Key Issues of Personal Information Integration in E-Government

Velamala Ranga Rao[1]*, Rakhi Tripati[2] and M P Gupta[2]

ABSTRACT

This paper explains about various challenges, benefits and key issues in sharing of data for single window/one-stop service, particularly in case of personal Information of a Citizen (Name, address, data of birth, place of birth etc.) among the multiple departments of a Govt. organization and its agencies. The clean, consistent, accurate and reliable integrated Personal Information can be used to have a single consistent view of a citizen and it is used for making decisions, rules, acts, reports, forecasts and performance management by the Government. At present Personal Information sharing among government departments and its agencies does not exists and there is an urgent need to not only accelerate information distribution, but also to broaden the scope of organization that can share data. Implementation of the Personal Information integration is the right solution to the government for integrated service delivery and for other services like G2E, G2G, and G2B among the departments. It is not an easy task to implement in the Government sector, but it is certainly a goal. The primary challenges to the Government are to integrate disparate systems.

Keywords: CSC, Data Integration, E-Governance, E-Seva, Interoperability, ICT, *Nationa- ID*

1. Introduction

At present, there is a greater stress on ICT (Information and Communications Technology), almost all the Government departments, subordinate offices and Government funded autonomous organizations have their own websites. The Government has an inventory of more than a million different types of forms in different languages (say Indian languages like Telugu, Tamil, Hindi, Urdu and etc.) used for various transactions meant for improved efficiency and citizen services. Most of the Government operations are isolated and processes are paperbound and finding a piece of information involves either searching a directory or employing a particular application. Also this information lead to redundancy, inefficiency and unnecessary expense

The Integration of multiple pieces of personal information can only be done manually in this case. Also citizens are required to stand in long queues and seek assistance at multiple Government offices. There is a need to use of electronic data processing in the day-to-day operations of government departments. The electronic form of this information is needed to distribute and share among Government departments and its agencies for efficiency and transparency, particularly in case of personal information. This can be done through data integration; it can be defined as the process in which dissimilar data, devices, and systems are joined to allow for operations under one similar framework. Data, integration is performed for many

[1] Department of Information Technology, Govt. of N.C.T of Delhi, Delhi Secretariat 110002, India
[2] Indian Institute of Technology Delhi, New Delhi 110016, India
* *Corresponding Author:* (E-mail : *v*_rangarao@hotmail.com, Telephone: +91 9868838148)

reasons, including improving operations efficiency, decreasing resources required to maintain a number of dissimilar systems, and providing data to end-users through one interface. Some information sharing is already taking place in most governments. Perhaps one department provides a monthly compact disk of relevant data to another department, such departments data can be moved into the integration platform

Well-integrated systems and Communication processes among multiple departments make government work more efficiently, effectively and securely. The ability of government departments to share information, integrate information and business processes by agreeing to use common standards is called interoperability. This ability will enhance the capability of departments to integrate information, technology and services across their boundaries, and to provide easy electronic access to government information and services. We need certain requirements to achieve electronic "interoperability like Complete, reliable and consistent information should be available with the departments, Access (to information and systems), Information Sharing and Exchange with in and outside the departments, Interconnection (of information systems) with in and outside the departments and Service delivery (inter-department business protocols). Many Government organizations move forward to fulfill the vision of providing information and interoperability among Governments/agencies/business.

As Center and State Governments recognize the value of shred services, more and more are looking to enterprise level integration to streamline and enhance their operations. Also the Government organizations and its agencies are making unremitting efforts to improve service delivery as well as internal efficiency and effectiveness. The Government can provide services or information to the citizens through multiple channels under single window. The Government can create a one-stop Government, where citizen services are available 24-hours a day from a single electronic point of access. That is moving the public sector away from traditional paper-based ways of working by electronically joining up information across a range of Government departments.

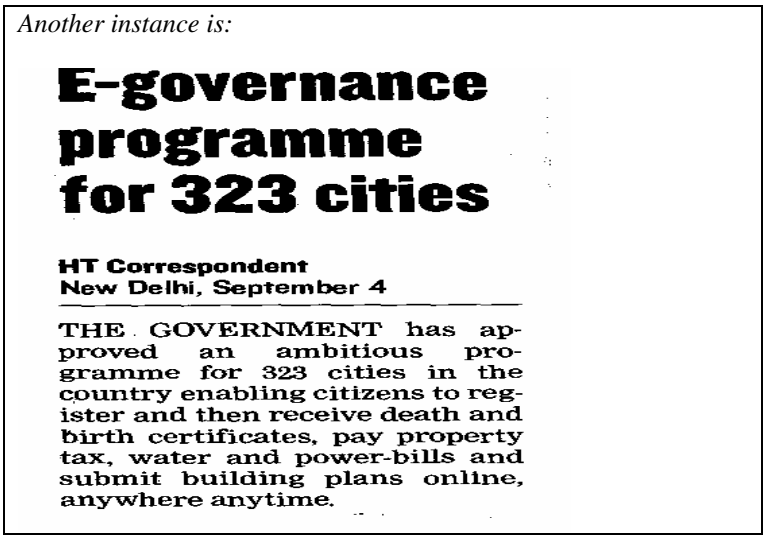
Many Governments are creating or created their State Data Center (SDC), State Wide Area Network (SWAN) and Common Service Centers (CSCs) as a nodal points for front-end citizen service delivery for improving the quality, accessibility and effectiveness of the Government services to the citizens and business with the help of ICT. Also to provide a common IT infrastructure for smooth and secure rollout of its E-Governance programs. Through the CSCs , the services like G2G, G2B and G2C will be accessible to the citizens, in a speedy, efficient and transparent manner and also ensuring that the right people get the benefits in right time.

