying blog www.narendramodi.com is in nine languages.

Shri Narendra Modi has been a leader of the masses. With a feel of the pulse of the people, his website creates a live platform for People Participation where they can speak their heart directly to him without distortion and manipulation. Giving a sense of belonging to people of Gujarat and all those who believe in him and Gujarat, the site is enhanced with effective communication tools for a journey in progress of State.

Goals and Objectives:

Showcasing inclusive information- www.narendramodi.in showcases Complete, authentic and up-to-date information about Narendra Modi & his initiatives with Goals to reach masses and maintain Transparency, deepening 'Trust, Faith and Interaction' as:

Comprehensive Web Presence:

1. Web Presence with Transparency
2. Interactive Presence
3. Networked Presence and e Participation

www.narendramodi.in main features:

1. His Biography
2. Development Projects and initiatives in Gujarat as the CM

3. Awards
4. His political journey
5. His Quotes
6. Publications (E-books)
7. Archives of his speeches in text, video, and audio formats
8. Photographs, and many more

As a Leader with a mass fan flow and admiration of citizens of India and being Internationally acclaimed personality, the site is enhanced to showcase the true spirit of Gujarat and its Growth Engines with Big Vision Goals for future Infrastructure and development of Gujarat.

'Share Idea that will Shape Gujarat' and Social Media Presence are 'Interactive Shaping' tools that research for improvising the policies and procedures for better governance.

II) Result Indicators

1. Key Performance

- a. Service Delivered (G2C,G2B,G2G,G2E) with benefits

G2C Service: Citizen

1. Provide News related to CM's Development journey for Gujarat
2. Provide Transparency
3. Highlight Major Projects and Initiatives
4. Show Live webcast of important Events
5. Provide video/audio and slide show Gallery
6. Sharing positive stories with friends and well wishers
7. Sharing and discussing innovative Ideas that can aid governance
8. Participating in Polls
9. Posting views and comments
10. Participating in contests

11. Allow citizens to download paraphernalia related to the CM such as Wallpapers, Screensavers, Jingles, E-greetings

G2B Service : Business

Though there is no direct G2B service, the portal have a very innovative application-Toshakhana online auction of the Gifts received by Hon'ble CM. As Shri Narendra Modi travels and attends events, he receives scores of gifts and souvenirs. Each and every gift is deposited with the government treasury (toshakhana), and sold to support the education of the girl child (kanya kelavani.). This portal also provide the facility of online auction of gifts available in Tosakhana. People can view the gifts and bid for them. He has so far received 7,994 gifts since November 2011. The nine occasional auctions of 6,634 of these gifts have fetched a sum of around Rs.10-crore. A special fund Kanya Kelavani Nidhi has been created for this cause.

G2G Service : Government

Not relevant directly, yet the image of a Tech Savvy Hon'ble CM infuse motivation and inspire the leaders in their respective posts in the Government.

G2E Service : Employees

Not applicable. However, the Portal of CM is an inspiration to them who follow the leader and adopt best practices to entrust their duty towards the state.

b. Services Enhanced/Introduced Plan vs Status

Apart from enhanced/introduced/functionally extended service like News, Live events coverage, etc, Following are operational and delivered through ICT:

1. CM Narendra Modi runs a special fund named **Kanya Kelavani Nidhi** to support girl child education. The gifts he receives are auctioned online through 'Toshakhana' and the proceeds go for girl child education. Users can bid for these gifts on the website and contribute for this noble cause. <http://www.narendramodi.in/pledge/toshakhana>)

Online auction of gifts received by CM

2. E-book and slide-show gallery- These sections have an exquisite collection of free E-books written by and written on Shri Modi.

3. Inviting fresh ideas from public- 'Share ideas that will shape Gujarat' is the initiative which acts as the suggestion box of the website!!! The active citizens share their developmental ideas for Gujarat directly with Shri Narendra Modi.
4. Newsletters and mailers- Timely and beautifully designed newsletters and e-mails are sent to the subscribers to keep them updated about the recent events and developments in Gujarat.
5. Involving citizens in public service through volunteering options available. (<http://www.narendramodi.in/volunteertask>): The pro-active citizens who want to contribute their valuable time for the state can register themselves as volunteers on www.narendramodi.in and choose from a myriad of activities available for volunteering such as teaching, content writing, language translations, health and hygiene, medical, finance and many more. By volunteering they earn credits and get rewards for their valuable earnings.

c. Implementation Coverage

The above stated activities are Implemented and covered on narendramodi.in – Moreover, the Social Web Presence is enhanced for reach to masses and furthering the thought, the future plan alongwith active Blogging by CM, aims for more Transparency and portraying the correct and authentic Governance in Gujarat under the management of Hon'ble Shri Narendra Modi. Building Trust and Relations with supporters by giving clear picture of Development Journey and engage 'People Participation' for G2 – Growth for Gujarat.

2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

The Portal is Mass circulation through Web 2.0 Technology and social media networking has been a major time-saver in spreading information about the initiatives of Shri Modi. For a political leader, information hand-out in the right way and at the right time is the biggest challenge and that is what has been achieved through these initiatives.

Though the conventional platforms of advertisements such as T.V, radio, hoardings are still used to meet the needs over a period of time, social media networking has enabled the circulation of information speedily and conveniently,

and that too free of charge.

b. Innovative ideas Implemented

1. Speedy exchange of information
2. Increased public participation in state governance and decision-making.
3. Transparent, direct and pro-active governance
4. Inducing people's trust in the state mechanisms.
5. Success of several initiatives such as Share Ideas, Share and Grow, Volunteer, etc. where people have actively participated and contributed positive stories, ideas and their time to serve Gujarat in every possible way.
6. Global presence – staying in touch with NRGs, NRIs and International readers and to know where Gujarat stands amongst other states and other countries.

c. Integration with Other Systems

Citizens are the key observers of the state and their opinions and experiences speak the most. Their ideas and suggestions are priceless inputs for improvement in governance. Hence, the Web Presence with Interactive and eParticipation nodes have been fruitful in research and work for better Governance.

III) Enabler Indicators

1. Processes

a. Major non-ICT front end process changes

The Portal is revamped and appears in major five Languages giving choice to readers. It is made more friendly and interactive with people participation. Bringing closer to fans and supporters, the CM's life and work reach to masses. The adoption of 'All round' features and an eye to focus on technology development issues is the continuous process of the Portal development.

b. Major non-ICT back end process changes

Hon'ble CM devotes his precious time and focus on Time Management sparing

moments for Technology and updating/viewing and sharing his tech skills/experience to masses through the portal and blog. Thus, known as 'Tech Savvy CM' of most progressive State.

2. People and Resources

a. Project Management and Monitoring

CMO is responsible for Project Management and Monitoring. Mr. Hiren Joshi is the OSD-IT who efficiently manages the affairs of the state CM Portal. Considering the services of the Web Consultants, Staff team and Volunteers, the site is on Top with continuous updates 24x7.

b. Training -Plan and Status

Being a Web 2 Portal and with CMS, the Portal is easy for use and navigation. Consultants maintain and manage the back end with major front end portions handled by CMO.

There is a dedicated team of personnel for the management and monitoring of web 2.0 project and social media services; a team consisting of website designers, web developers, content writers, operations and administration

c. Change Management strategy

The Portal is revamped to suit readers and is made 'User Friendly' and provide best Services to portray image of Hon'ble Narendra Modi. Furthermore, Transparency and Interactive features.

d. Leadership support & visibility

Hon'ble Shri Narendra Modi personally devotes his precious time with 'Time Management' schedule that he manages for Technology and understand technology upgradation and keeping with tech times. He personally blogs and makes sure that contents are fairly available and placed on narendramodi.in – for this, CMO functions proactive alongwith the well wishers/ volunteers for the purpose. Shri Modi reads about 500 messages from public daily and resolves all their queries directly or indirectly. Shri Modi has used the Web 2 technology so pro-actively that it has become one of the major drivers of his work system.

e. Financial Model

It is developed/ maintained by well wishers of Hon'ble CM.

3. Technology

a. Strategy for Disaster Recovery & Continuity

Disaster recovery is managed by Web Consultants and Back Up facility at CMO serve as savior in case of problems.

b. Solution Adopted and NeGP compliance

The website is owned by Hon'ble CM Narendra Modi and is fully functional and maintained by well wishers of Hon'ble CM under the guidance of CMO. Complies with NeGP Standards, Mission mode Projects are enhanced at CMO level and infuse five Es in governance: ease, economy, efficiency, effectiveness and ethics.

c. Security & Compliance Standards

The Portal is strengthened with Security with services offered by Web Consultants/ Developers.

IV) Value Indicators

1. Digital Inclusion

Steps taken to address this factor

The Portal www.narendramodi.in appears in five languages – English, Hindi, Sanskrit, Marathi and Gujarati. The Blog www.narendramodi.com is supportive with nine languages.

2. eParticipation

Steps taken to address this factor

Online Auction 'Toshkhana', Volunteer services and e participating tools like 'Share & Grow', Social web presence with comments and promote facilities like share, widgets and add to – brings about people participation and user friendly.

2. eWaste

Steps taken to address this factor

No print is taken for processing more than 500 daily emails received by Hon'ble CM. Processing includes screening of emails, perusal by Hon'ble CM, forwarding to Govt departments, tracking the action taken till disposal. Interaction online, through sms, email newsletter and other social media presence, etc. focus on ewaste to reduced paper and other related.

Dr Hiren Joshi, Officer on Special Duty (IT) to Hon'ble CM, Chief Minister Office, Government of Gujarat; osdittocm@gujarat.gov.in; URL of the project: www.narendramodi.in

Online Teachers Recruitment

Shri Dr Hasmukh Adhia and Shri R P Gupta

I) Overview

Since 1998, the Gujarat state government has organized Vidyasahayak scheme for primary schools to recruit teaching assistants. The Vidyasahayaks become regular teachers in the school after a service of 5 years. Under this scheme, since 1998-99 to 2010-11, more than 1,21,245 teaching assistants were recruited. Out of these, 85,194 Vidyasahayaks (teaching assistants) have become regular teachers.

The teaching assistants were originally paid a monthly remuneration of Rs. 2,500 which has now been revised to Rs. 4,500 by the state government. After the recruitment, they are appointed in various schools and their performance appraisal is done. If they are found suitable and their performance satisfactory, Education Committees appoint them as regular teacher against the vacancy arising out of the retirement of regular teachers. Those who cannot be regularized due to inadequate vacancies are appointed as regular teachers at the end of 5 years by creating additional teachers posts.

The basic qualification for Vidyasahayaks is 12th pass and P.T.C/C.P.Ed/A.T.D. Earlier, candidates were allowed to apply in one district only, not in more than one district. This left them in a dilemma as to which district they should apply for. They were required to deposit their original certificates along with the application form to ensure that they do not apply in more than one district. The entire process of preparation of merit list was manual which took a lot of time errors

both intentional and unintentional occurred and also many instances of meritorious candidates being left out if they could not apply to the right district, leading to numerous court cases thus leading to further delay and wastage of time, efforts and money. The entire process of recruitment took around 5 to 6 months with a number of pending court cases.

