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e-Governance Initiatives for Monitoring and Agri- Input Management : An overview of Odisha Agriculture

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Abstract

To enhance efficiency in agricultural Governance through Digital India programme, the Dept. of Agriculture , Govt. of Odisha has adopted new strategies for electronic delivery services to the beneficiary. The system has revolutionized the input delivery system such as Farm implements, Pump set, Jananidhi, Commercial Agri Enterprise, Fishery Equipment , Issuance of Seed / Pesticide/ Fertilizer licensing certificate and monitoring system for Input, Certification of seeds and flow of seeds on seeds web portal by providing online services for effective utilization of transmitting, disseminating, sorting, archiving and retrieving critical information and data relating to agricultural output delivery system. Attempts have been made at different levels to make the Dept. of Agriculture more effective, transparent and accountable through the use of digital Governance and implement the agriculture policy in its true spirit and remove all problems faced at the different stages of implementation. This workflow automation system facilitates accuracy, clarity, competence and communication to the relevant stake holders. The output of the project is very encouraging which indicates that the farmers get the benefits in a transparent way and the quick delivery of inputs has become reality.

Keywords- Agriculture, ICT, e-JALANIDHI, e-PTS, e-Farm Mechanization, NeGP-A, WCF, RKVY, NFSM, pattern of assistance, subsidy, OSSC, OAIC ,OSSOPCA

1. Introduction

Indian agriculture has seen a steady transformation from subsistence to semi commercial and commercial mode. It has been in the path of revival due to policies and programs at the central as well as at the state level. Contrary to past trends, a larger share of incremental gain in the agricultural growth was attributed in the non-traditional states from the eastern India . State like Odisha has contributed significantly for last few years for the agricultural development and received due recognition from Central Govt. The Govt. of Odisha has taken several measures in the policy frontier to provide adequate supply of inputs and properly monitor its delivery in a transparent manner by using digitization process . This new strategy has led to revolutionary changes in the traditional system of record maintenance and used digitization process in the field of subsidy administration in a transparent manner. This includes Licensing system of all agricultural inputs, advisory system for e-Pest surveillance and pest management, online reporting system for crop weather watch group and tracking of seed flow on the seed web portal and keeping tab on seed certification process in a transparent way.

An attempt is made in this present paper to signify the work done in the field of e-Governance under the program

of Digital India. This digitization program enables the Dept. of Agriculture in enhancing its relationship with its minimum agenda of e-Governance i.e. integrating the Govt. function (G2G), integrating agribusiness partner (Implement vendors, Executants & Pumpset dealers) (G2B), concerning farmers (G2F) , empowering employees, enhancing Govt. productivity & values and maintaining transparency in the system .

Now the MMP (Mission mode project) of NeGP-A (Agriculture) looks forward for rapid development of Agriculture across the country through the use of e-Governance application .The Agriculture Department, Govt. Of Odisha has successfully implemented digitization process in twenty applications which are highly acclaimed at the highest level from the Ministry of Agriculture & Farmer Welfare, Govt. Of India.

2. Background

The Department did not have a robust monitoring system to know the status of all input dealers those are doing their wholesaling/ retailing job across the state of Odisha. The licensing system for agricultural input such as fertilizer, pesticides, seeds and CPCO (Commercial Pest Control Operation) consisted of an incessant process of violation of rule of law, accountability and lack of control of corruption . To overcome all those problems

encountered in the respective area was a big challenge for the Dept. Seed is the main input parameter for raising crop and Odisha state is not self-sufficient state for producing seed and huge amount of seeds are imported from different state seed corporation and National seed corporation. To keep track over the monitoring of the seed flow from Govt. agency to Seed dealer and from seed dealer to farmer was a tedious job for the Govt. Seed certification monitoring was also a very big problem for the Dept. to keep tab on the fake area registration at the farmer site. Lack of good governance is the underlying reasons for this problem. E-Governance approach helps to overcome these problems in following approach—manual system of input delivery and subsidy delivery in the Department of Agriculture, Odisha. Input and subsidy monitoring process was time consuming and not very effective to track at each point in the manual process. The disbursement process was taking months together. The license issuing process was very time consuming and there were very few avenues for cross checking the information received from the ground. The beneficiaries/dealers were running after the officer from pillar to post to get their subsidy dues, license and the TC generated for the seed grower. For each project multiple transactions were involved including huge paper work resulting in the process being more difficult and tedious. Taking all those issues into account a e-Governance cell was constituted consisting of scientists from NIC and officers of line Dept. to monitor all the issues relating to project deployment, data sharing to Govt. of India, project discussion with technical team of NIC. e-Gov cell took up the project for effective monitoring of delivery system of farm implements / licensing system of all input / Certification system of seed and organic product and advisory system for e-pest surveillance.

3. Objective & Priorities

Good Governance outlines a framework that promotes consistency and improved control of ICT projects, thereby reducing risks and increasing project successes. A consistent, structured approach to the way that ICT projects are initiated, planned, implemented and finalised, will improve the Govt's ability to adapt to changing circumstances in a timely manner, whilst ensuring that fiscal responsibility is maintained and quality outcomes are achieved. The development, deployment and proliferation of the new and emerging ICT application herald new opportunities for farmer's growth and development by getting all the agricultural inputs in a fair means way. Govt. Of Odisha initiated the e-governance program with a intention of helping the large / marginal / poor farmers/ seed growers/ agriculture entrepreneur of Odisha by providing quality product of agricultural inputs with subsidised prices and providing up to 50 lakhs of subsidy to the entrepreneur for doing their business in four sector (Agriculture, Horticulture, Fishery & Animal Husbandry) in a transparent manner

in RKVY, NFSM, Workplan & state plan scheme. The main purpose of using e-governance application is the dissemination of requisite information at right time to all the stake holders. Govt. of Odisha aims to facilitate the tracking of all types of seeds(Breeder, certified, foundation & TL) through a common portal and keep tab upon the seed grower and seed dealers.. Particularly for seed which is important among the other inputs involves the long process to become genuine . Process starts from certification of seed, TC generation, seed testing , Tag No generation . This workflow automation system facilitates accuracy, clarity, completeness and controlling changes and communicating to relevant stakeholders.

3.1 ICT Priorities Set

The overarching priorities of the ICT strategy determines to create the Odisha Agriculture as the smart Agriculture state in India. The Strategy first sets out the vision of easy transformation from manual process to new reengineered process in cost effective manner and then gives some background on the principles that have guided the thinking, the priority themes, where it is considered that digitization process should be focussed, and the key issues to be tackled. The principles followed are that the approach should be farmer-centered and should also encourage a co-ordinated approach to ensure project sustainability and best practice.

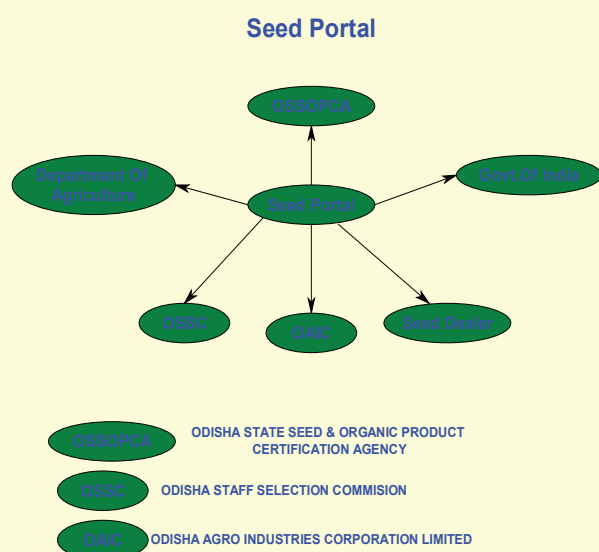
To better understand constraints in ICT adoption for agricultural application, feasible options to reduce these constraints and contribute to developing effective policies of Govt , many stake holders meet have been organized and issues raised by each was resolved by the Dept and NIC. The following steps have been taken into consideration priority wise to accelerate the stake holder and enhance the sustainability of the project:

- ✓ First and foremost priority of the initiative was to deploy all the activities of generating, processing, transmitting, disseminating, sorting, archiving and retrieving information in a secured environment as it involves the online financial transaction and also some information are transmitted to Govt. of India through WCF .
- ✓ Keep track on the demand and supply of stakeholders in fast process rather than keeping in pipeline.
- ✓ Subsidy release process and issue of all inputs license & immediate advisory to be made available for the pest situation were the big issues to be addressed on the web portal.
- ✓ Generation of timely reports as and when required by all the stake holders, questions raised by legislator in different business (Question, Calling Attention, Adjournment motion , Zero hour discussion) for different application on agriculture are to be immediately presented to Assembly and

- Lok Sabha and Rajya Sabha .
- ✓ Farmer should not be roaming here and there for getting information of availability of quality seed. A common web portal for seed was the first priority to render all the information relating to seed to all the stake holder including farmers.
 - ✓ Farmers should not be deprived from getting better implement and good quality of seed, fertilizer and pesticide.

4. Stakeholder Participation

The use of Good governance system means the interaction of stakeholder with the initiative should be encouraging to make the project successful and more robust. However, it also finds there are problems with applying a stakeholder perspective that must be understood including lack of openness among stakeholders, the problems of identifying who stakeholders are, and the subjectivity of stakeholder classification.



It is ensured that Dept. fulfils its overall purpose, achieves its intended outcomes for farmer, and operates in an effective, efficient and ethical manner. Agriculture Department, Govt. Of Odisha has its own purpose for providing good quality services and achieving best value for farmers. This system shares and disseminates the factual and accurate information to prevent any misleading information given to the stakeholder.

4.1 Stakeholders participated in OdishaAgriculture Online

- ✓ Directorate of Agriculture and Food Production, Odisha
- ✓ 30 Deputy Director Agriculture-
- ✓ 627 Nos of Assistant Agriculture Officer –
- ✓ 97 Nos of District Agriculture officer –
- ✓ 97 No. of Asst. Agriculture Engineers –

- ✓ 137 Nos of Executants./ 800 implement vendors/35 Manufactures for pump set/ 300 dealers for pump set / 5 Nos of Fishery dealers.
- ✓ Axis Bank / Bank of India / ICICI bank
- ✓ Farmers across the State- Beneficiary of the system.
- ✓ Odisha Agro Industries Corporation and Odisha state seed Corporation (Govt. of Odisha Corporation)
- ✓ Odisha State Seed Certification and Organic Product Certification Agency
- ✓ Deputy Director acts as Nodal officer from agriculture allied sector (Fishery, Horticulture, Animal Husbandry)
- ✓ District Collectors .
- ✓ Fertilizer/ Seed/ Pesticide/ CPCO dealers.
- ✓ Fertilizer/ Pesticide manufacturing company.

5. Reforms Initiated towards Digital India

Digital India initiative encompasses many diverse areas of government in its goal of transforming India into a digitally empowered society and knowledge economy. As Agriculture is the backbone of the livelihood security system of the people in the country so it needs to empower the farmer society with adequate information about the agricultural inputs, where to purchase the authentic input product, what is the subsidy value of implements and other . Digital India Program in agriculture sector aims at ensuring that the government services are made available to the farmers without any or through less paper work .

One of the key aspects of the initiative emphasizes Digital Empowerment of Farmers. The Digital India is based on nine pillars upon which agricultural sector, the key pillar appears to be number 5 - Electronic Delivery of Services - which describes ‘‘Services for Farmers’’ . Agriculture Dept. Government of Odisha has taken initiative towards digital India to achieve the goals for rendering the electronic service to farmers irrespective of farmer class (i.e. Small, large, marginal, tenant, women, share croppers & lessees). and the other stake holders those are doing their business for agriculture sector. The Following initiatives have already been taken into consideration

1. Delivery of the farm implements / Pumpset / PLIP /Commercial Agri Enterprise / Delivery of Fishery equipment (Net and Aerator Etc., to the beneficiary in DBT (Direct Benefit Transfer) mode.
2. Distribution of Seed from Govt Agency to the seed dealers those are registered in our Online seed licensing system . The dealer sells genuine seed to the farmer through online/offline mode. . The farmers buy the seed in all-in-cost price and the subsidy due will be credited to the farmer Bank account through PFMS in

DBT mode.

3. In this current age, most of the people like to buy the agricultural produce which are grown with the use of organic input product or less use of pesticides. Therefore Monitoring of Pesticide flow is a big challenge for Govt. to restrict use of pesticide. A complete workflow system has been designed for all scheme (RKVY, NFSM, NOOMP, OILSEED etc.,) to allocate their fund to the district and DDAs are allocating fund to the blocks. OAIC (Govt. Corporation) acts as a sole dealer to distribute the pesticide/insecticide/fungicide to blocks. Block level officers sell the pesticide to the farmers.

4. Seed Certification system involves online seed grower registration, verification and inspection of farmer field by the certification officer. Status of the seed growth have been entered at the farmer site in offline/ online mode, seeing availability of the network. To overcome these issues SIM based tablet application have been designed to resolve the problem of uploading the field inspection data. Easy payment gateway are in use to collect the payment from any bank at village level. TC and TAG no generations are the main issues that have been solved through this online system.

5. Seeds web portal is a part of Digital India the initiation stepped by the Govt of Odisha to tie of with the Govt. of India seed portal site. The complete flow of breeder/ certified seeds are refelected on the site. The stake holders are mentioned in fig. listed below.

6. Online Monitoring system of e-pest surveillance & pest management and crop weather watch group caters field level data collection weekly and consolidated reports have been generated at state level for enabling the need of Govt. of India reporting system.

6. Strategies adopted for bringing transformation:

In this current era of Digital India program of our Hon'ble Prime Minister, Dept's operations and strategic focus could be greatly enhanced by the well focused application of ICT to support improvements in productivity, management effectiveness and ultimately, the quality of services offered to farmers and to create awareness for full participation in the initiative. There are several concerns about its success as well as the strategies to be adopted in implementation of systems in various places across the state. Govt. Challenge was to require effective collaboration and coordination among the diverse project participants and a large no of geographically separated stakeholders including farmers involved at all the stages of the projects. Dept.'s main goal was the way of introducing and implementing newly developed ICT tools, Mobile Apps, and the latest technology to render better services to the farmers of Odisha. Various efforts have been made for providing online system by which farmers can be aware of the availability of the good

quality of fertilizer, pesticide and seed in his locality. The key factors which are identified, synthesized and categorized under common broad categories are

1. Disbursement of Subsidy administration process in a transparent and efficient way.
2. The licensing system of all agricultural inputs are monitored by district level /state level officer in a efficient way.
3. Immediate advisory for all pest/diseases affected area are addressed by the expert of State agriculture University (OUAT) on the web portal.
4. Online reporting system of Crop weather watch group are monitored by Govt. of Odisha/ Govt. of India.
5. Seed portal is designed with the integration of all seed related application (OSSOPCA, Seed Licensing System and Stock inventory of Seed) for monitoring Breeder seed (Indent, Allocation and lifting) .

Department train the farmer and build their capacity. The problems in the prevailing system was analyzed and identified by the Dept. with the technical support of National Informatics Centre, Odisha. System study was conducted with active participation of the stakeholders and technical team of the agriculture Department, Govt. of Odisha. The aim of the Dept is to increase information portability in the ICT environment, reduced hard copy storage of document, flow and easy retrieval of accurate information, compiled the multi locational information and disseminate the accurate information to all the stake holder including farmers.

7. Positive Impact on the ICT implementation

- ✓ Stakeholders participation is highly encouraging.
- ✓ Fast issue of Licensing system for the input dealer.
- ✓ Farmer gets best advisory for pest attack from expert.
- ✓ Seed growers gets up-to-date status through SMS .
- ✓ Good reporting system for seed portal (Integration of many individual portal) as a result Dept. officers gets report not disturbing the other branch of the Dept.
- ✓ No third party interference at the time of subsidy disbursement while directly credited to the registered bank account of beneficiary through RTGS/NEFT.
- ✓ Govt. of India collects Odisha crop weather report directly from our web portal.
- ✓ Dept. officer monitors the flow of fertilizer at a single click.

8. Increased efficiency of outputs/ processes

| Sl. No. | Factors | Before | After |
|---------|---------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| 1 | Time devoted towards monitoring by Dept. | 100 % | 20 % (it became easy to monitor the project from any place) |
| 2 | Participant/ Stake holder satisfaction . | Nil | 90% (At single click option all the participant get his/her status) |
| 3 | Effective change management. | Takes long time to implement. | Less time as directly it is updated on the online system centrally . |
| 4 | Target achieved | 40% | 95% |
| 5 | Multi location availability of data | Overlapped | The system has a clear and discrete time bound function for all the stake holders. Every action leads to another action. |
| 6 | Useful information compiled and disseminated to other project | Long process | Easily portable to other system. Interoperability facility available which takes very less time to get implemented. |
| 7 | Subsidy held up | Without any reason. Corruption level was high. | Everything is clearly mentioned in the system for the held up. Corruption is minimized. |
| 8 | Paper used | Many sets of paper for different tables. | Drastically reduced. System is green-governance compliant |

| | | | |
|----|--------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| 9 | Motivation of work force | Are Forced to the system | Automatically motivated as monitoring system provides all accurate information to the management of the Dept. |
| 10 | Manpower | 60% manpower (govt. Officers) were engaged for monitoring all the activities of system. | 20% of Govt. officers are engaged for the all activities of ICT application . |

9. Innovativeness and Reliability

This digitization programme provides innovative edge to the Dept. by using Mobile technology

(alert SMS / OTP at each point of execution) which is particularly a positive impact in this area.

For e- Jananidhi project, there is a mandate for all the beneficiary to take the photograph before and after the execution with the GPS location (Longitude and latitude) to restrict the fraud location execution.

The beauty of e-PTS project, duplicate engine no and EPIC no is not allowed by the system.

Inclusion of Randomization process for delivery of farm implement is a innovative steps of Govt. of Odisha towards the Digital India . Overtaking process is completely checked.

Tablet based application are made for the seed certification officer to enter the seed growth data at the farmer field to restrict the tampering of data. Mobile apps are designed to know the status of application of the beneficiary.

A systematic dashboard system has been designed in such a way that theoretical, conceptual and computational leverage is exploited by efficient representation of the directed graph and chart among the complex patterns of relationship among the entities of the different application to make it enable for the decision making branch of the department. Fusion graph and JSON charts are used for designing the graph in different format.

From the huge databank of farmer, Dept. could easily get detail information of the services availed by any farmer.

10. Results and Discussion

However, a word of caution given by Saul and Zulu (1994) is in order. The authors see ICT as a means to an

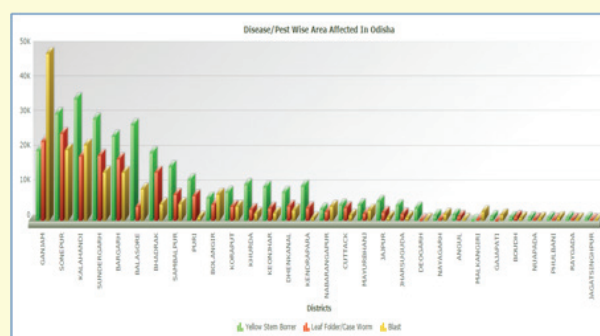
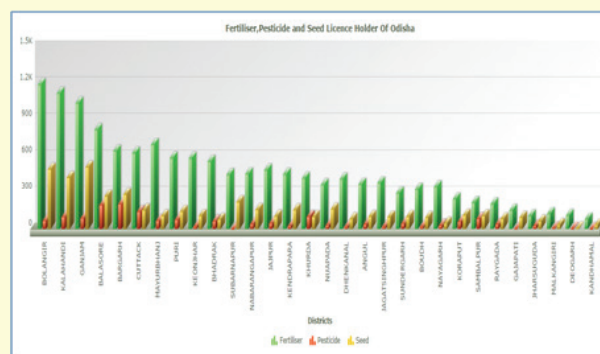
end and not an end in itself. The value of ICT lies in its ability to assist the government in finding solutions to its problems. As a result, there is a great hike of permit / Go-Ahead letter issued in favour of farmers of Odisha . Agro Dealers participation is highly encouraging. The Govt. officials are highly motivated to use the online system as it maintains all the tracking records which can be easily retrieved with a single query .

Traditionally, pen and paper have been used to collect data in the field for monitoring and evaluation of projects in rural areas. This approach is time consuming and susceptible to human error that may affect productivity and accuracy. ICT are now being used widely with remarkable positive results to perform the (M&E) tasks in agricultural development projects. Dept. has initiated to prepare dashboard / decision making system for all project to cater immediate result in a pictorial / graphical form .

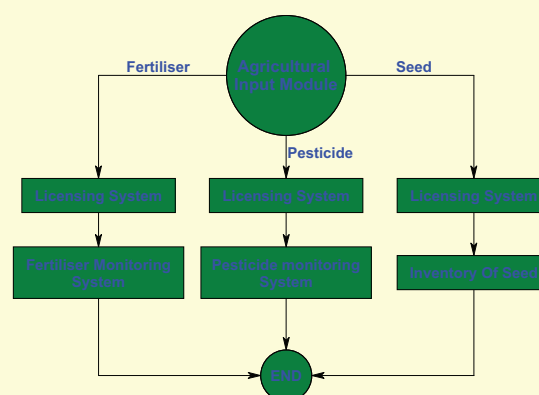
ICT Project Statistics

| Project | TOTAL PERMIT | TOTAL SUBSIDY |
|-----------------------------|-----------------------|-------------------|
| e-FARM MECHANISATION | 119642 | 7336370946 |
| e-JALANIDHI | 31661 | 1143063169 |
| e-PUMPSET | 110867 | 695769210 |
| COMMERCIAL AGRI ENTERPRISES | 432 | 414818768 |
| FISHERY EQUIPMENTS | 312 | 1847792 |
| | TOTAL | 9591869885 |
| PESTICIDE LICENSING SYSTEM | DISTRIBUTOR | 3204 |
| | MANUFACTURER | 165 |
| | STATE DEALER | 46 |
| FERTILISER LICENSING SYSTEM | WHOLESALE DEALER | 701 |
| | RETAILER | 13035 |
| SEED LICENSING SYSTEM | STATE DEALER | 66 |
| | DISTRICT DEALER | 4428 |
| CPCO | LICENSE HOLDER | 48 |
| Total | License Holder | 21693 |
| | | |

| Seed Certification | | | |
|--------------------|-------------|--------------|------------|
| Season | SEED GROWER | TOTAL AREA | TAG IS-SUE |
| KHARIF (2014-15) | 8888 | 42313.54(HA) | 8888 |
| RABI (2014-15) | 2935 | 12874.32(HA) | 2935 |
| KHARIF (2015-16) | 8496 | | |



Agricultural Input Module



Conclusion

The present digital governance has been successfully implemented the stake holder participation. A significant variation was noticed in the program implementation when manual system was in operation as monitoring was not effective which frequently led inconsistencies

in implementation. The present process has enabled successful implementation with flawless monitoring at the head quarters. Further it has created awareness and accountability among all the stake holders. The timely delivery at the farmers door step has created farmers confidence in the Govt. Department. The hasselfree environment for the beneficiary farmer and private dealers with govt. officials have enhanced the confidence & competence in the system. The public/govt. and private/corporate are able to respond to the growing need of agricultural input information demand. The incentives under digitization India program & contemporary revolution in mobile communication & GPS location at the field level has tremendously impacted in minimization of fraudulent activities at the field level. The Department of Agriculture & farmers welfare further strategize to provide system oriented information to the farmers as per their need by using push/pull technology so that communication can be established between the farmer & vendor/executants. The integrated approach by one stop

solution in a single window system” in local language is the need of the hour & future strategy for the Govt.