> *For an instance*, the eSeva is the initiative of Andhra Pradesh Government, India is a Public Private Partnership (PPP) offering single-window or One-stop-shop service for over 66 G2C and B2C services of services including online payment of utility bills Electricity bills like Water and sewerage bills, Telephone bills, Property Tax, Sales Tax and taxes. Issue of Certificates like Registration of births / deaths certificates and other facilitation services like change of address or ownership of vehicles through 46 *eSeva centers with 400 service counters (Source: http://esevaonline.com).*

To providing services or information to the citizens through multiple channels under single window, there is a need to integrate the Citizen's Personal Information among the public and private sector departments/agencies for efficiency and transparency. It improves the interoperability of information and services at different government sites, making it easier for users to compare and combine information from different government sources in consistent and meaningful ways. Personal information can be used to locate or identify an individual's name, aliases, Social Security Number, Address and driver's license number. It is needed for delivering integrated services (online/offline), achieving efficiency and effectiveness gains through better use of data, information or technology (especially across Government

departments and its agencies).

Another instance is:



E-governance programme for 323 cities

HT Correspondent
New Delhi, September 4

THE GOVERNMENT has approved an ambitious programme for 323 cities in the country enabling citizens to register and then receive death and birth certificates, pay property tax, water and power-bills and submit building plans online, anywhere anytime.

Source: (http://epaper.hindustantimes.com, Date, 05.09.07, Page 11).

At personal information sharing among government departments and its agencies does not exists and there is an urgent need to not only accelerate information distribution, but also to broaden the scope of organization that can share data. Personal information integration is needed for delivering integrated services (both online and offline), achieving efficiency and effectiveness gains through better use of data, information or technology (especially across Government departments and its agencies); or generally increasing departmental capability or performance. This will help the Government to communicate with each other smoothly.

Personal Information Integration reduces fraud, speed service and increase employee productivity.Using personal information integration among departments of the Government and its agencies, not only to share key information across multiple departments but also to make better management and deeper insights possible with a more efficient use of resources across the state or center Government. Also it provides accurate, current, and timely information for Govt. initiatives. It improves efficiency, reduces costs and reducing redundancy data and improving automated interactions among the departments.

> Implementation of the Personal Information integration is the right solution to the government for integrated service delivery and for other services like G2E, G2G, and G2B among the departments. Not an easy task to implement in the Government sector. But it is certainly a goal.

Implementation of the Personal Information integration is the right solution to the government for integrated service delivery and for other services like G2E, G2G, and G2B among the departments. Not an easy task to implement in the Government sector. But it is certainly a goal.

2. Why Personal Information Data Integration?

The increasing complexity by various Government agencies has raised many data sharing and integration issues. An early key problem had been the lack of sufficient standards and protocols, resulting in the development of proprietary data formats for transmitting information between Government Departments and its agencies. Similar to the problem of transferring files in incompatible data formats create difficulty in

sharing and exchanging data that has been obtained from different Departments/Agencies. Departments/agencies with incompatible equipment have historically been unable to share or integrate the personal information of the citizen, which is captured by them as per their need.

3. Key Issues of Personnel Information Integration:

The key issues for most organizations is to take stock of where they are now, and then decide on what projects to continue, what to discard and what to keep as they decide to move ahead with the data integration effort. Security, privacy, trust, authentication and identity management are the key issues. For this enterprise should develop a data integration strategy. The strategy should be developed by under standing the following areas:

l) The business domain: What are the basics of your business?. How is it structured? What kind of information do you need for decision making.?, 2*). The data domain*: What data does your organization collect? How is it stored? Who owns it and what is it quality? What formal databases do you have?, *3). The information system domain:* What does your information system environment look like? What platforms, languages and protocols exist? What kind of information security do you have?, *4). The Decision support domain*: Is there an executive information system for your organization? Do your end-users understand basic decision support system concepts? What decision support tools are in place?, *5). The People domain:* Who are your end-users? Are they computer literate? What is their level of training? Where are they located?, *6) The Privacy domain:* Privacy is more than confidentiality and security. It can't be an afterthought. It has to be built into the system from the outset. Indeed, privacy concerns may well determine *how* you build these systems, and maybe even *whether* you build them at all. A Privacy Impact Assessment is an analysis of the likely impacts on privacy of a project, practice, or system. It involves looking at all the personal information practices that go into the system, such as what kinds of information will be collected, how consent will be obtained, how and for how long the information is to be kept, how it will be used, and to whom it will be disclosed. It looks at things like the purposes and statutory authorities for collection, use, and disclosure, what kinds of linkages there will be between this and other information, how individuals will be able to exercise their right of access to their information, and how they will be able to correct any inaccuracies. It also looks at privacy legislation and principles, and assesses how the project or system complies with them overall.