Later, the candidates were permitted to apply for more than one district. They could submit xerox copies of the required certificates along with the applications in various districts. Most of the candidates applied to all or many districts. There were a large number of applications in each district and most of the districts would end up with almost common merit lists. It took long time to verify the documents by each district but the errors, both intentional and unintentional, in fact increased. As the number of candidates were common in various districts merit-lists, they would take appointment letters in more than one district. Instances of these candidates contacting those in the waiting lists and asking for money for resigning (not accepting the offer) were also complained. As one could join in one district only, he would ultimately, but at his own convenience, decline offer of other districts. This necessitated many rounds of call-letters, appointments and decline of offers resulting in wastage of money, administrative time and efforts, and most importantly depriving the students of teachers for long durations. The entire recruitment process used to take not less than 8 to 10 months and sometimes even the recruitment of next year would be delayed as previous year process was not completed.

Objectives/Aim

The main objectives/aims of the new process of recruitment of Vidyasahayak scheme are:

1. To recruit the required number of teachers in a short period of time.
2. To eliminate the shortcomings of earlier processes and make recruitment process more transparent, efficient as well as reduction in time.
3. To increase the efficiency by reducing time and cost of service delivery.
4. To improve the quality as well as quantum of output.
5. To develop a system which is transparent, corruption free and ensure that

intentional errors are eliminated.

6. To initiate a sustainable approach for future recruitments.
7. Show casing a scheme as a 'best practice' for other programs to follow.

Strategies Adopted:

To achieve the above-mentioned objectives, the following strategies were adopted:

1. Centralized recruitment

In the district-based selection, with district selection committees adopting separate recruitment process for each district almost at the same time, it was not possible to eliminate the shortcomings observed earlier. So it was advisable to centralize the recruitment process and issue one single advertisement at the state level, and allot the candidates to different districts as per the position of the candidates in the merit list. This would not only eliminate the possibility of meritorious students being left out due to poor judgment of not applying in the right district, but would also do away with the possibility of many candidates getting selected for more than one district and consequently the requirement of many cycles of calling the candidates from waiting list. It would also save the time and efforts which was wasted in each district.

2. Use of ICT, and Transparency

It was decided to adopt the strategy of using the IT to the maximum to ensure transparency, speed, and reduce the intentional errors and completely eliminate the unintentional and human errors.

Innovative Methods Used

To give affect to the above strategies, following innovative methods were used in the recruitment process of the Vidyasahayak.

1. Using the existing data available with other agencies

As the merit list was prepared based on the marks of 12th standard examination, marks obtained at the graduation level and the marks obtained in B.Ed./P.T.C.

examination, it would be prudent to use this data from respective agencies only rather than asking the candidate to fill this data and then get it verified from the respective examination board/universities. Accordingly, the recruitment websites were pre-loaded with the data of 12th examination board. The data from universities was either not available in the electronic format (ready to use) or could not be accessed on time. Further, as the 12th standard exam data was available, the candidate was asked to fill in only the year of passing 12th standard examination and his seat number. The website then displayed his Name, Date of Birth, Gender, Category (SC/ST/OBC/General), subjects taken by him and marks obtained in different subjects. This eliminated the requirement of verification of this information if the same was to be supplied by the candidate. It also reduced the time and efforts on part of the candidate in filling the application form, apart from reducing the administration's time and efforts hugely. Of course, the candidate was also given an option to change any information if it was incorrect according to him. The software had a provision to keep log of such changes, so as to verify only these cases.

2. Web Display of Merit List

Once the provisional merit list was prepared by the computer, it was published on the website. The information displayed was the position of a candidate in the merit list, his Name, Date of Birth, Category, Marks obtained in various examinations and also his marks in total merit. The candidate or any other person could not only see the position and information pertaining to him but could also see the position and information pertaining to any other candidate. If any information pertaining to one was incorrect, he could contact the designated authority with required documents to prove his claim. If the objection pertained to some other person, he could fill up objection form on the website itself. But to make objection effective, he was required to take a print out of the objection and submit it at a designated centre with objection fees of Rs. 1,000 which was refundable if his objection was found to be correct and information given by a candidate was wrong. But the objection fee was forfeitable if the objection was frivolous and not sustainable. It was decided to settle the objection after hearing both the parties and considering the documentary evidence given by both. However, again to our delight, no objection was filed/taken either by any candidate for himself or by anyone against any other candidate.

3. Allocation of District

After the publication of final merit list, the candidates were called at Gandhinagar in batches of 1500 candidates each day to select the district. A huge online LCD screen displayed the current position of vacancies available in each category in each district. As the candidates kept on selecting the districts, the vacancies in those districts and in respective categories were reduced instantaneously. This ensures that no manipulation takes place in the allotment of districts.

Table 1		
Date of Advertisement in Newspapers	:	28-5-2010
Date of Form Submission	:	28-5-2010 to 6-6-2010
First Merit List	:	12-6-2010
Interview Call Letter	:	12-6-2010 to 14-6-2010
1 st Round (to select districts)	:	15-6-2010 to 18-6-2010
Second Merit List	:	19-6-2010
Interview Call Letter	:	19-6-2010 to 20-6-2010
Second Round (to select districts)	:	21-6-2010 to 24-6-2010
To select city/village/school (at district level)	:	29-6-2010 to 1-7-2010

II) Result Indicators

1. Key Performance

a. Service Delivered (G2C, G2B, G2G, G2E)

Benefits Delivered:

1. Saving of time and efforts

Huge saving of time and efforts of not only the administration but also the candidates was effected. Whereas the earlier processes of recruitment used to take minimum 4 to 6 months, this process was completed in less than one month only, in spite of 56000 applications being received. Table 2 gives the time taken for recruitment in different years. However, more significant reduction was in administrative manpowers requirement, whereas earlier process used to involve almost all the persons of Education Department at the district level for accepting the applications, verifying the documents, preparing the merit list and appointment letters, this process required a manpower of 8 to 10 persons only at

the state level. Some manpower at district level was used for collecting the applications and verifying the information not pre-loaded on the website but it was insignificant compared to the recruitment in the earlier processes.

Table 2: Yearwise Vidyasahayaks Recruitment 1998 to 2011

Year	No. of Vidyasahayaks Recruited	Duration
1998-1999	15404	4 to 6 months
1999-2000	20756	4 to 6 months
2000-2001	13181	4 to 6 months
2001-2002	6900	4 to 6 months
2002-2003	6591	4 to 6 months
2003-2004	3448	4 to 6 months
2004-2005	15468	3 to 4 months
2005-2006	0	-
2006-2007	12691	3 to 4 months
2007-2008	0	-
2008-2009	10225	12 months
2009-2010	6294	12 months
2010-2011	10,000	30 days
Total	1,21,358	

2. Transparency

This process was completely transparent. The use of ICT particularly displaying the information of each and every candidate and making it accessible for everyone to see and, more importantly, take objection if it was incorrect, ensured complete transparency. It also ensured that the intentional and unintentional errors which were quite large in number in earlier years and which to a large number of court cases were minimized to or were completely eliminated.

3. Elimination of Corruption

The manual preparation of merit list and verification of documents in the processes earlier had huge scope for manipulating the information, preparation of merit list and consequently for corrupt practices. A large number of complaint used to come at the state level and quite a few court cases were also filed each year. However, the transparency of the process and preparation of the merit list through computer and

throwing it open for anyone to see, coupled with the speedy implementation eliminated the possibility of corrupt practices.

4. No Court Cases \ No Complaints \ No Grievances.

As the process was totally transparent, no court case was filed, no complaint was received and no grievance was registered at any level. In fact, the whole process was greatly appreciated and commended by the candidates, their parents and the media.

- Accountability
- Responsiveness
- Consistency, equity and or equality of opportunity
- Uniformity and standardization
- Operational convenience and ease
- Simplification of procedures and processes
- Showcasing of best practices
- Improved quality of services
- Target surpassing in terms of quality and quantum of results and timeliness
- Introduction of a unique idea or a distinctively new approach
- Facilitation ICT enabling / E Governance
- Enhanced citizen role, involvement and participation
- Increased efficiency (reduced time and / or cost of service delivery and / or improved quality and quantum of output)
- Computerization of records and access to citizens
- Sustainability and further improvement

The project is guaranteed of sustainability because of its huge success in effecting and showcasing the speed, efficiency, the transparency of the process, the elimination of corruption / court cases / complaints and mostly the reduction of

time, effort and manpower recruitment. This year again the Primary Education Dept. is recruiting about 13,000 Vidyasahayaks using the same process, though this year the requirement of TET (Teachers Eligibility Test) has been added. The process has already started on 16th July and is expected to be completed by 18th August. In fact, the State Government has also advised all other Departments and Government organizations to adopt this process after suitable modifications as per their requirement. Many Government Departments and Organizations have already contacted us and studied the process and are in the process of implementing it in their recruitments.

Further improvements which are required to be incorporated in the online recruitment process is pre-loading the data from Universities and also making the selection of districts online without calling the candidates at a central place. However the last point of improvement in not requiring candidate to come to the central place may not be feasible as many candidates who are not interested in joining as teachers though in the merit list, may also obtain the appointment letter and not join necessitating further rounds of calling the candidates from waiting list and also the possibility of corrupt practices by them as earlier also remained. At present such candidates who are not interested, do not come to the central place and other candidates automatically get a chance in their place.

2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

Huge saving of time and efforts of not only the administration but also the candidates was effected. Whereas the earlier processes of recruitment used to take minimum 4 to 6 months, this process was completed in less than one month, **in spite of 56000 applications being received.** The table below gives the time taken for recruitment in different years. However, more significant reduction was in administrative manpowers requirement, whereas earlier process used to involve almost all the persons of Education Department at the district level for accepting the applications, verifying the documents, preparing the merit list and appointment letters; this process required a manpower of 8 to 10 persons only at the state level. Some manpower at district level was used for collecting the applications and verifying the information not pre-loaded on the website but it was insignificant compared to the recruitment in the earlier processes.

b. Innovative ideas Implemented

1. Online / Print Media Advertisement
2. Online Form Submission
3. Online Merit List
4. Online Call Letter
5. Selection of Location / District

c. Integration with Other Departments

The candidates database of Teachers Eligibility Test was coorelated to Vidyasahay application.

III) Enabler Indicators**1. Processes****a. Major front end Process Changes and Implemented****1. Major ICT front end Process Changes**

- Filling up the application form where candidate had to give only his roll number and year of examination of 12th Standard (for the recruitment of 2010) and the seat number of Teachers Eligibility Test (for the recruitment of 2011).
- Online display of provisional merit list.
- Receipt of online objections against data filling by other candidates.
- Communication of objection and date of hearing to the person against whom objection has been taken and physical objection form submitted along with fee.
- Display of final merit list and generation of interview call letter and date of interview.

2. Major Non-ICT Process Changes

- Receipt of Physical application form along with the fee and necessary certificates.

- Receipt of Physical Objection form along with fee.
- Selection of District as per merit.
- b. Major back-end process changes and implemented**
 1. Major ICT back-end process changes.
 - Preparation of provisional merit list.
 - Generation of intimation of objection to be sent to the person objection has been taken.
 - Preparation of final merit list.
 2. Major non-ICT back-end process changes
 - All back-end processes have been implemented as per plan.