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Virtual Marketing of the Product and Services developed by MSMEs - A New Paradigm

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Abstract

An Entrepreneur Memorandum (EM) is to be filed with the District Industries Center (DIC), by a Micro, Small or Medium enterprise, as the case may be, under sub-section (1) of section 8 of the MSMED Act, 2006. EMs were filed ONLINE since April 2013 till 18th September 2015 and looking at the success in Odisha, Ministry of MSME has adopted the Odisha Model for rest of the states(<http://em.msme.gov.in>). Till that time 11 states and UT had their own ONLINE mechanism and Rest had adopted the software developed by NIC, Odisha. Odisha has led it from front to bring all the states under one umbrella and has prepared the methodology to synchronize the data of the states having their own ONLINE mechanism to a single place.

In October 2015, Ministry of MSME placed an ONLINE System called Udyog Aadhar removing the EM-I and EM-II respectively. All the states have been asked to make use of the new system. Knowing that all the entrepreneurs can have the web presence due to ONLINE system, Department of MSME, Odisha thought of innovative idea to help the entrepreneurs to promote the products and services developed by MSMEs in Odisha and named this service as 'Odisha MSME Bazaar'

Index Terms – DIC, EM, Udyog Aadhar, MSME

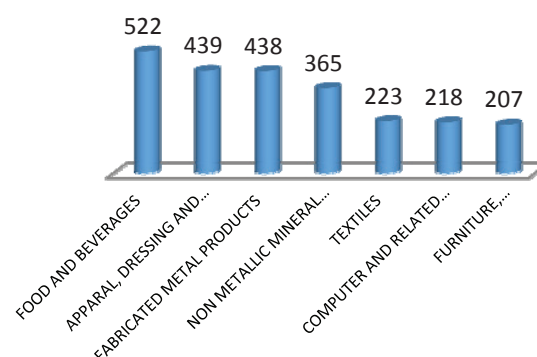
Introduction

The Micro, Small and Medium Enterprises (MSMEs) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. MSMEs not only play a crucial role in providing large employment opportunities at comparatively lower capital cost than large industries but also help in industrialization of rural & backward areas, thereby, reducing regional imbalances, assuring more equitable distribution of national income and wealth. MSMEs are complementary to large industries as ancillary units and contribute enormously to the socio-economic development of the country. This Office is implementing various schemes, which aim to provide a better competitive edge to the product of MSME sector in the market.

It is quite clear from the figures that there is lot of investment in MSME sector than any other sector. The stake holders are the Government, Entrepreneur and Medium or Large scale industries. There is a scope of consuming the product or services by the public. So

once the market is in place the buyer and sellers meet is possible.

Major 7 Type of MSMEs in Odisha



The above Graph shows that, the major MSMEs available in type of the sectors. Looking at the population and growing e-commerce industry there is a bright chance that the virtual marketing is possible within the limitation.

Constituents of Virtual Marketing

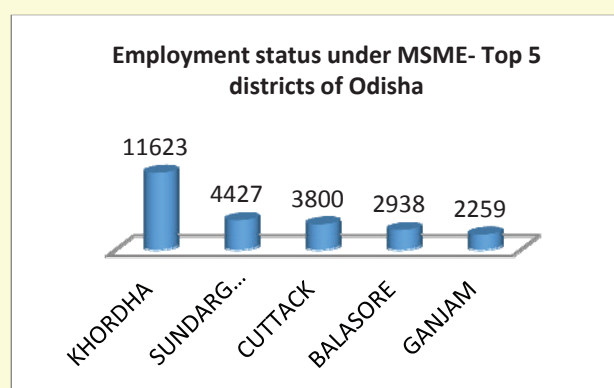
All the ONLINE Services is combined with the following facilities

- **User Registration:** Entrepreneur who desires to avail this facility with rest of the facility i.e. Subsidies (CIS / IS / VAT) has to visit <http://msmeodisha.gov.in> and Register him/herself. During registration an identity proof is asked i.e. Voter Id / Passport / PAN Card etc. A user id will be created along with an initial password. There is a provision of sending the same to the mail and through SMS..
- **Help Desk :** A help desk is established to help the entrepreneur for asking any queries to GM, DIC / NIC or Directorate. The query if not relevant to the concerned officials they can forward to the competent authority. Selected queries can be posted as FAQ by the Directorate.
The query about the product displayed can be sent to the concerned entrepreneur.
- **Entrepreneur's Corner:** The entrepreneurs who have filed EM / Udyog Aadhar are required to submit pictures of their product / services through

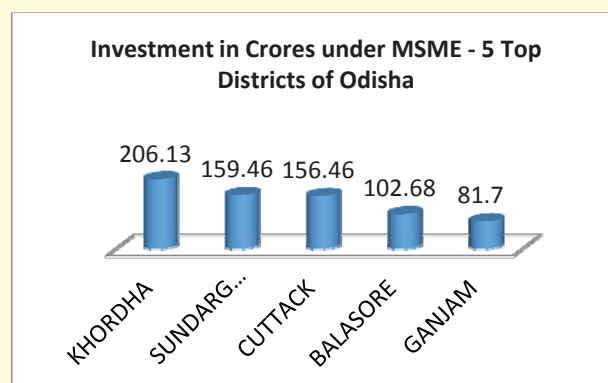
the dashboard provided to them through this application. Along with this they have to submit the specification, IFSC Code and Bank Account No etc. The product pics submitted by them is meant to be made visible through the application of Odisha MSME Bazaar.

- **Managing the Role:** Role is also defined for the users viz. The Directorate has been provided with certain Role for MSME Bazaar.
- **Approval of the Information / Image:** The image and the information uploaded by the Entrepreneur have to be approved by the Directorate on the application before it is displayed on the website.
- **Virtual Presence:** Department of MSME, Odisha has created a virtual space for Entrepreneurs. This will be the place where the entrepreneurs can show case their product / services which can be accessed globally.
- **Customer's Corner:** The customer will go through the products and if he / she desires to order for the same they can do it just by a click of mouse. The customer can directly place the order or they can create a user id / password for themselves by submitting an e-mail id. In future they can track the status of the product which they had applied for and they can enquire through mobile or they can submit their queries through the mobile.
- **Dispatching the order:** Once the customer places the order, it will be sent to the Entrepreneur through SMS. So they can login into the MSME site and find out the details i.e. number, whom to send etc. They will process the order and send to the concerned person through Courier. The details viz date of dispatch, courier name and number etc will be submitted by the entrepreneur. The same will be communicated to the Customer through SMS. Once the order is delivered the cycle is closed.
- **Status Tracking:** At any point of time the status of the placed order can be viewed by the Customer.

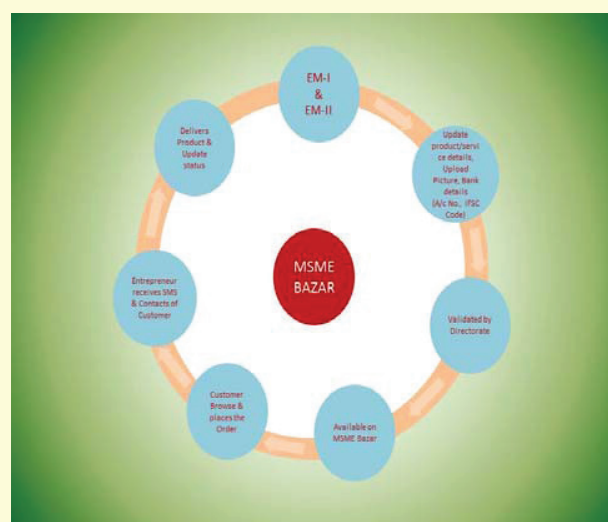
Employment Generation in Odisha under MSME



Investment in MSME Sector



PROCESS FLOW



Building Virtual Presence of Entrepreneur

The Micro, Small and Medium Enterprises (MSMEs) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. MSMEs not only play a crucial role in providing large employment opportunities at comparatively lower capital cost than large industries but also help in industrialization of rural & backward areas, thereby, reducing regional imbalances, assuring more equitable distribution of national income and wealth. MSMEs are complementary to large industries as ancillary units and contribute enormously to the socio-economic development of the country. This office is implementing various schemes which aim is to provide a better competitive edge to the product of MSME sector in the market.

Program Management

- **Planning:** Department of MSME , Odisha decided to promote the product and services manufactured by the local entrepreneurs on the web. The intention

is clear from the Odisha Government. They desire to help the small entrepreneurs not only in terms of subsidy but also disseminate the product so it can reach the mass globally.

- **Risk Management:** Initially, in order to outline the existing process a lot of discussions took place. The idea was floated and discussed with the Secretary, MSME. In turn it was propagated to the higher authority as initially no one agreed to take up the challenge as it was about keeping track of order from customer and delivering the goods in time frame. The other thought process was to create a corporation which will cater to the requirement. Finally the idea emerged where the facility would be created as under:
- **Buyers and sellers can meet'** at their own risk.
- **Stakeholder Management:** There are different stakeholders viz. Entrepreneurs, Customers, Directorate of Industries..
- **Performance Management:** The order placed by the customer can be known to the entrepreneurs and they have to contact the customers to meet their requirement. Again, once the product is dispatched they will update the date time and the method by which the product has been dispatched.
- **Organization change management :** The changes due to the introduction of new marketing concept has enabled the directorate to monitor the pictures and information uploaded by the entrepreneurs. It also certified the information before it is uploaded on the web.
- **Communication Management and Governance:** A Nodal officer has been appointed initially to oversee that the process is carried forward smoothly and no grievance is pending at the government end.
- **Process re-engineering:** Earlier, the entrepreneur has to run from post to pillar and market their product and they were not able to disseminate the product or services due to monetary constraint. Now this new idea has given them opportunity to concentrate on the quality of the product and stick to the commitment to deliver in time.
- **Training and Workshop:** The Entrepreneurs and the associations were called during the workshop and explained how the transaction will take place. Training was imparted to the team to approve the product / service related information which has been uploaded by the Entrepreneurs.
- **Operation and Maintenance:** The Application has been developed keeping in view the requirement of the Entrepreneurs. It can be enhanced as the large or medium scale industry can login to check out product and place the order with Micro Small Entrepreneurs.

Challenges Faced

The following challenges were faced by NIC team during the designing, development and implementation of the e-Governance initiatives.

- **Change Management and Mind set:** The biggest challenge in the entire endeavour was to change the mindset of the Government officials and to convince them regarding this new concept of marketing.
- **Standardization of documents and Process Re-engineering:** No documents were existing in this regard and the department had to take approval from higher authority it involved risk factor.
- Developing a generic model of marketing site and demonstrating it to the stake holders to obtain the feedback from everyone as there were lots of challenges.
- **E-Readiness Assessment of stakeholders :** It was the primary job of everyone to agree to the commitment so that everyone would be prepared to honor the concept floated and login regularly to the portal.
- **Resistance to change from Stakeholders:** As Directorate were not keen on taking up the responsibility to approve the information provided by the Entrepreneurs.
- **Project sustainability & Ownership :** The Department was not willing to take up the responsibility as it is an extra job to be performed by them.
- **Government Process Reforms & Issue of Govt. Orders :** There is a requirement of Process reforms as in case of failure of delivery of the product / services by the entrepreneurs, the officials should be able to track the entrepreneurs.

Service Delivery

As the entire process is ONLINE, the service delivery mechanism has been thought of prior to implement the application. Any project is bound to fail in case the service delivery mechanism has not been adequately thought of. Here, as this is web enabled application any entrepreneur can access the application from any internet point and also the same can be accessed from any Directorate office . Any order placed by the customer is sent to entrepreneur through SMS so that they can take action on the interest shown by the customer and update the status when the product is delivered.

Best Practices Followed

A few best practices have been followed for the successful design, development and implementation of the project which are listed below

- **Brain Storming Session :** A discussion was held whether this would be feasible or not. The process which would be followed to make the presence of MSMEs was tentatively finalized.
- **Sharing of ideas with entrepreneur' Association:** As the main beneficiaries are the entrepreneurs, the associations were called for sharing of ideas.
- **Commitment from the Top :** The idea was propagated to the higher officials by the Secretary and their suggestions were sought on this topic.
- **User Manual and Presentation:** User Manual was prepared and placed on the portal to act as a helping instrument.
- **Workshop :** The portal was launched by the Hon'ble Minister, MSME and the process was explained to the entrepreneurs.
- **Nodal Officer :** An officer from Directorate was appointed as Nodal Officer to oversee the functions of the MSME Bazaar and update it regularly.

Road Map

The objective of the whole process is to provide service to the entrepreneurs and customers and build a market for them which will provide them regular orders to keep the business going.

- Large industry may be brought to this portal so that they can browse through the products which will meet their requirement.
- The tenders floated by the industries, Government or PSUs have to be integrated with this portal, so that the Entrepreneurs from the MSME can be benefited.
- The Entrepreneurs will be interested to do the rating of the organization (PCRA)

- The requirement of Skill Development of the employees to fulfill the global standards
- Increased in production will lead to rise in employment.
- The ONLINE Portal i.e Snapdeal / Flipkart / Amazon may be called for intervention and market the product as well as sell the product to the consumers. This will give a boost to the local entrepreneurs.

Conclusion

Simplifying the process of filing of ONLINE EM-I and EM – II and later to Udyog Aadhar is one important aspect and creating opportunity for the entrepreneurs to place the product on the web is another. The important issue is that large industries require many products which are manufactured by the Small and Micro Industries. The quality rating can be done under PCRA Scheme of the department through NSIC and the following objectives can be targeted to achieve.

- Input of output of Micro, Small Industry, as Input of Large or Medium scale industry
- Attract Customers to purchase products which are manufactured by MSMEs
- Encourage the MSMEs to apply for Registration for Rate Contract so that their product can be channelized in Govt Sectors.
- Facilitate the MSMEs to take part in the Tenders floated by Govt, PSUs and Private Industries.

Acknowledgements

Shri Panchanan Dash, Ex-Secretary , Department of MSME, Government of Odisha along with Shri N. Palai, IAS, Director ,Directorate of Industries, Cuttack and Shri Bhuban Mohanty, Special Officer for guiding us in designing the system.

Governance with Accountability, Transparency and Innovation, Through our Project “DHARNAKSH”

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Introduction

Goa had become the first State in the country to have 100% computerized land records, both the graphical map data as well as alphanumeric Record of Rights. All the Land Records departments’ offices across the State are interconnected on a State Wide Goa Broad Band Network and the all activities of the department are computerized and online, namely,

- Land Acquisition
- Land Mutation
- Land Subdivision
- Mutation to Land Use/Ownership Records
- Issue of certified extracts to public

DHARNAKSH

- The Directorate of Settlement and Land Records, Governmentt of Goa has taken the initiative to make authentic and up to date land records available to public from anywhere, by the use of Web and GIS technologies.
- This is the first initiative of its kind in the country. In a country where land disputes account for a large percentage of civil cases in the courts of law, information transparency shall lead to:
 - o Improved information services to public
 - o Ability to easily verify information pertaining to land
 - o Reduction in legal disputes
- On 10th March 2012, the website was commissioned with facilities for viewing of extracts of any land parcel across the State along with its integrated land use and ownership information. Public and Institutional Users can register with the website and use it to view free of charge any land parcel extract. Public Users can also make an online payment and obtain a digitally signed copy, either through online download or a certified copy through post or by collecting it from any of the departments’ offices.

Advantages over Manual System

Key Benefits to Public

- Viewing and obtaining information on any land parcel without the need to visit the land records department
- No queues in department offices for application for a certified land parcel extract
- Verification of their mutation application by online viewing of the updated data

Key Benefits to Institutional Users

- Easy verification of applications involving land transactions or mortgages
- Guarantee of authentic online data
- Reduction of risk due to manipulated document/ records submission

Key Benefits to the Land Records Department

- Reduction in manual requests for certified copies in departments offices
- Reduction in workload due to automatic transactions
- Fulfilling the transparency requirements as per RTI

Time Efficiency

- Prior to computerization of the departmental processes the norm for issue of certified copy of land parcel extract was 15 to 45 days from the date of application by a member of public.
- After computerization, issue of document was being done at departmental counters within 30 minutes to 4 hours depending upon the length of queue of public members making the application

Cost Efficiency

- Public saves the cost of travel to department offices when they transact online.
- Department saves cost of manpower and paper as more and more users transact online

M/s Goa Electronics Limited (GEL) has implemented the web application in partnership with M/s Vision Labs Hyderabad. GEL is a state Public Sector Undertaking, assisting the state of Goa in its IT e-Governance initiatives

for almost three and half decades and the core GIS engine and web GIS engine are indigenous product of M/s. Vision Lab Hyderabad.

This is the first of its kind of implementation in the country that provides online up-to-date information about any land parcel in the State to any user sitting in front of an internet enabled computer system from anywhere in the world.

Current Status of Viewers across the World

| Countries | Hits on Dharnaksh |
|----------------------|-------------------|
| Unknown | 81376 (62.88%) |
| India | 31080 (24.02%) |
| United States | 10088 (7.80%) |
| Australia | 3573 (2.76%) |
| United Kingdom | 1274 (0.98%) |
| United Arab Emirates | 512 (0.40%) |
| Japan | 324 (0.25%) |
| Finland | 231 (0.18%) |
| Kuwait | 219 (0.17%) |
| Canada | 197 (0.15%) |
| Bermuda | 162 (0.13%) |
| Oman | 126 (0.10%) |
| Singapore | 99 (0.08%) |
| Bahrain | 75 (0.06%) |
| Germany | 74 (0.06%) |

DSLRL requires high server availability, but not a truly 24x7 availability. It is acceptable to make system go offline for maintenance/update purposes, whereby, services are unavailable for maybe less than an hour in a week. In the event of failure of one of the servers, the takeover time (making other server takeover) will be less than 30 minutes.

Making Land Records Tamper Proof – More than availability, tampering of digital records is a great concern for DSLRL as land records are legal records. The proposed design ensures that no modification to the map data can be done outside of the intranet. Within the intranet of DSLRL, biometric authentication ensures a digital audit trail, whereby even registered users are discouraged from making unauthorized changes, as they will be held answerable for the same.

The Web Application is also audited by independent web security auditors for vulnerability to top 10 Internet hacking vulnerabilities and certified as compliant as per Dept of IT standards.

Strategy planned for Disaster Recovery and service continuity and the level of compliance

All the map data is backed up onto a secondary server. The

Web Server and Map Server are hosted on two separate machines that have the same hardware configuration. In the event of failure of one of the systems, the other system can be brought up with both software servers in a very short time.

Dharnaksh encourages use of soft copy of records and saves paper due to online application processes, doing away with the need to fill application forms, payment vouchers etc.

Roadmap ahead

- Creation of Digitally signed PDF repositories of Rural and Urban ROR
- Georeferencing of present Cadastral Maps
- Mosaicing of Plane Table Sheets

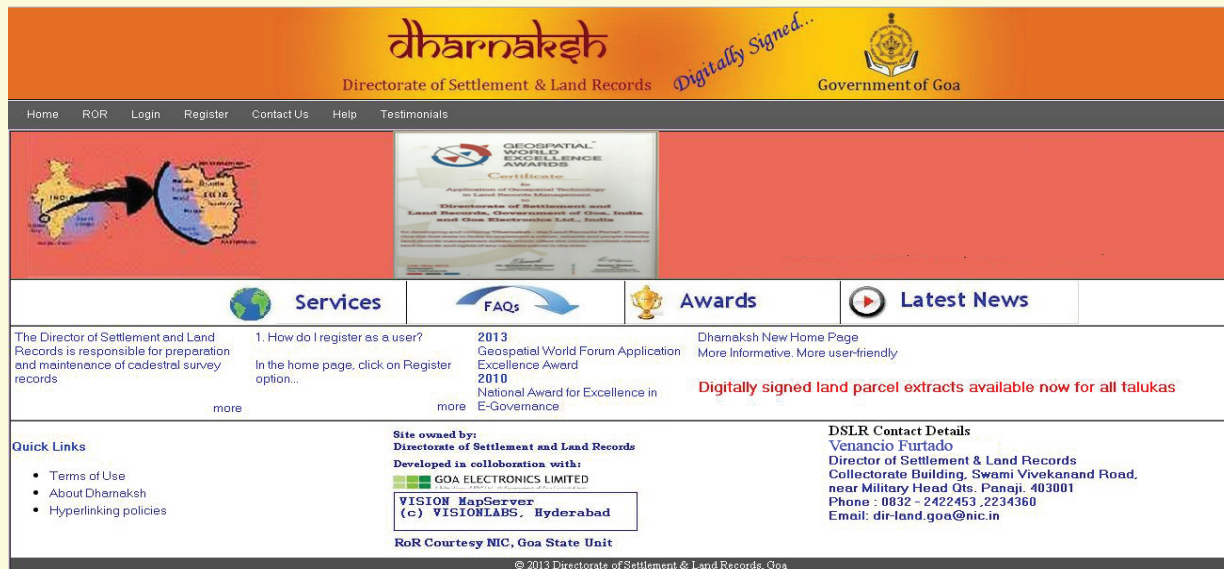
Stakeholders

- Director, Settlement & Land Records
- Collectors North Goa & South Goa
- State Registrar, Law Department
- National Informatics Centre, Goa for Textual ROR Solutions
- Goa Electronics Ltd & Vision Labs, Hyderabad for Cadastral Map Solutions
- Dept. of Information Technology, Govt. of Goa &
- CDAC, Pune for Property Registration Solutions

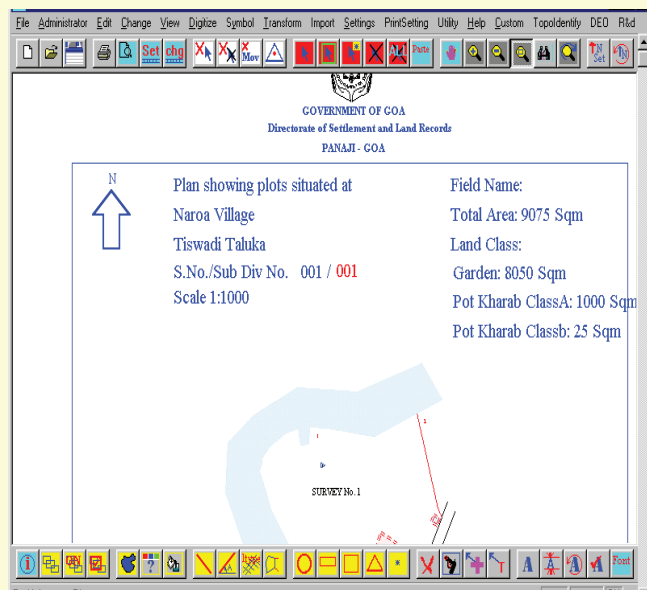
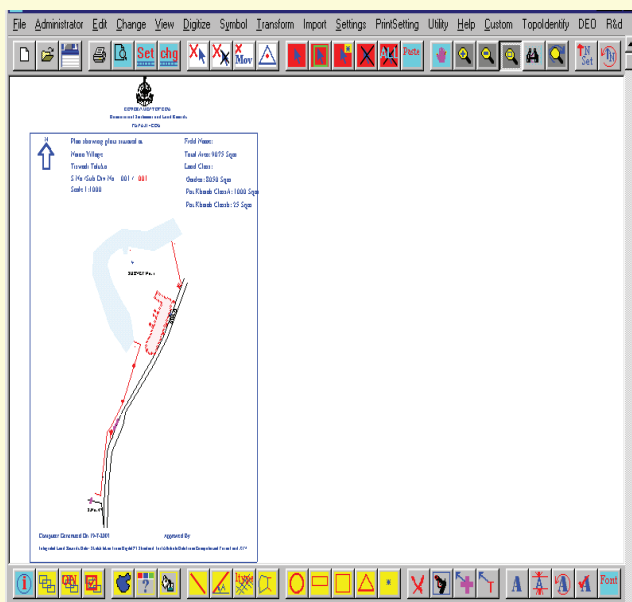
Cadastral Map of Goa during Portuguese Regime



Web URL (www.dharnaksh.com)



Integrated Land Records Form I and XIV integrated With map/land parcel data



Doing Business with the Government: A Case for Reforming Public Finance Management in India

A. Santhosh Mathew¹

Abstract

The increasingly discussed Jan Dhan-Aadhaar-Mobile (JAM) trinity provides a number of solutions to ensure the financial inclusion of the poor. Financial inclusion, however, is not an end in itself. It ultimately paves the path to ensure that the poor are able to contribute to and gain from the economy. Economic contribution, for both those above and below poverty line, necessitates doing business with the government to ensure anti-poverty measures succeed. The current path, however, is laden with problems. Today's system for fund flow from Central and State schemes to beneficiaries and vendors burdens program managers with ever changing eligibility and paperwork requirements, resulting in delays, corruption and exclusion from schemes for the end beneficiary or vendor. Technological solutions today make it possible to solve these problems. By adopting workflow-driven IT platforms, the government can ensure that public financial management is uniform, transparent, and inclusive. This paper discusses the burdens of the current public finance management system and a mechanism for change.