If information is being collected or used without consent, that's a fundamental violation of privacy, and no confidentiality and security measures will change that. If it was collected for one purpose and is being used for an unrelated purpose, without consent, that too is a violation of privacy. *7) Confidentiality and Security domain*: Confidentiality is our obligation to protect other people's personal information when it's in our possession. It's an obligation to care for the information, maintain its secrecy and not misuse or wrongfully disclose it. And security is the process of assessing and countering threats and risks to information. If information is being collected or used without consent, that's a fundamental violation of privacy, and no confidentiality and security measures will change that. If it was collected for one purpose and is being used for an unrelated purpose, without consent, that too is a violation of privacy. Lack of an inexpensive and easy-to-manage security Infrastructure (E.g PKIs) that capture sensitive information. Security issues like identity, confidentiality, integrity, non-repudiation, accountability needs to be addressed..*8) Business Process Re-Engineering domain*: Manual processes of Citizen's Personal Information needs to be re-engineering among the Government/Agencies, in order to leverage maximum benefit. *9) Accessibility domain*: Citizen's Personal Information captured/stored by various departments/agencies and maintaining either centrally or individually, should be made available through multiple channels like common services centers, passport, police and post Office on multiple devices like mobile phone, computer, hand held devices and laptops. *10) Local Languages:* The Citizen's Personal Information available with the Government/Agencies should be available in all Local languages (example: Indian Languages like Hindi,

Telugu, Tamil, Bengali, Urdu and so on). The personal information integration in location languages is very much needed for a county like India and it is very challengeable to the Government.*11) Archival and Future Accessibility*: An information Technology field is very dynamic in which only constant is change, the Technology tools become obsolete very soon. A Road map must be prepared..12) Miscellaneous The surveys to be conducted to collect information pertaining to: Current practices, Data classification and formats, Data integration, dissemination, and utilization.

In addition to the above, the existing information systems being under operations and during acquisition processes are to be investigated. 1) Program and data structures: a) Identify the level of data integration) Identify any standard data format for integration of Citizen's Personal Information. 2) Computer architecture and networks. The objectives of this step is to conceptually design a configuration of databases and computer networks integration, so that information can be interchanged seamlessly and overall systems have a single-system image to users.

Some of the privacy impacts: Will it be possible to combine unrelated personal information to create new information about identifiable individuals? Will it be possible to track an individual's transactions with different programs? Will the system, especially its demands for identification and authentication, lead to profiling, transaction monitoring, or other forms of surveillance? Will the program or system entail the physical observation of individuals? Will it facilitate electronic misuse of publicly available personal information?

4. Challenges with Personal Information Integration

Personal Information Integration is the primary challenge to the Government departments today. As companies adopted new technologies over the years, many new systems acquired at the department level did not 'talk' to the other systems already in place. Legacy systems, installed years or decades ago, have typically been heavily customized (often without adequate documentation). The result has been 'silos' of information within the organization. Personal information Integration is critical to the center and state government departments than any other sector due to Political pressures; budget cuts and security issues bring many new and difficult challenges

There are certain challenges or problems are to be faced for data sharing, for Integrated Service Delivery (ISD) particularly in case of sharing personal information of a citizen among departments of a Government organization, if the citizen information is created, managed maintained by the individual departments separately. Also in a government environment, many different departments maintain citizen information on a variety of incompatible systems, making data sharing almost impossible. For example, a residential address might be stored in 10 unconnected computer systems.

Generally many departments of Government organization would collect personal information of citizen through different forms (online/Offline) or biometric data like thumb/finger impressions or signatures captured through various biometric devices on different occasions according to their needs. Since it is managed and maintained by the individual departments it may varies from one department to another, for an instance one department is capturing name and age and another department is capturing name as fist name, last name, surname and age as the date of birth. It means same citizen information is available with multiple departments and they are maintaining it separately.

Since separate databases created for the same citizen at different points of time, by the different departments it has now become difficult or challenges to the Government to find out the ways to uniquely identifying a particular citizen for capturing or modify the citizen information with a single click.

The main challenges to the Government is what methodology should be adopted to create/managing the citizen's bio-data it is similar to the employees bio-data of an organization at one place so that it will be updated at one place.

As long as the departments are not sharing their data it is very difficult to the government for reports, analysis and forecasting. As far as citizen point of view, it becomes extremely difficult for them to update their details as and when a change occurs, since departments are maintaining the citizen's information separately, for an instance if a citizen address has been changed, he/she has to inform the same to all departments.

The lessons from India's experience are that technology alone does not create change. It takes commitment on the part of individuals and requires a long implementation period.

Every contract, legal agreement or interdepartmental request must be scrutinized to determine who is authorized to access information, what information can be released, the purposes for which it may be used, and the levels of security needed to assure compliance.

