E-Governance
Transforming the National Bone Marrow

M L Singla

Abstract

Governance of public administration, systems and utilities has been a subject of debate for quite some time now, particularly in the developing economies. After having used the omnipotent weapon of Information Technology to gain competitive advantage in businesses, IT experts have started focusing on exploiting the potential of Information Technology for the benefit of common man. Political leaders have been eyeing Information Technology as a useful CyberRath, which will take them to the seat of power in the next elections. E-Governance, which promises to make public services inexpensive, responsive, and truly transparent, has been inviting attention from polity, bureaucracy, and the businesses alike, though for different reasons. Most of the Indian states are following the SMART (Simple, Moral, Accountable, Responsive, and Transparent) Model of e-governance. On the flip-side, there are criticisms that most of the sites, which are created by government departments, are dysfunctional, dated, have ineffective links, and do not encourage interactive communication with the population. In nutshell, for implementing a concept like e-governance, there is a total transformation of the public systems and procedures led by a change in the administrative mind-set. In this paper, the author has attempted to review the concept of e-governance; technology requirements and impediments to e-governance; need for re-engineering as a pre-cursor to e-governance; and made certain recommendations for implementing e-governance solutions. The experiences of Indian governments have been used for discussions.

Keywords: E-Governance, Information & Communications Technology, Information Technology in Government, Information Technology Management

"Postal Department reels under subsidy burden" – cried an article in the Hindustan Times[1] while talking about the losses it incurs in delivering the public services to the Indian public. To make the matters worse, there are complaints such as an old mother not having received a money order from her only son even after one year of the actual postage. On the other hand, one of the better known private courier services can deliver anywhere in the country for practically one fourth of the price as compared to Speedpost Service with a higher level of reliability. Is it inefficiency, latency, bureaucracy, voiceless customer, or far too many overheads? The data shown in Table 1 is an eye-opener.

M L Singla
Reader, Information Technology Management
Faculty of Management Studies
University of Delhi, Delhi

Five years back only a handful of politicians viewed Information Technology (IT) as an administrative enabler, and today practically each political figure wants to climb onto the *CyberRath* and wants to exploit this God send opportunity of leveraging IT for the benefit of common-man. It is a different story that not many will be able to live upto the expectations and the bubble will burst earlier than expected. "IT will bring in transparency and we want it" is not only for slogan shouting, it is also in terms of performance of the polity and the administration under it. Newspaper catch lines such as – "E-government is a way of life – Andhra Pradesh"; "Delhi to become a Cyber State"; "E-citement of e-governance – Maharashtra"; "Madhya Pradesh shall be among the front ranking states in IT revolution in India"; "Get ready for e-governance – Punjab"; and "We will not be copying anyone, we will have our own 'Chhatisgarh Model' of e-governance" are

countless. But time has come to take stock of the situation and look at this concept of leveraging IT to make our administrative machinery efficient and effective in true sense.

Table 1: Indian Postal Department in the Red[1]

Item	Average Cost (Rs.)	Average Revenue (Rs.)
Post Card	4.53	0.50
Inland Letter	4.49	1.92
Postal Order	15.46	2.06
Registration	26.91	17.0
Speed Post	28.56	55.13

E-Governance

"It is at the police stations, bus stands, railway stations, revenue offices that the common citizen interfaces with the government, not at North Block or South Block. So it is essential that these aspects of governance reflect honesty and efficiency", said Information Technology Minister Pramod Mahajan, while releasing a book on e-governance [2]. He further emphasized that IT on its own cannot provide good governance. For good governance what is needed is "motivated people". Achieving effective governance requires:

- An improvement in the deliverance of government services, and
- An increase in the participation of citizenry at all levels of the process of governance.

At present governance in the developing economies is characterized by meaningless and delayed bureaucratic controls; stand-alone and non-integrated administrative functions; excessive paper-work and time-consuming processes; disjointed application of information technologies; fragmented ownership of systems and resources; non-integrated solutions of public problems; and wrong or motivated decisions by those in power. This goes against the basic premise of good governance, which expects the governance to be anticipatory; transparent; and accountable to the taxpayer.

