E-government

Building a SMART Administration for India’s States

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Everything about information technology in India is characterized by both hype and substance; so is the case with e-government. E-government is at an early stage of implementation, with just three or four Indian states having built a few service delivery applications. However, e-government applications are expected to grow in scope and also to cover more states. E-government represents a win-win situation for all stakeholders: the private sector gets new markets, governments increase efficiency and effectiveness, and the citizens get more convenient services with greater transparency and less corruption. Some states have already reaped these benefits. Andhra Pradesh has successfully sold the idea of building a SMART (Simple, Moral, Accountable, Responsive, and Transparent) government to its employees and citizens. In this chapter, lessons are drawn from Andhra Pradesh’s strategy and experience, and a few challenges that lie ahead are outlined.

WHAT IS E-GOVERNMENT?

E-government is about a process of reform in the way Governments work, share information, and deliver services to internal and external clients. Specifically, e-government harnesses information and communication technologies (ICT), such as the Internet, the Web, and mobile phones, to deliver information and services to citizens and businesses. As a first step, information about services is published on a web site and citizens can interact with the site to download application forms for a variety of services. The next stage involves the use of ICT in the actual delivery of a service, such as filing a tax return, or renewing a licence. More sophisticated applications can process online payments.

In developed countries, these services are offered in a self-service mode through Internet portals that become a single point of interaction for the citizen to receive services from a large number of departments. In developing countries, online
service counters may operate in a department offering services related only to that department. In more evolved models, citizen service centres have been created at convenient locations where citizens can access online services of several departments. Departmental or private operators operate these counters; citizens do not directly interact with computer screens. Collection of payment is often handled through conventional means. In addition to such service centres, citizens may also be able to access service delivery portals.

Perhaps e-government is different from earlier fads, as one of its foundations is a truly discontinuous innovation in technology: the marriage, polygamous as it were, of the Internet, the Web, and mobile computing. It rests not only on the vendor/consultant push, as these groups stand to benefit from higher investments in hardware and consultancy, but also on a growing demand for better services from citizens, who now experience vastly improved services from the private sector. The benefits of a changed way of doing things accrue to all stakeholders: citizens, businesses, and government employees. The biggest barrier is change management. The developed world continues to be concerned with issues of security and privacy of information; in the developing world these issues are less important. However, the necessary infrastructure is not always in place.

**INTEREST IN E-GOVERNMENT: WHY DEVELOPING COUNTRIES SEEK ONLINE SUCCESS?**

Interest in e-government within developing countries is growing. During the last decade, many countries have gone through a process of economic liberalization and economic growth. Many large countries like India and China have grown at 6 to 10 per cent over the last decade. This growth has created a large middle class, which has begun to demand improvements in the quality of products and services. In some areas where the private sector has developed e-commerce, citizens are already experiencing a significant improvement in service levels, leading them to expect governments to use the same technologies to achieve systematic improvements in service delivery. Consequently, the citizens are, in fact, asking the government to go online.

The spread of the Internet in the urban areas of many developing countries is beginning to create a critical mass, not as considerable as in most developed countries, but large enough to lead the government to deliver services online. In the large and highly urbanized countries in Latin America or Asia, it has become possible to deliver these services online. In some places where e-government has been introduced, it has shown that it can work, and have a wide impact on government efficiency and effectiveness. E-government pilots have demonstrated a positive impact on corruption, transparency, and quality of service. In fact, these early successes have spurred competition between states and countries to go online.

These successes are also a source of pride. Some countries believe that through early adoption of emerging technologies, they can leap-frog to more effective
governance and administration. To illustrate, Brazilians feel pride in the fact that their recently launched electronic voting system is better than the existing system in the United States. Another example is from Gujarat in India, where the transport department has pioneered the use of driving licences based on smart card.

E-GOVERNMENT APPLICATIONS IN INDIA: TAKING STOCK

India is well poised to explore the use of information technology (IT) to improve governance. The factors that support such an initiative are:

1. its mature IT industry, which had a turnover of $15 billion and growth of 40 per cent in 2001;
2. the federal government’s commitment to making India an IT superpower (the Centre and most state governments have a minister for IT);
3. a cyber legislation in place; and
4. a growing telecom and networking infrastructure.

