

eGov 0.0 (A primer on eGovernance issues)

A freewheeling paper by Rajesh Aggarwal, 26th January 2012

With annual Republic Day Updates 2013, 2014 and 2015



This paper is also available at www.egovernance.guru/publications

Dear Colleagues,

This Paper is meant for Administrators doing some IT project, or thinking of one. This is NOT an official circular or GO/GR (Government Order/Resolution). It summarises my talks to various groups in last few months, and could help you with conceptualising, executing and evaluating IT efforts in your districts, departments, State etc. I urge you to treat this paper as my personal view of things, with which you may freely differ.

Let us start with the fundamentals, with some basic, brutal questions.

DO YOU REALLY NEED TO COMPUTERISE (on GIGO and BPR and GPR)

Before we start “computerising” any activity, the first question we must ask ourselves is - should the Government be doing this activity at all (like Octroi)? If we can rise above our narrow department view and take a macro view, or think from taxpayer’s point of view, the answer in many cases would be NO. Do some dispassionate analysis whether your department or office should exist at all. Does it exist in developed countries? Is it a legacy organ like appendix which has now lost its relevance, is painful to the taxpayer, and needs removal? In that case, rather than think about “computerisation”, think about “closure”.

Also, will IT lead to better internal efficiencies (save money? save time of staff? improve quality?), will it benefit ALL the bonafide stakeholders (**many IT initiatives hurt some vested interests, that is acceptable and desirable**), does it result in time/effort/cost savings for the citizens, and does it have good ROR (Rate of Return - good bang for the taxpayers’ buck)? If answer to any question is no, please do NOT go ahead with the project.

Did the idea of this project come from some consultant or vendor? Be aware of vendor driven projects (some estimate that more than two third IT projects are vendor driven, and do not really benefit the citizens). A large number of such projects go nowhere after initial hardware purchases, and the recent drive by AG to audit the IT projects across the country may throw up a huge list of **eGraveyard of IT projects**. (UK decided to junk its health IT project after spending 10 years and billions of pounds.) We have many IT projects which should be abandoned

midway, otherwise only more money will be sunk. NISG (National Institute of Smart Governance) says that 35% eGov projects fail, 50% succeed partially, and only 15% succeed fully.

Ok, now you have some activity which if computerised will be beneficial to bonafide stakeholders, will cut out vested interests, will increase efficiency, quality and transparency, and is not vendor driven. Should you start now? No, please STOP and THINK. There is a GIGO principle (Garbage In, Garbage Out) in the Computer World. Unless your input and the process is clean, you will not get butter after churning, you will only get garbage (using a mild word here, for fear of censorship).

Be RUTHLESS. Take out Scissors and CHOP CHOP CHOP your activity. Do what is called BPR (Business Process Re-engineering) or GPR (Government Process Re-engineering). Study what other states have done for this activity, how they have simplified the processes. You may ask your teams to visit areas with well-known success stories, and/or engage some consultant. Again, be careful with consulting firms- they show you Almonds during slick presentations, and then hand out Peanuts (freshers from colleges) who do such great Cut and Paste job (CTRL+C followed by CTRL+V day in and day out), that a tender for Ambulances in Punjab may show “distances from Hyderabad”, or a presentation for Maharashtra may have some city names like Chennai or Kolkata. Our Acts and Rules frequently need drastic changes - many Acts during British Times were made to harass, control, subdue the citizens or to deprive them of legitimate rights - many Acts need to change due to development of new Technologies (e.g. introducing options of online payments, digital signatures; transport has moved beyond horses, communication has moved beyond telegraph) - many Acts need to

change with the change in attitudes and behaviour over time (e.g. censorship standards, Right to Information, Privacy issues, need to decentralise and de-regulate, trust more and inspect less and so on). Are you asking citizens to submit some document in Triplicate? Do you ask them to get the zerox copy verified from a Gazetted Officer or a Notary? Do you ask them for a big sheaf of Annexures (accompanying documents)? Does your Application Form have 100 pieces of information asked, when 10 would be sufficient? Do you give a receipt to the citizen, or can the babudom happily lose papers? Is the payment process simple and convenient, or does the citizen waste one full day and more money in transport than the government fee itself? (Can the citizen pay online or at a shop/CSC near his home, or is he required to waste a day and money going to Treasury Bank for a challan?) Do you give a commitment regarding the TimeFrame in which citizen's work would be done? (This is the thing called **Citizen Charter**). Does the File get approved with just two-three steps, or does it go round and round with twenty Human Touch Points (and a few Monkey touch points if your file is in offices on Raisina Hills)? Can you intimate the citizen of status of his Application by a SMS, email or a phone call? Can you deliver the end result to the citizen in a painless way, at his home or near his home? (Getting a courier at Home is better than going multiple times to a government office to get your document – ration card, passport etc.). Can you **DRASTICALLY REDUCE** and rationalise the existing procedures and make the citizen feel the dignity of living in a democratic country?