Government-led IT projects often suffer from institutional constraints (weak planning management and commitment etc.), human resources constraints, and lack of capital and problems of technical adaptation. The success on a large scale often proves elusive for a number of reasons, First, some projects succeed largely because of the enthusiasm and competence of the initiators, a factor that cannot always be guaranteed. Second, the motivation to improve administration is often lacking. Third, the financial resources to scale up pilot projects are often inadequate. Finally, there is often unwilling on the part of Government agencies to identify and develop suitable ICT applications and/or re-engineer bureaucratic work accordingly.

Government systems can be extremely large. Departments and its agencies have been collecting massive amounts of critical data for decades, and may have tens of thousands of system users. Undertaking massive physical integration of data, ICT or business processes; at very high levels of cost and risk, and reduced levels of flexibility in designing the machinery of government in the future. Some of the departments focus on storing structured data such as text, unstructured data, which includes video files and e-mails.

Implement a Personal Information integration solution to leverage long-term investments in complex legacy data in the government and standardize on a single platform for agency-wide data access, management, and analysis. But lack of a standardized way for government departments to connect their data resources, information technology and business processes together stands in the way of increased integration of service delivery. This in turn limits the efficiency and effectiveness of the public sector. Creating a common set of data processes and formats so that information can be shared between State Governments, central governments and its local bodies.

The integrated Personal Information should be clean, consistent, accurate and reliable. It can be used to have a single consistent view of a citizen, since the data is assert to the Govt. it is used for making decisions, rules, acts, reports, forecasts and performance management. But challenges to the Government is identifying, validating, collecting, consolidating, integrating, merging and delivering the correct data among multiple departments/agencies.

Another major challenge is how to integrate Personal Information, if different departments/agencies are using different languages, say languages like English, Hindi, Urudu,Telugu ,Tamil for different application forms (online/Offline).

Many Government departments /agencies are captured Personal Information in a wide variety of sources and formats like Databases, flat files, spread sheets and word formats. It can be difficult to locate, identify and select the data that needs to be extracted, cleaned and transformed. Critical Personal Information often gets scattered across multiple departments and other agency boundaries, making it difficult to access. Inconsistent standards for data, completeness, formats and security exist. Undefined polices for data access remain. Personal information Integration is critical to the center and state government departments than any other sector due to Political pressures; budget cuts and security issues bring many new and difficult challenges.

The Government runs on taxpayer money, which is a limited fund. It can be difficult to get government technology projects funded, and there is far greater scrutiny to prove success than in the private sector. Lack of set of policies and standards are to be used by the Government Departments and its agencies, when sharing or integrating their personal information, supporting information systems, or business processes. Lack of clarity of roles, responsibilities, accountabilities, transparency of decision-making processes and chain of accountability with appropriate responsibilities within the Government departments and its agencies to build confidence and commitment with in the stakeholders.

The Change has to be come from the grass root level. The Government is about people – citizens, and employees. These people must engage with e-Government. IT professionals can lead the horse to water but they can't make it drink." Some of government computing is outsourced to the private sector, which will therefore be affected by decisions influencing the requirements of government departments. Threats of terrorist action, natural disasters, and pandemics, as well as the more mundane challenges of stretching budgets, improving operational efficiency, and fulfilling complex missions, the Government and its departments continue to struggle with the implementation of data integration.

Another challenge to the Government is how users can access various government/agencies services through one access point i.e One can access Govt. services through single password. In this case the basic IT infrastructure has to be maintained centrally. Further, certain standards need to be set at the center—both to guarantee interoperability, as well as to eliminate redundant investments. Challenges to delivering the integrated Personal information on demand is hindered by a number of roadblocks like Disparate systems and data models, Security concerns, Large Volume of data across individual government departments/agencies, Organizatial behaviour and Cost prohibitive approaches to integration.

Another challenge is Local Language Computing: As specified by Michel Gambier (michel.gambier@microsoft.com), General Manager - Information Worker Business Group, Microsoft APAC.(*Source: E-Gov magazine for the Asia & the Middle East, July 2007*) " The Local language computing is absolutely essential in enabling governments to communicate with citizens. Of the 6,000 languages spoken in the world today, 32 percent of them are from Asia. Yet, many of the word processing amenities (e.g. grammar and style checkers), do not exist for native Asian languages". Local Language Program provides great opportunities to people of all cultures, regions, locations and languages by facilitating access and promoting communication and interaction .

Some of the above challenges may be overcome through various ways:

Government may study all the application forms, which may be online or offline of all the departments and make sure that all the departments are using uniformity in their application forms, so that similar type of information will be available with all the departments. But in this case because of data redundancy the same citizen information is available with the multiple departments and the citizen has to inform to all the departments as and when the changes occurs in his/her personal information. Also there should be proper mechanism where the old data can be changed in to the changed format. Another way is the Government may adopt a methodology where citizen information can be updated or modified at a single location

through their State Data Center using State Wide Area Network. To achieve this, the Government has to issue unique citizen identification number, which can be used for various Government services i.e also called *Multi User Citizen identification number (MUCID).* Since the citizen information is available at one place the departments can use for sharing, analysis, reports and for forecasting It is also useful to the citizen and he/she need not go to the multiple departments as and when change happens.