2. People and Resources

a. Project Management and Monitoring

- Department of Education – Govt. of Gujarat
- Directorate of Primary Education
- INDEXT – B : A Government Organization

b. Training -Plan and Status

Internal members like the employees of District Primary Education Officers of the district level and the officer of Directorate of Primary Education at State level were trained to use of the system. No external members required any training as the system was very userfriendly.

c. Change Management strategy

Yes

d. Leadership support and visibility

There was high degree of bureaucrat leadership support and all the persons working on the project were made aware through required training.

e. Financial Model

The project did not require much of the funding and a small application fee was enough to cover the cost of the project.

3. Technology**a. Disaster Recovery and business continuity plan defined and implemented**

Regular backup, Stand- by Server

b. Technological solution cost-effective and maintenance over time

MS SQL, .Net Technology, Online web space higher

c. Security and confidentiality standards defined and implemented

The OWASP (Open Website Application Security Projects) Security:

1. Injection.
2. Cross-Site Scripting (XSS).
3. Broken Authentication and Session Management.
4. Cross-Site Request Forgery (CSRF).
5. Insecure Configuration Management.
6. Failure to Restrict URL Access.
7. Insecure Transport and Storage.
8. Un-Validated Input.
9. Application Denial of Service.
10. Malicious File Execution.
11. Information Leakage and Improper Error Handling.

IV) Value Indicators

1. Digital Inclusion

Extent to which the project has addressed the factor of “eExclusion/eInclusion”

The factor of digital inclusion project is relevant to the extent of intended beneficiary, i.e., the perspective teacher needed to be computer literate for participating in the recruitment process. In fact, a minimum level of computer literacy is one of the requirement for becoming teachers in Govt. schools. The process tests the computer awareness of each participant to a large extent. The candidates who are digitally illiterate are meant to be excluded and this objective has been served up to some extent.

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Online Voting System (OVS)

Shri K C Kapoor

I) Overview

Online Voting System (OVS) has revolutionized the entire voting system. It not only offers a new option to the voters to cast vote from convenience of residence but also strictly abides by the process of conduct of elections. It is implemented on the principles of fairness, accuracy, transparency and secrecy. This project is a milestone in Indian History as it is first time implemented in India. The system empowers the voter to exercise their right to vote over the internet without being unduly influenced by political parties or peers as in case of EVM Booths and thus contribute to a stronger democracy.

The project implements digital encryption and cryptography protocols which makes it invulnerable to cyber-attacks and at the same time maintains privacy of voters and ballot.

This system has been implemented in General Elections of 7 Municipal Corporation over a period of 6 months and has delivered the expected result of maintaining election protocol. It is also planned to implement this system in the upcoming Village Panchayat Elections in November 2011.

This system is unique in terms of its processes and can be used by other election conducting authorities for conduct of elections in PSUs, NGOs, Societies, Universities/Colleges, etc. This system is a one-time investment and the benefits of which could be reaped in elections of more than 1.5 lac representatives in the

State. The system can be considered as a green revolution as it reduces paper cost by introducing zero paper work. It is environment friendly as it allows voter to vote from his home so he doesn't need to drive to polling booth. The system is voter friendly, very simple to use, easily replicable. Because of its advantages it helps in increasing voter participation in election. Thus this system is great innovation for strengthening the democracy.

State Election Commission, Gujarat (hereafter referred as SEC) has developed its prestigious project "Online Voting System" (hereafter referred as OVS) for its Local Body Elections. SEC had implemented OVS in General Elections of 6 Municipal Corporations (namely Ahmedabad, Vadodara, Surat, Bhavnagar, Rajkot, and Jamnagar) in October 2010 and subsequently in Gandhinagar Municipal Corporation in April 2011.

The key stakeholders of the system are:

1. Voters;
2. Local Bodies (e.g., Municipal Corporations, District Panchayats, Taluka Panchayats, Village Panchayats)
3. Political Parties and Candidates;
4. The State Election Commission.

The following are the concern areas which have been kept in mind while conceptualizing and implementing Online Voting System.

1. Free, equal and secret voting is fundamental for a democratic political system.
2. Today elections are won on plurality basis rather than majority basis.
3. Voters of urban areas comparatively less participate than in rural areas.
4. Particular classes of voters including businessmen, age-old and infirm do not participate in elections.
5. Voters find inconvenience of commuting to Polling Booths, standing in queues, etc.

6. Association of voter to a particular booth affects mobility of the voter.
7. In EVM and Ballot Paper, vote count statistics reveal the choice of voters at one particular booth.

SEC with an intention to encourage greater voter participation, and provide an innovative, user-friendly and convenient option of voting, has embarked up on the journey to implement OVS in the local body elections. SECs' initiative shall lead an example for other States to implement similar systems and present a new medium of service delivery to voters. SEC sole purpose is to adapt a new technology with futuristic approach rather than being concerned on the immediate benefits of the system.

Information & Communication Technology is deep rooted in major aspects of our lives such as banking, trading, online bookings, online shopping, etc. It gives an impetus to design/develop a voting platform on similar principles of digital security. India is one of prime which has been taking e-governance initiatives to use ICT for better service delivery to its citizens. Gujarat is at the top in experimenting and implementing e-Governance Projects in India. It comes as an aid to en-cash this rich experience of the state for OVS.

By implementing OVS, SEC shall reap the following objectives for the stakeholders:

1. Increase voter participation, by providing a user-friendly and convenient option of voting.
2. Strictly adhere to election protocol based on principles of completeness, fairness, accuracy and secrecy.
3. Ensure secrecy of the ballot and privacy of voter.
4. Should not reveal booth-wise vote count statistics.
5. Ensure smooth, speedy and transparent execution of entire election process.
6. Decrease cost of elections conduct to a considerable extent by implementing a centralized voting infrastructure to remove redundant cost involving EVMs purchase, appointment of staff, stationary, transportation, daily allowances, etc.

7. Centralized control over the election process.

II) Result Indicators

1. Key Performance

a. Stakeholder services and benefits achieved through ICT interventions :

Benefits Delivered:

Following are the ICT services which were delivered by OVS and catered to various Stakeholders of the project:

1. Voter Registration
2. Voter Approval as e-Voter
3. Setting of Ballot and Its Approval
4. Starting the election on Election Day
5. Voting by voters
6. Counting of votes
7. Reports

As a result of delivery of these services certain benefits were reaped by the Stakeholders:

1. Voters had the convenience to cast vote through internet. The system maintained the integrity and privacy of the ballot.
2. Election Staff had a centralized control over the entire election which reduced the cost of manpower and resources which are prominent in elections conducted through EVM or ballot paper.
3. OVS has won the confidence of political parties by displaying the integrity of the election results, strict adherence to privacy and integrity of the ballot.
4. SEC fulfilled its obligation in delivering to voters a convenient and easy option for voting from residence. Apart from this the entire system adhered to strictly to protocol of elections.

b. Services that are enhanced / functionally extended during the year 2010-11:

OVS is unique in its implementation such that it can be introduced for elections conducted by various election conducting organizations such as PSUs, universities/ colleges, societies, NGOs, etc. It is also envisaged to introduce voting through Mobile Phones including IVRS in future through OVS.

c. Implementation coverage till date and during the year:

OVS went GO-LIVE during General Elections of 6 Municipal Corporations on 10th October 2010 in 1 ward of each of the Corporation. The Second Implementation of OVS was carried out in 11 wards of Gandhinagar Municipal Corporation Election in April 2011.

More than 3500 Voters had participated in the Mock Voting Drives which were held in 7 Municipal Corporations. Though for the first time in India more than 5000 Voters had applied to become e-Voters. The success of OVS should not be measured in terms of number of e-Voters but the % of Voting through OVS as compared to that through EVM Booths. A comparative analysis of EVM and OVS percentage voting is as below:

Table 1: Details of Percentage Voting for 6 Municipal Corporation Elections								
Sr. No.	Municipal Corporation	Name or No. of the Ward	Voting through EVM			Voting through OVS		
			No. of Actual Voters	Actual Voters Voted	% Voting through EVM	No. of Registered E-Voters	No. of E-Voters who Voted	% Voting through OVS
1.	Ahmedabad	23	78725	23891	30.52	64	40	62.50
2.	Bhavnagar	16	25851	8247	31.90	11	6	54.55
3.	Jamnagar	8	18034	7892	43.76	10	10	100.00
4.	Rajkot	10	30593	12697	41.50	13	9	69.23
5.	Surat	12	61821	23957	38.75	84	59	70.24
6.	Vadodara		16	37809	16024	42.38	1	0 0.00
	Total		252383	92708	36.73	183	124	67.76

**Table 2: Details of Percentage Voting for Gandhinagar
Municipal Corporation Election**

Sr. No.	Name or No. of the Ward	No. of Actual Voters (EVM)	Actual Voters Who Voted (EVM)	% of Voting through EVM	Total Registered E-Voters	No. of E-Voters who Voted	% of Voting through OVS
1.	1	13847	8121	58.65	54	51	94.44
2.	2	12275	6782	55.25	75	54	72.00
3.	3	8734	4912	56.24	76	55	72.37
4.	4	12211	6792	55.62	76	59	77.63
5.	5	11325	6919	61.10	7	6	85.71
6.	6	11571	6245	53.98	33	24	72.72
7.	7	9514	5068	53.27	29	27	93.10
8.	8	12589	8932	70.95	50	43	86.00
9.	9	11684	6236	53.37	52	41	78.85
10.	10	14223	8865	62.33	72	46	63.89
11.	11	19298	10344	53.60	146	111	76.02
	Total	137271	79216	57.71	670	517	77.16

In future it is planned to implement OVS in upcoming Village Panchayat Elections in November 2011 in Gujarat.

2. Efficiency and Improvement Initiatives

- a. Time and cost efficiency improvements in delivering and availing of ICT enabled services:

Table 3

Sr.	Impact/Benefit Description	Before	After
1.	System efficiency in terms of time required for delivery of services	Distribution of booth-wise EVMs, allocation of staff for booths, collecting and maintaining EVM in strong rooms after election and before counting, extracting results from all EVMs of particular ward to publish	Considerable saving of time, manpower and overhead expenditures as all such processes are eliminated in online voting. This system publishes a ward-wise result and that too within a minute and hence saves considerable time in result declaration. The sealing and

		the ward result.	security of the system is to be managed at one central location i.e. the Data Center and hence considerable time is saved as compared to managing EVMs.
2.	Reduction in Cost of resources	Cost of conducting election rises from contributions from processes like storing EVM in secure, sealed & controlled environment, setting up & sealing of EVMs, transporting EVMs from storage location to polling booth and vice-versa, manpower in executing these processes etc. Setting up of EVM booths, requires considerable amount spent in terms of manpower, security personnel, stationary, etc. Also voters are required to use their conveyance means to visit EVM booth. Considering the average size of 700 voters per booth, this involves a considerable cost in terms of petrol or other natural resources spent during the voting day.	All votes are stored in centralized vote bank at Data Center, various costs associated in managing EVMs/ EVM booths is eliminated. Also, voters can cast vote from the comfort of their residence using personal PC/laptop. This effectively saves the cost of petrol/natural resource or any other travelling means for visit to EVM booth.