I hope your answer is YES, YES, YES. You realize and commit that you will keep the citizen at the focus, and then conceptualise the IT Project. Great! Now I will try to help you tackle the following four issues:

1. Which Projects should be taken on Priority
2. Sources of Funding
3. Procedures and Policies (including pitfalls)
4. How can/should the IT department of the state help you

1. WHICH PROJECTS TO TAKE

I divide eGov projects/ideas into five categories:

1. Money Comes, Money Goes (and 80:20 principle)
2. DeDuping Databases
3. Citizen Interface
4. Internal workings of the Government
5. Security related

1.1 “Money Comes, Money Goes” IT projects

From a macro perspective of State, increasing revenues and decreasing spending on non-development works can generate surplus budget which can lead to better infrastructure, and all consequential benefits. On “Money Comes” (Revenue) side, focus on 20% revenue generating departments contributing 80% of the revenues. These typically include Sales Tax, Property Registrations, Transport and Excise, Court Fees etc. In Maharashtra entire Sales Tax (VAT) collection of more than Rupees 60,000 crores annually comes from E-Filing and Net Banking. Use of Business Intelligence tools and electronic cross verification with other databases (octroi, toll nakas, electricity bills, customs and cargo, income tax etc.) can result in more revenue increase rather than a series of raids by inspectors. In Excise, 80% leakage happens from distilleries to wholesalers, and focussing on that one aspect

can result in quick IT project yielding substantial returns. Many states are dabbling in RFIDs and Barcodes on cartons/bottles with varying degrees of success. In Property Registration, computerisation has already helped in quicker, cleaner documents in many states. Experiments like Registration from Anywhere in district (being done in Karnataka), rather than being tied to one Registration office can lead to bribes coming down, as people will go to a place of their choice where things are cheaper, faster, courteous. In Court Fees, Maharashtra has amended its Act to allow online payment. Karnataka is trying to link Court System to Land Records system, to have clear titling system. In other revenue generating departments, citizens should be offered more payment options at more locations. Do not insist on Treasury Bank Challans, which is one of the most inefficient ways. Most Utility Bills (electricity, water, landline and mobile phone bills etc.) can now be paid at Citizen Service centres, or even online. Karnataka has allowed people to pay traffic challan fee at such centres, rather than going to police station (*fear replaced by relief*).

On “MONEY GOES” side, biggest expenditure is Salaries. Biometric Attendance or UID can bring down bogus salary payments by 10-20% at least. Same goes for Pensioners salaries, and schemes like old age pension, Scholarship or Tuition Fees reimbursements to students (by Social Justice, Tribal and Minorities departments etc.) eScholarship schemes in Andhra and Maharashtra are saving hundreds of crores of rupees every year, and the kids are happy because they do not have to run around college clerks, and get money directly into their bank accounts. If you have a sharp mind, you would have noticed that a key factor is replacing cash/cheque receipts or payments by ONLINE payments (net banking, debit/credit cards etc.) or DIRECT BANK TRANSFER rather than cash/cheque/money order. This direct bank transfer thing is much more important than any other IT initiative, and is

absolutely transformative. If you are asked to take ONE initiative, this is the thing to do – direct bank transfer. ALL middlemen cut out in one stroke!

Direct Bank Transfers are useful when all the poor people have bank accounts, and can withdraw money easily. Even though bank branches do not exist in every village, ATMs are now increasingly used. Under **Financial Inclusion** projects, banks are obliged to open no-frills accounts for poor people without much paperwork, and give them ATM cards. The CSC operators and other village youth can become BC (Business Correspondents) of banks, and take handheld ATMs to the villages, receiving and disbursing small amounts of money. Such experiments are being done under Aadhaar and NREGA etc.

1.2 DeDuping databases

DE-DUPLICATING (DeDuping) databases can result in dramatic results. In Maharashtra Social Justice department, just asking the kids to open bank accounts in Nationalised Banks having core banking facility, preferably with SMS alert, resulted in savings of hundreds of crores of rupees per annum, because bogus students did not open bank accounts. UID can further trim down numbers. Recently in Maharashtra, a special drive was conducted across the state simultaneously, to find actual number of kids going to schools. Results are dramatic, and savings will translate to bogus teachers being weeded out, fee reimbursement coming down, mid-day meal, school uniform and books bill coming down, and so on. In old age pension scheme, or other individual beneficiary schemes, use of Banking channels and computerised lists (if possible, digital approvals also) makes selection and approval process transparent, makes money flow faster and plugs leakages, and saves tremendous money (to the tune of

20-30% at least) by weeding out bogus and duplicate names. Use of UID numbers will go a long way in deduping all databases (voter lists, ration cards, driving licenses, old age pensioners, bogus employees, and bogus students and so on). *Even physical assets like buildings and roads need deduping!* We see same road or building being shown as constructed or repaired from multiple sources of funding. Putting Lat-Long GPS coordinates (geo-stamping) and a time-stamped photograph in common data depository can show all such bungling. Many Municipal Corporations are putting such systems in place.