E-governance is for handling governmental systems and procedures using Information Technology, particularly Internet technology. Question that is often asked is when a private sector organization can make a saving of 40-50 % in operating costs by managing their supply chains, why cannot the government do the same. Whereas, the governance suffers from lack of political accountability and parliamentary controls, its purpose is not to generate profits. Most of it is to maintain voter support. Disruptive technologies like Internet do not support this model of governance, as transparency and accountability in larger systems of governance becomes too much to handle for any government.

In other words, e-governance is about making governance inexpensive, responsive, and truly transparent. When it comes to systems and procedures, there is absolutely no difference between a departmental store, or a courier agency and a government department. Both are in delivery of a product or a service the customer of which will be happy to receive the same at a lower cost, at a higher speed, and of higher quality.

E-governance goes much beyond the traditional data processing systems. It aims to fundamentally redefine the way government operates and imposes a new set of responsibilities for the executive, legislature, and the citizenry. As per the Andhra Pradesh Government model, e-governance should lead to SMART government, where SMART stands for Simple, Moral, Accountable, Responsive, and Transparent government. The popular perception of government being a non-performing entity needs to be changed to a super-performer by using Information Technology. It is a paradigm shift from being "in-line" to "on-line". A greater array of public services through a single window operation could be the purpose of such an initiative. Public in general is not interested in finding out which public official is supposed to be responsible for what service, they would rather like to have it come from one source. It is also not e-government. E-government means applying Information Technology to the processes of governmental functioning without changing these processes

whereas e-governance pre-supposes redesigning of the processes to handle government functions and then applying technology. The major focus of e-governance is on promoting the use of Information and Communications Technology (ICT) and e-Commerce through Internet to provide transparent systems to the citizenry at large for interacting with governmental agencies leading to overall development of the economy in the long run.

The paradigm shift, which is likely to be experienced in implementation of e-governance in developing economies, can be summed up as under:

- The governments would like to be effective rather than simply being efficient
- The mind set of bureaucracy will change from public administration to public service
- The officialdom will change from regulation to encouragement
- The attitude will change from one stop service to zero stop service
- The evaluation will change from 'no-input-no-output' to 'no-outcome-no-income'

Technology for E-Governance

The adoption time to reach 50 million users for a technology is getting compressed with every new technology [3]. From 38 years for radio to just 4 years in case of Internet is a phenomenal shift in terms of reach. This is true for all technologies, which are classified as disruptive technologies, the ones that are due to force Moore's Law to be changed. So far no technology had such a great impact on the social systems as the Internet technology is proving to have. The law of disruption is going through a full life for Internet technology. Apart from changes in the associated technologies; social setups; and businesses, Internet is going to affect the political arena, too. As a matter of fact, politicians view Internet to be the only technology, which has come their way to implement e-governance.

For any kind of processing, the basic Computer Based Information Systems [4] should always be in place. For a department, a ministry, a governmental organization systems such as Transaction Processing Systems, Office Automation Systems, Management Information Systems, and Decision Support Systems will continue playing the role, which are expected of these systems in any business or non-business organization. The only additive is the Internet Technology. Apart from emerging paradigms of Data Warehousing, Data Mining, Enterprise Resource Planing (ERP) Systems, Supply Chain Management (SCM), the technology, which is likely to change the face of public services, is Web enablement and Geographical Information Systems (GIS). Some of the technologies, which could be leveraged for e-governance, include:

- Web enabled transaction processing systems
- Voice activated customer response systems
- Laptops/Personal digital assistants with the field staff
- Interactive CD-ROMs for system training of masses
- GIS integrating across agency stovepipes

More and more systems need to be developed as sharable across functions, languages, platforms, and operating systems. These need to be treated as reusable components independent of the user interfaces. There is a need to channelize the existing databases from legacy systems. Therefore, the new developments need to encapsulate the existing systems as components. To integrate the databases, data warehousing technology will be required to be leveraged to support decision-making.