Apart from this the other areas that were impacted by OVS implementation are tabulated below:

Table 4			
Sr.	Impact/Benefit Description	Before	After
1.	Voter Comfort	Travelling to and visiting the EVM Booth, standing in queue, physical identification and vote cast.	Online registration and cast vote from the comfort of home/office using Laptop/PC.

2.	Control over the election process	Decentralized control and cumbersome management of Polling Booths and manpower for election conduct.	Centralized control over the entire election process hence making it more effective for election staff to manage various processes of online voting.
3.	Voter Turnout	The average voter turn-out at EVM booths is around 60%.	The average voter turn-out in Online Voting System is more than 75%.
4.	Elimination of booth-wise vote count statistics as revealed in EVM results	Contesting Candidates are able to find out Booth-wise voting figures. Hence they become apprehensive towards the development of localities from where they have received lesser number of votes.	The counting is done ward-wise and hence candidates will not be able to identify those localities of their wards from where they have received lesser votes. Hence they will tend to become equally cooperative and cordial with people in their.
5.	Strengthening the democracy	Voters have to queue up at EVM booths, where they can be influenced by the representatives of the contesting candidates.	OVS enables the voters to cast vote in an uninfluenced state of mind from his residence. A voter with an uninfluenced state of mind will vote for the best & deserving candidate thus participating in building a strong democracy. With increased participation elections will have competitive edge rather than plurality.
6.	Green and Environment friendly.	The hundreds of papers, manpower and other resources are used to follow the traditional election procedure that causes the wastage. Voters and other election commission officers have to travel to the polling booths, that results in increase in air pollution	OVS provides facility of zero paper work which will in turn stop the wastage of papers. OVS allows voter to vote from his home and the centralized system is monitored and controlled from the single place no one has to travel to polling booths.

b. Specific innovative ideas implemented in eGov area; and their impact on services:

1. To ensure the vote is cast by actual voters, the passcode is sent to voter's registered mobile number as an SMS at the time of voting. He has to enter the received passcode to confirm his vote.

2. After the voting is completed the mixing and tally process of votes is done. In these processes the voter's identity is detached from his vote.
 3. As voting is confidential process, in order to provide confidentiality all the data are encrypted and sent through SSL network.
 4. In order to prevent mass voting from single PC or laptop, User is limited to vote from a single computer up to certain number by capturing machine uniqueness.
- c. **The extent to which this e-Governance initiative is integrated with other internal and/or external ICT systems:**

Currently this system works independently however in future it is envisaged to integrate the system with Electoral Roll Database which would enable the voters and election staff to verify registered voter data online.

III) Enabler Indicators

1. Processes

a. Major non-ICT front end process changes

Following are the Major ICT front end process changes that were planned and delivered by OVS:

1. Voter Registration
2. Voter Approval as e-Voter
3. Setting of Ballot and Its Approval
4. Starting the election on Election Day
5. Online Voting by voters
6. Counting of votes
7. Reports

b. Major non-ICT back end process changes

Following are the Major ICT back end process changes that were planned and delivered by OVS:

1. Maintaining e-Voter Data
2. Election configuration
3. Ward configuration
4. Political party configuration
5. Assigning returning officer and assistant returning officer
6. Mixing of votes

2. People and Resources

a. Project Management and Monitoring

To ensure smooth implementation of the project and that too in a stringent timeline following project management and monitoring strategies were adopted:

1. The Task Force included bureaucratic members from various fields and was basically formed to ensure greater coordination and to guide over project implementation and government approvals as and when required.
2. Gujarat Informatics Ltd. (GIL) worked as IT Consultants for SEC. GIL drafted the RFP for the project, assisted in selection of TSP and provided necessary timely support as and when required.
3. An Apex Steering Committee headed by State Election Commissioner, Gujarat and Secretary State Election Commission, Gujarat looked after the overall monitoring of the project and resolution of any issues and strategic decisions to be taken during project implementation.
4. A Project Execution Committee comprising of team from TSP and team identified from SEC in executing the entire project. The Committee was responsible for the successful execution of the project and the day to day running of the project and providing all required approvals and resolution of bottle necks
5. In order to ensure that OVS never compromised on integrity and security, a third party security agency, which is CERT-IN empanelled agency, was also appointed.

b. Training -Plan and Status

The following table shows the stakeholders involved and type of training conducted for each stakeholder:

Table 6:			
Sr.#	Stakeholder	Training	Duration
1.	SEC and Election Staff	Back Office Module: The training topics are: 1. Election Configuration 2. Digital Ballot Paper Configuration 3. Verification of e-Voter Data 4. Creation of Election Board 5. Publishing Elections 6. Conducting Mock Voting 7. Conducting Actual Elections 8. Mixing, Tally and Result Declaration	This training was basically conducted for duration of 1 day. However this training is repetitive for the election staff as the staff changes in every election.
2.	Voters	E-Voter Registration & Online Voting: Mock voting exercises were conducted in Municipal Corporations to increase voter awareness of the new system. User Manual and presentations were uploaded on the SEC website.	Time duration not defined. However it was to be done before certain stipulated time span before the election date.
3.	Political Parties / Candidates	Mock Voting exercises were conducted and political parties and candidates were sent invitations to attend the same. SEC also conducted in-house demonstrations for contesting parties/ candidates before the elections to win confidence	Time duration not defined. However it was to be done before certain stipulated time span before the election date.

To support the Election Staff before and during the election and counting day, trained technical manpower were associated with them. To support the voters for e-Voter Registration and on the Voting Day, centralized helpdesk with 10 personnel was setup.

c. Change Management strategy

An appropriate change management strategy becomes a vital factor in deciding the success of any e-Governance system. OVS is a major break-through in our

history as it is being implemented for the first time in our country. Hence apprehensions of the new system were quite high. In order to curb these apprehensions SEC took the necessary responsibility in propagating and promoting the new system. SEC conducted meetings and trainings of election staff to train them on the new system and processes. SEC also conducted in-house demonstrations of the new system to political parties and candidates before elections to win their confidence.

d. Leadership Support and Visibility

OVS has overwhelmingly received necessary leadership support in terms of its incorporation as a new method of voting in existing process. It has been implemented in Urban Body Elections and in future it is planned to be implemented in Rural Elections also.

e. Financial Model

The entire project is funded by State Election Commission, Gujarat.

3. Technology

a. Strategy for Disaster Recovery and Continuity

1. Election is a critical process and the criticality comes in to ensure 100% availability of voting services to the voter on the Election Day. To ensure 100% availability the entire system is designed in redundant mode.
2. The system is deployed in two different sites (primary and disaster recovery), configured 1:1 so that the DR site can cope with the traffic if primary site is down.
3. The Database is configured in cluster with redundant components and synchronized with a disaster recovery site. Continuous backups also performed. This ensures lesser possibility of data loss at the time of disaster.
4. A Near DR was setup to ensure zero data loss during time of Data Centre failure.
5. Also, denial of Service attacks will be mitigated by using active monitoring techniques that allow quick reaction to block attacking IPs.
6. The system implemented SSL in order to immune against phishing attacks.

b. Solution Adopted and NeGP compliance

Following figure depicts the overview of the proposed Online Voting System.

Online Voting System (OVS) is basically classified in two major modules, duly integrated for seamless exchange of information across the two systems:

1. Pre-Voting
2. Voting

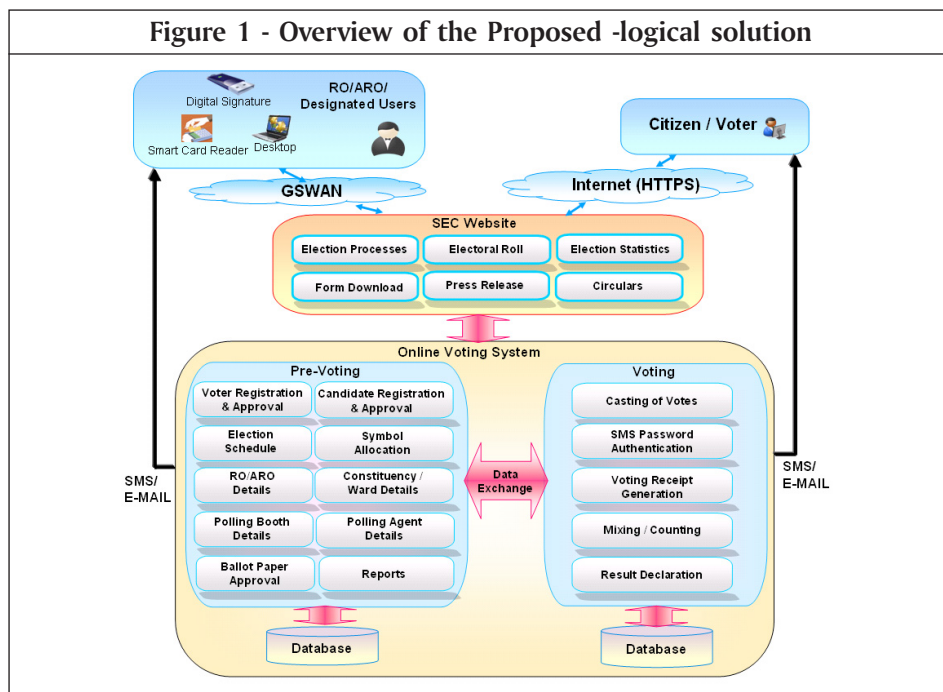
Pre-Voting Module

Pre-Voting module consist of various registrations and back office functionalities:

Registration:

1. Voter Registration and Approval
2. Appointment of Party Representatives and Approval

Back Office:



1. Create Election Schedule
2. Create Constituencies / Wards
3. Create RO / ARO Details
4. Create Polling Agents / Counting Agents Details
5. Create Polling Stations / Booths / Counting Station Details
6. Allocation of Symbols to Candidate
7. Ballot Paper Generation and Approval

Voting Module :

Voting module consists of following functions to cater online voting requirements:

1. Voter Authentication
2. SMS Password Authentication
3. Casting of Vote with Confirmation
4. Voting Receipt Generation
5. Mixing and Counting of Votes
6. Result Declaration

OVS implements a specific cryptographic protocol for securing on-line elections, which ensures that elections are carried on the principles of fairness, secrecy, anonymity and in a transparent way.

As per the NeGP standards OVS solution has the following features:

1. A fully accessible internet voting channel for providing common man in his locality, throughout his life ensuring efficiency, transparency & reliability at affordable cost.
2. End to end security right from voter registration-through vote casting process-counting process-up to declaration of results and data thereafter as per the rules of SEC
3. Strong authentication of voters to uniquely identify before casting votes
4. Voter privacy but ensuring no audit is available between the voter and vote cast
5. Voter's verifiability to ensure that the voter would have a receipt of vote casting
6. Integrity of election results through cryptographic techniques which would ensure that bogus votes are not counted in the end results
7. Role based access control to restrict unauthorized access and provide access

on need to know basis

8. OVS would provide bilingual user interface
9. OVS will transfer information without replication through the network in order to provide less redundancy and high confidentiality.

c. Security and Compliance Standards

1. Implementation of robust security using cryptography, digital certificates, multiple user validation using smart card for counting process.
2. During development process, the TSP strictly followed coding standards to make system defect/bug-free (Java Coding Standards, JSP Coding Standards, Database Coding Standards)
3. Phishing. An SSL connection is used to prevent phishing attacks on the OVS
4. Denials of Service: In order to neutralize such attacks the OVS solution deployment architecture comprised of DR site with the same capacity and configuration as that of DC with a high bandwidth with firewalls that would be used to block traffic from IP addresses being used to bombard the platform with requests.
5. Virus Attacks: The solution uses proprietary data encryption technology before being sent to the Voting Server. However necessary firewalls and Antivirus commercial systems were installed to nullify virus attacks.