1.3 IT projects focussing on Citizen Interface

CITIZEN INTERFACE (Front End of the Government) is extremely important. Ideal situation is to eliminate ALL physical interaction of the citizen with the government, replacing it with online systems for payments, SMS/eMail/IVR systems for complaints and Application Status etc., an outsourced computerised Front Desk for submitting or receiving physical papers, and a courier system for delivering papers from Government to citizen. Many RTO offices (for driving licenses), Passport offices, Hospitals have a privatised front desk. Akshay/Friend centres in Kerala and Bangalore One centres in Karnataka have token system and air-conditioned seating space for citizens, and run 24/7, compared to earlier system of citizens standing in long lines or falling over one another in heat or rain. The scheme of CSC (citizen service centres) run by private companies and VLEs (Village Level Entrepreneurs) has been very successful in some states. Many certificates or copies of extracts from databases (like property card, affidavits, exam results etc.) can be given on the spot, or citizen is given a computerised receipt indicating when he can come back and collect his document. Most popular services are Birth and Death certificates, Age and Income certificates, Property

cards etc. It is essential to **standardise these basic services across the State (Fees, Application Form, Annexures or accompanying documents, Approval process, Output Form)**. In Maharashtra, almost every Tahsildar has different forms and process for these, and Revenue Department is expected to issue orders for Standardisation soon. A study by IIM Ahmedabad, conducted across a number of states, has indicated that CSCs have helped in reducing average number of trips made by the citizen to get a service, reduced time taken, and reduced bribes. CSCs have also done a great job in online recruitments (stories of kids appearing for police constable exams and dying in stampede, replaced by huge response by filling in forms and getting admission cards from CSCs). In a country where literacy is low, CSCs also act as **assisted access** centres and double up as cyber cafes, many of them also imparting computer education.

Many departments feel that they have done “full computerisation” when they have set up a Website. A website is just the beginning of eGov. In departments’ websites, FOUR stages can be identified: One, just Web Presence (basic website); Two, Interactive website (email, feedback, and downloadable forms); Three, Transaction based (complete and secure transactions); Four, Transformation. Obviously, aim for reaching this stage fast. There have also been efforts to use of Social Media (Facebook, blogs etc.) to get citizens feedback, on issue like traffic violations, potholes etc. This is being called eGov 2.0.

ONLINE portals act as alternative to CSCs. (eGov cliché: Why stand INLINE when you can be ONLINE). Lakhs of kids can fill forms online sitting at home, citizens file Income Tax returns sitting at home rather than go stand in long queues, people can take online appointments for passport, property registration etc. and then turn up at the given time, and so on.

Many Municipalities have started system of computerised slips at parking lots, saving hundreds of crores of money being extracted by parking lot mafia. Such small steps get huge thumbs up from citizens, as service becomes not only cheaper but also courteous. Bangalore Traffic Police use of BlackBerry phones and portable thermal printers for giving challan receipts not only boosts government revenues, but gives a very transparent and polite service to citizens. Now they have gone one step further and the citizen can pay the money at a citizen service centre rather than at police station. All these are examples of better citizen interface. At toll nakas, truck drivers appreciate the computerised system (electronic weight bridges, computerised receipts, smart cards etc.) not only because it reduces bribes or time taken, but because it gives them a more dignified treatment than sometimes even verbal or physical abuse they are normally subjected to in the manual system.

Projects like eDistrict are focussing on totally Digital workflow. Citizen comes to CSC or sitting at home, scans his papers which are uploaded to a server, whole workflow happens digitally at backend (Clerks, Awal karkoons, Naib Tahsildar Tahsildar etc. use Digital Signatures to recommend/approve/reject), and a digitally signed certificate is issued. It may have Barcode, QR code etc. along with a Mobile number to send SMS and verify, or a website URL to verify this document. This is effectively **DEMAT** system, where paper document is being replaced by something stored in server. If a student applies to a college, then rather than submitting his degree in original or a photocopy (both of which can easily be faked), he could just submit his degree unique number, and the college could verify this from the central server. Our share market has gone totally Demat. Air Tickets are now booked electronically rather than jackets purchased, and train tickets are going the same way. Currency (too many fake notes, black money) could also slowly give way to electronic money- now even plastic (credit cards) may give

way to newer technologies like NFC (Near Field Communications). Central Government has recently introduced a bill on Mandatory Electronic Delivery of Services, which may result in more and more departments offering many Digital Services (in addition to, or in lieu of Manual Services).

Hence the citizen interface with business and government is undergoing a transformation, and eGov project managers have to be well informed on all the emerging technologies. Please, please do NOT insist on your department opening its own set of CSCs- this will make even the existing ones unviable.

1.4 Internal Workings of the Government

Workings of the governments are mysterious from the days of recorded history, but wherever some method in madness can be found, use of IT can be beneficial in most cases. (I say MOST and not ALL, because if a particular department is seen as harassing people, then if use of IT makes it more efficient at sending more notices to people, then people will not be happy at this computerization, and prefer the department to be lazy and inefficient.)