Imperatives of E-Governance

As discussed earlier, e-dreams from good governance would include:

- Anticipation

- Transparency
- Accountability

Does this mean that there should be a portal for everything between rulers and the ruled in seamless, voter friendly form, cutting through bureaucratic hassles and departmental compartments? Ultimate customer of the government services is the voter who gets to complain only once in five years. Is it really possible that these customers can ask a question "Who is responsible for this mistake, delay, or cost?" Another question, which will be raised by these customers, will be – "Whether these disruptive technologies lead to reduce the ever spiraling tax rates, which in turn reflect the costs

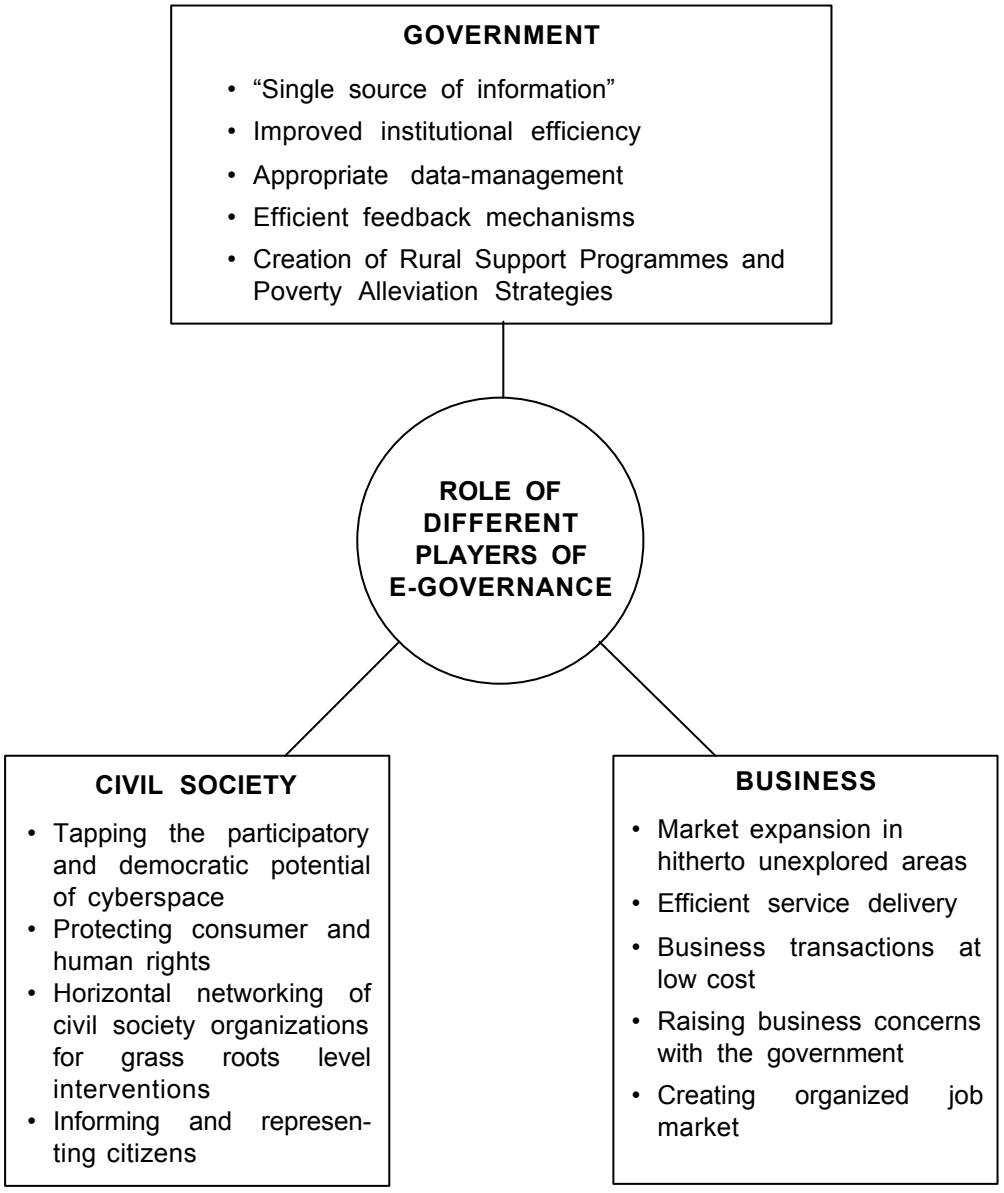

Figure 1: Various Agencies Affected by E-governance

of public services". On one hand the government needs to arrest the costs and increase efficiency and on the other hand there is a need to please the voters and improve accessibility and public accountability. A good balance between the quantitative and qualitative measures of governance need to be kept in mind.