From the Figure 1

- Land department will allot a land/plot/flat to the citizen along with proper plan to construct
- Banks will provide loan as per rules.
- Land/plot/flat will be registered with Revenue department based on the information given by the Land Department.
- Then the basic amenities like water and power will get from the respective departments.
- The necessary property tax has to pay to property tax department.
- Citizen will get a Passport, since he has all the necessary documents, which are required by the concern department.
- Even citizen will get voter identity card form the election department based on the house identity.

Similarly he will get all the benefits from other departments as mentioned at the Figure: 1.

But lack of standard norms, policy guidelines, and feasible strategies with the Government departments to deal with the problem of unauthorized or illegal construction or violating building bye-laws, the Government and citizens are facing lots of problems. Some examples are given below:

For an example, some times illegal/ unauthorized construction may take place even if it is on the approved land but other than the approved plan, say only three floors to be built, but more flats have built. Lack of proper checks on the construction of buildings as per the plan approved by the concern department, illegal constructions may take place. Using false documents, the illegal construction will be registered. Since the Land department is not sharing the information on the approved plot/flat/land for construction of building with the Registration department, illegal buildings may be registered with the Registration department. In the similar manner Banks will be provided the loan on the same property. Again banks are needed to check the information provided by the citizen for loan with the Land department and Registration department either through online/offline, which is not available with the many banks.

As a result the banks are providing loans to the illegal constructions. Some banks are checking the illegal constructions at their level, but the results are not up their mark. Further he will get approvals for basic amenities like electricity and water based on the property registration documents. Off course the citizen will pay property tax to the Tax department and they will accept the same, since Tax department do not have the right information about the property also the Tax department do not share their data either with the Land department or with the property registration department. Based on the property proof, he will get the voter identity card from the election department. Even he will get his passport also based on his property identity.

Some times the citizens/ Residential Welfare Association (RWA) may give complaint against unauthorized construction. Based on the complaints of citizens or Residential Welfare Associations, the judiciary department may give orders to the concern department viz., Municipal Corporation Department to take immediate necessary action on the unauthorized constructions or commercialization of residential areas or they can give orders to the concerned authorities to stop providing basic amenities like water, electricity and etc.

As mentioned in the figure (A), many Government departments and other agencies like bank and insurance

departments are collected/collecting the personal information of a citizen as per the requirement of a citizen. Information captured by various departments mentioned above is not shared among them, even with the same organization/agency. Also some internal or sub-branches of these departments are not connected with their Head /main departments. Since many departments/agencies are maintaining this data, the government could make use of it by exchanging the data among the Departments. First of all its sub-offices should be well connected with their Head/Main office and personal information and other related data should be available in the electronic format then only the data sharing is possible among the Departments.

In these circumstances there is a need to benefit from the interdepartmental data exchanges about the personal information and other related data to identify the unauthorized construction, fraud and etc which are linked with the personal data among multiple government departments, agencies and Judiciary.

Another instance is, the Central and State Government departments are responsible to provide compensation for the citizens incase of collapse of building(s) due to natural calamities or demolish the building(s) due to some other reasons. The only problem is that the Government did not have a Centralized data about unauthorized citizens, who are residing in the unauthorized buildings.

5. Expected Benefits

- Simplifies the step of gathering data from incompatible devices.
- Personal Information Interaction among Government Departments/Agencies will help the Government to identify Fraud/ Misusing Funds.
- Sharing personal information among all agencies and departments and leveraging information to reduce costs while enabling decision makers to make more effective decisions faster.
- Personal information can be used to locate or identify an individual including an individual's name, Social Security Number, Address
- Minimizes the amount of hardware that must be installed and upgraded.
- Minimizes the number of user interfaces that must be accessed and learned.
- Better coordination of between Govt. departments/Agencies
- Personal Information of a citizen can be shared, so that duplication can be avoided
- Improved services to the public and Reduction in costs , by enabling knowledge, access, and reliability of information across all the departments of government and ensuring protection of sensitive data may overcome challenges and meet organizational goals.
- There are real benefits to government, too, including a single access. Citizen's can input their information once, and this information can then be shared by the appropriate government agencies, ensuring data that is up-to-date and more accurate.
- Using Personal Information Integration across Government departments and its agencies, not only share key information about the citizen across multiple departments but also to make better management and deeper insights possible with a more efficient use of resources across State and Center Government. Also it provides accurate, current and timely information for Govt. initiatives.
- It improves efficiency, reduces costs and reducing redundancy data and improving automated interactions among the departments. Well-integrated systems and communication process across departments/agencies make Government work more efficiently, effectively and surely.
- Government departments/agencies that collects and process massive data about the Citizen's Personal information, which can help the Government operations by extracting useful and hidden information from the collected data.