1. Introduction

In the Economic Survey 2014-2015, the Ministry of Finance cited that for anti-poverty programs to be successful, one must address "the limited implementation capacity of the state to target and deliver public services to the poor" [1: p. 22]. The Survey proposes lump-sum and direct transfers through the Jan Dhan-Aadhaar-Mobile (JAM) trinity to address implementation inefficiencies, namely by reducing leakages, i.e. corruption, in the system [1]. India's increasing prowess in information technology (IT), combined with JAM, does offer the opportunity for major reforms in the nature of cash transfer to beneficiaries and vendors. Before JAM can reduce leakages and contribute towards economic growth, the government must first address the inherent problems of its public financial management system.

Today's financial management system, though slightly updated through Digital India initiatives and the advent of the electronic Public Finance Management System, still heavily relies on a decades-old system of files and cash transfer. Many Central and State sponsored schemes require implementation agencies and government vendors

to submit a series of paperwork that is passed up one administrative layer to another as discussed in section 2, resulting in a nontransparent and inefficient mechanism of fund flow. The system further leads to exclusion of beneficiaries from anti-poverty schemes and burdens program managers to focus on file management rather than program execution. Today's technology provides an alternative. As elaborated in section 3, the integration of workflow driven, IT-based platforms with collective databases such as Aadhaar and SECC can drastically reduce delays and corruption in the implementation of schemes while freeing up program managers' time to focus on program execution. In order for JAM and anti-poverty programs to be truly successful, the adoption of such a digitized, transparent, and leakage-free system of fund flow must come first.

2. The Existing System of Fund Flow

Today, the funding mechanism for both Centrally Sponsored Schemes and State Sponsored Schemes is top-down. Through the coordination of files and approvals, funds are pushed down from the top layer to the next until they reach the end beneficiary or vendor. This system creates four main administrative barriers: (1) uneven allocation of funds to implementation agencies, (2) delays in fund approval, (3) arbitrary eligibility requirements for beneficiaries and vendors, and (4) corruption. This section discusses these challenges and makes a case for establishing a standardized and digitized fund flow model.

2.1 Traditional Supply-Driven Fund Flow

The current movement of public funds begins with fund allocation. Based on the central or state budget, the corresponding government allocates funds to a Ministry. The Program Division in charge of a scheme within each Ministry further allocates funds to the district, block and panchayat until funds are allocated to the last-mile administrative agency. This procedure is followed by most GoI programs and is based on the Ministry of Finance's General Financial Rules.

Upon the completion of fund allocation, fund disbursement further requires approvals by various administrative channels. Once the last-mile agency, usually the panchayat, uses 60% of its first instalment of disbursed funds, the Program Manager submits an utilisation certificate (UC) to the administrative layer above it, typically the block. The block then approves the UC and passes it to the district, which passes it on to the state or central Program Division for the scheme. After required checks, the Integrated Finance Division of the Program Division's Ministry then sends the fund disbursement request

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to the Pay and Accounts Officer in the Ministry. The Officer communicates the fund release order to the Reserve Bank of India, which holds the funds. Once the Accountant General and the Finance Department of the concerned state are notified of the fund disbursement, the stated funds are moved to the next subordinate agency until they reach back down to the panchayat [2]. The last-mile implementation agency is ultimately responsible for transferring funds to eligible beneficiaries and vendors. At each level, funds are released in instalments of 50% of the year's budget allocation for the agency. Upon 60% utilisation of this instalment, an agency can submit an utilisation certificate along with a request for the next instalment to a higher-level agency.

2.2 Problems with the Existing System

This multi-layered system of fund flow is largely governed by coordinating files and approvals. The complexity of such a system poses many concerns at the macro-level, but for the purposes of this paper, I limit the discussion to administrative and implementation inefficiencies. The four main hurdles include: (1) uneven allocation of funds to implementation agencies, (2) delays in fund approval, (3) arbitrary eligibility requirements for beneficiaries and vendors and (4) corruption.

2.2.1 Uneven Allocation of Funds

The current system of fund disbursement based on UCs leads to inequitable allocation of funds to last-mile implementation agencies. Since UCs only outline immediate expenditure, previous spending patterns or future spending needs are unaccounted for during fund disbursement. Therefore, agencies that use a greater amount of funds during the beginning of a financial year become eligible for additional funding regardless of how they make use of future funds. Agencies that are active during the latter part of the financial year may not get access to funds despite efficient usage.

Take for example a situation where 3 panchayat bodies, Panchayat A, Panchayat B, and Panchayat C are provided an annual allocation of Rs. 10 lakh each. All are funded through a common funding agency that receives a first instalment of Rs. 15 lakh to disperse. Panchayat A and B receive their 1st instalment, whereas Panchayat C is inactive and doesn't make an instalment request. Instead, Panchayat C holds unutilised funds of 5 lakh from the previous financial year. Panchayat A is more active in the first half of the year, and utilises 60% of its first instalment faster. Panchayat A therefore submits a UC for the second instalment of Rs. 5 lakh. Panchayat B on the other hand is more active in the second half of year. However, by the time Panchayat B submits a UC, there are no funds left to disperse. By the end of the year, Panchayat B has incurred a total program cost of Rs. 8 lakh and is unable to pay its beneficiaries and vendors. At the same time, Panchayat A has only spent 6 lakh, and

continues to maintain an unutilised float of Rs. 4 lakh. Meanwhile, both Panchayat A and Panchayat C maintain unused funds into the next financial year that could have been transferred to Panchayat B.

The situation described above could occur at any level of program implementation. Yet, most programs don't have the means to monitor and redistribute unused funds in real-time, even when unutilised funds carry over from the previous financial year. The inefficiencies of such a system ultimately impact beneficiaries and vendors, who are unable to take advantage of specified government programs.

2.2.2 Delays in Fund Approval

The extensive coordination required among program managers at various layers of government for the approval of UCs and corresponding files results in long delays. Physical paperwork necessitates that program managers send the original files back and forth with either approval signatures or clarifications until all issues are resolved. This process is often lengthy and requires multiple stages of checks. To understand this process, we conducted preliminary research on the Aajeevika Skills Training Program with the Ministry of Rural Development (MoRD). We examined 15 government vendors' requests for their first instalment of funds in 2012-2013, which had to go through five stages of fund approval checks: (1) desk appraisal by various program managers, (2) field appraisal by program managers or external consultants, (3) approval by the Project Approval Committee, (4) approval by the Internal Finance Department, and (5) approval by MoRD upon concurrence with the Internal Finance Department [3]. Upon the completion of these stages, there were further delays before MoRD issued the funds. On average, this process took an average of 607 days before the first instalment of funds were disbursed to vendors. Of these days, the longest delays occurred during field appraisal, desk appraisal and the sanction by MoRD with an average of 182 days, 115 days and 100 days of delays, respectively [3].

The paperwork we examined contained various kinds of concerns raised by program managers. Some of these concerns were at the vendor-level, e.g. improper formatting or submission of paperwork, whereas as other delays resulted from requests by program managers. The latter of these delays often resulted from poor financial checks on a vendor, delays in the field appraisal of a vendor, and changing demands for targets or project completion time. Since these concerns or requests required coordination or approval from multiple stakeholders documented through handwritten notes on the files, the system caused delays and confusion, often requiring requests for updates on an issue [3].

The large number of checks in the system are put in place to ultimately de-risk high-level program managers within the government in case funds end up in the wrong

hands. However, such a system ultimately impacts the willingness of vendors to conduct business with government. The first instalments we examined, which were 25% of the total project costs, ranged from 70.5 lakh to 286.24 lakh [3]. In some cases, vendors had submitted a request for their 2nd instalment before they received their 1st instalment. Such long processes to receive allocated funding requires a huge financial commitment from government vendors, and the unreliability of timely payments therefore leads to the best partners being unwilling to commit to government work. The quality of these partnerships ultimately impacts the effectiveness of schemes, thereby also reducing the potential impact they could have on beneficiaries.

The advent of e-office has slightly modified the system. Rather than passing files among stakeholders, program managers are simultaneously able to access files through an IT portal. These digitized versions have reduced the cost of transporting files from one individual to another. However, e-office has neither reduced the number of checks within the system, nor the large amount of paperwork vendors are required to submit, often ranging upwards of 500 pages [3].

2.2.3 Arbitrary Eligibility Requirements

Given the existing manual, fund-push system, program managers face layers of complexity that ultimately exclude beneficiaries from participating. Though each program contains rules on the format of UCs and corresponding information, managers at varying agencies often fail to adhere to such a complex code of requirements. The system can thus result in ever-changing requirements for fund disbursement eligibility. The arbitrary nature of the system is at times a result of a lack of information on the part of those requesting additional paperwork, at times a means for corruption, and at times the consequence of a high-degree of risk aversion on the part of program managers.

Given the number of layers involved in fund approval, the informational needs are exacerbated at each level of administration, ultimately burdening the field-level functionaries. In the end, these functionaries spend more time chasing paperwork and funds rather than focusing on their specified duties—program implementation and monitoring. The complexities of fund disbursement also serve as a disincentive for functionaries to ensure all eligible beneficiaries are participating in schemes as doing so increases the paperwork requirements. Because no comprehensive database exists to identify all eligible beneficiaries in an area for a particular scheme, the system produces no accountability or transparency to overcome the problem of beneficiaries intentionally or unintentionally being excluded from a scheme.

The arbitrary nature of eligibility requirements also impacts vendors, who are often unclear on the information they must present to obtain their funds. Vendors are

presently required to submit their own paperwork to obtain funds and often pay external consultants to go through this process. As specified in the previous subsection, the paperwork experiences long delays given the number of actors involved in verifying the fund disbursement request, therefore making it difficult for private players to effectively do business with the government.

2.2.4 Corruption

The current system's lack of transparency and the number of stakeholders involved in the process increase the scope for corruption [4]. Since records are unavailable to the public or to those outside of the stakeholders, calculating expenditures for specific implementation agencies requires lengthy deliberations with individuals from multiple layers of government. Additionally, funds are often delayed, allowing program managers at various levels to collect rent. The existence of corruption has been confirmed by two randomized controlled trials for the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). A study by the affiliates of the Abdul Lateef Jameel Poverty Action Lab (J-PAL) in Bihar allowed panchayat bodies to bypass the district, enabling them to pull MGNREGS wage payments directly from a state pool account. The intervention reduced fund leakages by 25%, likely because a layer of financial management was no longer able to engage in corruption [5]. Because panchayats were pulling the amount of funds they required, the system led to more efficient distribution of funds and reduced program implementation costs [5]. In a separate J-PAL-affiliated study in Andhra Pradesh, dispersing cash directly to beneficiaries of MGNREGS using biometric authentication led to a 20% reduction in leakages [6].

3. The Case for IT-Driven Fund Flow

The current fund-push system in India made sense in an age with limited IT availability. The number of stakeholders in the system ensured that fund releases were systematic and accurate across the geographic expanse of the country. However, the advent of technology provides a number of solutions to the inefficiencies that stem from manual fund release. Through workflow-driven, IT-enabled platforms, funds can be checked for accuracy and released in real-time, thereby significantly reducing the delayed and arbitrary nature of fund disbursement.

Numerous countries around the world have already established IT-enabled systems to improve the efficiency of fund releases. Most significantly, Brazil's electronic conditional cash transfer for the centralized Bolsa Familia program is estimated to have cut down administrative costs by 82.3%, largely by consolidating all payments into one consolidated account [7]. Similarly, the South Africa Social Security Agency also transitioned all social transfers directly to beneficiary accounts, reducing administrative costs by 62% (World Bank 2012: 56).

Similar reforms have benefited many other countries, namely Mexico, Russia, the Dominican Republic and the Philippines, resulting in similar administrative-level savings [7].

McKinsey recently estimated that if GoI made all government transfers and payments electronic, it could save up to Rs. 1,00,000 crore annually by reducing inefficiencies alone [8]. With growing evidence supporting the need to reform fund release systems, a few GoI program verticals have taken the lead in establishing fund-pull models at a national scale. One of India's largest rural development programs, MGNREGS, has created a fund release model that eliminates all intermediate float (except at the state level) and allows last-mile implementation agencies to pull funds directly from a state account.

Scaling such innovations across all programs will require the development of program-specific, workflow-driven IT platforms that enable implementation agencies to pull funds directly to beneficiary and vendor accounts based on real-time expenditure vis-a-vis program implementation. These platforms, described in detail in an upcoming Economic and Political Weekly paper, "Doing More with Less: Developing JAM+ to reform Public Finance Management in India," would allow programs to link physical outputs with financial expenditure and machine-aggregate all expenditure and program outputs at the Ministry of Finance level. This system would enable implementation agencies' program managers to directly pull funds from the Central or State fund, allowing for real-time expenditure accounting and immediate payments to beneficiaries and vendors. Most importantly, the system would remove the delays, corruption and the administrative burden on program managers, ultimately allowing them to focus on program implementation.

3.1 Basic Architecture of Demand-Driven Fund Flow System

In a workflow-driven, IT-enabled system, central or state governments will firstly set fund allocations for program areas. These platforms would be synchronized with the Socio-Economic Caste Census (SECC) database and Aadhaar databases, allowing for automatic identification of potential beneficiaries based on demographic eligibility requirements. The IT system would be additionally pre-coded for a program's specific requirements, allowing it to identify vendors and beneficiaries who are due payment on a daily basis. Upon identification, authorized local program managers would be able to pull approved funds directly from the Central or State pool account and by pass all intermediary layers. When an approved fund pull occurs, the IT platform would instantaneously debit from the Central or State pool fund in the predetermined proportion before crediting funds into the final beneficiary or vendor account. In the case of Centrally Sponsored Schemes, all Central Funds would pass through State

Consolidated Fund before reaching the bank account of the final beneficiary or vendor. The system could directly be linked to beneficiaries' JAM account, therefore drastically reducing the potential for leakages in the fund flow and fund withdrawal. This entire model can be linked to the already existing PFMS system, which can serve as the financial and payment arm of the reformed public finance management system. The new model would provide State and Central program managers full transparency in monitoring fund flow requests whilst ensuring money is sent to the intended recipient.

Each program would have a customized IT platform to allow for scheme-specific program administration system. Similar to business management software such as Enterprise Resource Planning, IT platforms will enable programs to collect, manage and use predictive data for both funding within a program's prescribed norms and for enabling State and Central government finance departments to tailor their borrowing program if and when needed. Moreover, these platforms would be integrated to an IT platform at the State or Central Budget Office, allowing for the monitoring of real-time expenditures for each scheme. Such data would allow stakeholders to report exactly what is being done with funds received, thereby strengthening the data on outputs of a program.

Such an automated fund pull system reduces many of the existing administrative and implementation-level inefficiencies in the system. Firstly, the transfer of funds in real-time would allow program implementation agencies to obtain funds on an on-going basis, and re-allocate funds from one implementation agency to another based on on-going needs. Without the need to submit UCs based on a percentage of fund utilisation, beneficiaries and vendors would no longer rely on cumbersome processes for payments and could rather work with governments in real-time. Secondly, pre-determined eligibility requirements linked to SECC and Aadhaar databases would not only ensure that beneficiaries and vendors are not unfairly excluded from a scheme, but would also improve the efficiency of program managers. A digitized payment system would eliminate the ability of stakeholders to demand arbitrary information from program managers, thereby allowing them to focus on program implementation. Third, these codified, real-time payments would reduce delays and improve transparency in the system. The drastic reduction of stakeholders enabling fund approval and allocation would limit the number of intermediaries aggregating rents at various levels. More so, the real-time data provided by a workflow-driven, IT-enabled system would allow stakeholders to monitor exactly how funds are approved and who they are given to, enabling a fully transparent system.

4. Conclusion

This paper proposes that government departments should adopt an integrated system of workflow-based IT platforms that uses SECC and Aadhaar databases as well as the existing PFMS system to dually conduct accounting and project management tasks. This fund model can enable implementation agencies to pull funds from a Central or State account based on the exact payment needs of beneficiaries or vendors. The expenditure data can promote transparency and efficiency, eventually bringing down the cost of doing business with government for both beneficiaries and vendors. Given India's IT capability and policy commitment to financial inclusion through JAM, the current landscape presents an ideal opportunity for a strategic reform of public finance management such that beneficiaries and vendors can effectively conduct business with the government. Only when this is made possible can anti-poverty programs and financial inclusion initiatives truly transform the economy.

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Decade of e-Governance in Himachal Pradesh Transport Department - Towards Digital India and Way Ahead

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Abstract

eGovernance is the effective use of Information & Communication Technology to improve the system of governance that is in place, and thus provide better services to the Citizens. e-Governance is considered as a high priority agenda of Digital India program, as it is considered to be the only means of taking IT to the “Common Public”. Vahan and Sarathi are two software Packages, which have automated all the services and citizen-centric procedures in various Regional Transport Offices, Registering & Licensing Authorities and State Transport Authority in Himachal Pradesh. This paper examines the e-Government initiative taken by the Transport Department, Government of Himachal Pradesh decade ago in automation of vehicle registration and driving license through these software. This paper studies the Vahan and Sarathi project, its need, business model adopted, additional functionalities added in Himachal as per HP State Motor Vehicle Rules (SMVR), and critically analyses the status of its implementation in the State of Himachal Pradesh having constraints of difficult geographical terrain, longer travelling times, Internet connectivity issues and interests of citizens. The paper gives recommendations for improvement in the existing e-initiative taken in the Transport Department, GoHP.

Keywords: Vahan, Sarathi, SMVR, Inter-operable, Sugam Kendra, CSC, e-Governance Society, Driving License, Vehicle Registration, Digital Governance, New models

I. Introduction

In an effort to computerize the services related to issuance of learner's license, driving license, certificate of vehicle registration and issuance of permits, an initiative was undertaken at Dharamshala, District Kangra, (HP) on pilot basis a decade ago in 2005 and an eGovernance centre was established by the District Administration named as 'Pehal'. The centre was one of the first eGovernance centres in the State, rightly christened as 'Pehal' meaning first initiative in local dialect- Hindi. Later it was renamed as 'Sugam Kendra'.

The Sugam Kendra was totally funded by the District administration, which made a positive impact to improve the way the services were delivered earlier i.e. prior to creation of 'Sugam Kendra'. In order to provide

services to the citizens, the 'Sugam' has dedicated trained personnel (on contract basis), an aesthetically designed office and comfortable environment.

In order to provide the services and making it self-sustainable user charges have also been levied. The service charges levied have reaped the funds which have been utilized to pay back the loans taken for setting up these centres and also helping these centres to self-sustain themselves.

Before the implementation of Vahan and Sarathi software, various Deputy Commissioners were receiving many complaints from public about delayed response to different services like issuance of driving license, issue of vehicle registration and various certificates etc. On the other hand the staff dealing with these services in the RLA/RTO offices was not able to handle the voluminous work in manual system. There was lot of corruption in these offices because of the existence of touts/middle men and transparency was lacking. This scenario led to the computerization of various services being offered to the citizens in a better way.

The model of Kangra District was adopted by other Districts in Himachal Pradesh and more such centres were setup in a phased manner. Later on funding by MORTH strengthened the project by way of latest hardware and all the 70 RLA/RTO 's were covered under this project.

II. Objectives

The objectives for implementing the ICT solution in Transport Department are given below:

- Improvement in the quality of services by re-engineering the administrative processes and standardizing them throughout the state.
- To ensure greater transparency, efficiency, objectivity, accountability and speed that can help overcome unbridled discretion and corruption by providing improved services in a time bound manner.
- To bring Transport department closer to the masses by offering efficacious and speedy services under a single roof.

1 RLA/RTO in Himachal Pradesh are used for Registering and Licensing Authority at Sub Divisional level and Regional Transport Offices of the Transport Department.

- Reduction in response time in the delivery of services i.e. better citizen services.
- Ensuring revenue so as to be self-sustainable.
- Instant access to information if needed by any other government department.
- Effective use of m-Governance.
- To reduce the corruption and to eliminate the role of touts/middle men.

e-Governance is also considered as a high priority agenda of Digital India program, as it is considered to be the only means of taking IT to the “Common Public”[1].

In addition, prior research has also suggested that the main rationale for the use of e-government and e-governance is that it can reduce costs and delays in processing and delivering services, expand citizen’s access to public sector information, increase transparency and public accountability, and weaken authoritarian tendencies [2].

The relationship between e-government and corruption was also studied to infer that as the use of ICT or e-government increases the level corruption decreases [3]. The study suggests that a 1% increase in the e-government Index may have resulted in a 1.17% decrease in corruption.

III. Business Model

The main hurdle in making transport sector services operational at Sugam Kendra was lack of necessary infrastructure. In order to overcome this problem, District e-Governance society was setup in each District and registered under Society Registration Act, 1860. The main purpose of the society was to raise funds for initial setup of Sugam Kendra and starting various citizen services out of which, Vahan and Sarthi were main services. Initially loan was taken from various sources for providing the infrastructure. This loan was recouped from the service charges put on various citizen services. The e-Governance societies are now self-sustainable and have sufficient funds under its kitty to meet out the salary of operators, AMC charges and other recurring costs.

As far as the cost effectiveness of the services being offered is concerned, only one motto has been the guiding principle and that is ‘Efficient, effective and timely service with a smile’. The people have praised this scheme and have not raised any issue related to the service charges being levied. They are happy that they are getting assured, time bound and quality services from a government department in such an efficient manner.

IV. Services Offered

The Sugam Kendras are offering many services under one roof in a time bound manner. The services being offered are diverse in nature, so is the delivery associated with it. The software implemented in these centers are role based work flow applications and responsibility associated with

one task is assigned to the individual operator assigned for that activity.