In other words, ICTs have a potential to help create such an enabling atmosphere where the prevailing governance paradigms meet shifts in the command and control mechanisms both at the policy and implementation level. If we look at the three legs of an economy, i.e. Government, Business, and Citizenry, we can review what all can be done by the implementation of e-governance as shown in Figure 1.

Whereas the government is expected to create an environment of trust and transparency, the businesses are expected to provide products and services at the lowest possible costs with the role of the middlemen minimized. The civil society is expected to give chance to the governmental bodies to generate trust and also make consumers of the public services aware of their rights and responsibilities.

To make an e-governance initiative successful government should publicize its intention of going electronic for the benefit of citizenry; the effort should not be party focused; the e-governance site(s) should be functional, fast, user-friendly, and work across a range of Operating Systems; and above everything else the site should be interactive to allow users to have a real time on-line experience including instant feedback and access to updated information.

In other words, what we need to ask is whether:

- IT can be exploited to improve transparency in public functioning
- IT can be leveraged to provide relevant speedy information to all citizens
- IT can be harnessed to improve all aspects of administrative efficiency
- IT can be used for improving public services such as transportation, power, health, water, security and municipal services.

Impediments to E-Governance

"The bottle-neck is always at the neck of the bottle" is not a misplaced phrase in the context of e-governance in developing countries. The IT in general, and the Internet in particular is known to be a tool for shattering the power centres and resulting in empowerment of masses. In the name of confidentiality and of-national-significance, governments have kept general populace away from information. Time has come to change the age-old perception from "everything-is-confidential-unless –directed-otherwise" to "everything-is-public-unless-directed-otherwise". This definitely asks for paradigm shift in governmental thinking viewing society as a silent spectator to a "partner" of governance and development. With the emerging technologies being implemented at the state level for governance, there is a possibility of a strong `digital divide' between information haves and have-nots.

Usual problems faced in the implementation of e-governance include lack of funds allocation; delay in release of funds; lack of support infrastructure; and poor quality of supporting infrastructure like electricity, communication, etc. Organizational learning in this case also tends to be long drawn, as the customer, i.e. general public, is not aware of the systems and procedures. Concentration of e-governance efforts and initiatives only to urban areas also leads to proliferation of this potential only to a handful of people thereby defeating its primary purpose of reaching the masses. The following factors are likely to come in the way of implementation of e-governance:

- Resistance to change in the mind-set
- Popular political decisions and appeasement of vote bank
- Availability of funds and experience to implement e-governance solutions

- Non-uniformity of records in public offices
- Political will to enforce discipline in public offices
- Lack of ICT Infrastructure
- Level of IT literacy
- Past experiences of interaction with government
- Non-uniform growth of various regions of a state
- Marginalized sections of the society
- Lack of trust among general public
- Non-professional approach of polity

BPR – the most potent mantra for E-Governance

By computerizing manual mess, what we get is a computerized mess, which is more deadly as compared to a manual mess. There is a need to appreciate that systems if were to be computerized alongwith their existing problems, will result in creating much bigger, costly, and uncontrollable problems. Streamlining of systems, procedures, and administrative processes is a must before these are automated. In nutshell, what we need to undertake is Business Process Re-engineering of governmental processes.