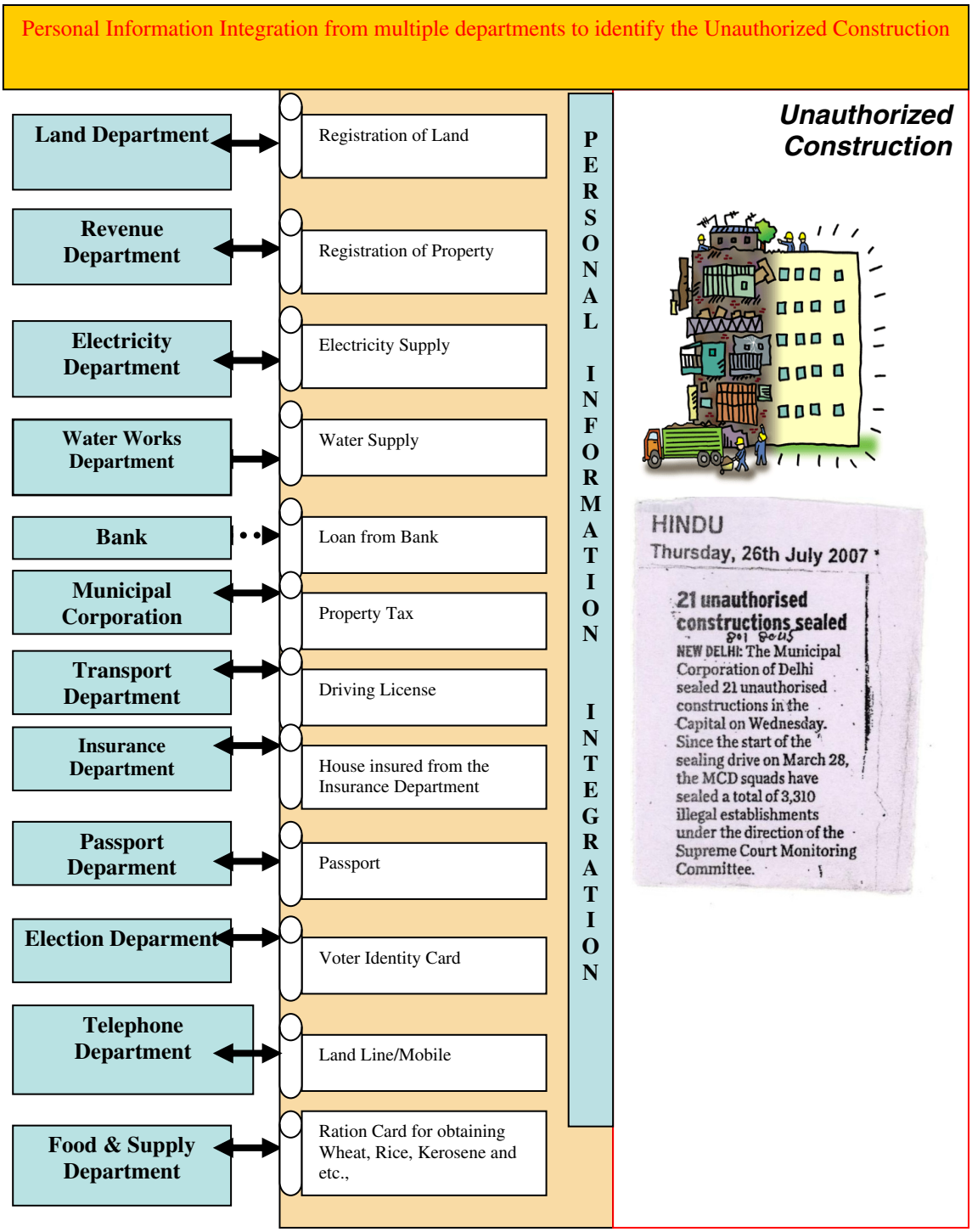


Figure 1: Example of Unauthorized Construction

- Improvement of communications between departments, agencies. Improved Decision-Making up-to-date information access, key managers and personnel will be able to make proactive and reactive decisions faster and more accurately. Enhanced Service Delivery: Across the entire spectrum of involvement within state government, the ability to easily access reliable and accurate information is essential for enhanced service delivery. By sharing across programs, agencies, and even other governments, will have better information to use in providing better service to the citizens, businesses, governments and employees it serves.

6. Concluding Remarks

Personal Information integration is the right solution to the Government for integrated service delivery and for other services like G2E, G2G, and G2B among the departments. Using personal information integration among departments of the Government and its agencies, not only to share key information across multiple departments but also to make better management and deeper insights possible with a more efficient use of resources across the state or center Government. Also it provides accurate, current, and timely information for Govt. initiatives. Personal Information sharing among government departments and its agencies does not exist and there is an urgent need to not only accelerate information distribution, but also to broaden the scope of organization that can share data. Sharing personal information among all agencies and departments and leveraging information to reduce costs while enabling decision makers to make more effective decisions faster and minimizes the amount of hardware that must be installed and upgraded.