IV) Value Indicators

1. Digital Inclusion

Steps taken to address this factor

- The Online voting System is basically digital conversion of traditional voting process.
- Voter can register for vote through portal. Voter can vote online. All the processes including candidate approval, ballot approval, starting of election, counting of votes etc. are done online on internet.
- On Election Day toll free telephone help line service was provided to voters to help them to resolve any technical issues faced during voting operations.
- The system interface is designed in bilingual interface and presents all necessary instructions in regional language (Gujarati) and English.

5. The system actually abled the infirm and senior citizens, who were not able to visit EVM Polling Booths, to cast vote from comfort of residence.

2. eParticipation

Steps taken to address this factor:

- Various stakeholders were involved at various stages of the project implementation so that the system was designed as per their expectations.
- Once the system designed, necessary training sessions for SEC and Election Staff and mock voting for voters and political parties were duly arranged to create awareness of the new system.
- All relevant feedbacks received from the stakeholders were incorporated in the system.
- After the experience of first successful election, a feedback document was prepared and necessary changes were implemented from this document to ensure that the system is more user friendly in terms of operations for voters.

3. eWaste

OVS is based on a centralized architecture and the responsibility of the client end infrastructure rests on the voters and the election staff. Hence as such no eWaste is generated in the system.

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e-Services for Ration Cards

M S Jaya and Dr. K S Raman

I) Overview

e-Services is an important service delivery project of the Government of Kerala. The service is for enabling the citizens to submit online applications related to ration cards such as issue of new ration cards, transfer of ration cards or modifications in the existing ration cards. Citizens can also avail the assistance of the nearest service community centers like Akshaya for submitting their application forms. E-services was inaugurated by Sri. C. Divakaran, Hon. Minister for Food & Civil Supplies on July 23, 2010. In his inaugural speech, he pointed out that this service to the public is one of the most important achievements for Civil Supplies Department. With this service, citizens no longer have to take a day off from their routine work for submitting applications to Taluk Supply Office/City Rationing Office. The status of the applications submitted online will be available on the site. The new ration card will be delivered on the very next day. SMS alerts are delivered to the citizens when the processing of their applications is completed. Citizens no longer have to wait in serpent line queues before TSOs/CROs for submitting the applications and they are liberated from the manual procedural work flow followed in these offices. Transfer of ration card from one TSO to another TSO or transfer of a member from one card to another card of a different TSO is done online and thus saves the citizen the trouble of approaching both offices to get the task completed.

E-Services also provide service for online verification of ration cards and sharing of data between the departments. Service for verification of ration cards is required by the Government departments like Passport Office, Water Authority, Electricity

Board, Panchayat Office, etc. and private companies like mobile operators for verifying the genuineness of the ration cards that have been submitted by the citizens.

The major achievement of the project is that it minimizes the interactions of citizens with the TSOs/CROs. Officials of the TSOs/CROs are able to speed up the processing of the submitted online applications. Citizens through e-services submit approximately 3,000 applications per day. Around 4.5 lakh online applications have been submitted by the citizens till date. Online verification of ration cards enables the officials of the government and private sectors to easily verify the ration card details.

Another important e-Service delivery is the monitoring of food grains movement from the FCI depots and wholesale depots. As soon as commodities are lifted from the FCI depots or AWD depots, the details are entered into the system and SMS alerts are sent to those citizens who have registered for SMS. Thus, diversion of the commodities can be monitored and checked up to a certain extent while the food grains are being transported from FCI depots to wholesale depots or from wholesale depots to retail depots from the FCI depots.

II) Result Indicators

1. Key Performance

a. Service Delivered (G2C,G2B,G2G,G2E) with benefits

Citizens are able to easily access the e-services and get the required service. They need not travel to the TSO multiple times and stand in the queue for long hours. The authenticity of the ration cards could be verified using verification services.

b. Services Enhanced/Introduced Plan vs Status

1. Percent of services covered as ICT interventions 99%
2. Geographical Spread in the State achieved – All over Kerala

2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

The service is available on the website round the clock (24 X 7) and the delivery time reduced to one day from three months. The verification of authenticity of

the ration card was a major challenge and using the e-verification service module the ration cards could be verified within seconds by the authorized users. Citizens are able to know the stock details lifted and are available at the shops without having to visit the FPS.

b. Cost savings for delivering the above set of services:

The major cost saving is to the citizen who had to travel multiple times to the office for availing the service. The department could verify the authenticity of the ration cards and duplicates and fake cards, could be detected easily.

c. Time saving for availing the services (reduction in cycle time):

The delivery time of ration card and other services was around three months and this is reduced to one day. The verification service of genuine ration cards which was nearly impossible, could be done in seconds by the authorized users.

d. Cost saving for availing these services:

The citizen need not travel all the way to the Taluk Supply Office many times for availing the services. The travel time and cost of multiple travel is savings to the citizen.

III) Enabler Indicators

1. *Processes*

a. Major non-ICT front end process changes

The citizen could submit the application online or through Akshaya centers. They need not travel to the Taluk Supply Office and stand in the queue for long hours. The application details are captured through the e-Services module and processing them using the work flow based Ration Card Management System (RCMS) implemented in all 69 Taluk Supply Offices/City Rationing Offices in the State. The photography work was assigned to the Akshaya centres. The software has the facility of delivering the ration card through Speedpost.

The process of surrendering the cards for changing the residence to another location in the same state is eliminated. Now the major process change is the transfer of the ration cards from one taluk to another.

b. Major non-ICT back end process changes

The officials of the TSO could approve the applications in the workflow system. Various data authentications have been implemented and the senior officials of the Civil Supplies Department monitor and verify the authenticity of the data and can be approved or rejected.

The surrender of ration card for changing residence within the state has been eliminated and changed to transfer of ration cards.

Consolidation of the individual databases of all the 69 TSOs/CROs in the State to create the Central Ration Card database and synchronization of this data with the individual TSO/CRO database was the major challenge that was implemented.

2. *People and Resources***a. Project Management and Monitoring**

State coordinator and District coordinator for each district and coordinator for each Taluk supply office. The secretary of the department himself used to hold the review meeting at regular intervals for the implementation of the system. Development has been completed and the service has been implemented.

b. Training -Plan and Status

Civil Supplies officials and Akshaya center staff have been trained to use the system. Citizens were given the guidelines for using the site through newspaper media.

c. Change Management strategy

The applications for various services is now being accepted online. This totally eliminates the need for data entry of the applications. The officials were trained on processing the applications accepted online and also to use the ration card management system a workflow system for processing the applications. E-learning sessions and training sessions were conducted for training the officials.

d. Leadership Support and Visibility

Fully supported by the Government of Kerala, The Minister, Secretary and director and officials supported the project.

e. Financial Model

Funded by Government of Kerala, Technical Advice Consultancy and data center services provided by National informatics centre free of cost.

3. Technology

a. Strategy for Disaster Recovery and Continuity

Disaster recovery and business continuity plan defined and implemented - The service is operational from NIC Data Center and hence utilizing the facilities and infrastructure in the NIC Data Center

b. Solution Adopted and NeGP compliance

Open Source Solution used for the central database and no extra cost for license and maintenance.

c. Security and Compliance Standards

Proper User Authentications and Website Security Auditing has been implemented and the site is certified by CERT-in Empanelled security auditor.

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Online Scholarship Management System, Kerala

Shri Ajith Brahmanandan

I) Overview

The Department of Scholarship under Collegiate Education Directorate provides 14 types of scholarships to meritorious students of outstanding performance in the education sector as well as to the students of socially and economically backward categories. The Department of Higher Education, Government of Kerala, is entrusted with the responsibility of selection and disbursement of various scholarships to Higher Secondary, under Graduate and Postgraduate Streams. This project envisages the development and implementation of a web-enabled scholarship management system to facilitate the Directorate of Collegiate Education for an efficient, foolproof system for the selection of the students and disbursement of scholarships. The system facilitates the students to apply online for any scholarship announced by the department according to their eligibility. The system provides online verification and approval by institutions for the online applications submitted by their students. The Scholarship Department monitors and processes the online applications of the students for the selection and disbursement process.

Online Scholarship Management System is a web based application which takes care of all the activities of the scholarship department starting from the publishing of Notification on scholarship announcement to the final disbursement of scholarship amount to the individual students' bank account. Renewal of any scholarships awarded earlier are also monitored and processed online through

the website. On the basis of the Government rule, multiple scholarships sanctioned for any student is identified and cancel the less beneficial scholarships for the student. This system replaces the manual procedures followed in the department and hence no manual process is maintained for the selection of scholarships neither any manually prepared registers. All the reports like preparation of award register, proceedings for the submission of Bill at Treasury, covering letter and selected students, list to institutions, etc. are generated in the system.

The electronic disbursement of scholarship amount is enabled in the system by generating files compatible for e-transfer by bank and updating the system back with the transferred or rejected status with the status file returned by the bank. The reconciliation reports for the proper monitoring of multiple bank transfers for various scholarships are also provided in the system.

The management of Online Scholarship System is done by the Website Administrator, who announces the scholarship dates, notifications, banners, news and makes updates on the site. The administrator opens and closes the site for online registration of scholarships and its renewals for students as well as institutions. The administrator can monitor, reply or forward the complaints and suggestions given by the students and the institutions. The eligibility of any scholarship is monitored and institutions and courses are mapped to any scholarship by the administrator. The system provides the status of applications submitted by any student at any point of time. Students can apply for multiple scholarship and select the most beneficial scholarship awarded to them through the site. Students can monitor the different stages of their application through this system.

The Government of Kerala is disbursing various scholarships awarded to meritorious students of outstanding performance in the education sector as well as to the students of socially and economically backward categories. The Higher Education Department of Government of Kerala is entrusted with the responsibility of selection and disbursement of various scholarships to Higher Secondary, under Graduate and Postgraduate streams. The department collects the applications from students and verifies the details against the documents submitted. The applications will be sorted and a selection list will be prepared based on the eligible applications. Then various registers are prepared for the monitoring of the scholarship disbursement. Scholarships are disbursed to students by drawing demand drafts in favor of students or institutions. Each scholarship

is handled independently and duplications or multiple scholarships or fake applications are not identified in this system.

The scope of the project is to provide an Online Administration and Management of Various Scholarships awarded by the Higher Education Department of Government of Kerala. The project covers the development and implementation of a web-enabled scholarship management system to facilitate the Directorate of Collegiate Education for an efficient, foolproof system for the monitoring of application registration, verification of applications, selection of applied students and disbursement of scholarship to the students accounts. The system facilitates the students, various educational institutions and the Scholarship Department to update and monitor the selection and disbursement process.

A general procedure is put forward for facilitating an e-submission of applications for the scholarship by online registration of students. The website www.dcescholarship.gov.in contains online submission of application by students, verification and approval of applications by the respective institutions and processing of selection list by the directorate of Collegiate Education (DCE), Kerala.