The applications are basically on-line transaction processing wherein the information is taken from the applicant on standard government prescribed formats/forms and then same is filled and if required his/her photographs, Digital Signatures and finger prints impressions are taken on spot beside acceptance of cash at the cash counter. If the approving authority is available in the office and no further field verifications are required, immediately the services are provided. Otherwise the applicant is given a date by which the activity would be completed. The main services can be listed as:

Table-1: List of services

| Sl. No | Software | Services |
|--------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Sarthi (Driving License) | Fresh learner’s license (LL) Duplicate LL New Permanent Driving License Addition of new class of vehicle to PDL (AEDL) Duplicate PDL Renewal of PDL Change of address in LL/PDL Issue of NOC/CC Conductor License Renewal of Conductor License Issue of duplicate Conductor License Driving school establishment licensing |
| 2. | Vahan (Vehicle Registration) | 1. New Vehicle Registration 2. Trailer Registration 3. Temporary Registration 4. Hypothecation Addition/Removal 5. Change of Address 6. Issue of NOC 7. Transfer of Ownership 8. Private Vehicle Re-registration 9. Vehicle Alteration 10. Commercial vehicle fitness fee 11. Commercial vehicle fitness test 12. Fitness cancellation 13. Duplicate RC 14. Surrender/Cancellation of RC 15. Token tax 16. Trade Certificate |

V. Technology

The technology used in this initiative is given below along with specific HW components used.

Server: OS Window 2003/2008

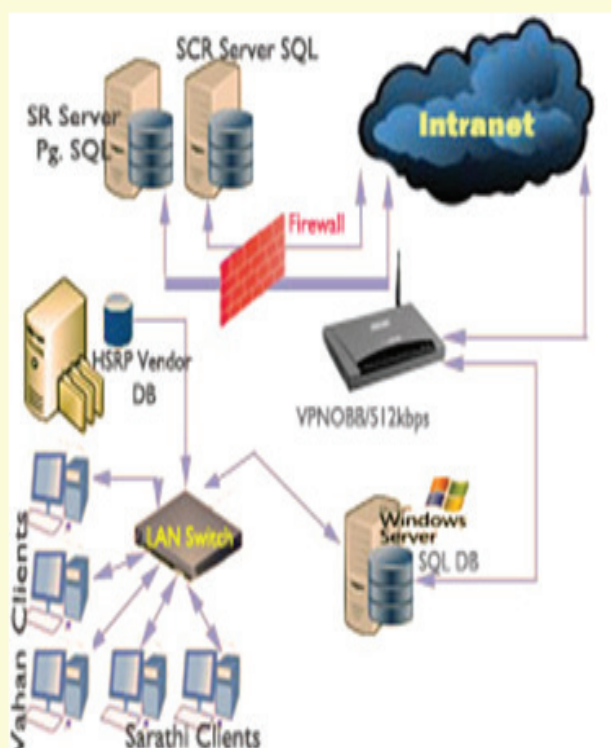
Clients: Window XP/Window 7/Window 8

Database: SQL Server 2000/2008

Front End: Visual Basic 6.0

A set of bio-metric devices (Signature Pad/Pen, Digital Camera and a thumb impression reader), one Laser printer, one Dot Matrix Printer and a Colour Laser Printer.

The conceptual diagram highlights the network technology aspects at RLA



RTO level in figure-1.

Figure-1: Network architecture of RLA/RTO.

VI. Implementation

Phase- I (Completed)

Initially, on pilot basis Vahan and Sarathi were started in RLA Dharamshala in year 2002 and later in year 2005 MORTH, GOI has selected District Kangra as Pilot District for the implementation. The Vahan & Sarathi was implemented in all the 8 RLAs and 1 RTO of the district.

Phase-II (Completed)

After the successful implementation of Vahan & Sarathi at Kangra, all the 64 RLA/RTOs were covered in the year 2008.

The total Driving license transactions done through Sarathi software and new vehicle registration Transaction done through Vahan till October 2015 are given below.

Table-2: Driving license transactions [7]

| Transaction Type | Total Number |
|-------------------------|--------------|
| Driving License issued | 394050 |
| Driving License Renewed | 196573 |
| Duplicate DL Issued | 47023 |
| Endorsement of COVs | 47845 |
| Non Transport DL Issued | 666072 |
| Transport DL Issued | 141738 |

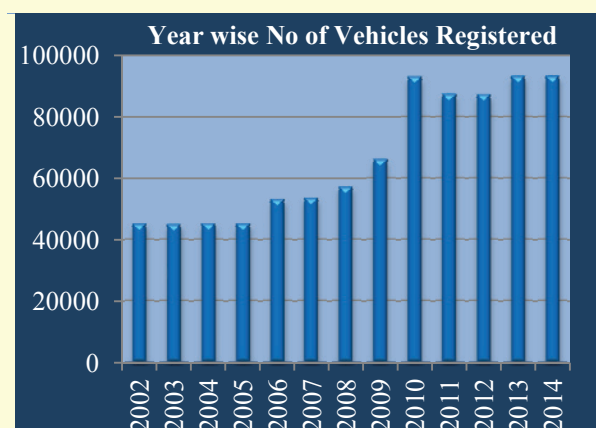


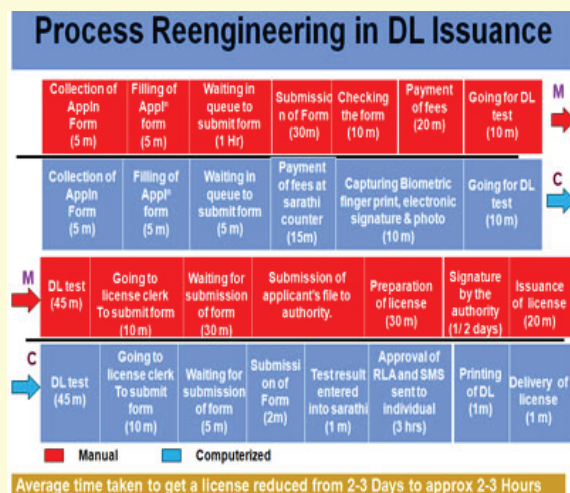
Figure-2: Year wise new vehicle registration [8].

A. Process Re-engineering

The traditional process of getting the Driving License and Vehicle Registration was very cumbersome, time consuming and unstructured. The automation of these services has been done by re-engineering the processes. Citizens are getting the services under one roof. Citizens are appearing for Learner License Test through Screen Test Aid for Learner's License (STALL) and the result of STALL is getting updated automatically in Sarathi. The time taken to process the request and to get the service has been reduced from days to hours.

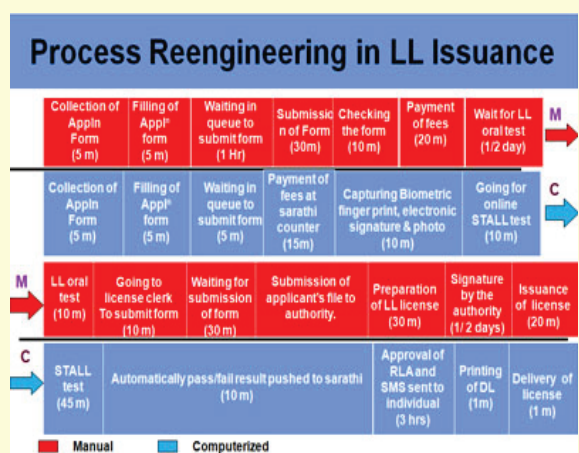
The SMS alerts are sent to the vehicle owners whose taxes are due, tax defaulters, vehicles due for fitness in advance, unfit vehicles, allotment of vehicle registration number after the approval of vehicle are sent to individuals on their mobile whose mobiles are registered with the department.

The step by step process has been explained in the figures given below:



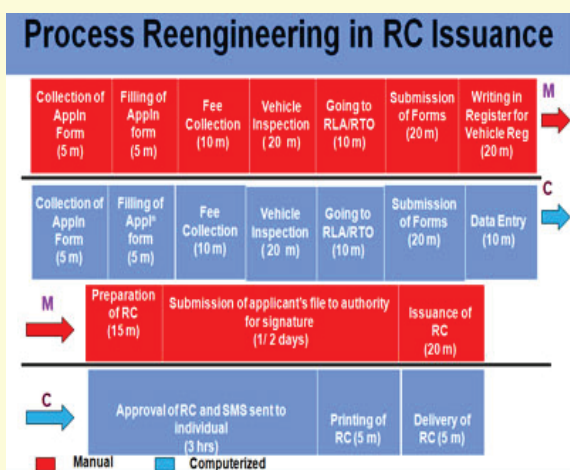
Average time taken to get a license reduced from 2-3 Days to approx 2-3 Hours

Figure-3: Process re-engineering in DL issuance.



Average time taken to get a license reduced from 2-3 Days to approx 4-5 Hours

Figure-4: Process re-engineering in LL Issuance.



Average time taken to get a RC reduced from 2-3 days to approx 4-5 hrs Hours

Figure-5: Process re-engineering in RC Issuance.

B. Issues and challenges faced

- The main challenge was the customization of Vahan and Sarathi software as per the requirement of State Govt.'s State Motor Vehicle Rules.
- Setting up of the infrastructure
- Non-cooperation from the supporting staff.
- Feeding of legacy data and its verification.
- Poor/unstable internet connectivity in remote areas.

C. Inter-operability

- Inter-departmental electronic information sharing is a key to effective governance [4]. To enable such sharing, the Department has created authenticated web services which are utilized by Traffic Police Officials to access the Vehicle and License information from the State Register through their mobile devices for booking offences.
- The web service is also being used in the Inter-Operable Criminal Justice System (iCJS) developed in Himachal Pradesh [4].
- Web service provision has been made to enable the Road Accident Management System (RADMS) to access the license and vehicle details of those involved in accident cases for recording the accident details.
- Provision of web service has been made for the Excise department for providing the No Objection and Tax Clearance of Passenger and Goods Vehicles for the PGT.
- Both ways sharing of vehicle data between the RLA and the vendor for fixation of High Security Registration plate.

VII. Key Findings

The implementation of Vahan and Sarathi was an eye opener in the sense that the initiative has been implemented in whole Himachal Pradesh having remote areas and difficult geographical terrain. It provides a one-stop solution for various services in an efficient, reliable, transparent and integrated manner and the mandate of Citizen Charter prepared by the transport department under The Himachal Pradesh Public Service Guarantee Act is fulfilled [5,6]. The problems being faced in terms of citizen perspective and department perspectives are there in the existing system.

Citizen Perspective

- RTO processes are not web enabled
- Need to minimize visit to RTO
- Scope and quality of Citizen-centric services need improvement
- Holistic solution to all transport-related

- requirements not available in one place
- Non availability of e-engagement /online appointment for LL/DL Test

Department Perspective

- Distributed RTO-based application difficult to maintain
- Online offering of all G2C, G2G and G2B services and other informational services in order to enhance the scope and quality of online citizen-centric services.
- Security and integrity of database a major concern
- Older technology (VB) not very efficient
- Inconsistency in Master Tables at different RLA/RTO which are giving problem in integration of data at State Register and National Register.
- Inconsistency, duplicates etc. are major data quality issues
- MIS and Ad-hoc reporting mechanism needs improvement
- Dashboard and BI tools not available
- Delay in roll-out of new requirements

VII. Recommendations

- The DL can be provided with more secure with QR code towards the uniqueness of the License, in-built security printing and watermark on preprinted stationary and a hologram on the license could be provided.
- The applicants could be provided information on relevant Acts that governs the usage, validity and necessity of a license. Additional Information on offences and penalties could be furnished in order to inculcate sensitivity and responsibility.
- The Common Service Centres (CSCs)/ Lomkitra Kendra should deliver the services to the individual at the grass root level[9].
- The Transport Service Providers can register people who can help the citizens for submitting their applications like what has been done by Income Tax department.
- The RC and DL should be sent by post, it will verify the correctness of the address.
- Automatic capturing of biometrics from Aadhaar database that will also verify the correctness of address of the individual and put a check on duplicate applications.
- Mobile Alerts to the driving license holders before the expiry of driving license.
- The provisions should be there for the individuals to update their mobile numbers by sending SMS or

through web portal.

- Providing IVRS for various services.
- Incorporation of Digital Signature for the approving RLA/RTO authorities.
- To provide anytime anywhere 24x7 service through online portal for the citizens for submitting the online requests for various services and the manual acceptance of forms should be discouraged.
- The supporting documents should be scanned and uploaded and no manual document should be allowed which will help the user to have paperless office.
- The Transport Department has to ensure robust, high-speed network with adequate built-in redundancy in place for providing online services.
- Amendments in the existing HP State Motor Vehicle Rules for online services.
- Integrating with the payment gateway for cashless transactions.
- Facility for MobileApps for various stakeholders.
- The registration of new vehicle should be given to the dealers.
- The Driving License test results should be uploaded from the tracks itself.
- Linking the Driving License with Aadhaar number which will also help in de-duplication of Driving Licenses.

VIII. Conclusion

The data analysis above proves that that the web enabled Vahan and Sarathi integrated system is the need of the hour and to provide the citizens 24x7 services. The Government of India planned Digital India - an ambitious programme to “transform India into digital empowered society and knowledge economy” will ensure that government services will be available to the Citizens in Transparent manner and to bring in public accountability through mandated delivery of government’s services to every citizen at Block and Panchayat level. The implementation of the Transport sector project was planned in such a way that by levying the user charges these Sugam Kendras are self-sustainable and hence provide alternative service delivery options to citizens minimizing corrupt practices in the longer run.

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GATI — Governance with Accountability, Transparency and Innovation

Topic: e-Governance in Education

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Abstract

We need to train 16.4 million¹ young adults with employable skills each year from now to 2022, 69%² of whom live in rural India and most likely, suffer from poor access to formal education, extreme poverty and limited world-view.

To create economically and socially useful human capital, skilling needs to be of high standard; with adequate financial capital to create facilities conforming to international benchmarks; and a governance mechanism that is predictable. And the delivery of this service needs to be aligned with supply of youth, indifferent to the capacity of local and state administrations.

These are the key challenges addressed by the Deen Dayal Upadhyaya – Grameen Kaushalya Yojana (DDU-GKY), the skill training initiative for wage-employment, of the Ministry of Rural Development.

The government process has been re-engineered to ensure transparency, minimise subjectivity, engender quality skilling, and financial prudence through the making of a framework of Guidelines and SOPs. The Ministry also has extensively used available technology solutions with some customization as well as created new solutions where needed. For instance, modifying and using PFMS (Public Financial Management System) to release funds and track utilization of money has enabled DDU-GKY to offer advance payments to its implementing agencies. This ensures sustainability of the process and infusion of better talent into the eco-system while managing the government's risk.

Context & Issues

In 2004/05, the Ministry of Rural Development launched a centrally sponsored scheme of skill training as a means to diversify incomes and facilitate upward mobility. Working in PPP mode, projects for both self-employment and wage employment were sanctioned.

The scheme was implemented in a 2-tier architecture with the Ministry at the centre offering policy development, technical support and the central share of funds. The involvement of the states was limited to its share of funds. On-the-ground implementation of the program lay with

project implementing agencies (PIAs).

The Ministry encountered several challenges during the course of implementation of the programme, some typical to the country, while others were a result of typical governance issues. Some of them are captured here:

1. Sanction of projects based on Fixed Costs but without any standards:
 - a. Projects did not specify any standards for the training infrastructure, as a result there were classrooms in drive-ways (as shown in Fig below).
 - b. Experienced trainers would demand higher pay, as a result projects would commence with fresh or less qualified trainers.
 - c. Most agencies approached skill training with a short-sighted approach and had no plans for training as a sustainable activity.
 - d. Herding of beneficiaries into classrooms without measuring their inherent ability or talent resulted in frequent drop-outs in various stages.
 - e. Placements in wage employment were driven by individual connections or specific time-bound needs of organizations instead of local or regional demand for skilled workers.
2. Disproportionate mid-term redistribution of funds and targets to states. Typically, the richer states performed better resulting in higher offtake. This affected the poor and disadvantaged youth in poorer states adversely.
 - a. The economically advantageous states would be able to put in human resources and systems necessary to implement projects while other states were not able to commit resources and systems. This resulted in varying degrees of achievements mid-term which would then result in reallocation of targets and central funds.
3. Traditionally, government finds it easier to procure products and goods but lacks in planning and implementing quality service delivery. Skill

¹ National Policy for Skill Development & Entrepreneurship 2015

² 68.84% as per National Census, 2011

training aimed at the rural poor youth requires services of a higher order and management aimed at engendering excellence.

- a. Service delivery requires identification of clear goals and outcomes and transparent and clear reporting and tracking mechanisms. Government often is not able to put in place the necessary technical and administrative resources and monitor quality in service delivery projects. Subjectivity on critical decisions introduces varying standards and decisions that cannot be easily replicated over time or in different circumstances or regions.
4. Empowerment approach to skill training. Most of the implementing agencies were focused on delivering what they knew best instead of identifying curricula and best practices aligned to global skills demand or assessment and certification.
 - a. Empowerment approach of skill training was related to occupations that could lead to income generation through wage or self-employment, often left to the enterprise of the individual trained rather than as a result of a fine-tuned process.
 - b. Empowerment approach also underscored the importance of linking training to possible careers, with a clear mapping of skills and growth necessities. Often this would result in a short-time income activity that the trained individual was unable to grow into a sustained business or career.
 - c. Assessment and certification was not possible as the curricula was not defined or with defined knowledge and skill areas. With no certification, the individual would lose out over time when even in a job as well as lose the ability to move from a job to another and build a career.

It became difficult to capitalize on small successes and build scale as a result. But the biggest barrier resulting from this approach was the lack of aspiration for skill training per se among rural youth. Skill training, even currently, is perceived as a stepping stone to the larger idea of acquisition of qualifications necessary to gain a job and a career.

In addition to the internal complexities of the task, several external forces also impacted the performance of the program. Some of them are:

- Increased media penetration ensured that a portrayal of urbanized lifestyle reached deep resulting in diverse lifestyle aspirations and unrealistic demands from work life.

- In 2009, with the coming of the National Policy for Skill Development, Sector Skills Councils (SSCs) were developed with industry partnerships, to identify job-roles for unskilled, semi-skilled and skilled workers across several sectors. These nodal agencies identified gaps in the education system and the opportunity for skilling with meaning and measure.
- Also, the CGA of the Ministry of Finance launched a Financial Management platform for all centrally sponsored schemes, called the CPSMS, now known as PFMS (Public Financial Management System). And the development of Aadhaar enabled Direct Benefit Transfer mechanisms for several schemes added effectiveness, transparency and accountability in the use of government funds.

In 2011, the Ministry was tasked to create a special skilling and placement sub-program for the poor youth of Jammu & Kashmir. The Ministry, learning from its set of experiences, implemented some guiding principles and innovations. The success of this sub-program, called 'Himayat' spawned re-engineering of the skills program into Ajeevika Skills and later as DDU-GKY.

Reform Measures

Cost Model

Rethinking the government process of the programme was initiated by the Ministry in 2013.

The programme division repositioned itself as a business with trained youth as its product and industry as its market or set of consumers.

The first step was to identify clear goals and outcomes. The Ministry identified wage employment as the key outcome, mandating placement of a minimum of 75% of all trainees at minimum wages of Rs. 6,000/- per month³. Placement was redefined as continuous employment for a minimum of 3 months. To encourage upward mobility, due emphasis on job retention and career progression was placed.

The next step was to link achievement and funding. As a pioneering innovation, the funding policy was changed to a success-linked incentive led model wherein performing PIAs could demand and receive more than twice the base fixed cost. For instance, the base fixed cost of Rs. 13,696/- per candidate could grow to Rs. 31,696/- per candidate through incentives – Rs. 3,000/- per candidate on achieving job retention, Rs. 5,000/- per candidate on achieving career progression and Rs. 10,000/- per candidate on achieving foreign placements.⁴

3 Above poverty line, which was defined as expenses of Rs. 4,860/- per month for a family of five as per the Rangarajan Committee 2012

4 Job retention is defined as remaining in the labour market for continuous 12 months, and career progression as growth in position and income to 2.5 times of what placed in within 12 months

Based on the above, the new funding norms were published and released in the Programme Guidelines in Sep 2013.

Subsequently, in re-engineering the process, several innovations made their way into progressive steps.

Ensuring quality service delivery & outcomes

The next step was to map the high-level process to start the making of detailed Standard Operating Procedures (SOPs). The Guidelines and SOPs are a ‘good governance’ measure to introduce transparency and accountability in programme management, eliminating possible subjectivity, changing goal-posts and ‘inspector raj’. They also form the base for introducing a progressive e-Governance framework with interface for all stakeholders of the programme, viz. the implementing agencies, the candidates and administrators (including decision makers).

A process of registration of PIAs at the level of the centre was introduced to ensure that better organizations applied for and received support from the government as PIAs across the centre and the states. The result was a rigorous, objective and transparent process for a Permanent Registration Number (PRN) and on-boarding of potential PIAs.

To facilitate market or demand linkage to project proposals, the Guidelines identified clear role and responsibility for the PIA in making project proposals.

In addition, the Programme Guidelines also identified multi-modal engagement with employers:

1. Champion Employer policy: a numbers driven approach where employers are required to train and place 10,000 rural youth in 2 years.
2. Captive Employer policy: a demand driven approach where employers are required to train and absorb 500 or more rural youth annually.
3. Industrial Internship policy: a demand driven approach, the costs and incentives structure subsidizes the cost of talent acquisition.

The next step was to identify a prioritization for project proposals wherein a 4-stage appraisal process was evolved. The appraisal process included scoring of potential projects on the merits of:

- Past performance of the Organization
- Strengths of the Organization
- Merits of the proposed project

The next step was to identify and standardize course and curriculum content. PIAs are required to engage with academic specialists and ensure training and certification within the framework being established by the National Skills Qualification Framework (NSQF). This is essential to gain global recognition as well as

portability. It was prescribed that all PIAs would follow either NCVT (National Council for Vocational Training) curricula for MES or QP-NOS (Quality Pack for National Occupational Standards) as developed by SSCs of NSDC. It was further prescribed that all assessments would be third-party through accredited assessors of the respective bodies as above.

Also, the durations of skill training programs were proposed for minimum of 3 months (576 hours) and maximum of 12 months (2,304 hours).

A key innovation is the inclusion of training hours in Soft Skills, basic IT skills and functional English. Another is ‘Work readiness training’. Preparing candidates for work-life and adjustment from the village to the city or industrial centre is the objective of the ‘Work readiness training’.

The next step was to define physical infrastructure. It was found out in repeated interactions with successful candidates and partner organizations⁵ that the training centre was central to perceptions of skilling and skilled workers.

In consultation with diverse specialists and domain experts⁶ as well as research teams as present in the CTSA, a blueprint was evolved for a training centre, its academic and non-academic areas.

Several innovations were made here. The most important was Domain Labs. A domain lab is a representative training sample of the final work environment complete with necessary tooling as would be available in the actual work environment when the candidate is placed in the job. For instance, the domain lab for machinist or operator’s job role would include a lathe machine wherein beneficiaries would be taught how to use and work with it.

The next was a model for concurrent monitoring by the CTSA and/or respective State Governments through Department of Rural Development (Rural Livelihoods Missions), or dedicated Skills Missions or their appointed TSAs, with a view to build transparency in governance and administration as well as engage with state administrations down to District, Block & Village Level Resources. Monitoring was planned through online access to live data from the desk as well as number of physical visits, composition of the visiting team and checklist etc.