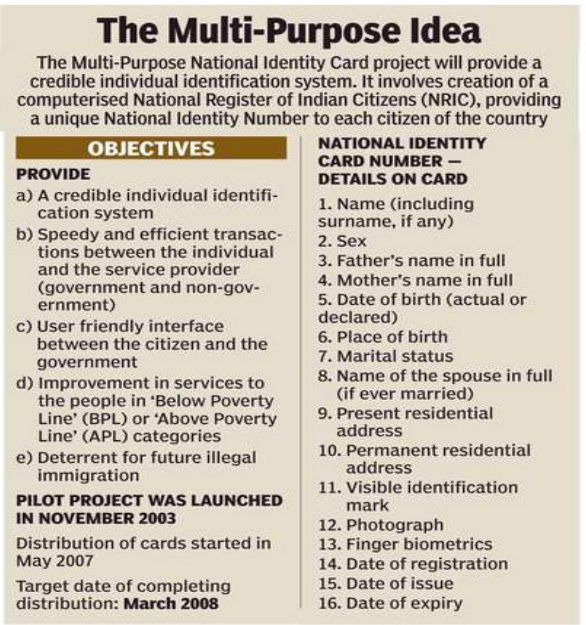
To implement effective Personal Information integration, a deep understanding and management of systems, information, policies, processes, security and change required between the citizens and stockholders. Co-ordination and integration of inter-governmental departments at all levels is critical to e-Government success. Necessary Steps need to be put in place to ensure these issues are addressed."

The information sharing among departments should be complete, accurate, and timely manner from disparate sources without redoing the whole system. Unfortunately for most departments, however, this information is often unavailable, or is incomplete, inaccurate, or outdated. As a result, critical information is not always shared at key decision points in the government process.
The personal information integration has become completely resolvable only in the last few years, with the advent of fully functional integration backbone platforms that support flexible data exchange and service – oriented architectures. These platforms can be configured to allow all government departments, whether central, state, local or various combination of these entities, to share information and service across organizational boundaries. The technology needed for Personal Information integration is already exists- all the Government needs to do is adopt a joined-up approach to apply them more effectively.

The Government should maintain a centralized Personal Information of a citizen like their employees database by issuing a unique citizen identification number, which can be used for various Government services i.e also called *Multi Purpose Citizen Identification Number (MPCIN).* As and when a particular the citizen information required by any public department/private department, in such case there is no need to capture citizen information again, simply the department may get by using MPCIN since it is unique. In this case the citizen has to update /delete the information as and when changes take place. Once government databases are integrated through a uniform ID, access to and uses of sensitive personal information would inevitably expand. Law enforcement, tax collectors, and other government agencies would want use of the data. Employers, landlords, insurers, credit agencies, mortgage brokers, direct mailers, private investigators, civil litigants, and a long list of other private parties would also begin using the ID.MPCIN is used for stemming fraud and increasing efficiency in large-scale civil applications such as public assistance, driver's licensing, voter registration, inmate verification, national identity and immigrant control. It becomes a single source for depart,ments/agencies needing to verify the identification

of persons seeking benefits, services and identification cards Etc., The resulting MPCIN system should be cost-efficient, expandable and can be easily linked with Regional or Nationwide systems. Some Governments are working on National ID project, but it is need to be implemented as a full-fledged project but not as a pilot project. Even with MPCIN or National ID, there are certain challenges to be faced by the Governmnet. Some of the challenges are given below:

A MPCIN system would depend on both the issuance of an ID card and the integration of huge amounts of personal information used for various government databases. One employee mistake, an underlying database error rate, or common fraud could take away an individual's ability to move freely from place to place or even make them unemployable until the government fixed their "file." Anyone who has attempted to fix errors in their credit report can imagine the difficulty of causing an over-extended government agency such as the department of motor vehicles to correct a mistake that precludes a person from getting a valid ID.



The Multi-Purpose Idea

The Multi-Purpose National Identity Card project will provide a credible individual identification system. It involves creation of a computerised National Register of Indian Citizens (NRIC), providing a unique National Identity Number to each citizen of the country

OBJECTIVES

PROVIDE

a) A credible individual identification system
b) Speedy and efficient transactions between the individual and the service provider (government and non-government)
c) User friendly interface between the citizen and the government
d) Improvement in services to the people in 'Below Poverty Line' (BPL) or 'Above Poverty Line' (APL) categories
e) Deterrent for future illegal immigration

PILOT PROJECT WAS LAUNCHED IN NOVEMBER 2003

Distribution of cards started in May 2007

Target date of completing distribution: **March 2008**

NATIONAL IDENTITY CARD NUMBER — DETAILS ON CARD

1. Name (including surname, if any)
2. Sex
3. Father's name in full
4. Mother's name in full
5. Date of birth (actual or declared)
6. Place of birth
7. Marital status
8. Name of the spouse in full (if ever married)
9. Present residential address
10. Permanent residential address
11. Visible identification mark
12. Photograph
13. Finger biometrics
14. Date of registration
15. Date of issue
16. Date of expiry

Source:(http://epaper.hindustantimes.com) dated 08.01.2008)

Figure 2: Multi Purpose Idea

A MPCIN or National ID would be "one stop shopping" for perpetrators of identity theft who usually use social security numbers and birth certificates for false IDs (not drivers' licenses). Even with a biometric identifier, such as a fingerprint, on each and every ID, there is no guarantee that individuals won't be identified - or misidentified - in error. The accuracy of biometric technology varies depending on the type and implementation. And, it would be even more difficult to remedy identity fraud when a thief has a National ID card with your name on it, but his biometric identifier.