Experiments with eOffice have often failed- because government can never be truly paperless. Where the workflow is simple and repetitive, like grant of passport or driving license, in those cases digital and paperless processes are feasible. But where files/papers move to multiple departments or desks and in random ways, eOffice concept usually comes a cropper. (My best wishes to brave hearts who are trying it.) HR or employee related matters like recruitments, salary payments, increments, transfers and postings, GPF and loan advances, biometric attendance system and so on are quite easily to implement, and usually increase internal

efficiencies, increase transparency, and boost morale of sincere employees. Training of employees (now called **Capacity Building**) is very important for success of any IT initiative, and should actually form integral part of the three categories of projects I have defined earlier.

1.5 Security Related projects

With petty crime, social crime, cybercrime, riots and terrorist acts on the increase, use of IT for security related projects falls in a separate but important category. Judicial system (courts), jails, Home departments at centre and states, Police, Anti-terrorism squads etc. are becoming IT savvy, sharing lots of databases amongst themselves. I will not put too many details here, but as such projects increase, we will also see rise in concern amongst citizens about invasion of privacy etc.

2. SOURCES OF FUNDING

First source of funding is Central Government funds under various MMP (Mission Mode Projects) run by various central ministries in collaboration with MCIT (Ministry of Communication and IT). There is 90% chance that your department is covered, and these funds may be more than sufficient for your needs.

Second, most state governments make provision for eGov projects, and may have separate budget heads for these. Some have passed orders that minimum 0.5% or 1% funds must be allocated for computerisation. Maharashtra has also passed such orders.

Third, every state has some kind of Society/Agency/Corporation for IT purchases and/or projects. Maharashtra has SETU society, Karnataka has CEG (Centre for e Governance), and Gujarat has multiple corporations, and so on. They usually earn revenue from sharing revenue from CSCs, or from Agency funds by GoI, and departments should find ways to tap these funds. In Maharashtra, we recently issued orders for flexible fund spend by District Setu Societies, unlocking about Rupees 100 crores for new eGov initiatives.

Fourth, many departments have their associated Corporations, Local Bodies etc. who have their own revenue sources, part of which can be used for eGov projects.

Fifth, 13th Finance Commission opens up a major avenue of funding. Rural development Department and Forest department are using these funds to good use. Agriculture department is using RKVY (Rashtriya Krishi Vikas Yojana) funds for equipping its staff. Some states are using portion of 6% administration funds under NREGA to roll out Financial Inclusion and other IT projects.

Last, the PPP (Public Private Partnership) model, which can be very beautiful, or a scam, depending upon intentions and luck of the stakeholders. Many vendors come up with transaction based models, where money is taken directly by the vendor from the citizens. Traffic projects, some Excise projects, some Labour department projects etc. fall in such category. Many Smart card based PPP projects (driving license, vehicle registration, fishermen cards etc.) have seen huge overcharging by the vendors. Though government is not paying for it (so no fear of audit paras), individual citizens are overcharged, which is equally bad. Here we should take care that money charged is not exorbitant and vendor makes fair profits. When volumes increase, the rates should come down.

3. PROCEDURES and POLICIES (Including Pitfalls)

This section is Nuts and Bolts (HOW TO) section of the paper.

eGov projects are by their very nature innovative, and frequently lead to audit paras. There is need of creating policies and procedures in first place, following them, and still leave scope of innovation and new ideas. Maharashtra Cabinet recently approved a comprehensive eGov policy, and many other states also have either announced similar policies, or are on the path to announcing them soon.

In Maharashtra, each department has a Project Implementation Committee (PIC), headed by Secretary of the Department, and having representation from DIT, NIC, Finance and Industry departments etc. This committee approves all projects more than Rupees 10 lakhs and less than Rupees 5 crores. All projects above Rupees 5 crores are approved by a High Powered Committee (HPC) chaired by Chief Secretary. This puts all eGov projects on fast track, as files do not move around. Just make proper Agenda Note, go to committee, and get approval.

Maharashtra also has empanelled some Agencies on man month rate for software development, which saves departments from floating time consuming tenders for software development work. Some departments choose programmers from NICS rate contracts. Above Rupees 5 crores work, the departments have to prepare RFP (Request for Proposal) with help from DIT, and award work based on open tender process. Maharashtra also has a panel of 5 consulting firms with fixed man month rates for Consultants, and many departments are making use of this rate contract for selecting young MBAs to conceive and help in executing the eGov projects.

Recently, Maharashtra has started a Joint Venture named MahaOnline which is resulting in fast tracking of many projects. AP and MP have similar ventures, with very good delivery model, and many other states are thinking of similar model.