1. *Online Registration for e-submission of scholarship application*

Students who wish to apply for a scholarship should register online through the scholarship website www.dcescholarship.kerala.gov.in of DCE, Kerala. A unique ID is generated for all the students who are registering in the site. The ID is formed based on the Board of Matriculation Examination passed, register number and the year of passing. Personal details, currently studying institution and course details, for which scholarship is being sought and the bank details are captured in the form along with the scholarship specific details which varies with scholarship. A student has to register only once to apply for any scholarship though the eligibility details have to be added according to the scholarship applied.

2. *Online verification and approval of application by the institution*

The verification and approval of any scholarship application is carried out by the respective institution. Students submit the application print out taken from the site along with the supporting documents to the institution. The administrative section or the nodal officer of the institution verifies the application against the supporting documents item by item. The principal then approves or rejects the verified ones.

3. *Online selection process and bank transfer by the department*

All the approved applications are considered for the selection process. The department does the selection process online, verifies the selected students list against the various reports generated as awarded students list, eliminated students list, etc. Students selected for more than one scholarship are identified and their less beneficial scholarships will be cancelled. Further the final list of the selected students is considered for the disbursement of scholarship amount through a bank transfer procedure. The soft copy of the list to be transferred is generated from the system, which is precisely in the bank requested format and submitted to the bank. In turn bank returns a status file within a maximum period of 2 days, which is uploaded to the site and transferred or rejected status is set to the site.

4. *Online monitoring of application status by the stakeholders*

The status of all the registered applications is made available on the site. At any point of time, students, institutions or any general public can see the current status of the applications registered. Awarded students have a separate list provided on the site, which also shows the transferred status of the scholarship amount.

5. *Goals/Objectives*

The main goal of the system is to handle the increased number of scholarships and the applications received by the department in an efficient way. The system should provide transparency in the scholarship selection activities and all the stakeholders could monitor their application status. The system should enable efficiency and easiness in the scholarship renewal and disbursement. The system should avoid the disbursement of more than one scholarship to a student. The system should enable electronic transfer of scholarship amount to the students bank account directly.

6. *Benefits*

In addition to the achievements gained for the goals and objectives set for the system, the reachability of the scholarship increased and hence the number of applications to each scholarship also increased. All the thirteen scholarships under Collegiate Education Department are standardized with a generic form and procedure. Transparency increased which enables the students and institutions to know the status of any scholarship applied at any point of time. This carers the queries of the students and the institutions and thus minimizes the queries to be

answered. Multiple scholarships for a student can be easily identified by the system. Students sanctioned with a fresh scholarship and renewal scholarship also can be identified and the most beneficial scholarship can be selected. The system answers most of the queries of the students and the institutions. The officials are able to speed up the entire scholarship activities up to the disbursement of the scholarship amount.

II) Result Indicators

1. Key Performance

a. Service Delivered (G2C,G2B,G2G,G2E) with benefits

Benefits Delivered:

1. The total number of students registered online for 10 types of fresh and renewal scholarships for the academic year 2010-11 is 1,17,502, out of which 87,285 scholarships were sanctioned. An amount of Rs. 15,99,97,245 is disbursed to 66,814 students as on date. The entire process is transparent and is available in the system to the public. The entire process happened within a short span of time, which is due to the introduction of this system.
2. Another main achievement of the system is that around 3,000 scholarships were identified as multiple scholarships and were cancelled and another 650 scholarships were withheld as a second scholarship and disbursed after the less beneficial scholarship is refunded which would not have been even identified otherwise.
3. A standard form and procedure is identified for all the 13 scholarships under the Collegiate Education Department. The department could complete the entire scholarship activities within the stipulated time, unless the activities would have extended to another 8 months.

G2C:

1. Any student can apply online and submit the application to the institution without any traveling.
2. Students and institutions can follow up the current status of their application online at any point of time.

3. Students are alert with SMS on the non-verification and non-approval of application. SMS alerts are also sent intimating the scholarship amount transfer.
4. A unique ID issued for any student who applies even for multiple scholarship.

G2G:

1. Government can monitor the statistics of the scholarships announced from the registered count to the total amount transferred at any point of time.
2. The selection process time for any number of applications reduced to minutes from days or weeks.
3. A Herculean task of drawing Demand Drafts (DD) for these many number of students for disbursing scholarship amount is made easy by enabling electronic transfer through providing soft copy of students account details to the bank.
4. Monitoring of scholarship amount transferred by the bank is also made available on the site by uploading a status file given by the bank, which takes only a few minutes.
5. A standard form and procedure is identified for all the 13 scholarships under the Collegiate Education Department.
6. The entire activity from announcement of scholarship, publishing the notification, opening the site for online registration, closing the site, selection process activities, final list and reports generation, enabling for e-transfer of scholarship amount, updating the transfer status till reconciliation reports are managed and controlled by the Department administrator.

b. Services Enhanced/Introduced Plan vs Status

1. Introduced a generic format for student registration to apply for any scholarship under the department.
2. Introduced a unique ID to the registered students, which stops duplicate registrations and helps to identify multiple scholarships sanctioned to any student.

3. Introduced online registration of students and online verification and approval of applications by the institutions.
4. Enhanced the feature of cancellation of less beneficial scholarship by student/institution before the disbursement of scholarship. This avoids the withholding of most beneficial scholarship due to the transfer of less beneficial scholarship.
5. Enhanced the feature of online registration, verification and approval to the students studying in the institutions outside Kerala.
6. Enabled the online registration of three more scholarships this year
7. Extended the functionality of online receipt/acknowledgement of scholarship amount by the institutions, which avoids the dispatching of students list with covering letter of awarded students and their amount to institutions by post and getting a reply back by post from institutions and thus avoiding the delay in it.
8. Extending the functionality of generating notifications online and then publishing the same on the site for the initiation of any scholarship.

c. Implementation Coverage

1. All the 13 scholarships and their renewal made online starting from scholarship announcement till the amount credited to students bank account.
2. Any Kerallite student studying anywhere in India or abroad can apply online for any of these scholarships under Collegiate Education Department.
3. The site is maintained by the Administrator designated by the department and completely managed by them.

2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

1. Without this system, the department could not have handled the 1,17,502 applications received for scholarship.
2. Students need not send their application to Scholarship Office, which eliminates postal charges.

3. Students/Institutions need not travel for the submission of the application or for any follow ups, which avoids the time and money involved.
4. Sending the DD to individual students and fee charges to institutions got eliminated which reduces the postal charges.
5. The processing time reduces to a few minutes from days/weeks for any scholarship.
6. The time required for scholarship activities like preparation of award register, proceedings, covering letters to institutions, etc. reduces drastically to the time required for taking the print outs from the system.
7. Sending SMS to students informing the status of their applications reduces the time required otherwise and the cost reduced to 10 paise/ SMS.

b. Innovative Ideas Implemented

1. Introducing a unique ID for any student registering for scholarship, which avoids the duplication of registration and applying for multiple scholarships with the same ID.
2. Renewal of any scholarship with the same Registration ID keeps track of the student's historic details and checks for the sanctioning of any other fresh scholarships.
3. Online verification and approval enables the institutions to keep track of their students who are applied and awarded with scholarships.
4. Implementing the rule of only one scholarship to a student, which is most beneficial, is made true with the introduction of this system.

c. Integration with Other Systems

1. The higher education scholarship awarded by the Higher Education Council and the Merit-cum-Means Scholarship awarded by Department of Technical Education are integrated to this system to identify whether any student is getting a second scholarship from this department. Since those two scholarships are more beneficial, such scholarships under the Collegiate Education Department are cancelled to enable more students to get the scholarship.

2. For providing District Merit Scholarship, which is disbursed to students of SSLC who passed with A+ in all subjects, the data is taken from DPI and integrated to scholarship system, so that those students alone can apply for District Merit scholarship.
3. For the Central Sector scholarship, which is awarded to +2 students on merit basis, the data of students who received more than 80% of marks is taken from the Higher Secondary Directorate and integrated to scholarship system, so that those students alone can apply for the same.
4. Electronic transfer of Scholarship amount through bank is made possible by providing the data compatible to bank and the status file receiving from bank is updated back to our system without making any changes in it.

III) Enabler Indicators

1. Processes

a. Major non-ICT front end process changes

All the below mentioned strategies planned are implemented in the system.

1. Stopped the acceptance of manual applications and enabled online registration of all applications for any scholarship through a generic and standard format.
2. Stopped the verification of applications by the scholarship department and entrusted a two-level online verification by respective institutions, which provides more correct data and made the process easy, since the works distributed to a larger group.
3. Departmental verification made mandatory for unaided/private institutions, to avoid unauthorized and illegal applications.
4. The selection process made through system, which enables a faster and more precise list of awarded students.
5. All reports, registers, proceedings and covering letters to institutions generated through system, which reduces the time consumed and work involved.
6. Enabled electronic transfer of scholarship amount

b. Major non-ICT back end process changes

All the below mentioned activities (other than departmental activities) planned are implemented and managed by the Departmental Administrator.

1. Announcing the scholarship on the site by putting banners, notifications and news.
2. Opening and closing of online registration of students for any scholarship and its renewal are managed by the administrator. Also provides options to institutions to verify and approve while students can only modify their registered details.
3. The eligibility conditions for any scholarships can be decided or modified by the administrator including the decision on category of institution and course to be considered for scholarship.
4. Identifying the application users and mapping their roles and activities are
 1. Providing the selection list of students for renewal of scholarship is managed
 2. Integrating the data of A+ students for District Merit Scholarship and Higher Secondary students for Central Sector Scholarship are done.

2. People and Resources

a. Project Management and Monitoring

A project coordinator and a website administrator from the department are designated for the overall monitoring of the system. Nodal Officers are identified from institutions for guiding the students and doing the institutional activities. Director and Additional Director of the department monitor the statistical progress on the registration and all levels of process.

b. Training -Plan and Status

All the staff of the department including the Special Officer Scholarship is given extensive training on the use of the system. Awareness programmes are conducted for Arts and Science Colleges covering the entire Kerala and coordinators of other Directorates. Step by step instructions on the online registration procedure is provided on the site for the guidance of students.

c. Change Management strategy

Stopped the acceptance of manual applications.

1. Changed to online verification and approval by institutions rather than doing it by the department.
2. Enabled electronic transfer of scholarship amount rather than drawing Demand Drafts for individual students.
3. Informing the application status to students and institutions by SMS.

d. Leadership Support and Visibility

Fully supported by the Government of Kerala. The Secretary, Director and Department officials supported the project.

e. Financial Model

Funded by Government of Kerala Technical Advice, and consultancy provided by National informatics centre free of cost. Data center services provided by the State Data Center of Government of Kerala.

3. Technology

a. Strategy for Disaster Recovery and Continuity

The service is operational from State Data Center of Government of Kerala and hence utilizing the facilities and infrastructure in the State Data Center.

b. Solution Adopted and NeGP compliance

Open Source Solution used for the central database and the front end application. No extra cost required for license and maintenance.

c. Solution Adopted and NeGP compliance

Proper User Authentications and Website Security Features has been implemented.