Quality initiatives undertaken by the Ministry are:

- The formulation of empowered Q-Teams at PIAs who track performance of the programme in a 15% sample.

⁵ Continuous process of meeting with PIAs and candidates is a part of the managerial process, done in face to face interactions as well as through a feedback instrument filled by candidates

⁶ Multiple workshops with domain experts (at least 2 successfully completed projects) by the Ministry and the CTSA – NIRD&PR

- Training of Trainers program - The Ministry has identified resources with domain and facilitation expertise to constantly grow the ability of the trainers of the implementing agencies.

Technology and innovation have been extensively used to expand M&E and ensure quality service delivery:

- MRIGS (Monitoring and Regulation for Improved Governance in Skill development) is an online MIS & ERP solution (www.ruralskills.in) mapped on the DDU-GKY SOPs. Some of the functions it facilitates are:
- Real-time tracking of candidate profile and performance (Attendance, performance in Internal and External Assessments)
- PIA interface to facilitate decisions and quality assurance, making it easier to manage multiple centres and projects
- Candidate interface to build a resume and post grievances directly to the Ministry
- Employers interface to post jobs and opportunities
- PFMS (Public Financial Management System)
- Geo-tagged Bio-metric Attendance record linked to MRIGS using STQC compliant devices in the training centres.
- CCTV recording of training days using cameras with audio recording facility. This information is locally stored for access for a period of 6 months post completion of training of the batch. This allows the Inspection Team to replicate visits. The audio recording is also analyzed for assessing quality of training, trainer ability and classroom interactions

The Ministry is currently working on randomly retrieving CCTV and audio information online that can be automatically analysed by software and a BPO process. This will greatly enhance the current capacity of the programme and enable it to scale to over 1 million candidates each year.

Funding Model

To skill with scale and speed sustainably,⁷ the Ministry needs to attract and motivate better talent, educational and other institutions/ organizations of repute to work as implementing agencies.

The traditional government approach of procuring services and paying post completion of the projects was a barrier. The Ministry needed to structure its payments such that capital investments could be amortized by PIAs. The re-envisioned funding model called for payments in 4 successive installments subject to utilization of funds and achievement of physical targets. The revised funding

norms:

1. Front-loading payment through advance (25% of the total project cost) immediately upon sanction of the project. Against this, the PIAs are required to complete 10% of physical targets of training and placement utilizing 60% of the funds.
2. The second installment, comprising of 50% is to be paid when projects and PIAs demand, subject to completion of the targets. The physical achievement goals were set at 90%. Utilization also at 90% of all funds.
3. The third installment, comprising of 15%, would then be disbursed on demand.
4. The fourth and final installment (10%) is disbursed upon the completion and closure of the project.

This structure automatically ensured availability of funds but exposed the Ministry to high financial risks. In order to mitigate risks, the Ministry has modified PFMS for tracking and reporting a project view from an agency view. PFMS, with its unique linkage to CBS (Core Banking Solutions) of banks allows the Ministry to access and identify how every rupee is being spent in real time. It has also allowed the Ministry to detect fraud in time and take necessary remedial action in a timely manner. For instance, a fraud by a NASDAQ listed agency was detected in June 2015. As of July 2015, all of Rs. 7 Cr disbursed to it had been recovered in full.

PFMS and approach to funding allowed the Ministry to introduce quality skilling.

Building institutional capacity in states & manage mid-term reallocations

Concurrent monitoring and an active role in for State teams requires creating an institutional framework. The Ministry has designed a federal structure without compromising access to the poor and needy in states that have developmental delays. States that had acquired capacity to implement and manage their own programs are called Action Plan States (APS) and are empowered to choose their projects, PIAs and implementation cycles. They are also empowered to appoint their own TSAs in addition to engaging the services of the CTSAs where needed. In other states, the centre identifies PIAs, sanctions projects and monitors progress directly. These states are referred to as Year Plan States (YPS).

In order to grow capacity, the Ministry has also provided funds for manpower, TSAs, and implementing communication programs to both YPS and APS. In APS, the Ministry provides the states with a fund and a physical target and disburses funds in two installments of 50% each.

An APS Toolkit comprising of documents and spreadsheets has been developed to facilitate transition. The toolkit and a dedicated State Single Point of Contact

⁷ Fulfilling the Hon'ble Prime Minister's clarion call on the occasion of World Skills Day - skill with scale, speed, standard and sustainability

(SPOC) have been committed to states implementing the programme currently.

Making trained manpower available for states and PIAs as well as training of state, district and block level administrators is an essential part of building capacity. The Ministry has developed an online training and certification module on the DDU-GKY SOPs – www.ddugkysop.in.

PIAs and prospective partners can engage with the Ministry online completely till the sanction of a project through an Online PRN application residing on the website. The Ministry is committed to respond to all applications within 7 working days.

Once PRN is allotted, a PIA can apply for a project online through the website. The online Project Proposal application also scores and rates the proposals on submission to hasten decision making.

Existing PIAs can also access their dashboards on the MRIGS which also has sufficient feedback mechanisms in addition to real-time MIS.

Notes On Technology Used

On the technology front, MRIGS is developed on the MS stack, developed using Dot Net framework, with MS SQL Server to manage the database and OpenKM for document management. The application is hosted on Amazon Web Services (AWS) and deployed on Windows 2012 Server. It is currently implemented on Elastic servers which scales system as per requirements, from the number of cores to memory and bandwidth.

PFMS is a modification of the existing system developed by the CGA, Ministry of Finance and retains its technical character and scalability. The modification has required the engagement of resources in both the Ministry of Finance as well as the programme.

Impact Of The Programme

Currently, the Ministry has approved projects to impact 13.94 lakh rural youth at a cost of over Rs. 4,300 Cr ⁸. This is one of the best RoIs of a Government programme approximately costing Rs. 30,800/- per candidate that promises to yield Rs. 72,000/- in the first 12 months.

Partners

Over 2,400 organizations have applied of whom over 1,200 have been allotted PRNs⁹ by the Ministry. Presently, over 290 PIAs have been sanctioned projects under the programme. Some of them are: IndiaCan (a venture of Pearson group, the world's largest education business), ICA Infotech, D B Tech (a division of Don Bosco group of Institutions), Safe-Educate (a division of Safe Express) among others.

Coffee Day Global (owners of Café Coffee Day), Apollo Medskills (a division of Apollo Hospitals), Manpower Group and Shivashakti are Champion Employers, promising over 40,000 jobs¹⁰ in 2-3 years. Currently, another 7 organizations are awaiting MoUs, promising to create another 70,000 jobs¹¹. Some of them are: Maruti-Suzuki, Team Lease, Narayana Healthcare (owners of Narayana Hrudalaya) among others.

Geographic Impact of the programme

The programme is currently being implemented in 21 states across the country, 13 of whom are Action Plan States, impacting youth from 568 districts and 6,219 blocks ¹².

Training Infrastructure

There are over 1,300 approved training centres across the country running training programs in over 166 job roles across 45 sectors like healthcare, BFSI (Banking, Financial Services and Insurance), transportation and logistics, food processing, hospitality, ICT (Information and Communication Technology) among others.

Use of IT Solutions implemented

- MRIGS: has been currently implemented across all projects monitored by NABCONS (a CTSA of the Ministry) totalling to 47 of the on-going 150 projects. Over 21,500 candidates are registered in 148 approved training centres and are currently available on the platform.
- PFMS: has been currently adopted across 150 projects implemented by 79 PIAs, with registered accounts of over 5,40,000 candidates and transactions of over Rs. 1,900 Cr. PFMS is also being linked to MRIGS so that PIAs can demand Just-in-Time access to funds and installments.
- DDU-GKY eSOP: launched on 20th October 2015, over 30 professionals have already been certified since.
- CCTV hours: in over 148 approved training centres, the programme has generated over 620,000 hours of video and audio data.
- Geo-tagged Biometric Attendance: records of over 200,000 candidates for over 180 days is currently available with the programme management

The Road Ahead

The programme is poised to build scale and capacity in the coming 2-3 years, growing to over 500,000 candidates trained and over 350,000 candidates placed each year.

Defining, relaxing and adding stringency to processes continuously, measured through practical experience is a

⁸ Includes approved, sanctioned and on-going projects as on 31st October 2015

⁹ All data points are as at 31st October 2015

¹⁰ Café Coffee Day plans to train and absorb 13,000 candidates in 2 years

¹¹ Expected 10,000 jobs from each Champion Employer in 2 years as per policy

¹² List of impacted districts and blocks from approved projects

necessity in skill training, a nascent but rapidly evolving eco-system. The Ministry expects to fine-tune its provisos over time.

Facing candidates, building scale will call for expansion into mobile technology as an outreach as well as delivery platform in rural areas. Distance Learning Programs, delivered through Mobile is an area of interest being considered by the Ministry.

Another reality is migration of youth and/or families. Facilitating transition into urban and peri-urban environments is another key challenge.

Social inclusion, especially of those differently abled is

another challenge where the Ministry needs to expand its own horizons.

Facing employers, the Ministry needs to build engagement and create preferences across various aspects of business to ensure absorption of skilled workers. One idea being worked upon is the provision of easier financing options for small businesses and entrepreneurs who prefer and engage skilled workers in larger numbers.

To sum it, a good start has been made which needs to be capitalized rapidly and systematically to ensure India is able to translate its age bulge into a demographic dividend in the coming 2 decades.

Leveraging ICT for Service Transformation in Smart Cities

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Abstract

Government of India launched Digital India Initiative last year. As part of the same two programs namely Atal Mission for Rejuvenation and Urban transformation (AMRUT) “and “Smart City “Initiatives were started in context of urban Service delivery. Both these align to a common goal for a transparent, expeditious, economical service delivery. AMRUT initiative has a focus on providing basic services (Five hundred cities are planned to be taken up under AMRUT & 20 in Smart city Phase I). The list of cities is planned to be notified in due course of time.

This paper is an attempt to lay a macro map for these programs which can be adopted as replicable model for both the initiatives in multiple cities.

1. Background

Government of India recently launched initiatives namely Atal Mission for Rejuvenation and Urban transformation (AMRUT) and “Smart City “. Both these align to a common goal for a transparent, expeditious and economical service delivery. AMRUT initiative has a focus on providing basic services (e.g. water supply, sewerage, urban transport) to households and build amenities in cities which will improve the quality of life.

Under Smart City initiative focus is on revamping the services extended by municipalities with focus on sustainable and inclusive development. The idea is to look at compact areas, create a replicable model which will act like a light house to other aspiring cities (Smart City Guidelines 2015).

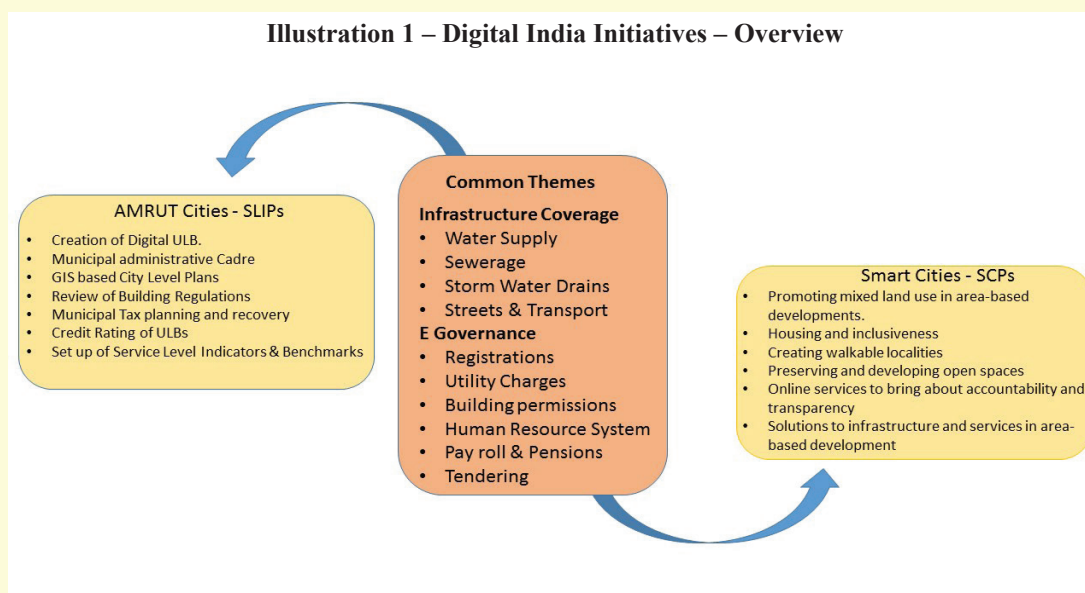
The above initiatives focus on physical infrastructure development through AMRUT to drive economic growth to improve the quality of life of people by enabling local area development using technology through Smart Cities Mission. The introduction of IT initiatives as catalyst in both initiatives, ensure that they complement each other.

The goal of these programs is to equip the city administration for providing services with reduced cost and time of service delivery processes to the end user i.e. Citizen. In broad sense improvement of service delivery and robust maintenance / support mechanism is the intended outcome.

2. Current Stage of Initiatives

As per the guidelines for AMRUT program 500 cities have been planned to be covered initially. Preparation of Service Level Improvement Plans (SLIP) covering the assessment of gaps in service provision with alternatives to bridge those with effective solutions is the current task at hand for participating cities.

Illustration 1 – Digital India Initiatives – Overview



On the other side the Smart City program has 100 cities shortlisted for preparation of Smart City Plans (SCPs) and 20 of those shall be finally selected for implementation in first phase. One key aspect of both SLIP and SCPs is to have an approach to improve the efficiency of city operations, the quality of life for its citizens and the growth of the local economy. The awareness of citizen about usage of technology is also expected to be leveraged in these. Illustration 1 gives the outline of the programs and the parameters of assessment of plans

3. Infrastructure & Citizen Services

As illustrated in the outline of the plans for Amrut & Smart City initiative, the Infrastructure and the service provision for the citizen are the focus areas for both the programs. The background for these is already in place as, in almost all cities likely to be covered in the scheme, have worked on projects like

online as well. However all these initiatives which are run across various departments have now an opportunity to be brought under one single interface platform for meaningful information exchange leading to better service delivery.

The illustration 2 below gives a graphic representation of the works on ground which shall serve as a good launching pad for both these initiatives.

The stake holder departments listed in the illustration above are not fully under control of Urban Local body which may become potential bottleneck unless resolved at initial stages of current initiatives as services cut across departments and the agility intended to be brought into the system shall be induced by such an information sharing.

The same is explained in Illustration 3 .

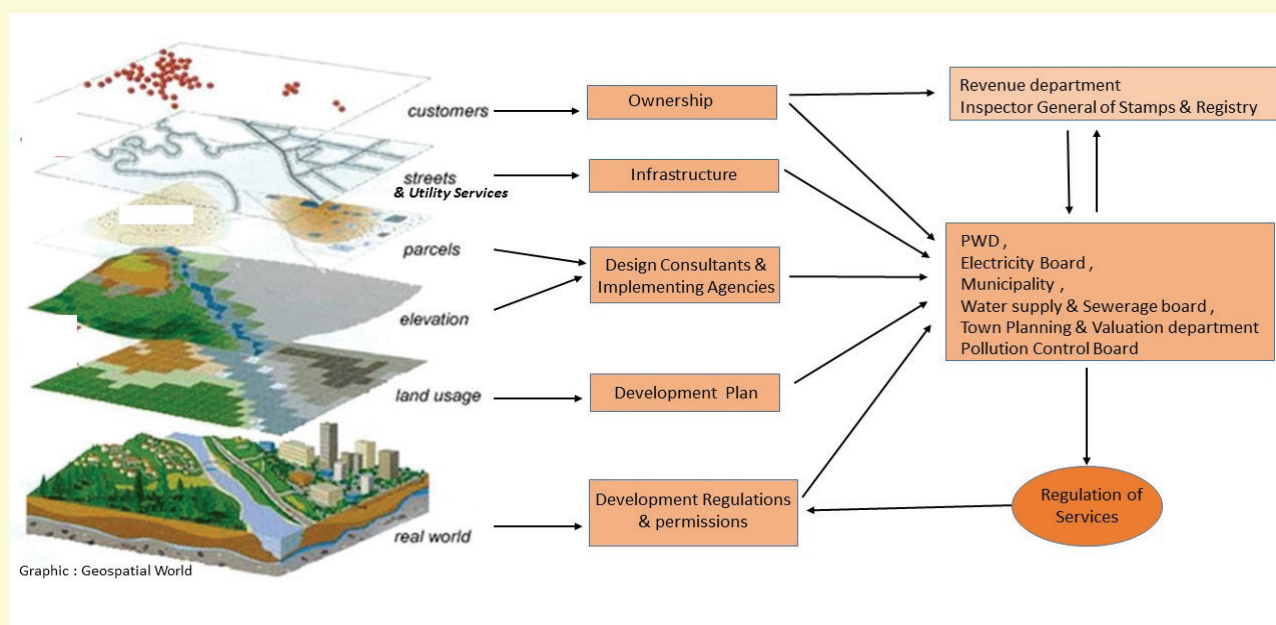


Illustration 2 – Development Elements and Administrative Setup

- GIS mapping of infrastructure with satellite image processing
- User data base creation with regular updates with geospatial tagging
- Automation of service delivery process with various e-governance projects

In addition to these, service delivery processes have undergone automation as part of several IT initiatives since inception of National e-Governance Plan in 2004. As a result information for many services, in static form has been made available with few services going

4. Prerequisites for SLIPs

As outlined in illustration 1 the service level benchmarks and indicator reporting is one of the key aspects that shall be looked for in SLIPs as well as SCPs. In order to achieve these the one common goal these program intend to have is “reduce cost of services and providing services without having to go to municipal offices”. Leveraging Information and Communication Technology (ICT) is the way forward. To be able to dovetail the solution to fulfil this goal it is important to look at requirements of key stake holders’ i.e citizen and the administration.

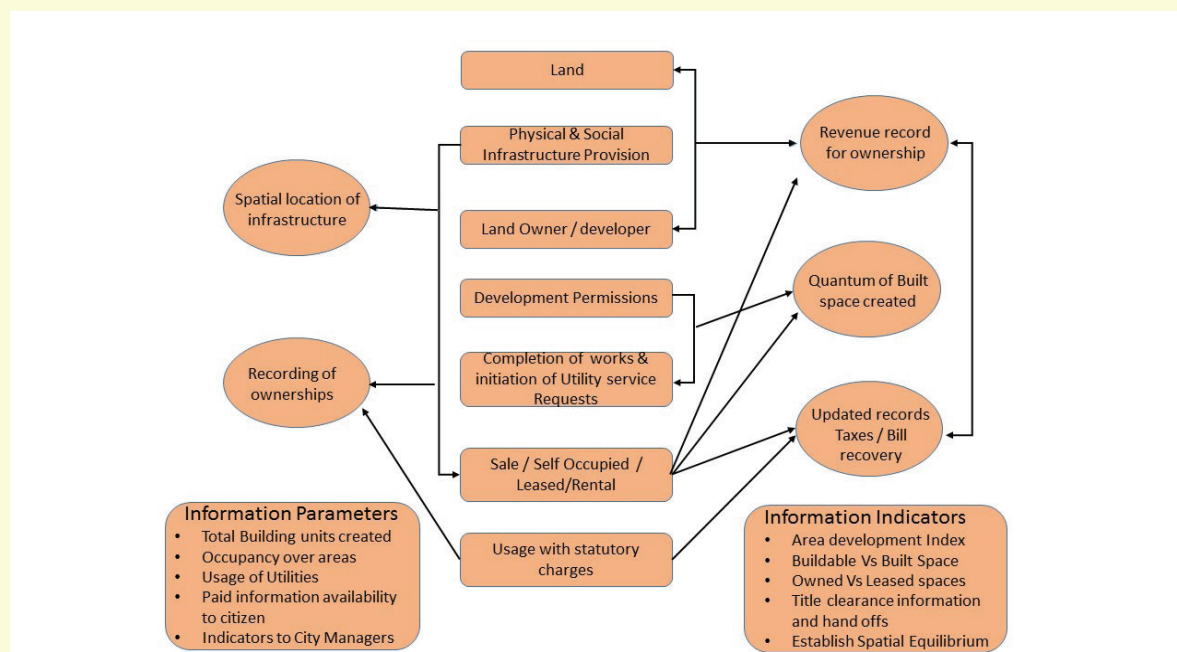


Illustration 3 – Macro map of Development process and Information Channels

For a citizen the availability of a service catalogue that contains majority of requirements of services needed by them is a key need. An ability to request for a service they desire to have can be a delighter. At the same time as an administrator, municipal corporation need to have ways and means to extend the service requested in a given cycle time. The fulfilment of the need for both is solely dependent on the Information related to

Infrastructure for the service requested being available for decision making and effectively communicating to end user. Illustration 4 provides the graphic representation of the same. While conceptualizing the SLIPs / SCPs the infrastructure mapping, Geo referencing of assets, Inventory data, user information base parameters from applications become the key pre requisites for developing action plans to meet the objectives of the program

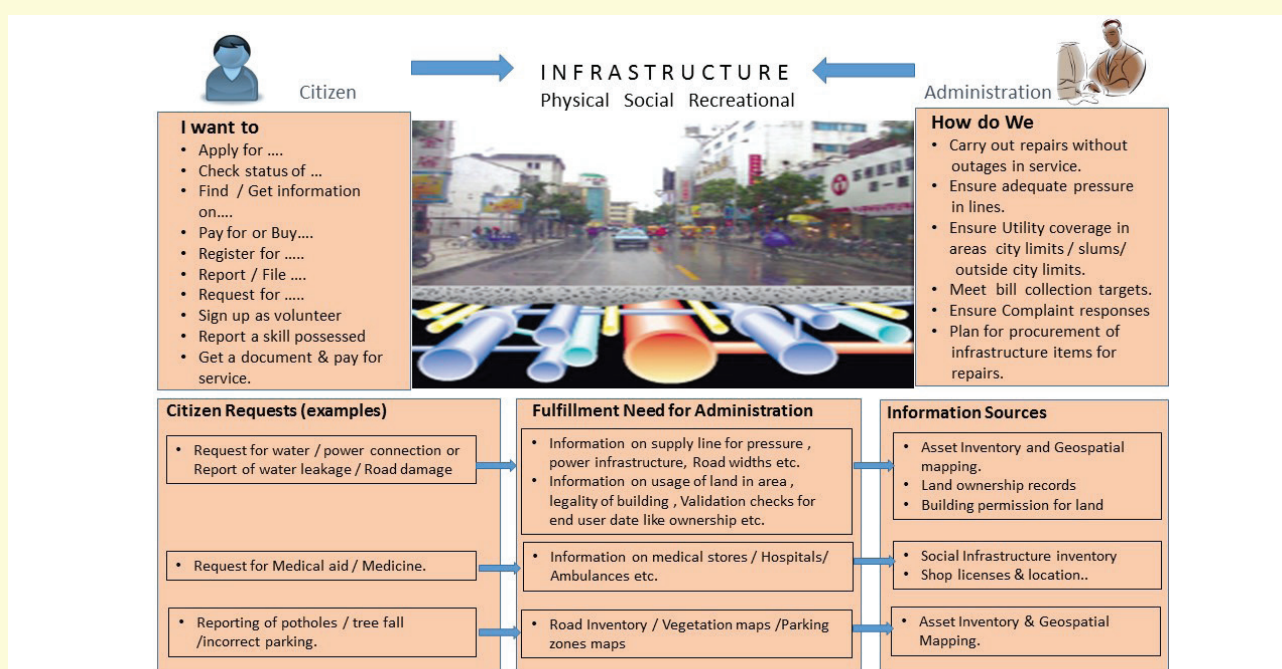


Illustration 4 – Service Delivery – Touchpoints for Information Exchange

5. Common Process Framework for Extending Services

Service management in IT world has effectively leveraged the best practices across globe in effective service delivery and support. Initiatives like AMRUT & Smart Cities give a chance for all cities to know the best practices implemented in each of these cities there by evolving a knowledge base which shall benefit in the long run for the cities which are at lower maturity level. The concepts of IT Service Management processes can be adopted for provision of G2C and G2B services intended to be covered under the vision of digital India. The service landscape of the city is solely dependent on the following broad categories of city needs

Category 1. Networked Infrastructure services like road, water, power, waste disposal systems Transport etc.