For hardware purchases, many State Governments have Rate Contracts for PCs, Printers, laptops, Scanners, Biometric Machines etc., and DG&SD and NICSI option can also be used by departments. Most of the IT projects later result in audit paras on hardware purchase issues, if proper procedures are not followed. Expensive items like Routers, Servers and Database licenses etc. should be purchased from DG&SD or NICSI options, or by an open tendering process. Please follow CVC guidelines also, as many RFPs have the danger of being labelled as pre-designed for some particular vendors to succeed. For critical aspects, always try to design RFP specifications so that top 5-10 OEMs (Original Equipment Manufacturers) can bid for the tender, and cheaper not-so-reliable vendors cannot bid. This requires lot of study by experts and interaction with top OEMs before the RFP is floated.

Many states are mandating compulsory use of eTendering rather than manual tendering systems. Maharashtra has made eTendering compulsory for projects (any projects, be it eGov or Roads or Buildings or any other purchases) above Rupees 50 lakhs. Karnataka and Andhra were early leaders in eTendering. Universal experience is that participation of vendors increases, transparency increases, and rates come down. After initial resistance by some entrenched vendors, this turns out to be Win-Win situation for all stakeholders in the long run. Hence, please go for eTendering route as soon as possible. Make sure that eTendering solution is robust and follows CVC guidelines, and has STQC certification.

VERY IMPORTANT: KISS (Keep it Simple, Stupid) principle. Please keep the technology simple, and do not be swayed by hype. EVM (Electronic Voting Machines) succeeded because they do not have any Bells and Whistles, and are incredibly simple. No Internet or SMS connectivity, not even a power cable. Earlier, we used to see lot of Water supply projects fail – after laying down pipelines and constructing an expensive Overhead Tank, engineers would come with a sorry face, and say, sir, no water found at source (well or whatever). Now we see many expensive eGov projects fail because after doing all the expenditure, we realize that there is no reliable power or Internet in majority of villages. Hence use robust well proven technologies rather than falling for some hype.

Use of vernacular is very important for success of eGov projects. Unfortunately, most of us (graduates and upwards, English knowing) have a notion that computers have to work in English only. Go to CJK (China, Japan, Korea) – you find large majority extremely proficient in technology without knowing English Alphabet. Their TVs and Washing Machines, Mobile phones, Keyboards and Monitors will not have even a single English letter. Hence, to take technology to the masses, cutting out compulsory use of English is very important. Mobile phones have succeeded in India, because they do not force you to speak in English- you can speak in Hindi, Marathi, Punjabi whatever and still use the Mobiles. Hence, why should it be compulsory to know English to use the computers, or any computerised Government Services? Use of UNICODE makes it very simple to offer local language interfaces to the public. Recent eGov policy of Maharashtra makes it compulsory for departments to have Home Page of websites and other interfaces in Marathi. English can be second language if required.

Next aspect in eGov project to ensure is **use of eGov Standards** of GoI especially in names, addresses, locational codes of villages and cities, biometrics etc.; use of NIC web Guidelines; W3C and WCAG compliance so that all sort of people can use the websites/services over multiple platforms (mobiles, tablets, laptops, PCs) etc. Please, please do not put a footer “Site Best viewed in Internet Explorer 5.0 Resolution 800 x 600”; instead, check your website for compliance to all kinds of standards. In Maharashtra, we recently found that Health department could not use Database of Ration Cards because during data entry, it did not have any standard coding for village and city names. Even Solapur (or Sholapur?) district was spelt in multiple ways. Hence, if ALL departments start using Census 2011 village/city coding, then ALL databases of different departments can start talking to each other. Your name is written differently on Voter List, on your EPIC card, driving license, passport etc. Hence Names should also follow a unique standard. This applies to so many aspects.

Databases talking to one another are extremely important aspect of whole eGov ecosystem. Example 1: Transport data available to Nakabandi cops for stolen or suspicious cars, to traffic cops for on the spot challans from central server, like Bangalore Blackberry Traffic project. Example 2: Land Records Bhoomi data linked to surveyors, land registration offices, court cases and so on. Example 3: Kids data from hospitals (health department) flowing to malnourishment program, to ICDS, then to primary school department, then to Matric Board, later to employment exchanges and so on. Example 4: Singapore/HongKong style unified Card to pay Buses/Metro/Trains/Toll taxes etc. through a single contactless card which can be recharged. Obviously dozens of other useful examples can be found.

mGovernance is another buzzword. Agriculture Department in Maharashtra has tied up with Reuters, and is sending customised SMSes to lakhs of farmers on CUG (Closed User Group). Under Pull Push SMS gateway services, users can send a phrase to a given 5 digit short code or 10 digit mobile number (long code) to know status of their Application, or to lodge a complaint (e.g. against an Auto rickshaw), and get the response. LBS (location based services) let you know of nearby Restaurants, or ATMs, CSCs, Polling Booths or Ambulances etc. Some Municipal Corporations allow you to click photograph of an overflowing garbage can or a pothole and upload it to a website. Some Traffic police websites allow you to upload geo-tagged time-stamped photos of traffic violations. Mobile Apps are small applications you can download on your smartphones (Android, Blackberry, Apple, Windows, Nokia etc.), e.g. Taxi Fare application for citizens, Leave/Tour approval application for employees. Some departments are giving smartphones or tablets to their staff (anganwadi workers, health staff etc.) to enter MIS data from field level itself. With this background knowledge, you can also think of some mGovernance components in your application.