Michael Hammer[5] while defining BPR focused on the concept of fundamental rethinking and radical redesign of processes to gain improvements in critical measures of performance such as Cost, Quality, Service, and Speed. Any developing economy would present a vast scope for the study of systems and procedures, which offer ample opportunity for improvement in:

- Cost
- Quality
- Service, and
- Speed

ESIA (Eliminate, Simplify, Integrate, and Automate) Framework for process improvement can prove to be very useful when it comes to re-engineering of public processes. At the basic level we can always ask questions like:

- Can we combine several jobs into one job – it will save manpower
- Can we empower workers to make decisions – it will make the decisions faster
- Can the steps in the process follow a natural sequence – it will cut down wasteful activities
- Can the work be performed when and where it makes sense – it will bring down the storage and handling costs
- Can the checks and controls be reduced – it will reduce the waiting time and speed up the processes
- Can we integrate work units to form process teams – instead of the work moving to the workers, it will be the workers who will move to the work

The emphasis of re-engineering will always be on making the processes faster, cheaper, and error free. One major casualty while moving in this direction is the – bureaucracy, which practically dominates the governance of all developing countries. The process of e-governance becomes more tedious with the fact that it is the people who have enjoyed this bureaucracy who are charged with the responsibility of doing away with bureaucracy, like the old saying of "chopping of the same branch on which you are sitting". The question that we need to ask is: "Is there any activity, individual, object, signature, machine, etc. which does not add value". Any activity, which does not add value to the product or service, has no business to add cost – both in terms of money and cost.

The re-engineering of governmental processes is not an overnight activity. It has to be done on a consistent basis and should enjoy the support of the politicians, the bureaucrats, and win over the confidence of the end users. It is a very painful

process, which requires substantial financial resources and involves controlled destruction of age-old paradigms, convictions, norms, and power centres.

India – a country of extremes – is on Cyber Wheels

3 million people took their first dip on 9.1.01 at the Mahakumbh in Allahabad. While there were saints who were seen naked travelling on elephant backs to the Sangam, there were also saints who were noticed with the latest Laptops, Wap enabled Mobiles, and Pagers. The Indian government announced its plan to celebrate the year 2001, as the year of e-governance [6]. Surprising, but true, that Nine Indian Chief Ministers talked e-governance with Bill Gates in September 2000, where IT for masses was discussed at length and issues such as healthcare, agriculture, and education were explored.

"Aastha Arora, India's officially designated billionth baby, bestowed with a rare and unbelievable honour that is, at the same time, is India's crying shame – a mark of India's bloating numbers. Since May 11th, another 2.5 million have been added to India's billion strong population", mentioned The Times of India.[7] If India has to control its population growth for survival in the long run, five BIMARU states have to be brought into sharp focus – Bihar, Utter Pradesh, Madhya Pradesh, Rajasthan, and Orissa. These five states accounted for 44 percent of the country's population in 1996, and are likely to contribute 55 % of the national population growth between 1996 and 2016. In contrast the four southern states of Andhra Pradesh, Karnataka, Tamil Nadu, and Kerala will see a population growth rate of 14 percent during the same period[8]. The latest census has confirmed that after China, it is India that has crossed the one billion-population mark. With its population as on March 1, 2001 standing at 1,027,015,247, India accounts for 16.7 % of the world population at a national literacy level of 65.38 %. Bihar has beaten all states and UTs in the decadal growth percentage with a high of 28.43 percent as against Kerala with the lowest 9.42 percent[9].

NASSCOM's Vision 2020 states that IT will contribute towards 28 % of India's GDP by the end of next two decades. Making available the requisite infrastructure for realizing our dream of making India an IT superpower by the year 2008, assumes critical significance[10], but the question is - "How long will the peacock have to weep looking at its feet alone, while it provides fragrance, beauty, and joy to all with its rich crop of feathers during spring season. It is high time that our population is leveraged – both in terms of quality, cost of deliverables, level of literacy, and out-sourcing of services by multinationals. Assetization of our population, which is viewed as a national liability is long overdue."