Category 2. Social Infrastructure services like, education institutes, commercial areas, Market Places, Religious places, parks and recreation places etc.

Category 3. Other services like office spaces, Industrial areas etc.

The end user is the customer of the services i.e. Citizen, the concept of Amrut cities & Smart cities revolve around provision of services to the end user. Further the parameters of Service Level benchmarks make the provision of services even more challenging for the administration. The Urban Service delivery procedures described below are based on ITSM concepts which have a potential to fulfil the challenge SLIPs & SCPs have put forward to the experts working on the same. Broad Outline of these procedures is described below.

- A. A common Interface is there for all services with the end user i.e A Central Help Desk (CHD). All the interactions of citizen to administration need to be through this channel, irrespective of department. The helpdesk shall be updated with infrastructure information from data base mentioned below on parameters line, breakdowns/ capacities/ availability within geographic spread of authority. With end user requests, complaints and their linkage to infrastructure the data base of errors reported can be effectively diagnosed through defined procedures. The Requests for Service (RFS) shall also be routed to respective departments through central help desk. A new service requested by citizen can also be looked for feasibility based on request volume and costing. Thus a CHD can potentially lead to creation of a knowledge data base linked to city issues and end user needs
- B. Creating a common Asset Inventory of Infrastructure functional in delivery of services described in 3 categories above, forming City Infrastructure Database (CIDB).
- C. A formal procedure for fixing the issues reported to be followed with routing of these issues to respective departments through the central help desk. The repeated issues can be separately taken up for causal analysis with a defined procedure. Thus Citizen Issue Management (IM) and Repeat Issue Analysis (RIA) resolution form linked procedures.
- D. For resolution of issues there might be a need to repair the Infrastructure item i.e pipe / valve/ cable / switch etc. These call for physical work on ground to be done through agencies with due procurement of spares if not in available in CIDB information.

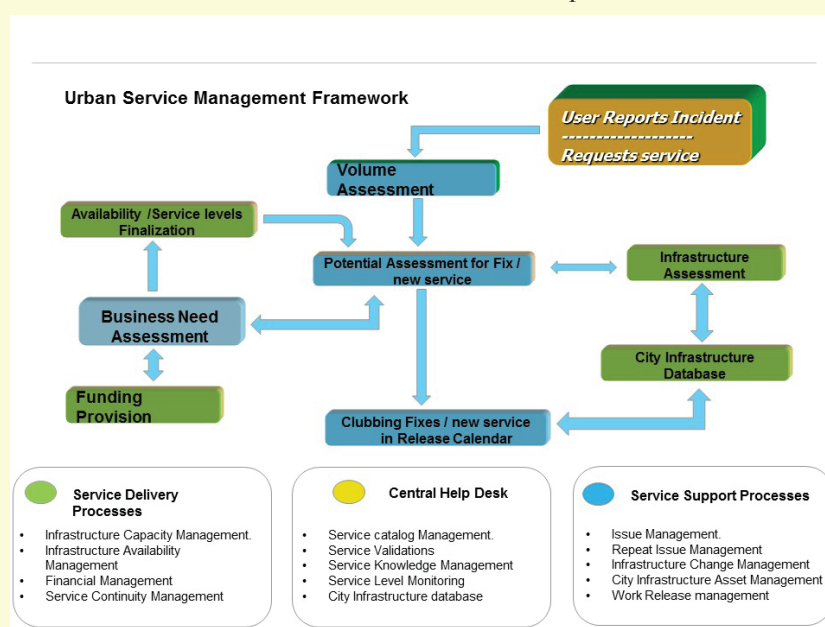


Illustration 5

- E. At the same time since the requests come from one channel the interdependencies of infrastructure items that call for repair can be easily diagnosed and clubbed in one single repair plan. This repair plan needs to have approval from all department committee termed as Change Approval Board. Thus a formal procedure of Infrastructure Change Management (ICM) shall need to cover this aspect.
- F. The aspect of procurement of spares and getting work executed on ground with clubbing of infrastructure repairs has a potential to change the tendering process also. Work Release Procedure thus gets evolved covering multiple repairs in single initiative.
- G. The information on Infrastructure capacity and availability shall be tapped from CIDB and the information need to be constantly monitored by administration through the CHD reports on end user interaction. A formal procedure to interlink Service Availability (SA) to Infrastructure capacity (IC) shall get established. The Continuity of Service shall also get monitored through CHD

- H. The process of budget in urban administration is well established, however as part of this framework the Financial Management procedures need to have a strong link to CIDB and ICM process. The functional aspects and categorization of processes are depicted in Illustration 5 above.

The framework discussed above thus formulates a skeleton for establishing service delivery procedures with a generic processes adoptable to all services. Establishment of process framework and a common citizen interface shall aid in effective adoption of the processes amongst all stakeholder departments with agreed service catalogue.

These procedures essentially deal with end user requests , complaints , suggestions, information parameters of such requests get related to infrastructure capacity / availability and if needed augmentation before fulfilment.

The overall landscape of the processes is depicted in Illustration 6 below,

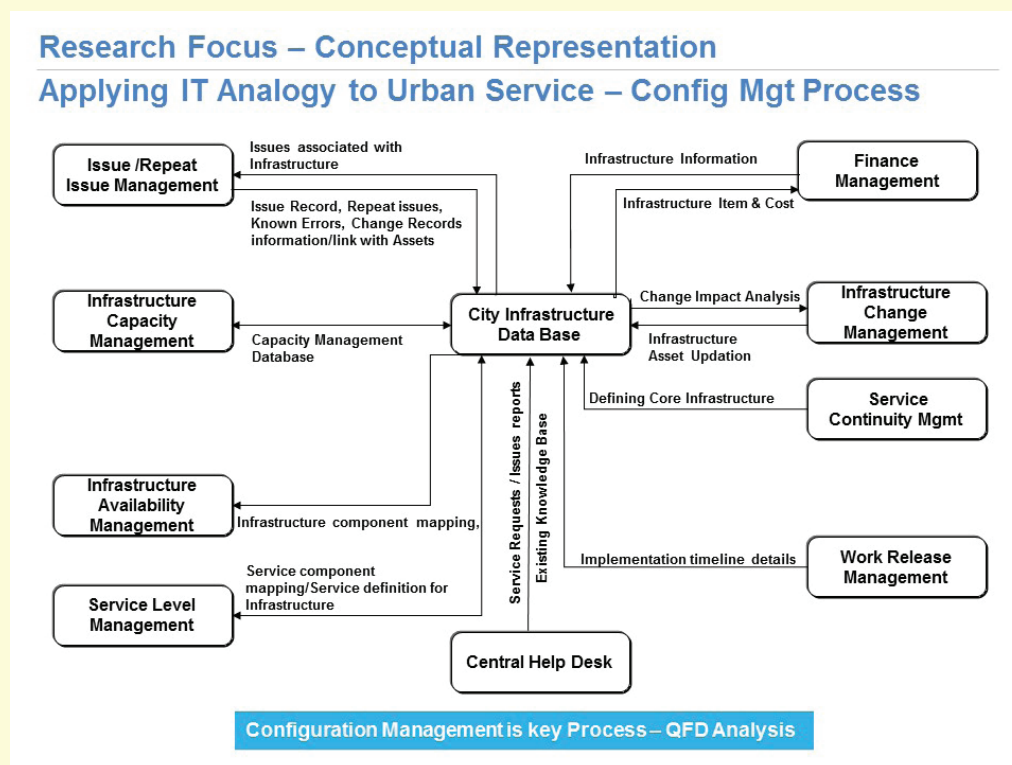


Illustration 6 - Linkages amongst Processes for Operational Efficiency

6. Benefits of Process framework Adoption

Once the processes for service delivery and service support covering the service providers become operational with City Infrastructure database and identity mapping of end users, the results shall show the realistic effects of e-Governance initiatives with Service level Improvement.

These shall bring in benefits which shall have far reaching effects for end user such as

- Reduction in steps for services with elimination of paper submissions and duplicate steps
- Information on frequency and details of changes to city infrastructure
- City areas can get differentiated with development index based on infrastructure.
- Expeditionary response to customer requests.
- Record of outages of the services
- Virtual “Single Window Service” eliminating the need for user to visit multiple offices.
- Single channel of information and online validations with real-time data update
- Transparency in transaction with pendency data availability.
- Ease of tracking requests, complaints and SLAs.
- “Big data” becoming reality in Municipal space.
- Control of building activity in areas where infrastructure capacity is inadequate.
- Useful information for capacity planning for infrastructure provision based on land transactions/ service requests received

In addition, the tertiary benefits include

- Online exchange of interdepartmental user specific data to effectively reduce cycle time for service fulfilment.
- Ease of reference to similar cases.
- Initiation of transactions by citizens shall lead to revenue enhancement for service provider department with charging for information services
- Optimised infrastructure both Utility & IT Infrastructure
- Employment opportunities through City Administration with avenues of Skill Mapping of citizen and leveraging Citizen Service Centre (CSC) network
- Improved interdepartmental teamwork.
- Saving in travel time of citizens to offices reducing traffic on roads as an added benefit.

7. Conclusion

The underlying cause of challenges for digital service delivery is the silo style of IT implementations by service provider departments. While we work on action plans towards initiatives like Smart Cities, infrastructure and solutions already in place, needs to be fully leveraged to complement the tasks to be undertaken in future. In other words operating frameworks like one described is needed to support interoperability across service delivery channels, within a tier across different domains, to complement digital delivery functions.

Establishing a Quick Complain and Resolution Mechanism for Telecom Customers in India

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Abstract

Telecommunication sector is one of the fastest growing business sectors in India. The growth in this sector has immensely contributed to the improvement in the quality of life of the common man. It is vital for telecom service providers to obtain feedback from their customers. Government and public sector undertaking organizations around the world are reforming their public administration organizations and delivering more efficient and cost effective services, as well as better information and knowledge to their stakeholders using e-Governance. The tremendous expansion of the telecom sector also increased the number of complaints from telecom subscribers. It has become a major issue to identify the right channel of complaint. Consumers are in need of various details such as where to complain, process of complain, has the complaint reached the right person, actions on their problem and whether it been resolved.

TRAI is proactively and constantly working towards redressal of consumer complaints along with growth of telecom Industry. The Authority also faces another set of concerns like right escalation of complaints, resolution of complaint within stipulated time frame, communication to customer regarding their complaint status as it involves many levels of escalation like Appellate officers and various Service Providers. This paper gives an overview of TCCMS implementation, which aims to develop a collaborative and unified service platform to ensure seamless integration of various levels of complaint monitoring and addressal, as a major step towards Digital Governance delivering a transparent, accountable and 24x7 innovative resolution.

INDEX TERMS: TRAI - Telecom Regulatory Authority of India, TCCMS - Telecom Consumer Complaints Monitoring System, e-Governance – Electronic Governance

I. Introduction of TCCMS

Scholarly knowledge about complaint behavior gives the service provider valuable insight into service problems and methodologies to improve service offerings, service processes and interactions to increase customer satisfaction. In spite of the effort mobile telephone operators are not able to satisfy and retain customers. “No organization is perfect in the delivery of superior customer performance and there are significant levels

of dissatisfaction”. Since Customer complaint behavior is inevitable, it is crucial for management of mobile telephone operators to understand customer complaining behavior in order to effectively manage it. This may help providers to serve customers more adeptly and prevent unfavorable service experiences.

TRAI has been receiving a large number of complaints from Telecom Consumers related to the telecom services provided by the Service Providers. Previously, on receipt of a complaint from telecom consumer, the individual complaints from consumers were forwarded to Service Providers for redressal. The complaints alleging violation of TRAI regulations and complaints of generic nature were referred to Service Providers for Root Cause Analysis (RCA). However, the above process involved a lot of manual activity and human intervention. The follow up of the complaints already forwarded to Service Provider were difficult to access especially in case of Right to Information (RTI) applications where a quick resolution was needed. Before the launch of TCCMS the consumers faced the concerns as listed below :

- 1 No response on the complaint from the redressal mechanism established by the Service Provider.
- 2 Delay in response to the complaint by the redressal mechanism.
- 3 No redressal on the complaint.
- 4 Unsatisfied resolution on the complaint.
- 5 Eagerness of the customer to get the complaint redressed at the earliest.
- 6 Lack of awareness about the Appellate Authority.
- 7 Lack of awareness about the various provisions of the Orders/ Directions/ Regulations issued by TRAI in the matter of tariff, value added service, refunds etc.
- 8 Difficulty in getting the details of complaints centers and appellate authority details.
- 9 No tracking on the complaints resolution process.
- 10 Burden on the Service Providers in getting complaints at a time from different regions.
- 11 In-efficient search of the complaints.
- 12 Lack of Service Provider’s activity monitoring platform for TRAI.

E-Governance is basically the application of Information and Communications Technology (ICT) to the processes of Government functioning in order to bring about Simple, Moral, Accountable, Responsive and Transparent (SMART) Governance. Hence by placing smart governance as key, a need was felt for implementing a web based system having accountability, transparency and innovation for registration and monitoring the complaints in the simplest manner. The system should facilitate to escalate the complaints to Service Providers through a common platform so that same can be monitored by TRAI and status of complaint can be viewed by the concerned telecom consumers. The Service Providers were mandated to institutionalize a two tier consumer grievance redressal system. To implement the regulation, it was decided to use ICT tools to setup Telecom Consumer Complaints Monitoring System (TCCMS) Portal. Accordingly National Informatics Centre (NIC), a Government body under Ministry of Communication & Technology was engaged to design, develop and maintain a web based portal with above mentioned requirements.

II. Implementation of TCCMS

Dr. APJ Abdul Kalam, former President of India, had visualized e-Governance in the Indian context to mean—“A transparent smart e-Governance with seamless access, secure and authentic flow of information crossing the interdepartmental barrier and providing a fair and unbiased service to the citizen.” E-Governance aims to help strengthen government’s drive toward effective governance and increase transparency to better manage social and economic resources for development.

The primary objective of the TCCMS portal is to help the customer in processing their complaints using ICT concepts. Through this portal, customers acquire the details of the complaint center for lodging a complaint, hassle free. Consumers also get the details of the appellate authority to escalate the issue, view the status of a complaint and appeal already lodged. Complaints of generic nature are captured in the system by TRAI and then are taken-up with the Service Providers for resolution. The Service Providers report back to the authority through portal about the result of the root cause analysis and the remedial measure taken. Thus the system facilitates TRAI to monitor the action taken by the Service Providers on all the complaints which are received by them at Complaint Centre and Appellate Authority Level. This also includes alerts for violation of the regulation.



Fig. 1 – TCCMS a gateway for complaint redressal

Consumers can contact the Complaint Centre of service provider on toll free number at the first instance for redressal of their complaints. Complaints pertaining to fault repair, service disruption and disconnection of service have to be attended within a maximum period of 3 days. Other complaints are to be attended by the Complaint Centre within a maximum period of 7 days, subject to time limits laid down in regulations on quality of service. The cases where no time limit is specified shall be addressed within 3 days.

If the consumer is not satisfied with the resolution of the complaints, he can approach the Appellate Authority for redressal of his complaints. Appeal may be submitted with Appellate Authority through e-mail or facsimile or post or in person, without paying any fee. Regulations also prescribes establishment of an advisory committee to examine and render advice on the appeals filed before the appellate authority. Advisory Committee shall comprise of two members, one member being representative of consumer organization registered with TRAI and second being member from the service provider.

| S.No. | Service Parameter | Time Limit for Service Redressal | | |
|-------|---------------------------------|-------------------------------------|-----------------------------------|-------------------------------|
| | | Basic Telephone Service (wire line) | Cellular Mobile Telephone Service | Broadband Service |
| 1 | Provision of Telephone | All cases within seven days | | All cases within fifteen days |
| 2 | Fault Repair / Restoration Time | Within three days | | Within three days |
| 3 | Shift of Telephone | Within three days | | |

| | | | | |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | Termination/ Closure of service | Within three days | Within seven days | |
| 5 | Resolution of billing/ charging com- plaints | All billing complaints to be resolved within four weeks | All billing complaints to be resolved within four weeks. | |
| 6 | Period of applying credit/ waiver/ adjust- ment | Within one week of resolution of com- plaint | Within one week of resolution of com- plaint | |
| 7 | Time taken for refund of deposits after clo- sure | All cases of refund of deposits to be made within sixty days | | |
| 8 | Billing Per- formance (a) Percent- age of Billing Com- plaints resolved. (b) Time taken for refund of deposits after clo- sure | | | (a) All bill- ing com- plaints to be resolved within four weeks. (b) All cas- es of refund of deposits to be made within sixty days after closure. |

Table 1- QoS provided by TRAI

III . Grievance Redressal Process

1 Grievance through Service Provider:

All the complainants should reach the concerned service provider for redressal through “Two Tier Institutionalized Grievances Redressal Mechanism”. Establish a Complaint Centre with a toll-free “Consumer Care Number”. The Complaint Centre will be responsible to address all the complaints received by them. Provisions have also been made at the complaint centre to establish a Customer Care Number which could be accessed from any other service provider’s network.

2 Two-tier complaint redressal mechanism

The earlier three-tier complaint redressal mechanism – Call center, Nodal Center and Appellate Authority. This has been replaced by a two-tier one, by doing away with the level of Nodal Officer. This is because the Complaint

Centres are essentially registration and response centres and do not deal with the resolution of complaints. They only facilitate registration of consumer complaint and the level at which a problem is resolved within a company depends upon the complexity of the issue involved.

3 Unique Docket Number

Every complaint at the Complaint Center shall be registered by giving a unique docket number, which will remain in the system for at least three months. The docket number along with date and time of registration and the time limit for resolution of the complaint would be communicated to the consumer through SMS. The customer shall also be informed through SMS about the action taken on his complaint.

4 Appellate Authority

If a consumer is not satisfied with the redressal of his complaint, or his complaint remains unaddressed or no intimation of redressal of the complaint is received within the specified period, he can approach the next tier – the Appellate Authority for redressal of his complaints. Appellate Authority is assisted by two member advisory committee comprising one member from the consumer organization registered with TRAI and another member from the service provider. All appeals of the consumers will be put up before the Advisory Committee who advise on all such appeals to the Appellate Authority. Individual time-lines have been provided for each stage of processing the appeals.

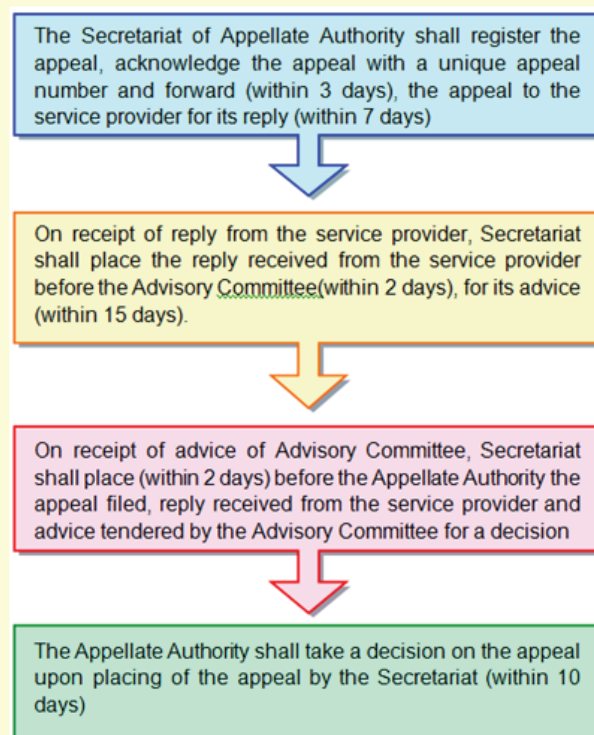


Fig. 2- Appellate Authority Process

IV. Modules and Stakeholders

Consumer Module : The consumers enjoy a hassle free flow of information in this module. All the details related to complaint centre for lodging complaint or details of Appellate authority for appeal can be obtained from here. Also this module re-directs the consumer to the web based monitoring portal of the respective Service Provider for checking the complaint status. In case the consumer desires to know the details of the complaint centre for lodging a new complaint or Appellate Authority for lodging an appeal against his complaint the system will display the contact details of complaint centre/Appellate Authority of respective Service Provider. In case a complaint is already made with the complaint centre or Appellate Authority, consumer may check the status here. To further facilitate the consumers, the consumer's module has been made available in English and in Hindi.

Complaint Lodging Module: This module facilitates lodging of the consumer complaints and further escalating them to the concerned Service Provider. Once logged in, the user has to fill up the various details pertaining to the complaint. The system will generate a unique registration number. Different series of unique numbers are generated based on nature of complaint in the XX-MM-YY-9999 format. Further, an automated email is sent informing the complainant that his complaint has been forwarded to the concerned Service Provider.

Web Services Module : Complaints lodged into the system are taken by the Service Providers using the web service. After the resolution of the complaints, action taken is updated through web service only. So data transfer using web service required no human intervention. This web service interaction is monitored by respective divisions and regional offices of TRAI. The users also have the facility to monitor the status of already forwarded complaints, Nature of Complaint, Service Area or Phone Number.

Role of Authority : Separate credentials has been made available for different divisions and regional offices of TRAI for accessing the portal and perform the above mentioned activities. Portal is in function since 1.8.2012. Every complaint lodged on TCCMS has one out of the three statuses New, Pending or Disposed. 'New' - complaint is yet to be pulled by Service Provider from TCCMS onto its system. 'Pending' - complaint is taken up for examination by Service Provider. 'Disposed' - complaint is already disposed of by the Service Provider.

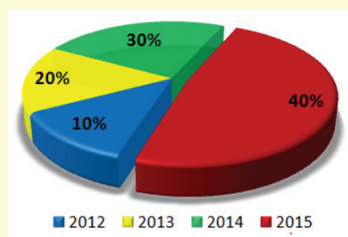


Fig. 3 - Complaints lodged since launch

Daily Data Module : This module facilitates TRAI in getting data from Service Providers regarding the number of complaints received by them at complaint centre and appellate authority level. The data relating to number of complaints received and resolved within the prescribed time frame and delayed resolution is also provided. Service Provider pushes the data to TRAI on daily basis in a prescribed format using the web services

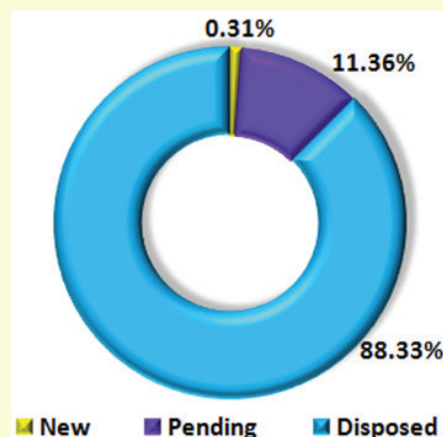


Fig. 4 - Categorized Complaints status

V. Salient Features

An effective e-Governance policy eventually leads to advantages such as exchange of information with citizens, businesses or other government departments, speedy and more efficient delivery of public services, Improving internal efficiency, reducing costs/ increasing revenue, re-structuring of administrative processes and Improving quality of services.