Google Maps brought great awareness amongst general population about the exciting use of Maps. Unfortunately, despite thousands of crores of rupees spent by various government agencies across the country, we still see very little real practical use of Maps and Satellite imagery. Private Sector is using Maps with great efficiency, in laying and repairing optical fibre, gas pipelines, power lines etc. A few Municipal Corporations have used Satellite imagery coupled with ground survey to increase Property Tax multi-fold, Karnataka has made scientific Map certified by licensed surveyor compulsory before applying for division of land, and so on. Land Records Computerisation projects across the country may give great boost to GIS (Satellite and Aerial surveys, extensive ground surveys,

Monumentation and so on) in next few years. In your department also, there is more than 80% chance that use of Maps will increase your efficiency.

Freedom from location- copies of land title (7/12 in Maharashtra) available from multiple points- makes bribes practically disappear, apart from convenience. Karnataka is experimenting with Property Registration from anywhere in district (people go to that office which is cheaper, faster, and courteous). Please think whether the IT projects of your department can use this trick.

FIFO (First In, First Out) option made compulsory on the software makes grease money to jump line disappear. If anybody uses money or influence to jump queue, then FIFO system is a lottery to those whose cases are processed extra fast to give quick service to someone with influence down the line. Property registrations, driving licenses, passport, Treasury applications all use this concept. In your IT project, think about these aspects.

Data Retention and Preservation policies are important, and many states have started some thinking about these issues, as paper files are replaced by electronic methods. **Data Privacy** issues are extremely important in Western world, and it is only a matter of time before we see Indian citizens taking Government Departments to courts on leakage of data and privacy issues. NDA (Non-Disclosure Agreements) with all vendors and their employees is an aspect you should carefully examine. Amendments to our IT Act now have section on Sensitive Personal information (Rules u/s 43A). Having “due diligence mechanisms” for reasonable security can save you from trouble later on.

Use of official email addresses is important, rather than Gmail or Yahoo etc. In UK and US, citizens are asking copies of emails under Right to Information (or similar Acts), and in case of use of private email addresses instead of official ones, there is talk of having to give password of the email box to the courts, to cull out official email exchanges from private mail boxes.

Make sure that your data will reside within India only. It would be illegal to use “cloud” if it results in data being stored outside the country. One big company recently confessed that even if data is in India, but if they share some common infrastructure to manage this cloud, then the data would be sharable with a foreign government under their agreement with that government. Hence be VERY careful of where your data is stored. After 9/11 incident, most of the governments force their IT and Telecom companies to share ALL data with Security agencies.

Are you still using .com domain names for your websites? Please shift to gov.in or nic.in domain names. Try to use SSL (Green Address Bar with https:// which is more secure) whenever you ask any information from the user. Get the website or Software Application security tested from STQC or any empanelled agency of CERT-IN. You can never make your systems fully hack proof, but these simple steps will help you.

Authentication Framework for Administrators/ employees/ citizens on your website is very important. This is usually categorised into “What you know, What you have, What you are”. Simplest is use of What-you-Know: Username/Passwords, and you should have a proper policy of having Strong passwords, changing them often, and so on. OTP (One Time Password) being sent over Mobile numbers brings additional benefit of tagging a mobile to a particular

account. In What-you-have, physical dongles or tokens for digital signatures, Smart Cards etc. are used for authentication. Next stage of What-you-are uses biometric fingerprints, or iris, or facial recognition etc. Depending upon criticality of data, you will have to choose authentication mechanisms. In Driving license department computerisation, there was possibility of RTOs giving their username passwords, and even digital signature dongles to data entry operators from private vendors, so NIC has now modified software to force RTOs to put their biometric while approving each case.

Next thing to check when conceiving of eGov project for your department is use of common Infrastructure provided by your State Department of IT, which can save considerable amount of money and time. (eGov Cliché: Do not reinvent the wheel.)

4. How can/should the IT department of the state help you

Traditionally, GoI (Government of India) has focussed on three critical Infrastructure projects- SDC (State Data Centre), CSC (Citizen Service Centres) and SWAN (State Wide Area Network).

More than a dozen states now have functioning State Data Centres. Other departments can just tell IT department to make servers, storage, bandwidth and software licences available in the SDC, and save on lot of time and money. Many SDCs now deploy virtualisation or Cloud technologies to reduce the number of Servers required, and also to provide flexibility. During Exam Results, education

department will get more hits; during Elections, election servers will get more hits, and so on. Cloud environment provides flexibility to provision extra servers and bandwidth quickly.

CSCs (Citizen Service Centres) have been covered in detail earlier. Almost any department can think of good use of CSCs to receive papers or payments and to provide decentralised services. Real Democracy will come only when Local Bodies are so much empowered that people do not have to come to State headquarters, or District, or even Tahsil offices, and can get the work done at CSCs and local levels. Please think of how you can decentralise to an extent that most of the services are given on-the-spot at CSCs.