The Government should be confident in all aspects like piracy, security and even pressures from the citizens as well as politicians. The Government has to decide whether departments may collect the demographic information of the citizen individually by the states with a series of security options or they may use one uniform standard that could lead to a national ID.

The technology is available in the market, but the Government must be confident that they can deal with security issues, administer and operate the system and have the scalable technical infrastructure required for the effective exchange of Personal information of a citizen across multiple Government departments and its agencies. Once they are sure of their capabilities, there are no limits to the amount of personal information that can be shared and no boundaries on who can participate. Indian Government Multiple-Purpose National Identity Card Project Details are shown in Figure 2.

References:

1. http://www.apdip.net/projects/gif/project(Government Interoperability Frameworks for Asia-Pacific Countries) (Visited on 01.10.07)
2. http://www.bangaloreone.gov.in/public/GovtoCitizenLinks.aspx (Visited on 01.06.2007)
3. http://216.197.119.113/artman/publish/publications.shtml (Visited on 10.06.2007)
4. http://epaper.hindustantimes.com (Visited on July 26th 2007, July21st 2007 (page 2) and September 9th 2007 (Page 11)(New Delhi Edition, India)
5. http://esevaonline.com/htmlpages/abouteSeva.htm (Visited on 20.07.2007)
6. National Identification Cards: Legal Issues: http://www.epic.org/events/id/resources/RS21137.pdf (Visited on 1.09.2007)
7. National e-Governance Plan (NeGP) of India: http://www.mit.gov.in/default.aspx?id=115 (Visited on 01.06.2007)
8. Case Studies - Better Service Delivery for Citizens http://www1.worldbank.org/publicsector/egov/ (Visited on 01.08.2007)
9. Caldow, J. (1999). *The Quest for Electronic Government: A Defining Vision*. Institute for Electronic Government, IBM Corporation. (PDF file)
10. De', R. (2005). "Assessment of e-government projects - a case study of Bhoomi, India ". In Marshall , S., Taylor , W., & Yu, X. (eds.) (2005) *Encyclopedia of Developing Regional Communities with Information and Communication Technology*. Idea Group Reference, London . ISBN: 1591405750.
11. Finger, M. and Pécoud, G. (2003). "From e-Government to e-Governance? Towards a model of e-Governance" *Electronic Journal of e-Government* , Volume 1 Issue 1 (2003) 1-10. (PDF file)
12. Heeks, R.B. (2001). *Understanding e-Governance for Development,* i-Government paper no.11, IDPM, University of Manchester, UK. (PDF file)
13. Martin Hilbert (2005). *Development Trends and Challenges For Local e-Governments: Evidence From Municipalities in Chile and Peru*. United Nations, Santiago of Chile. (PDF file)
14. NZ. (2000). *E-Government - A Vision for New Zealanders*. E-government Unit of the State Services Commission, New Zealand.
15. Okot-Uma, Rogers W'O. *Electronic Governance: Re-inventing Good Governance*. Commonwealth Secretariat London. (PDF file)

About the Authors

V. Ranga Rao is currently working as a Computer Programmer in the Department of Information Technology, Govt. of N.C.T of Delhi, India. He obtained his M.Sc ,Ph.D (Statistics),M.Ed from the Andhra University, Visakhapatnam, Post Graduate Diploma in Computer Science (PGDCS) from the University of Hyderabad and Post Graduate Diploma in Information Technology(PGDIT) from the Manipal University, Karnataka, India. He is having more than 15 years of experience in the Information Technology in the Government Sector.

Rakhi Tripathi is currently a Doctoral student at School of Information Technology, Indian Institute of Technology Delhi. Her specific area of research is 'Semantic Interoperability for achieving a One-stop Government Portal'. She has previously worked as a Project Scientist for two years under the project 'Establishment of Nation-wide QoS Test-bed' at Department of Computer Science, Indian Institute of Technology Delhi. Prior to that, she obtained MS (Computer Science) in 2003 from Bowie State University, (University of Maryland, USA).

M. P.Gupta is Chair-Information Systems Group & Coordinator-Center for Excellence in E-gov at the Department of Management Studies, Indian Institute of Technology (IIT Delhi). His research interests lies in the areas of IS/ IT planning and E-government. Prof.. Gupta has authored acclaimed book "Government Online" and edited two others entitled "Towards E-Government" and "Promise of E-Government", published by McGraw Hill, 2005. His research

papers have appeared in National and International Journals/Conference Proceedings. He was the recipient of the prestigious Humanities & Social Sciences (HSS) fellowship of Shastri Indo Canadian Institute, Calgary (Canada) and a Visiting Fellow at the University of Manitoba. He supervised e-government portal "Gram Prabhat" which won the IBM Great Mind Challenge Award for the year 2003. He has steered several seminars and also founded the International Conference on E-governance (ICEG) in 2003 which running into seventh year. He is on the jury of Computer Society of India (CSI) E-gov Awards and also a member of Program Committee of several International Conferences. He is life member of Global Institute of Flexible Systems Management (GIFT), Systems Society of India (SSI) and Computer Society of India (CSI).