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*SAND: System for Attumanal Neutral Distribution**

Shri. V Sanal Kumar and Shri. Suresh K

I) Overview

A house is one of the basic requirement and dream of every family. It is also one of the basic amenities promised by the Government as echoed in the slogan “Roti, Kapada Aur Makkan”. Sand is one of the most essential commodities for construction of a building. But due to unhindered exploitation, especially of river sand, and considering the ecological imbalance and disasters caused the Honorable High Court of Kerala intervened for protection of the rivers from which sand is mined without any control. Subsequently, Government of Kerala introduced legislation restricting the mining of the sand from rivers. At the same time sand is one of the most essential materials for building construction. Since restriction caused scarcity, the market forces started playing and the rate of sand went up. The sand, officially available was not sufficient to meet the entire requirements and consequently unauthorized mining started flourishing. Since business in sand became lucrative, anti - social elements thrived in unauthorized mining and also in cornering all the officially available sand. The passes available from grama panchayats were amassed by brokers and middlemen. The menace grew to such an extent that person conducting unauthorized mining on transportation of sand is termed as Goonda and detained without trial. This sand was again purchased at exorbitant rate by construction firms. The cost of sand went up to Rs.20,000/per truck load on the minimum in the open market whereas what the Government received only Rs.2,000/ per load of which Rs.1000/ was

* Winner of CSI-Nihilent e-Governance Awards for the year 2010-11.

given as wages. There was public outcry against such a situation wherein ordinary citizens especially those below BPL and below middle income group were unable to get sand at reasonable rate.

Discussion with people's representatives, trade unions, etc. it was found that a system could be worked out to ensure that sand officially mined is given only to the actual consumer with preference to those building own house. Since information technology is the rule of the day, a software package to ensure that the minimum required sand for a house building is provided to a family at reasonable rate through a centralized booking system was formulated. The SAND software is the result of district administration reinforced commitment to the citizen with the help of national Informatics Center NIC . The system aims for a transparent, online computerized booking mechanism and issue of pass for allotment of sand to citizen. The design and development of the project was done and successfully executed in Thrissur district with the technical assistance of NIC.

SAND is gradually matured into a rugged and reliable product for handling sand mining related activities in the district. Due to its success, the project was successfully replicated to other mining districts like Palakkad, Idukki, Kozhikode and Kannur of Kerala. The project brought transparency and fairness in the sand mining process.

SAND uses ICT tools to reach rural citizen. It also makes use of most modern technologies like RFID, barcodes and palm computers very effectively.

SAND bagged best citizen - centric e-governance award by the Government of Kerala.

Through this system for 'Attumanal' Neutral Distribution, coined 'SAND', the allotment of river sand will be made on a first come first serve basis and strictly based on some norms. Complying to restrictions of allotments, which have been imposed by the Government authorities, the system will help the officers of various Taluks/Districts to control and distribute the quantity of river sand that can be lifted from various 'Kadavu' in an organized and neutral manner.

The SAND ensures that only maximum 8 loads of sand is given for a house construction. Even though this may not meet the entire requirement, **all the people will get at least a minimum quantity of sand. Simultaneously, they can also use other alternatives to make up for the shortfalls. So, the practice of entirely depending on the scarce natural resources is reduced to a great extent. Ecologically, this is a very positive step.** An individual is given sand only once for the construction of house. The individuals are identified through electoral identity cards. So there is no misuse of applications. Certificate from the concerned panchayat/municipality is required for granting the sand. These steps have drastically controlled the foul play made by the middlemen. The actual consumer is able to get the sand at Rs.2,450/ from the mining point. He can bring the vehicle of his choice to transport the sand.

The key impacts/features/goals of SAND are

1. Replacing market forms with equity and need.
2. Keeping at bay the anti-social elements.
3. Message in taken to conserve the nation.
4. Enquiring alternatives; Overall public interest; and effective sharing of natural resources.
5. Restricted use of natural resources; sand is available to the citizen at Government rates.
6. Price for a truck load reduced from Rs.15000/ to Rs.3500; no artificial inflation.
7. District administration gets full control over river sand mining.
8. Reduction in accident rate.
9. No middlemen and elimination of SAND mafia! Reduces the work load of the officers involved.
10. Effective use of ICT tools (citizens can now submit their application on internet or through ICT community centers named AKSHAYA. BARCODED passes will be issued after remitting the money. At the mining points, RFID tags are used along with PALM computers to distribute the sand.

II) Result Indicators

1. Key Performance

a. Service Delivered (G2C,G2B,G2G,G2E) with benefits

Benefits Delivered:

1. Online application for SAND over internet with vernacular language support, Essentiality Certificate, SAND pass, search facility, SMS services, KIOSK modules – G2C
2. Workflow model for stakeholders – Local body and Revenue Department – G2G
3. MIS reports for Tehisildars, District Collector and Secretariesn local bodies – G2G
4. Financial reports for audit purpose, reconciliation – G2G
5. Barcode, RFID - based retrieval of data to Police department, stakeholders – G2G

b. Services Enhanced/Introduced Plan vs Status

1. Planned to introduce online payment, online search facility for police officers using palm computers.
2. Started with Thrissur district. Replicated to Palakkad, Kozhikode and Idukki districts of Kerala. GOK has shown interest to roll out the project to other mining districts. Interested queries received from West Godavari District.

2. Efficiency Improvement Initiatives

a. Time and Cost Efficiency

1. Time and cost efficiency improvements in delivering and availing of ICT - enabled services;
2. Citizens can apply online; the application will undergo a work flow model with the concerned local body issuing essentiality certificate after site verification. This online certificate will be received by the revenue department through work flow model.

3. SAND allotment intimation will be sent to general public as SMS, through the same site. The process saves time and improves quality of service.
 - No need of citizen to visit different offices;
 - Citizen will receive the payment dates through SMS and internet
 - Use of RFID and barcodes in the project saves time and prevents misuse to some extent at the mining points.

b. Innovative Ideas Implemented

1. Online application, work flow model and SMS services. Barcode and RFID with palm computers are used under the project for better transparency and faster service.
2. Key impact –
 - Replacing market forms with equity and need.
 - Keep at bay the anti-social elements.
 - Message in taken to conserve nation.
 - Enquiring alternatives, overall public interest; effective sharing of natural resources.
 - Restricted use of natural resources; sand available to the citizen at Government rates.
 - Price for a truck load reduced from Rs.15000/- to Rs.3500 /-, no artificial inflation.
 - District administration gets full control over river sand mining.
 - Reduction in accident rate.
 - No middlemen and elimination of SAND mafia!
 - Reduces the work load of the officers involved.
 - Effective use of ICT tools (citizens can now submit their application on internet or through ICT community centers

named AKSHAYA. BARCODED passes will be issued after remitting the money. At the mining points RFID tags are used along with PALM computers to distribute the sand.

c. Integration with Other Systems

It is planned to integrate with local body/revenue department front office computerization for handling the workflow model.

III) Enabler Indicators

1. Processes

a. Major non-ICT front end process changes

1. Online submission of application compared to physical acceptance of application at mining points at a particular date and time
2. Work flow model electronic file flow model for issuing essentiality certificate against the passes amassed by brokers and middlemen.
3. Workflow model for revenue department up to the issue of sand pass against the passes through contractors.
4. Money remittance as DD in favor of District Collector by the citizens against temporary receipts and physical acceptance of money.
5. Collection to RMF, labor charges and local body contribution automatically through bank against remittance of money physically by the stakeholders at irregular intervals.
6. Barcode, RFID and readers against manual issue of pass at the mining points.

b. Major non-ICT back end process changes

1. Online submission of application compared to physical acceptance of application at mining points at a particular date and time
2. Work flow model electronic file flow model for issuing essentiality certificate against the passes amassed by brokers and middlemen.
3. Workflow model for revenue department upto the issue of sand pass against the passes through contractors.

4. Money remittance as DD in favor of District Collector by the citizens against temporary receipts and physical acceptance of money.
5. Collection to RMF, labor charges and local body contribution automatically through bank against remittance of money physically by the stakeholders at irregular intervals.
6. Barcode, RFID and readers against manual issue of pass at the mining points.

2. People and Resources

a. Project Management and Monitoring

1. Project management and monitoring adopted;
2. Project overall supervision and management by the Revenue Department headed by the District Collectors;
3. Project monitoring by District Level Expert Committee (DLEC);
4. Periodical review conducted on assessing feedback, value additions, and training;
5. Training of internal and external members on the use of the system – planned vs. implemented;
6. Number of users trained LB : 100; Corporation Municipality : 10; Revenue department : 10. Master trainers selected from each stakeholders.
7. Change management strategy defined and implemented;
8. This is the first project in Kerala which runs vertical/horizontal data transfer between departments. The approved files automatically reach the Local body, collectorates and taluks through work flow model;
9. Leadership support (political, bureaucratic) and its visibility;
10. District level monitoring committees consist of elected representatives from local bodies where mining points are located. District collector is the chairman of the DLEC. Support from local body and revenue department top officials.

b. Training -Plan and Status

1. Applaud from High Court of Kerala.
2. Bagged best citizen service project from GOK: <http://news.kerala.nic.in/imgmulti.aspx?Id=E1267>
3. Financial Model (funding pattern , business model, PPP, etc.) defined and implemented

c. Change Management strategy

SAND Project is self sustainable and sealable. SAND is a self - supporting venture with no funding from exchequer. Since sand is always required for the house construction, there will always be demand for the Government controlled source. So the project can be utilized for ever.SAND projects operate on self-generated income in the form of users fee. Rs. 25- @ truck load will be charged which is very nominal, but sufficient to run the project.

3. Technology**a. Strategy for Disaster Recovery and Continuity**

The Website is hosted at Government Owned Data Centre (SDC-Kerala), which will take care of the backup and recovery. Locally the database is replicated and DC camp office is connected through KSWAN and a replica of the database is kept at the disaster center.

b. Solution Adopted and NeGP compliance

SAND is built purely on an open source web-based technology. It was built on MySQL-PHP-based software. It works on any internet browser like IE or FireFox. Core technologies like Apache, PHP and MySQL on Linux are used. Strict SAND provides the effective use of technologies like RFID and Barcode for better security with open standards.

c. Security and Compliance Standards

1. High standard USER credential setting, password using hash md5 standard;

2. Work flow model purely on VPN; and
3. Public module hosted at SDC maintaining secured and confidentiality standard.

IV) Value Indicators

1. Digital Inclusion

Steps taken to address this factor

Citizens are provided with vernacular language support in the services. Manuals and support documents are prepared in local languages. Help counters at Grama Panchayat and Taluks formed to assist citizen. Information community centrer are trained to assist citizens (Akshaya Centers)

2. eParticipation

Steps taken to address this factor:

After citizens apply for SAND on line, the file is available to the local bodies automatically; they will issue essentiality certificate online. Since the document is captured at source, e-participation of authorities concerned will ensure quick decision making.

3. eWaste

Steps taken to address this factor:

As and when an ICT item is purchased it should meet the green standard, also a buyback policy is framed to remove the e-waste.

Mr V Sanal Kumar, Ex. District Collector, Kerala, kertsr@nic.in and Shri. K Suresh, District Informatics Officer, National Informatics Center, Kerala. Shri. P M Francis, IAS, District Collector, Presented the case to the committee.