Infotech can transform rural India. The challenge is to bring these implementations down to the taluka level and bring about rural transformation rather than limiting the use of IT at the district and state level. There are case studies of poorly educated, low-income farmers having benefited from being informed and connected through IT. For example, in Ajmer, grassroot level health workers – the rural nurses – were provided direct contact with 5000 persons spread over several villages through hand held computers. This helped in monitoring immunization, births, and emergencies. At NDDB, the IT was applied in 600 milk societies. The testing time of quality and fat content by computerized testers came down by 25 %. Using PCs installed at milk vending stations, the amount owed by NDDB was calculated faster, reducing transaction by 30 percent. Older days, dairy farmers were paid in 10 days, which now takes place in just 5 minutes. Computer aided Administration of Regional Department (CARD) project in Andhra Pradesh assists the farmers in handling the land ownership records. The system provides land certificates, caste, income details, etc. in one hour against 15-20 days in earlier times. The computerized postal system in Andhra Pradesh today handles money orders, speed post, inland, overseas mail, and postal life insurance. Whereas there is an immense potential in exploiting IT for rural India, there are problems such as low literacy levels; inability to understand English; systems not

being in vernacular languages; and state priorities at variance from rural needs.

Centre for Electronic Governance - MIT

Ministry of Information Technology (MIT), Government of India has set up Centre for E-Governance for showcasing and demonstrating the successful initiatives by various Centre, State and Union Territory governments of India as well as display the world over best practices in e-governance. There is large number of examples in India where IT has been leveraged for implementation of e-governance solutions. Some such initiatives are mentioned as under:

1. Digital nervous system of Punjab under which all districts, sub-divisions, and blocks are expected to be put on-line. In Punjab, government has formed IT Vision Groups in all government departments, and areas like crop yields, farm practices, seeds, on-line support and weather information to agriculturists are also covered under the initiative. A total budget outlay of Rs.24.74 crores in one year was earmarked for the purpose. Every department has been asked to host and maintain its own web page through National Informatics Centre, New Delhi having information such as:
   i. General information about the Department
   ii. Information regarding procedures for the convenience of general public
   iii. Blank application formats for general public
   iv. Status of the representations, grievances and applications of general public, preferably in detail or at least in summary nature
   v. Any waiting lists or the allotment lists maintained by the Department
   iv. Public Notices, Tender Notices, Recruitment Notices, Admission Notices or the Gazette Notifications issued by the Departments
   v. An inter-active feedback system for sending e-mail queries to the Department and receiving answers by ordinary mail/ e-mail
2. In Andhra Pradesh, the Chief Minister Shri Chandra Babu Naidu, the only Head of an Indian State, who rather prefers to be called the Chief Executive Officer, has promised Internet access to all villages in AP in an year's time, where people will be able to avail of 24 services from the Net. Public can get Caste and Income certificates without visiting a Government office. Some of the systems, which are already in place, include:
   i. CMIS – Chief Minister Information System
   ii. TWINS – Twin Cities Network Services
   iii. CARD – Computer aided Administration of Registration Department
   iv. MPHS – Multipurpose Household Survey Project
   v. APSWAN – Andhra Pradesh State WAN
   vi. SKIMS – Secretariat Knowledge & Information Management System
3. In Pondicherry, the ration cards have been computerized; land records have been automated; villagers are able to locate doctors in town with the help of an on-line database; fishermen have been able to take their catches up by 30 % by locating shoals of catches, etc. through automation. Whereas the farmers have been getting assistance on agricultural inputs such as seeds, fertilizers, and pesticides, the fishermen have been downloading ocean wave height forecasts to identify parts of the Bay of Bengal, which they should avoid.
4. In Rajasthan, Kailashi Devi operated on a Windows based Rajasthan site in presence of Bill Clinton showing him an immunization

card generated from the computer when he visited India. There are plans to provide computers free of cost to 9000 villages. Necessary application forms are loaded which are now acceptable in the government offices.

All these initiatives may spin off a new social revolution and may sow the seeds of a new economic order. But on the flip side, people are not satisfied with governmental initiatives in e-governance. Some of the critical observations on these sites include:

- The sites are not updated regularly – some of these are containing content, which is seven-eight months old. Some do not even display the date of last updation.
- Most of the information available is static in nature and does not navigate the users with any assistance.
- The links given in sites are mostly dysfunctional, frequently leading to blank pages.
- There is no interactivity with the departments through the site.