SWAN basically connects Tahsil offices to Districts which are in turn connected to State Headquarters through dedicated leased lines. Now, most of the SWAN networks are connected to State data Centres, so that employees at field offices can get connectivity to District and State servers. Due to unreliable Power and Bandwidth, many departments have not relied on totally centralised Web Servers which is being done worldwide. Instead, we are still forced to keep district level servers also in many applications, which in turn synchronise with central servers mostly at night time. SWAN has also been used in many states for **Video Conferencing**, saving time of district level officials to travel to State Capital. The SWAN POPs (Points of presence- where routers etc. lie) are at Tahsildar offices and District collectorates, and other department offices can **connect horizontally** to them, thus becoming part of bigger network. Hence, each department should initiate a dialogue with their IT or eGov department, to leverage the use of SWAN.

Most of the IT departments offer Emailing solution, SMS gateway, payment gateway, eTendering solution, and GIS solutions to other departments free of cost. As indicated earlier, many IT departments provide Rate Contracts for Hardware/Software/Bandwidth/Manpower etc. which can be used by other departments to have quick roll out of their projects.

SeMT (State eGovernance Mission Team) team in IT department is supposed to help other departments in framing RFPs and designing SLAs (Service Level Agreement) etc. Make use of this SeMT team. Be aware of IPR (Intellectual Property Rights) issues. For any software code written for you, your department must have IPR and not the vendor. In implementation also, keep strategic control with you. At least develop Monitoring capacity within the department.

Some departments may be suffering from First Mover Disadvantage. They may have beautiful, running IT systems, but if the software code is 10 years old, probably it is time to start again with a clean slate and write the code afresh. Ask your IT department for help.

State IT department may have associated Corporations, or Societies, or Joint Ventures which can help other departments. In Maharashtra, we have State and District level SETU societies and a joint venture company MahaOnline.

Common Applications like HR (Salary Payments, Seniority Lists, Transfer, GPF etc.), Inventory/Asset management solution, File Tracking Systems, RTI, Grievance System etc. need not be developed by each department separately. Insist on IT department giving it to your department. NIC has most of these modules ready and can customise it for the state.

UID project is resulting in IT departments creating State Residents Data Hub (SRDH) which can be used by all departments. Projects like SSDG (State Service Delivery Gateway) will also make various databases talk to one another.

Finally, IT departments may have funds and programmes for Capacity Building. In Maharashtra, IT department has signed a MoU with State Training Academy, Yashada for offering many types of courses (classroom, virtual classroom, field visits, courses abroad, GoI STEP training program, evaluation studies, and so on). Fun Ideas like “First Saturday, Tech Saturday” every month across the state, identification of “Technology Champions” in each department, “Tell us good IT ideas and win cash prizes” etc. are also yielding very good response. Private companies are also being roped in to train government employees, and expose them to new gadgets, ideas and technologies. Resistance to new Technologies is at top management levels, while young recruits take to technology like fish to water, hence Capacity Building courses have to target this group on priority.

To SUMMARISE, eGovernance can only be talked about when there is good governance. *Decentralisation, Transparency, simplified systems are hallmark of good governance.* Do these things first, and then use IT for better efficiencies and better interfaces. Get Political Support from the beginning, and create a strong leadership team for the project. There is another eGov Cliché: *Best is enemy of the good.* Do not aim for perfection in software Application or eGov project: think and plan well, and then execute fast. Go Live fast, and make corrections and improvements along the way. Stop manual processes after the digital process passes through trials and acceptance. Parallel run of Manual and Digital will kill the Digital. Good luck!

Update #1: 26th January 2013

I had written the original paper on 26th January which is a holiday due to Republic Day celebrations, and is a good occasion to reflect on where things are going. I intend to update this Primer every year on this occasion. Without altering the Original paper, these will come as new Appendices.

So, what happened to eGov space in this year? Aaron Swartz and Palghar Girls' case must make us reflect on police and prosecution overreach. Where does one's Freedom of Expression stop and "Law and Order" demands prevail? How do you balance between Copyright issues and Open Source (in broadest sense)? These debates will continue, but as Administrators, I urge you to err on the side of transparency and openness.

Aadhaar (Unique ID) continues to roll, and is making different databases talk to one another for the first time. Results are dramatic. It is sad to see that many Government schemes have 30-50% bogus beneficiaries, while genuine beneficiaries are missing. Hope that UID will be seeded into most of the schemes in the next two three years, thus saving more than 2,00,000 crores of Rupees PER ANNUM, by weeding out bogus names.

In Original paper, I have been sceptical of Paperless office, but after a devastating fire in Mantralaya in Mumbai in June last year, we are rolling out eOffice software, and is now the biggest attempt in the country by any Government to go paperless. It is a difficult effort, but within Government, we are finding it hugely liberating. Hope that it will also liberate the citizens from some red tape. Please wish us good luck!

Update #2: 26th January 2014

Just came back from dazzling Republic day parade at Marine Drive, Mumbai!