Similarly TCCMS aims in giving an accountable, transparent and an innovative online customer complaint monitoring system which is robust, scalable and 24x7 operable. It works under G2G, G2B and G2C domain benefiting telecom operators and telecom subscribers in the country.

It is a centralized database of all complaints received at TRAI through the portal and related data such as reminders, case reports, clarifications etc. The system is completely web based giving access to various stakeholders mainly consumers, TRAI and Service Providers for online monitoring of complaints/ appeals.

TCCMS is web service enabled system to push or get data as soon as possible without any human intervention. Beneficiaries of the project are Indian Telecom Subscribers (mobile, landline and broadband), Telecom Operators, TRAI and Department of Telecommunications (DOT).

VI. Benefits of Implementation

The era of Globalization demands people and places to stay connected and strongly networked. It is essentially

important to transcend the conventional methods of functioning, and adopt an advanced model which would be faster, cost efficient and maintain better accountability and transparency and thus bringing TCCMS into picture. However implementation of e-Governance had already picked up a start in 2006 and it is still growing and has a long way to go. Nevertheless, the strategy of e-Governance ignites a hope amongst the citizens of India that with the effective exploitation of Information and Technology, addresses with greater efficiency, bring the subalterns from the periphery to the centre, bridge the gap between the urban and rural areas and shrink the distance between the Government and its people and TCCMS is one such link between people and Government through Technology.

Benefits to Customer :

Customers can effortlessly access all 253 Customer Care Centre (Complaint Center) from any part of the country for lodging the complaints. They can avail easy access to appellate authority to escalate their issues. Also simple way to view the progress of their complaints and change in the complaints status with the help of auto generated Unique Reference Number (URN) or token number also commonly known as Registration no. TCCMS facilitates speedy resolution of consumer complaints by the respective Service Providers. Consumers avail the benefit of monitoring the progress by TRAI through portal and the ultimate resolution of their complaints in time. Hence, TCCMS reduces lack of awareness about the various provisions of the Orders/ Directions/ Regulations issued by TRAI in the matter of tariff, value added service, refunds etc. This leads to reduction in the delay of response by the Service Provider making the customer use this portal at ease whenever required.

Benefits to Service Providers :

At present 18 different Service Providers are using TCCMS across 36 States & Union Territories of India. These service providers are : Aircel Cellular Limited, Dishnet Wireless Ltd, Bharti Airtel Ltd. (Airtel), Bharat Sanchar Nigam Limited (BSNL), Loop Mobile (India) Ltd., Loop Telecom Limited, Quadrant Televentures Ltd (HFCL), Idea Cellular Ltd. (Idea), Mahanagar Telephone Nigam Ltd. (MTNL), Reliance Communications Ltd. (Reliance), Reliance Telecom Ltd, S Tel Private Ltd. (S Tel), Sistema Shyam Teleservices Ltd (MTS), Swan Telecom Pvt. Ltd, Tata Teleservices Ltd. (TTSL), Unitech Wireless (Tamil Nadu) Pvt. Ltd. (Uninor), Vodafone India Limited (Vodafone), Videocon Telecommunication Ltd. (Videocon), Etisalat D.B. Telecom Pvt. Ltd. (Etisalat). TCCMS provides common gateway for accessing all types of complaints whether it is individual or generic or any other special type that belongs to specific Service Provider. Now Service Providers can receive the complaints in bulk and on time just by using TCCMS'S Web services. TCCMS allows the providers

to have a detailed study on the complaints. It acts like an interface for finding and categorizing the complaints which are 'New' with respect to date or on particular date range. This enables the Service Providers in updating the complaint status in time thereby helps in speedy resolution and in turn more satisfied customers. The complaints can be compartmentalized according to Service Providers needs, into state wise data or as per complaint code wise data. Recent introduction of designating the complaints statistics by URN (Unique Reference Number) wise and phone no. wise facilitates the Service Providers to resolve the issues quickly to a great extent. As the complaints are growing day by day, TCCMS introduced web services for the Service Providers to access the complaints hence the load on the live database is reduced.

Benefits to TRAI :

TCCMS helps to protect interest of the telecom consumers by ensuring the service quality and to conduct the periodical survey by the service providers. The authority maintains and updates the portal on the basis of feedback received from telecom consumers and service providers. The portal also provides credentials for different divisions and regional offices of TRAI who coordinate in lodging the receiving complaints of telecom consumers into the portal giving them a single platform for their purpose. These complaints reach the concerned service providers through web services, thereby minimizing burden over the complaints centre and on the authority avoiding the follow up of the complaints manually. Through this portal TRAI oversees various cadres of data such as complaints of service provider cadre, state cadre, etc. Portal also facilitates TRAI to examine all the service providers activities through various reports generated dynamically by the system.

VII . Services Delivered

As India inches closer to 1 billion telecom subscribers, the regulatory body TRAI has built a robust system to address consumer grievances, which is growing by the day. All smart cities around the world have used e-Governance as an effective tool to serve citizens efficiently, re-engineer internal business processes, increase transparency, accountability & citizen participation in an environment friendly manner. While e-Governance initiatives usually account for only 10%-15% of the total investment, they are an essential part of the overall city architecture and require specialized knowledge and expertise both during development/implementation and for subsequent maintenance activities. With the launch of TCCMS (since August 2012) till now, it is being used in almost all Indian states and its territories. At present it is being operated in 36 States & Union Territories of India and covers about 18 different Telecom service providers. TCCMS is providing following services:

1. Provides Interactive platform for service delivery, stakeholder consultation, associates less complex,

- more compatible and high degree of perceived benefits, collaboration between program developers and implementers and supportive networks among implementers.
2. Provides common platform for overall solution of service providers complaints resolving process by continual feedback (both positive and constructive) and backup with rewards, recognition and performance discussion.
 3. Significant in finding area of improvement for all (consumer, user, admin) as it's a proven discipline applied in the crying need of s/w industries encompassing all aspect of the project and giving unprecedented visibility that impact everyone.
 4. TCCMS is a framework that helps in constant monitoring of the Service Providers activities. Basically now TCCMS has become an efficient tool to monitor consolidated data complaints 24x7 without dependency on others.
 5. Provides the customers a satisfied result either from the complaints centre or from the appellate authority in the stipulated time.
 6. Faster access of the data for speedy resolution by Service Providers by mean of web services. TCCMS helps to get 360 views of the project information. The result is significantly improved project records, satisfied clients and reduced non-billable work.

VIII . Conclusion

Governments and related public sector bodies around the world are reforming their public administration organizations for delivery of more efficient and cost effective services, as well as better information and knowledge sharing with their stakeholders. The only aspect which has not been spelt out in detail is e-Governance and related pillars e.g. Information & Communication Technology (ICT) enabled solutions, without which dream of smart city implementation cannot be completed. Quoting Mr. Kofi Annan, Former Secretary General of the United Nations "Good governance is perhaps the single most important factor in eradicating poverty and promoting development". E-Governance is considered as a high priority agenda in India. Taking into account it is the only means of carrying Information Technology to all the citizens of the country. Developments in e-Governance

provide to make the business of governance accountable, transparent and innovative guarantying customer satisfaction and aiming for a smart city eventually leading to growth of the country.

Theme

"GATI-Governance with Accountability, Transparency & Innovation"

Sub Themes

Decade of e-Governance-Way ahead-Digital India.

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eGovernance in India - Time to Transform and Make it Participative

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Abstract

eGovernance has been the buzzword during the last decade and a number of innovative projects, making the best use of ICT tools, have been implemented in India. It is a known fact that majority of the projects are started with a lot of fanfare but fail in the long run. There are a number of eGovernance projects which have resulted in huge benefits to both the Government and the citizens. Over the years, the focus under eGovernance has shifted from pure automation to process re-engineering with emphasis on the “e” rather than the “Governance” aspect, which is the underlying principle for eGovernance. Some new ICT models of service delivery have emerged in the private sector, which have proved beneficial to both the citizens and entrepreneurs. These models could be adapted in the Government sector. This paper studies the various models of eGovernance, major ICT projects implemented across the country during the last 10 years, key-learnings and suggestive methodology to follow in future so that the citizens of India benefit the most from eGovernance initiatives through participative governance. The new generation will espouse the digital mantra of “Jan-Dhan, Aadhaar and Mobile”-the JAM trinity.

Keywords- eGovernance, digital India, citizen service, transformation, participative

I. Governance And E-Governance

India has the advantage that while industrial or green revolutions took place in other countries and we had to wait to reap their benefits, the ICT revolution took no time to reach India. We are soon going to have the largest mobile network, smart phones and Internet users in the World. Since the Y2K bug bit the advanced nations, India has been addressing the ICT requirements of other developed nations of the world on a regular basis.

The Government sector in India has been part of the ICT revolution and a number of initiatives were implemented as per technology advancements over the years. Starting with simple computerisation of repetitive tasks, the focus shifted to governance aspects and then from client/server technology to the Cloud of today. This shift came once the Internet was well in place around the year 2000. The word “eGovernance” is often confused with the word “eGovernment”. eGovernment refers to the processes and structures which are required for the delivery of electronic services to the citizens, employees

and businesses facilitating electronic transactions, which are a pre-requisite for eGovernance. But eGovernance is effectively the usage of electronic means in the interaction between the Government and citizens/ businesses/ employees and in internal Government operations to simplify and improve the democratic, government and business aspects of Governance [1].

Good governance is at the core of eGovernance too and it means the process of decision-making and the process by which decisions are implemented or not implemented. Application of advanced ICT tools is not going to benefit the intended users unless the objective is good governance. It is usually equated with SMART Governance and has the features given in Figure-1 [2].



Figure-1: Characteristics of good governance.

II. Methodology

To study the impact of eGovernance during the last 10 years in the country, various stage models are presented first to highlight the features of eGovernance vis-à-vis Good Governance. Every eGovernance initiative in the country is covered in the eTAAL¹ central portal where transaction count of all eServices is reflected by directly integrating the eTAAL portal with the individual services of all Central/ State Governments. Also, the national eGovernance plan of DeitY lists 31 Mission Mode Projects being implemented at Central and State levels. The implementation of some of these MMPs in States has been studied by covering G2C, G2B and G2E services offered and analysed in tandem with the eTAAL counts to review the status of eGovernance in the past decade and identify the issues and challenges which must be addressed to offer participative and transformed

¹ National e-Transaction count at <http://etaal.gov.in>

governance to the citizens. A suggestive ICT solution has been proposed under Way Forward, which may appear more theoretical at this time but is very much achievable, taking a clue from the success of Aadhaar, Jan-Dhan and DBT schemes. The UN's eGovernment Survey 2014 has been analyzed in view of the manifold growth of Internet penetration in India.

III. Models of E-Governance

A number of eGovernance models, proposed by different authorities, are available on the Internet since the year 2000. Comparative studies have been undertaken to evaluate these models. For the purpose of this study, these models are listed in Table-1, as the last decade has seen a number of eGovernance initiatives based on one or more of these models. Understanding these models will help in proposing the way ahead for us [3].

Table-1: Stage Models of eGovernance

| Stage Model | Year | Concepts |
|-------------------|-----------|-----------------------------------------------------------------------------------------------------------------|
| Gartner Group | 2000 | Information, Interaction, Transaction, Transformation [4] |
| Deloitte Research | 2000 | Information, Integration, Transaction, Streamlining |
| Layne & Lee | 2001 | Information, Integration, Transaction, Transformation |
| Hiller & Belanger | 2001 | Information, Interaction, Integration, Transaction, Streamlining, Participation, Involvement in decision-making |
| Scott | 2001 | Information, Interaction, Integration, Transaction, Participation, Involvement in decision-making |
| United Nations | 2000-2008 | Information, Interaction, Integration, Transaction, Participation, Involvement in decision-making |
| World Bank | 2002 | Information, Interaction, Transaction |
| Netchaeva | 2002 | Information, Interaction, Integration, Transaction, Participation, Involvement in decision-making |
| Accenture | 2003 | Information, Transaction, Transformation |
| West | 2004 | Information, Transaction, Streamlining, Participation, Involvement in decision-making |

| | | |
|----------------------|------|------------------------------------------------------------------------------------------------------|
| Siau & Long | 2005 | Information, Interaction, Transaction, Participation, Transformation, Involvement in decision-making |
| Anderson & Henriksen | 2006 | Interaction, Integration, Transaction, Streamlining, Transformation |

An interesting fact noticed in these stage models is that most of the models include information, interaction, integration and transaction stages. The later models (including Gartner model of 2000) stress more on streamlining of processes, citizen participation in decision-making and transformation aspects. Therefore, it is an important point to make the citizen participate actively in the governance process and the Government needs to streamline and re-engineer its processes to provide efficient, timely, corruption-free and convenient services to citizens.

IV. Decade Of E-Governance in India

The year 2005 saw a number of Government websites already in place offering information and interaction to the citizens in the form of downloadable forms, functions, contact information, schemes, procedure to avail the benefits or services from offices, email based interaction etc. The payment gateways were becoming popular during this year. Therefore, the transaction stage was to come after 2005. The integration of services or data came after the transaction stage. Technology was changing fast at this point of time with cheaper computers, higher Internet band-width and accessibility, switch from VSAT based connectivity to fiber optics, cheaper and large capacity storage, conversion of client-server software into web-based software due to availability of additional features/ new software languages and connectivity.

The Government has been able to offer new services, like land record copies, welfare pensioners' pension through bank accounts, salary and pension into the bank accounts of employees, budget preparation to its distribution and final submission of bills, bill payments, bus and hotel bookings; by using online payment modes.

The Election Commission of India has done excellent work in generating the electoral rolls and keeping these updated on regular basis. The ECI has also developed ICT solutions for candidate nomination and results' compilation. However, ECI has been reluctant to use the same electoral rolls and other solutions for all kinds of elections in the country. The State Election Commissions of various State Governments are responsible for holding election to urban and rural bodies under the Panchayati Raj Act. These elections are also held every five years. Logically, when electoral India is one, it should be able to generate electoral rolls for all elections [5].

The year-wise progress against the stages of eGovernance

is given in Table-2.

Evaluation of successful projects has been undertaken to analyze the outcomes vis-à-vis the project benefits/targets. The NISG report says that only 15% eGovernance projects have been successful with 35% being total failure and 50% being partial failure². Similarly, majority of the websites or portals direct the citizens to other links for services which turn out to be systems which accept online applications but force the citizen to submit hard copies by post or in person and service delivery is through manual modes.

Table-2: Year-wise stages of eGovernance

| Years | Concept | Services |
|--------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Before 2005 | Information and Interaction | Websites, Client-server technology based back-end office automation software for specific work areas within departments |
| 2005 to 2010 | Transactions | Introduction of payment gateways, web-based software for public and intra-office operations |
| 2010 to 2013 | Integration | Web-service based data exchange among various software and departments, web-portals, eProcurement |
| 2014 to 2015 | Participative and transformative | MyGov, Mobile Apps, inviting ideas from citizens, cloud based hosting of applications, Jeevan Pramaan, Direct benefit transfer scheme, AEBAS, ORS |

Many initiatives to facilitate eGovernance have been initiated through central funding and these are listed in the Table-3 [6].

Table-3: eGovernance Facilitators

| | |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NeGP | The NeGP has been formulated by the Department of Electronics and Information Technology and Department of Administrative Reforms and Public Grievances in the year 2006. It aims at improving delivery of Government services to citizens/businesses and to ensure efficiency, transparency and reliability of such services at affordable costs at the door-step of the citizens. |
| SWAN | State Wide Area Networks to connect all Government offices for reliable connectivity for back-office ICT operations |
| SDC | State data centres in all States for local hosting of web-applications with DR sites |

| | |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MMPs | Central: eOffice, IVFRT, UID, Pension, Banking, Posts State: MCs, CCTNS, PDS, Health-MCTS, NRHM, ePanchayat, eDistrict, NLRMP |
| CSC | Common Service Centres at Panchayat level in rural areas of the country. |
| Mobile Seva | The m-App Store currently hosts over 240 live mobile applications to provide various services to citizens on their mobile phones/ tablets. |
| Recent Initiatives | MyGov citizen portal of Prime Minister of India, Digital India, Jeevan Pramaan, AEBAS, Aadhar Enabled Payment system (AEPS), eKranti for linking remote villages with Internet, Meghraj-Cloud, Online OPD reservation system in Hospitals. |

The UN survey on eGovernment 2014 puts India in the middle category with scores between 0.25 to 0.50 in the eGovernment development index which comprises of 3 indexes of online services (OSI), telecommunication infrastructure (TII) and human capital index (HCI). India has good scores of 0.54 and 0.47 in OSI and HCI but a low of 0.14 in TII [7]. However, the Internet user base in the country is growing fast with an increase in the smart phone users who use Internet from mobile phones which will naturally push the TII up. The number of internet users in India would have reached 354 million by the end of June 2015. The latest figure indicates that India has more internet users than the population of the US and has become the second largest country in terms of the number of internet users after China. According to a report published by the Internet And Mobile Association of India (IAMAI), the internet users in India have grown by 17% in the initial 6 months of this year, adding 52 million new users. Almost 60% users access Internet through their mobile phones now. This will definitely improve India's rating in the eGovernance in near future.

In the last 3 years (since eTransaction count was started in the year 2012-13), the electronic transactions have tripled in the year 2015 as compared to the year 2013 and are steadily increasing, as shown in Figure-2.

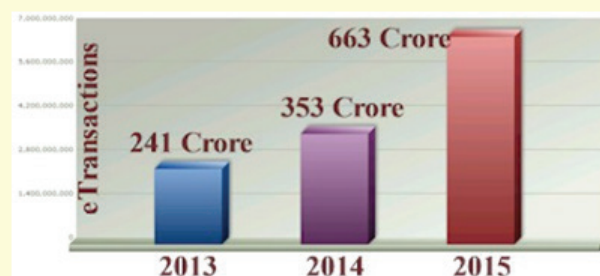


Figure-2: Electronic transaction count for last 3 years.

² Website at http://www.nisg.org/docs/539_Report.pdf

V. Issues and Challenges

Some key issues, posing serious threat to the success of eGovernance initiatives, are listed below:

Digital Divide: You are reaching the national capital in an airplane or train and need a taxi to reach your place of stay. Minutes before disembarking, start the taxi booking application on your smart phone and the taxi is waiting for you at the departure terminal. The App even tells the number of small or big taxis available near your GPS location, the time it will take to reach you, your telephone number to the taxi driver. You don't have cash or change to pay to the taxi driver. No issue. It is automatically deducted from the amount you may have added in the taxi App. The bill / receipt is mailed to your Email account. Unbelievable some years back! But do we have such facilities in the majority of rural areas or smaller towns? No. Although, the Government has set up Common Service Centres in all Panchayats of the country, their actual functioning and the services offered, need to be revamped to address the digital divide, which is the objective of these CSCs.

Lack of opportunities and/or interest for citizen participation: Except for the recent initiative of the Hon'ble Prime Minister <http://mygov.in>, there is reluctance both on the part of the Government as well as the citizens to be active partners in the Governance process. The "e" in Governance is capable of providing easy citizen participation in the Government decision-making process. As of now the citizen participation is through elected members of Lok Sabha, Vidhan Sabha and Panchayati Raj Institutions. The elected members make all the decisions once they get elected and citizens keep waiting for the next cycle of election to have their active say, even if it is a small request/requirement for construction of a bridge at a particular place on a river flowing from their own village.

Internet connectivity: It remains one of the major issues and will remain so for the coming years too as the new applications are becoming more bandwidth hungry because of new features and functionalities being offered to citizens by private players. Connectivity along the National highways and in the urban areas is best, but the smaller towns/ villages are still out of this net.

Political leadership: Aadhaar coverage should have been 100% by today but for the resistance from some State Governments or political parties. National interest is deliberately ignored for smaller political gains.

New Set of Rules and Acts: Government process re-engineering is an integral part of eGovernance. But do we need another set of rules or acts to match every GPR being introduced to facilitate citizens? As a result, the number of new rules and acts are confusing everyone. Simple Government orders should suffice for stakeholders. Google Maps, which is such a popular and useful tool

now, could never see the day of light, had it not resisted the objections of World Governments.

Lesser industry partnership: The National Informatics Centre provided the initial support to Central & State Governments in all their computerisation activities since the year 1975. However, due to wide-spread use of ICT in Government sector after the year 2000, private sector is now actively associating itself with various eGovernance initiatives. But their role is either advisory (consultative without accountability) or limited to software solutions.

Plenty of eGov champions: Due to short tenure postings, everyone needs a new eGovernance initiative every year during one's short tenure of posting. The larger good is ignored for smaller, short term gains resulting in a number of small eGov initiatives which routinely go out of service after the eGov champion gets transferred.

Lack of citizen literacy: Education itself will address a number of eGovernance issues and the citizens will become more demanding. As of now they are either careless or become too aggressive in their actions. A case in point is that of change of vehicle number plates with high security plates. No one has questioned why these plates are not fixed on all vehicles all over the country or why they needed to be changed at all.

Resistance to change: Government officials still resist any attempt to introduce ICT systems in their work place. Earlier Bank employee unions resisted the efforts of management for computerizing their operations. Today, banking is streamlined and customers are better served.

Missing back-end office automation: ICT solutions have evolved over the years and integration of various services with front end citizen interfaces has been possible. However, in the absence of robust back-end computerisation of individual office functions, such schemes often fail.

Inter-operability: It has been an issue but now it is being addressed through web-services. Still, heterogeneous systems necessitate adherence to eGovernance standards.

VI. Futuristic Egobernance Model

Every citizen of India has a right to be part of the Governance process and every citizen is being given a unique ID in the form of Aadhaar or NPR. The citizens move from one place in the country to another for livelihood, studies, family circumstances etc on regular basis. The corresponding addresses of citizens change on regular basis. This requires changes in driving license, vehicle registration, PAN card, election ID card, ration card, Aadhaar itself, Passport etc. Similarly, citizens need to apply for various certificates/services or seek permissions from Government offices and they need to pay bills on regular basis. They also have grievances or issues which require redressal. During the last decade, online services have been introduced in silos for different

kinds of services.

The ideal scenario is to ensure that all online services take the unique ID (Aadhaar or NPR) of the citizens as the first step to get their name, father/mother/husband/wife name and present correspondence address from a central database. This ID is embedded in every service/job application/ permission/ certificate and a copy of the service delivered is stored in the Digital Locker (or other similar wallet) of the citizen. This record will be useful for the citizen and the Government alike. Further, expanding the example of the change of address of a citizen, the citizen need only apply for change in address

of the unique ID (Aadhaar or NPR) and all documents issued under the new scheme will have linkage to the correct new address and paper copies need not to be re-issued.