Some state governments, such as those of Andhra Pradesh, Karnataka, Kerala, and Gujarat, have built a few applications on an extensive scale, covering the delivery of specific services to a large proportion of their population. Other states are also in the process of experimenting with some pilot applications. Within the Central government, certain departments, notably customs and excise, have taken the lead. A very large number of government departments publish information on web sites, though by and large these sites are neither well designed, nor updated, and do not own responsibility for the quality of information available on them. Initially, this effort was targeted at attracting foreign investments; however, as Internet penetration grows in urban areas, many sites focus on delivering information and services to citizens and businesses.

India is a leader among developing countries in e-government. Amongst the twenty-five cases on e-government on the World Bank web site, thirteen are from India. These include those dealing with delivery of services to urban and rural citizens, tax collection from businesses, and web sites focusing on promoting transparency and reducing corruption. E-government applications have been used in India for e-procurement, tax collection, processing licence applications, sharing budget/expenditure information, and sharing information across departments. Citizens have benefited in service delivery through convenient service delivery locations and significant reduction in service delivery time. Now a driving licence is issued in two to three hours instead of days, and real estate property sale is registered in half a day instead of the two weeks required earlier. Often, so-called ‘speed money’ to hasten the manual process had to be paid earlier, as the operators could delay the processing of an application. Now, with the automation of the processes, there are fewer opportunities for officers to obstruct the process, and corruption has actually been reduced.

Models of service delivery, different to those found in developed countries, are being explored. Unlike the self-service model, where citizens interact with a
portal, most applications in India deliver online services at public kiosks, where government or private sector employees interact with citizens and computer screens to process transactions.

**BENEFITS DELIVERED BY E-GOVERNMENT APPLICATIONS**

The types of benefits demonstrated by e-government applications in India are:

1. greater convenience to citizens in transactions dealing with the government;
2. increased transparency in the work of the government, and lower levels of corruption;
3. a significant increase in the collection of revenue; and
4. the empowerment of rural communities.

Some specific illustrations are discussed below.

**Online Delivery Service: Increased Transparency and Less Corruption**

Land registration offices throughout Andhra Pradesh now operate computerized counters to help citizens to complete registration requirements within an hour, instead of the several days needed under the earlier system. The lack of transparency in property valuation in the earlier system resulted in a flourishing business for brokers and middlemen, leading to corruption. Antiquated procedures, such as manual copying and indexing of documents, and storage in paper forms in ill-maintained backrooms, have all been replaced.  

By computerizing 10 interstate check posts in Gujarat, the state government has trebled the collection of fines from overloaded trucks and taken away from the inspectors the incentive for seeking transfer to ‘lucrative’ posts. The departmental inspectors at these check posts were notoriously corrupt, leading to the harassment of truck drivers and loss of revenue to the state. A team of an enlightened political executive and a technology-savvy administrator was able to implement an online system in which each truck is weighed on an electronic weigh-bridge. The base data is retrieved from a database, and fines and taxes due to the government are automatically calculated and printed out. This has reduced corruption and significantly increased revenue. However, a recent evaluation of the project suggests that corruption is back even though the revenue collection continues to be at the increased level.

The Indian customs department has put into operation the Indian Customs Electronic Data Interchange (EDI) System (ICES) in five air cargo units, eight seaports, and three internal container depots. A cargo-handling agent can now file an electronic bill of entry from his or her own premises or service centres specifically created for this purpose away from the customs office. The bill of entry is processed online at different workstations. Acknowledgement, queries, and status are delivered at the service centre, and responses are also input here.
The system provides a check on misrepresentation of data, or wrong interpretation of rules. For example, under-reporting of value can be detected through a detailed audit, which compares cost data declared by different companies for the same product across different ports. The system has led to greater transparency, less corruption, and quicker processing of transactions.\(^4\)

As part of its initiative to bring the benefits of IT to citizens, the Andhra Pradesh government has implemented the TWINS (Twin Cities Network Services) project, which provides a one-stop government-to-citizens (G2C) interface for several services to the citizens of Secunderabad-Hyderabad, twin cities with a combined population of four million. Department functionaries interact with citizens to deliver a variety of services, such as the payment of utility bills, the issue of birth/death certificates and the issue of driving licences. The centre handles 3,000 transactions a day of which 80 per cent involve the payment of utility bills. The investment on the pilot project was $2 million, including hardware, software, networking, training, and site preparation. The project has been renamed as e-Seva and has been extended to eighteen other locations through partnership with the private sector.\(^5\)