Saare Jahaan se Achha ... Hindustan hamara!

Aur Saare Hindustan mein Achha ... Marine Drive hamara!

2013 was the year of surprises, of Snowden leaks, and Aam Aadmi!

Snowden leaks bring sharp focus on total lack of privacy in today's digital world. Unfortunately, we may now have a generation which does not know what Privacy meant.

Aam Aadmi party's stunning victory in Delhi brings focus on anti-corruption measures, and simplifying common man's life. I believe that the answer is not more laws, but simply a systematic BPR to simplify forms and processes, electronic payments and receipts, Citizen Service Centres manned by private entrepreneurs, ensuring FIFO- First come first out or online Lottery system as the case may be, Online end to end transactions which do away with touts, eTendering, getting rid of bogus names in various subsidy lists by using Aadhaar or bank account linkage or both, participatory democracy by more information on public websites and open databases, less-paper administration by using eOffice, digitization of old data with proper indexing of metadata, and so on. This is what we have been doing through eGovernance initiatives in Maharashtra.

Update #3: 26th January 2015

Our Great Republic saw transformational political changes this year. Both the Central and Maharashtra Government saw a change in political leadership. I got very enthusiastically sucked into Digital India and Digital Maharashtra initiatives. The Prime Minister is making sure that “Minimum Government” Mantra actually gets implemented on the ground – doing away with affidavits, eliminating many forms required to be filed by citizens and businesses, simplifying Laws, Rules and Forms drastically, making all forms available ONLINE, setting up backend digital workflows, linking Aadhaar (UID) with everything both for simplifying processes as well as reduce subsidy burden going to bogus beneficiaries, and ensuring DBT (Direct Bank Transfers) starting with LPG.

I personally moved from one Flagship initiative (Digital India) to another Flagship initiative (Financial Inclusion) - moving from State Government to Central Government as Joint Secretary (Financial Services) and Mission Director (Prime Minister Jan Dhan Yojana). We now have to ensure that every family has at least one bank account, they have a banking outlet not far from their residence, all government subsidies land into their bank accounts, and that pension, credit, insurance services etc. are also made available to the poor of this country.

Internet and Technology continue to make great strides globally, and what is heartening is that campaigns like Make in India, 10000 Start-ups etc. will make sure that India re-emerges as the Land of people who lead the World in both brain and heart matters, in Science as well as Spirituality.

ABOUT MYSELF (Rajesh Aggarwal)

Did B.Tech. in Computer Science from IIT, Delhi (1983-87), before drifting to IAS (Indian Administrative Service) in 1989. In IIT, my B.Tech. Thesis was on Natural Language Understanding, and my main interests were Algorithms and Artificial Intelligence.



During Field postings (1991-1998) after joining IAS, did a few small IT projects with help from district NIC Teams. But advent of Internet in Government offices starting around Y2K changed things. During my stint at Election Commission of India, New Delhi (2003-2007), I developed lot of fuzzy matching techniques to dedupe the voter lists, worked with large databases (700 million voters and 500 million photographs) in more than a dozen Indian Languages, executed Photo Rolls project (now you see your photograph printed in the Voter List), and convinced Delimitation Commission to make new Assembly and Parliament boundaries using GIS Maps from Census of India. Thereafter, from 2007-2009, I managed Internet Exchange of India, where we dramatically decreased Domestic Internet traffic packets going outside the country, and increased .IN domain names considerably, and introduced forward looking policies in both the fields.

Back to State Government in 2009, during my two week additional charge of Social Justice department, we could issue Government orders regarding scholarship money to kids going into their Bank Account directly. Thereafter, during a short stint as Secretary Accounts & Treasuries, my focus was on making

treasuries cheque-less, going totally electronic on Receipts and Payment sides. Thereafter, as IT Secretary of Maharashtra from June 2011 to January 2015, I deeply focussed on IT Fundamentals, and the name eGov 0.0 comes out of the philosophy that we should focus on fundamentals of Governance and IT rather than creating hype about eGovernance.

My tenure as CIO of the State saw Maharashtra rising to the top of eGovernance ecosystem in the country. It is now #1 in Aadhaar, number of CSCs, and electronic payments and receipts in the country, and very strong in eTendering, eOffice, use of Cloud, IPv6 etc. These eGov initiatives have bagged more than 300 National and International Awards.

I have written more than six dozen judgments as Adjudicating Officer under IT Act, which have got wide coverage in media. I have also been lucky to get Aadhaar innovations Award from Hon' Prime Minister, get Indian Express IT Award, DataQuest Editor's Choice for CIO, and in 2014 chosen amongst Global 100 CIOs by Computerworld USA.

In January 2015, I moved back to Delhi in Government of India as Joint Secretary (Financial Services), and Mission Director of Flagship Initiative of Financial Inclusion (Prime Minister Jan Dhan Yojana).

You can reach me on Facebook, Skype or Gmail at **rajeshaggarwalias**

Do visit my personal website: www.eGovernance.guru