Taking this scenario further, citizens need only to give their unique ID and verify it through their biometrics, as is being done in the Aadhaar Enabled Biometric Attendance System. In some cases, this unique ID will be fetched directly from the vehicle number or driving license. The Figure-3 demonstrates the information flow in this model.

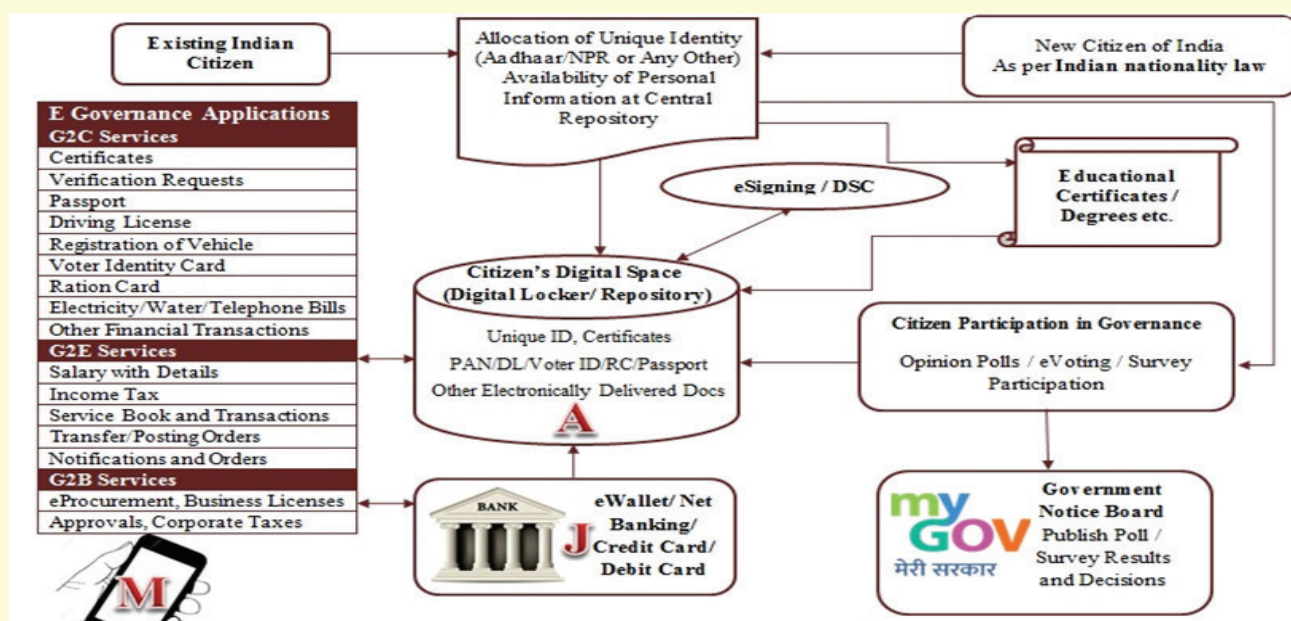


Figure-3: Futuristic paper-less eGovernance model.

There will be requirement of payments for various services like bill payments, application fee, service charge, toll tax payments etc. In case a bank account of the citizen is linked (as done in case of gas subsidy), the payments to Government and citizens by the Government can simply be routed through this bank account. No paper money will be required. A person driving on the national highway will not have to take money out. The vehicle registration number having linkage to the unique ID of the citizen (who will have the linked bank account number and mandate to auto-pay) will ensure toll payment reducing the stopping time. There will be absolutely no need of any paper documents ever!

Citizens will also be able to participate in the Governance process through online surveys, opinion polls, location based questionnaire to select groups. The Government will need to publish the results of such surveys and inform the citizens about the basis for its decisions. Because of the unique ID, the chances of fraud or mis-representation will be negligible. In effect, Government will disappear from people's everyday lives and will be visible through the delivery of its services and their outcomes as per the

requirements of the citizens [8].

VII. WAY FORWARD

The futuristic eGovernance model introduced in the last section may take some time to become fully operational. However, there are certain points which will have to be adhered to by the Government systems so that the overall direction of the eGovernance in the coming times is in synchronization with the futuristic model.

Offer platforms to citizens to participate in Governance: Invite suggestions from citizens on Email and publish of these on the website. Increase the citizen participation by conducting opinion polls or online surveys for citizens.

Take a final call on Unique ID of citizens.

Address digital divide: Efforts to address the digital divide need to be strengthened and supported by the Governments at all levels because 69% of the citizens are still living in rural areas despite a proportionate increase in the urban population during the last census of 2011¹.

No need to visit offices: Besides the time and money

¹ Census of India 2011 website at <http://censusindia.gov.in>

of citizens being saved, lots of corrupt practices will be stopped and government functioning will become better.

More mobile apps: These are easy to use as you don't need to remember multiple IDs or passwords and the interface is easy to use.

Let's not overdo it: Every bank is asking for Aadhaar of account holders. Whosoever gives it, gets another surprise when the gas subsidy goes to the latest bank account which gets linked to the Aadhaar of that individual.

Industry participation in service delivery: It is being done in the case of VISA issuance by US Embassies in India or by the CSCs for Government services on payment basis to ensure quality service at lesser cost and time.

Make it simple: All good and popular things are simple. The Google maps are so easy to use because of its interface. Processes need to be changed so that anyone can understand and make use of it. The online tourist permits for visiting Rohtang Pass in Himachal Pradesh get exhausted within 15 minutes of their being opened to public. There is a limit on the number of vehicles visiting Rohtang on daily basis. The service is mostly used by taxi drivers. They just need a mobile phone and Internet to get a permit on their mobile phone, which can be shown at the Barrier as proof of permit (where there is no connectivity as of now to verify its validity through web)².

Transform service delivery system: Try changing application and approval process for every service being offered to the citizens by issuing necessary orders and integrate service delivery systems, including participation of citizens, businesses, as per Gartner model in Figure-4.

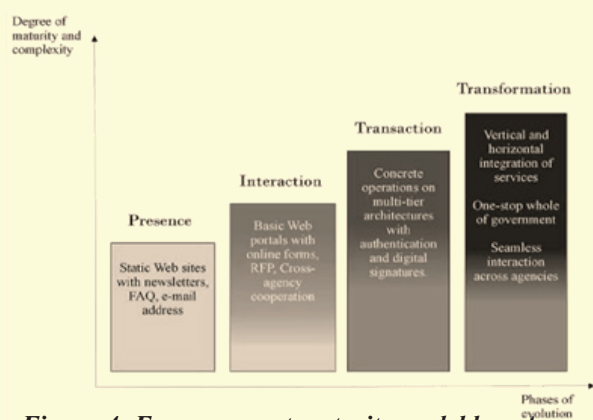


Figure-4: E-government maturity model based on Gartner Research 2000 [4].

Ensure ICT based locks and controls in SW: The MIS can generate all kinds of reports. But in case no one is looking at these reports, then controls need to be built into the software solutions so that there are in-built locks to keep a check on the in-efficient and corrupt officials by stopping their access on the ICT systems.

Capacity building of officials, including change

management on wide scale: This will be a basic requirement all the time whenever new or improved ICT solutions are to be implemented in the Government.

No option for dual systems: There should be no option for employees to continue with or go back to manual systems after the ICT systems are implemented.

Continuity of champions: Some minimum tenure of eGov champions should be fixed to enable them to properly implement the eGov initiatives.

VIII. Conclusion

India has been witness to the ICT revolution and the Government sector has tried to make its best use for eGovernance initiatives in silos in the last decade. It is high time now to transform it and make it participative as per 4th phase of the Gartner study [1]. The Central and State Governments need to work together to simplify the processes and deploy single point online interface for citizens to apply, enroll, verify, pay bills, seek permissions, receive payments into their bank accounts, without visiting offices. These services should be made available through mobile apps too. The common service centres in rural areas should offer access to citizens on nominal charge basis. In built controls or locks within the back-end office computerisation should ensure that corrupt or delaying practices are brought to the notice of higher authorities by the ICT systems without human intervention. Participation of citizens in the governance process should be encouraged through online surveys, opinion polls and results/decisions taken on the basis of these surveys need to be published online. A single unique ID will pave the way for participative and transformative Governance in India. E-Commerce has done it in the private sector. eGovernance will change the role of Government, its objectives and the way it functions in India.

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Financial Inclusion through Co-operative Core Banking Solution

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Abstract

Around 2/3rd of the Indian population falls under the rural category and majority of it is currently not part of the mainstream banking. Rural India contributes a lot to country economy. In this regard, there is a long felt need to have systemic approach to leverage advances in technology to enhance effectiveness of rural cooperative credit structures, particularly delivery of payments and credits to rural citizens on various social sector schemes.

To meet financial inclusion objectives, NIC has developed a Cooperative Core Banking Solution (CCBS) to serve the needs of the rural India to make available efficient and reliable payments and also availability of banking services closer at their doorsteps.

The CCBS developed by NIC is a key lever for financial inclusion support to the rural population through Direct Benefit Transfer (DBT), cash less Dhan-Kharidi, MGNREGA Payments, scholarships, inclusion of various schemes like Pradhan Mantri Jan Dhan Yojna (PMJDY) etc. It also facilitates easy monitoring of fund disbursement to the targeted beneficiaries in their accounts and maintains the updated position of fund.

- I. Index Terms – Financial Inclusion, Co-operative Core Banking Solution (CCBS), State Co-operative Banks (SCBs), District Centre Cooperative Banks (DCCBs), Primary Agricultural Credit Societies (PACS)

Introduction

In a country dominated by small or marginal farmers, the reach of the co-operative system is much deeper than the other institutional arrangements in the rural areas. A significantly large section of the population still remains excluded from the basic banking services despite varied developments in the sector. Delivery of payments and financial benefits to citizens has been an identified opportunity for IT based automation.

Since Cooperative Credit Structure is prevalent in India, NIC has developed a Cooperative Core Banking Solution (CCBS) for the co-operative banks to provide financial inclusion support to the rural population in India.

The CCBS aims to provide a common interface for all categories of banks thereby enabling better integration of information flow.

About Co-Operative Core Banking Solution (CCBS)

Considering the need of computerization in co-operative sector, NIC has developed specific web based Banking Software for this sector (refer Figure 1) with the name Co-operative Core Banking Solution (CCBS) which is offered as ‘Software as a Service’ (SaaS) to the banks and is hosted at National Data Centre of NIC.

Cooperative Credit Structure prevalent in India is bifurcated into Short Term Cooperative Credit Structure (STCCS) & the Long Term Cooperative Credit Structure (LTCCS) (refer Figure 2).

The STCCS is a 3 tier structure with State Cooperative Banks (SCBs), District Central Co-operative Banks (DCCBs) & Primary Agriculture Cooperative Society (PACS). The LTCCS is a 2 tier structure with State Land Development Banks (SLDBs / SCARDB) & Primary Land Development Banks (PLDBs / PCARDB).

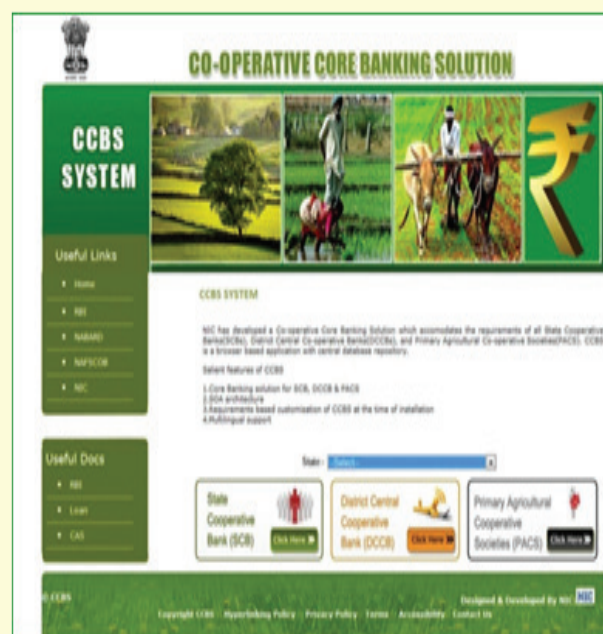


Figure 1: CCBS Portal

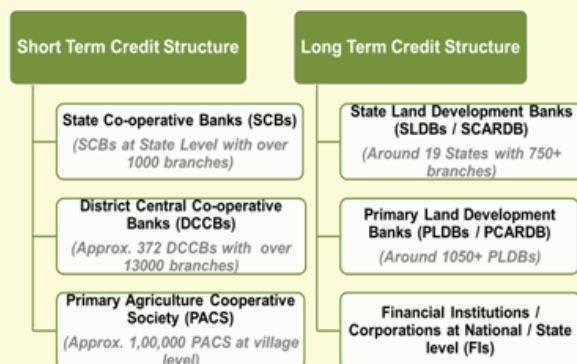


Figure 2: Co-operative Credit Structure in India

CCBS Objectives

- To enable cooperatives to better serve the poorest of the poor in the country and further banking facility to the rural areas of India
- To leverage Information Technology to enhance effectiveness of Cooperative Banks/Societies/Institutions, for delivery of payments & credits to rural citizens
- To help the rural masses by providing financial assistance and facilitate easy monitoring of fund disbursement for updated position of fund
- To enable PACS at the village level to disburse all the social sector related Government funds (MNREGA, Mid-day meal, old-age pension etc.) to the accounts of targeted beneficiaries

Major Features of CCBS Application

Centrally hosted solution for SCBs, DCCBs & PACS with integration at all levels and SLDBs/SCARD & PLDBs/PCARDB and Financial Institutions/Corporation at National/State level (FIs)

- KYC Compliant customer management
- Service Oriented Architecture (SOA)
- Adequately Parameterized
- Role-based Access Control System
- Maker-checker concept for transaction
- Simple User Interface aiming ease of use
- Supports Multiple Delivery Channels
- Unicode compliance for other languages
- Provides Transaction Alerts through SMS
- Faster generation of account statements and statutory reports
- Fast reporting system (MIS - CAS)
- Standardization book keeping
- Lower Total Cost of Ownership (TCO), Lesser operational cost (server, DC/DR)

- Maintains various banking books and ledgers, trading of agricultural inputs and trading of consumer items

CCBS Interfaces



Figure 3: CCBS Interfaces

Innovative Features of CCBS

- Service oriented architecture (SOA) to provide interoperability with other e-Governance applications
- Use of cloud computing infrastructure – hosted at National Data Centre, Shastri Park
- Integration among all three layers of co-operative banking i.e. State, District & PACS (Village/Taluka) level for monitoring & reporting
- Standardized approach to adopt common accounting system upto Primary Agriculture Co-operative Society (PACS) level
- Inter-Bank transactions through NEFT / RTGS and ATM operation
- Inter-Branch (between two different locations) transactions, simple and single click interest calculation and bank closing activity
- Capability to handle Direct Benefit transfers through PACS level

Financial Inclusion Support

The key stakeholders in Financial Inclusion are illustrated under Figure 4.

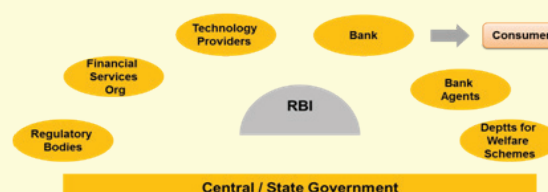


Figure 4: Key Stakeholders in Financial Inclusion

CCBS developed by NIC provides the following financial inclusion support:

- Direct Benefit Transfer (DBT) support to the rural population
- Inclusion of the schemes like Pradhan Mantri Suraksha Bima Yojana Scheme (PMSBY), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJBYS) Scheme and Pradhan Mantri Jan-Dhan Yojana (PMJDY)
- Support for cash less Dhan-Kharidi in Chhattisgarh
- SMS alerts for every transactions on registered mobile numbers
- Interface with Bank on Move (BoM) and Point of Sale (PoS)
- Better monitoring of agriculture and non-agriculture loans

Main Modules of CCBS

- Customer management as per KYC norms
- Current Accounts and Saving Accounts (CASA)
- Fixed/Reinvestment/Recurring Deposits & Other Term Deposits
- Loans & Advances (including KCC)
- Cash Credit & Advances
- Clearing operations & Lockers, Shares Management
- Head Office module (Borrowings & Investments Remittances Statutory Reserve Fund)
- ATM integration, RTGS, NEFT & ECS
- Inter branch transactions
- Operational MIS Reports-Day Book, Cash Book, Balance Sheet, Voucher, Statement, Ledgers etc.
- Statutory/Compliance MIS for RBI, NABARD, State Cooperative Departments and other Government agencies
- To strengthen CCBS further, a number of advanced modules like, Treasury, Social Sector Payments are planned

CCBS Architecture

i. Logical Architecture

An architecture overview diagram at an enterprise level of the CCBS is depicted in CCBS Architecture. These entities located on the different geographical locations will access the CCBS portal system using internet and/or intranet connectivity under secured environment. These subsystems are logically separated without any virtualization of hardware system except they are co-located at the same Data Centre.

There are four main components in the architecture of CCBS (refer Figure 5):

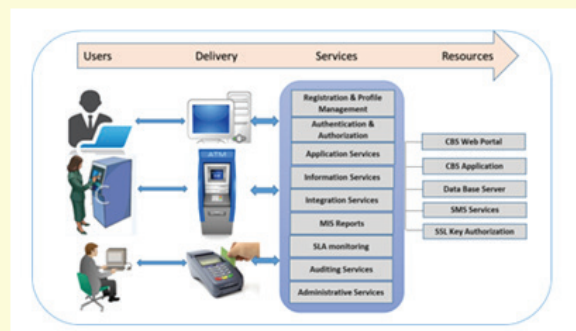


Figure 5: CCBS Architecture

Users: The users of CBS portal are the cooperative bank employees who can access this application from their respective branch only.

Delivery: The branch user can access the application through a computer installed in the branch of bank.

Services:

- Authentication & Authorization
- Application Services
- Information Services
- Integration Services
- MIS Reports
- Auditing Services
- Administrative Services

Resources:

- CBS Web Portal
- CBS Application & Data Base Server
- SMS Services
- SSL Key Authorization

Technical Architecture

The CCBS application is hosted at the NIC's Data Centre. The technical architecture and the application data flow for CCBS is provided under Figure 6.

ii. Technology Used in CCBS

- Technology: Microsoft .net Framework 4.5 with WCF
- Database Server: Microsoft SQL Server 2012 Enterprise Edition
- Web Server: Internet Information Services (IIS) 7.0
- Reporting Server: Microsoft SQL Server 2012 Reporting Services
- System Software: Windows Server 2012
- Language Used: C#

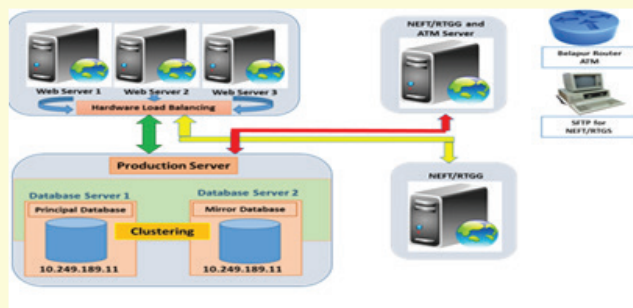


Figure 6: Technical Architecture of CCBS

CCBS Implementation Status

The implementation status of CCBS under various credit structures is as provided below:

- State Cooperative Banks (SCBs): All 49 branches including a head office of Meghalaya Cooperative Apex Bank, a SCB, are in core banking environment through CCBS with ATM & NEFT/RTGS facility. RuPay credit card facility has been started for KCC account holders and DBTL (Direct Benefit Transfer for LPG) for LPG customers having account in bank is enabled. PoS facility has been started to be used for conducting transactions with any Merchant Bank.
- District Central Co-operative Banks (DCCBs): All 61 branches including a head office of DCCB Raipur are operational in core banking environment. NEFT/RTGS, DBTL & ATM services are in operation.
- Primary Agriculture Cooperative Society (PACS): Based on pilot implementation at Hathoj PACS in Jaipur, Rajasthan State Co-operative Bank has awarded the work of computerization for 750 PACS under Phase-I. 30 PACS are operational under 14 DCCBs and have been made online for doing the transaction. Trainings have been conducted for all the PAC managers. Computerization of 5 PACs in West Godavari district of Andhra Pradesh has been started.
- Punjab State Cooperative Agricultural Development Bank (PSCADB): Implementation of customized CCBS at 89 Branches of Punjab State Cooperative Agricultural Development Bank is in progress. 53 primary units are performing day to day operations. This bank is engaged in providing loan/advances for Long Term and fall under Long Term Cooperative Credit Structure (LTCCS).
- Financial Institutions / Corporations at National / State level (FIs): Implementation and customization of CCBS for head office and three branches of Delhi Financial Corporation is in progress. Automation process of National Scheduled Castes Finance and Development Corporation (NSFDC) has been initiated.

- Treasury Banks: Exploring State Bank of Sikkim for banking as well as treasury operations

Benefits of CCBS

CCBS benefits for customers:

- KYC compliant customer management to reduce duplication and fraud situations
- Account operation from any of the branch of the bank.
- Account statement to customers
- Printed Passbook/ FD certificate
- NEFT/RTGS fund transfer facility
- SMS alert for all transactions enhancing comfort & security
- Transfer of payments like cash subsidy, MGNREGA payments etc directly in beneficiary's accounts
- Accurate and timely application of interest on deposits & loans
- Realization of cheque in less time
- CCBS enabled with ATM machines thereby facilitating the customers to draw money 24*7 without any manual intervention
- i. CCBS benefits for customers:
- Infrastructure and Customer Service:
 - o No need to set up and maintain 24*7 infrastructure.
 - o Data Security under secured domain of GOI
 - o Adaption of RBI / NABARD policy without any financial implication
 - o Reduced Customer Service Cycle time
 - o Faster and error free Audit of Bank / Branch
- Online Monitoring for Bank/Branch:
 - o Facilitates monitoring of Agricultural / Non-agricultural loans and advances including KCC / SHG / Medium Term Loan
 - o Facilitates monitoring of stocks (Fertilizers / Seeds / Pesticides) which may in turn be a key input for deciding subsidy
 - o Facilitates Bank to measure financial health of their branches in terms of Asset and Liabilities of branch and in turn Bank
 - o Accurate MIS and timely compliance of report & returns to the statutory body of the respective bank

Impact of CCBS

The overall impact of CCBS under various parameters is listed as below:

- Customer satisfaction: Increased customer base, more deposits & better loan recovery
- Productivity & Efficiency: One official can perform multiple tasks and hence the time saved can be utilized for enhanced efficiency
- Standardization: Uniform products/Schemes/GL / ROI across bank
- Inter-branch/Bank transactions: Customer can perform transaction(s) at any branch /Bank
- Inter-operability with Govt. schemes: Supports Direct Benefit Transfer (DBT) to any Govt. scheme e.g. Dhan Kharidi at Chhattisgarh

- Financial Planning: CCBS facilitates strategic financial planning
- Streamlining of banking operations: Day to day operations, document printing, internal/ external compliance reports, historical data
- eGovernance: Capacity Building ICT infrastructure created and trained manpower can be leveraged for delivery of many more eGovernance services at rural areas

Awards and Recognition

NIC-CCBS project has been appreciated with several awards like SecureIT 2015 Award by Elets Technomedia Pvt. Ltd., Gujarat Co-operatives Summit 2015, CSI-Nihilent e-Governance Award 2014 and SKOCH 2014– Merit of Excellence Recognitions.