*Property Tax Management System Using Geospatial Technology**

Shri R Vikram Singh and Shri. U N Tiwari

I) Overview

For the first time e-governance is GIS-enabled and forms a spatial decision support system in a local government. The system has resulted in enhancing the property-based tax revenues by three times as compared to the system that existed prior to the introduction of the GIS-based application. The other positive fallouts of this endeavor have been:

1. Transparency in governance;
2. Reduction in delays in government processing of grievances;
3. Online tax payment and status verification facility removes intermediary agents facilitating the same; and
4. Better revenues for investments into civic facilities.

Kanpur is a metropolitan city, sprawling over an area of 260 sq km. According to the Census 2001, Kanpur has a population of 25.51 lakhs. It is administratively divided into 6 zones and 110 wards with an average ward population in the range of 19,000 to 26,000.

As a part of the e-governance initiatives, full form envisaged development of an online web and GIS-based property tax calculation, information and payment

* Winner of CSI-Nihilent e-Governance Awards for the year 2010-11.

system as a pioneering effort in the country. The scope of this work covered the following major activities:-

1. Creation of a GIS-based spatial property database involving:
 - Procurement and supply of Quickbird Image (0.6 m resolution) for the entire area under the KMC jurisdiction.
 - Georectification of the satellite image from the GCPs collected from DGPS survey.
 - Updation of digital GIS maps of KMC with the help of geocorrected Quickbird data and preparation of data for the assessment list.
2. Conduct a property level survey for every property unit.
3. Development of informative and interactive web GIS system for online property tax calculation and payment.
4. Development of desktop application for property database repository management and tax assessment.
5. Supply and installation of software, hardware and networking with server and additional peripherals.
6. Training of KMC personnel
7. Renumbering of properties with unique premises number and fixing of house number plates.

The scope of the work mentioned above could be categorized into the following two broad components based on the requirements of the KMC project :

1. Property survey and GIS database creation
2. Application development and website development

1. Property Survey and GIS Database Creation

Quickbird satellite data was procured and georeferenced based on the ground survey conducted to collect the GCPs through DGPS. Base data of 1:1000 scale was created through digitization of satellite imagery and supplemented with secondary ground survey to capture information on covered/carpet area, land use, occupant's details,

condition of structure, etc. The mapping was done using the Quickbird satellite data for conducting the primary contact property survey.

2. Application Development and Website Development

The software development effort for the Kanpur Municipal Corporation included development of KMC portal and desktop application.

a. Desktop Application

A desktop application was also developed as a part of the project, providing a GIS interface to perform conditional queries on database such as 'Tax collected by Zone' or 'Tax collected in a financial year for a selected ward'. The database is linked to spatial layers to display results of analysis and queries on GIS maps. The application also enables the KMC staff to calculate tax based on digitized areas taking into account the Unit Area Method and generate various kinds of reports required in the day-to-day operations of KMC. The primary focus of the application was to provide a server-based Geographical Information System with key spatial layers and links to the relevant textual/graphical information available in the database.

b. KMC Website

An interactive website was developed for KMC to provide online information to citizens on

- Property Tax Details
 - a. Property tax liabilities
 - b. Existing status of paid taxes
 - c. Annual taxes due to be paid
- Online property tax calculation based on the Unit Area Method and online tax payment.

II) Result Indicators

1. Key Performance

- a. Service Delivered (G2C,G2B,G2G,G2E) with benefits

Benefits Delivered:

The project provides the following services to the stakeholders (citizen/government department):-

1. An overview of the city;
2. Online property tax calculation;
3. Hassle-free online property tax payment facilities;
4. A facility to access different maps based on zones, wards and property ;
5. GIS-based spatial searching and identification of properties;
6. Online birth/death registration;
7. Online grievance redressal module;
8. Library of different forms for downloading;
9. Citizen forum for interactive discussion ;
10. Ward wise/property-wise maps with civic infrastructure details like roads, lanes, by-lanes, parks, electric poles, telephone poles, railway lines, hotels, hospitals, police stations, schools, cinema hall, etc.; and
11. The information can be used for research/development, conceptualization of infrastructure and other projects.

2. Efficiency Improvement Initiatives**a. Time and Cost Efficiency**

1. Reduction of time in surveying the area and mapping;
2. Time saving in tax calculation;
3. Better understanding of property tax calculation;
4. User-friendly application for day-to-day tax management;
5. Web application for hassle-free tax calculation and payments;
6. Creation of GIS-based spatial property database;
7. Map-based tracking of property tax defaulters;

8. Basic information system available through RTI;
9. Revenue generation efficiency; and
10. Digital map already used in:
 - Planning and revenue generation,
 - Delimitation of KMC wards,
 - Ward-wise Backward Population survey,
 - BPL (Below Poverty Line) Survey,
 - For planning, design/implementation of water supply and sewerage projects under JNNURM.

III) Enabler Indicators

1. Processes

a. Major non-ICT front end process changes

information collection system changes are as follows:-

- **Kanpur City Level information collection system:** Kanpur city level information, specially the basics of the city and landmark, are available online.
- **Property Tax Data:** Property tax data which was available on paper only, is now easily available through website.
- **Tax Calculation System:** Previously it was manually calculated, now it is based on software and is available on desktop through KMC server.
- **Online Birth and Death Registration:** Online Birth and Death registration facility available previously was based on paper submission, now it is online.
- **Grievance redressal system:** It is a transition from Grievance redressal on paper to Grievance redressal System on-line.
- **Contribution of development of Kanpur through “Fund your City”:** For active participation in the development of the City, we have started a new chapter “fund your city” through which any one can make financial, technical, managerial other contributions to the

development of Kanpur. One can suggest proposals/projects in which he has personal interest.

- Different types of reports based on the above-mentioned facilities is always available on the server or online.

b. Major non-ICT back end process changes

- A quick and always available MIS.

2. People and Resources

a. Project Management and Monitoring

Monthly review meeting system at the highest level and day to day monitoring at project management level.

Full-time Project Staff:

1. Project Administrator
2. One IT Officer
3. One GIS Coordinator
4. 20 Computer Operators
5. 50 Computer Clerks.
6. One-year consultant support for trouble shooting.

b. Training -Plan and Status

The project has covered with technology support for one year. In this period there will be technology transfer to KMC staff which is already working.

1. Capacity building plan.
2. Computer literacy and staff skills training of the concerned employees is being done in-house in phases.
3. Technology transfer and training of KMC official in GIS is one of the important component of the project.

c. Change Management strategy

1. Capacity building of the present staff is being done through training and orientation.
2. The maps need regular updation which has been integrated with the map sanctioning system.
3. Quarterly return from the field information will be integrated with the present map to keep it updated.

d. Leadership Support and Visibility

During the Project:

1. The project faced strong opposition from the grassroot level workers to senior officers of the corporation itself, as it exposed the gaps and revenue sharing holes.
2. The change in the tax level directly affected the property owners whether government or private which led to many litigations in the local court as well as Honorable High Court.
3. The issue of tax revision was grabbed by the political parties and a big hue and cry was made in the parliament elections till it was stayed by the State Government.
4. The details of the whole project, need of the project, modality, transparency in the system, use of GIS and other techniques, its public interface, revenue generation details and the grievance redressal system to be applied in the project was explained to the Government and Government vacated its stay. It was discussed in detail at every level to clarify the confusion created about the project.
5. To ensure the quality of the data three times filtration/field verification was done.
6. This tax revision was made after 21 years, it resulted into many fold increase in the tax amount (from three times to ten times). The major increase was because of the increase in land cost rates and addition/alterations of the building or the change of the use of the property (from residential to non-

residential or industry).

7. Visualizing the acceptability factor, the land cost-based rates were substantially reduced. The grievance redressal system was decentralized to six zonal officers under the supervision of Deputy Municipal Commissioner to cater fast decision. This system worked actively throughout the year.

After the Project:

1. The system has been enforced completely.
 2. Litigation in the courts have been decided in favor.
 3. Everyone is happy because the collection is three times than the previous year.
- *Project has been listed as one of the best practice by PEARL (an initiative under JNNURM).*
 - **A paper was presented at “Map World Forum 2009”, organized at Hyderabad in which the project was awarded Geospatial Excellence Award 2009 for “Geospatial Application for Decision Support System in Local Government.”**
 - **A paper-based on this project was published in the Arc India News magazine January-March 2009, volume-3.**
 - *“The Indian Geospatial Award 2009”, delivered by T Ramaswamy, Secretary, Department of Science and Technology, Govt. of India, New Delhi. Kanpur Municipal Corporation was awarded for Utilizing Geospatial Technologies as a part of e-governance initiatives. The award recognizes the effort in Successful Implementation of Technology, resulting in better revenue generation.*
 - *A poster presentation of the project has been awarded in “ESRI India User Conference 2009-10”*
 - *The project was awarded for SKOCH “ICT INDIA AWARDS 2010” for Property Tax Management System, 2010 by Honorable Minister of Urban Development, Government of India Mr. Jaipal Reddy.*
 - Participation in various awards/workshops and paper presentation by Municipal Commissioner and other senior officers along with project team.

e. **Financial Model**

It is a revenue generating project so it can sustain by the revenue generated on its own from property tax, advertisement tax, license, etc.

3. **Technology**

a. **Strategy for Disaster Recovery and Continuity**

A regular system of backup and mirror server is available.

b. **Solution Adopted and NeGP compliance**

KMC application uses the three-tier architecture based on ESRI technology. An ArcSDE service conveys spatial data between Geographic Information System (GIS) applications and a database. The system architecture uses database management systems (RDBMSs) – SQL Server with ArcSDE. It is a registered collection of ArcGIS feature classes. The application that can connect to and access spatial data from an ArcSDE service will be automatically designed in the application. The solution component for KMC application development and deployment follows three-tiered system architecture as given below:

1. Presentation Tier or Client Tier where the users access the KMC application through internet browser.
2. Application Tier where the KMC application business logic resides.
3. Data Tier where the KMC application databases reside.

c. **Solution Adopted and NeGP compliance**

1. Evaluation by JNNURM e-governance Project management unit.
2. Security audit of the website whether third party by CyberQ Consulting Private Ltd., New Delhi and APPIN Labs Ltd., New Delhi.
3. Annual audit by Auditor General, Allahabad, District Local Fund Account Auditors.
4. User-based login system and proper log book has been maintained for each and every record.

IV) Value Indicators

1. Digital Inclusion

Steps taken to address this factor

1. It has triggered the forced capacity building in IT for the staff as well as the requirement of IT knowledge for the citizens and the requirement of IT infrastructure with internet.
2. To meet the public requirements private participation has been introduced to facilitate e-participation. The 29 Cyber Cafés of the city have been authorized/ licensed to serve citizens on nominal payment of Rs.5-10 depending upon the service requirement.

2. eParticipation

Steps taken to address this factor

1. Apart from developing interactive website the private participation has been introduced to facilitate e-participation. The 29 Cyber Cafés of the city have been authorized/licensed to serve citizens on nominal payment of Rs.5-10 depending upon the service requirement.

3. eWaste

e-waste is not being generated at present but compliance to the required standards will be made as and when required.

Steps taken to address this factor:

1. KMC has hazardous waste dumping site, simultaneously there are two private sites. It will be used in due course of time.

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