Given this state-of-affairs, it is difficult to state whether all such promises of e-governance would result in better governance or it will just be another form of political convassing, i.e. Cyber*Convassing*

DELHI - SAGA OF A CITY

Sewer Lines	: 5000 kms long
Water Lines	: 9000 kms long
Delhi Vidyut Board Cables	: 20,000 kms long
Telecom and Internet infrastructure cables	: 300 kms long (to grow to 1000 kms)

"At present, a slice through the chunk of a road, say, in the Lutyens zone, would throw up cables belonging to state-of-the-art traffic sensor specialists CMS for Delhi Traffic Police, Delhi Vidyut Board, Delhi Metro Rail Corporation, optical fibres of both government owned MTNL and private players like Spectranet, Indian Railways, and the Power Grid. This is apart from the already existing network of water and sewer lines manned by the Delhi Jal Board. And to come up soon is the underground pipeline networks of the Indraprastha Gas Service and Gas Authority of India Ltd."

On March 2001, Delhi's population was expected to touch 1.43 crore. The 1991 Census had indicated that out of 94.20 lakh people nearly 37 lakh people had migrated to the Capital from the neighbouring states, even from across the borders. The 2001 Census has all the indications of even higher rate of migration into the Capital. Initiatives of the government such as Identity Cards, Voter Cards etc. have fallen flat – after being rapped either by courts or by media on one pretext or the other. From a modest figure of 4.05 lakhs in the beginning of the century to 1.43 Crores, Delhi is bursting at its seam and cannot take anymore. The Census 2001 has adopted some innovative methods for carrying out a more detailed Census which includes house listing, information on condition of buildings, number of married couples, sources of lighting, types of toilets, bathing and cooking facility, and possession of type of vehicles.

E-Governance Strategy for Success

The problems in public governance can be dimensioned by the following example of Delhi city.

Though the interest areas for rural and urban citizens will vary, but some of the systems which have been implemented under the e-governance initiatives include:

- vehicle registration
- land records
- birth and death registrations
- employment exchanges
- payment of excise duty
- sales tax and local tax
- electronic bill payment of water and electricity
- health records
- education through internet
- police records and functioning of police stations
- criminal justice

Apart from these areas, rural populace is interested in assistance in agricultural activities such as weather forecasting; crop disease management; crop loans; educational & employment opportunities; health & medicine; land records; etc. On the other hand, urbanites need assistance in electricity bills; telephone bills; gas bills; water bills; property tax payment / records; road tax; etc.

More and more governments are realizing that IT implementation in government is one of the most difficult processes and hence necessitates careful planning and formulation of a strategy for effective implementation. Some of the viable recommendations would include:

- Undertake re-engineering of government processes for administrative reforms
- Encourage local languages in the IT implementation process
- Include the entire government functioning as a target for e-governance rather than individual units
- Define a uniform citizen code delimiting the roles and responsibilities of both government and public
- Clean, segregate and digitize databases which are already available
- Provide connectivity to the database for on-line collection of operations data

The most significant decision that a government needs to take to implement e-governance is a political resolve to build up technological competence and allocation of sufficient resources. And there is no substitute for good leadership, which will drive the e-governance.

Conclusion

E-governance has little to do with Bill Gates or IT architecture, it has more to do with our own willingness to bring about transparency and decrease, if not eliminate, corruption in the public services. Automation, which is known for bringing transparency in any e-activity, whether e-commerce or e-governance, is the only word to which all politicians, bureaucrats, and businesspeople are allergic in general. No body wants to end anarchy in public procedures, as it will kill "other income" of the custodians of public offices. So the question is – Who wants e-governance? In other words, what we need is better governance before e-governance and no technology can help us achieve this. It is the "man-behind-the-machine" who will determine the success or the failure of e-governance initiative.

In Nutshell, e-governance pre-requisites – institutionalization of systems; empowering people; shattering power centres; systems for democratic delivery of services; and above all eliminating non-value addition activities so as to ensure speedy

delivery of better quality, cost effective products and services to the public at large. In other words, this would lead to "technologizing the common man."

Undoubtedly, there will be failures, but undoubtedly, too, there will be great successes. Let us imagine successes and strive towards realizing that imagination.

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