The Vijaywada Online Information Centre (VOICE) delivers municipal services, such as building approvals and birth and death certificates, and handles the collection of property, water, and sewerage taxes in seven kiosks located close to the citizens in the city of Vijaywada (AP), which has a population of a million. The back-end processes in the municipal corporation were re-engineered, computerized, and linked to the kiosks through a wide area network. The application has reduced corruption, made access to services more convenient, and improved the finances of the municipal corporation.\(^6\)

Independent audits have revealed that in many of the above examples, corruption has been reduced, but not rooted out completely,\(^7\) suggesting that e-governance on its own may not be able to eliminate corruption. In processes where rent is extracted by delaying a process or by denial, complaints can be generated from the aggrieved groups provided there is honesty at the top. Citizens can be encouraged to provide feedback on service and filing complaints can be made easier through appropriately designed web sites. Delivery of services through IT-based systems can reduce the opportunities to cause delay. It is important to automate the complete process to take away any opportunity for a manual override. Less complex and more explicit rules can reduce any wrong interpretation of rules. If the rules are completely unambiguous, a software can apply the rule and a person can authorize it. An automatic system can be developed to formally document any use of judgement or override.

The biggest problem in tackling corruption is its widespread acceptance as a way of life. Corrupt people enjoy social acceptance and even admiration. A huge effort is required to safeguard fundamental values like honesty. In a bold initiative, the Central Vigilance Commission in India has created a web site to share with citizens a large amount of information related to corruption, in an effort to propagate the idea of zero tolerance of corruption. The site published the names of officers
from the elite administrative and revenue services, against whom an investigation had been ordered or a penalty imposed in a case of corruption. Here, the Web has been used to shame the corrupt officials. The performance of investigating agencies is also presented on the web site. The site attempts to raise consciousness and involve citizens in the fight against corruption. Such efforts have to be supported by the media, which needs to tap into such information sources and disseminate the information widely.\textsuperscript{8}

**Empowerment and Tackling Poverty**

In many developing countries, the poor people are alienated from the government, in part because there is very little contact between the government and them. In two states of India, an experiment is being conducted for using the Internet to share development plans with the community: for example, the number of schools that are going to be built in a particular local community, their location and learning programmes. Initially, rural people are seldom interested in accessing this information, but once the media, the non-government organizations and grass-roots organizations pick up, circulate, and publicize it, a community discussion is generated. When governments begin to involve the people in the process by cross-sharing information with them, delivering services to them, and then having them comment on the development plans proposed for the future, a beginning is made towards e-democracy.

The Gyandoot project in Madhya Pradesh attempts to reach out to citizens through privately run kiosks where citizens can lodge a complaint, seek information on the prices of agricultural commodities, or apply for some government services. A large number of people have used these services at a cost of Rs 10 per transaction.\textsuperscript{9} In an experiment in the Panchmahal district of Gujarat, the district administration has created a portal, which publishes data on rural schemes that can benefit the poor. It also publishes data on the performance of key departments, permits download of about a hundred forms, accepts a few of these online, and shares information on developmental projects. Both the above experiments empower the citizens by providing access to information.\textsuperscript{10}

Alleviation of poverty through e-government is a difficult goal to achieve, because it would assume that e-government reaches the poor. Telecom infrastructure in rural India is inadequate and the poor do not have access to the Net. Nevertheless, e-government still has a huge potential impact. Milk production in India would serve as a befitting example.

India has become the largest milk producer in the world, and that has largely happened because the cooperative sector is now able to collect the milk at the doorstep of the milk producer. Twice a day, 365 days a year, people come and deposit milk at rural collection centres. In 3,000 such locations, where computers are now being used to process the transaction of buying and selling of milk, a great impact has been made. This is because, earlier, people were not paid the proper amount for the milk as payment depends on the fat content of the milk.
Since the fat content could not be measured instantaneously, there was a great deal of corruption at these collection centres: milk was pooled and tested afterwards, and producers were not paid the right amount for the fat content. Now, in the computerized system, a plastic card identifies the seller to the computer, the milk is weighed electronically, and the fat content is measured and displayed in half a minute through a semi-automated system. The weight and fat content information is transferred to a personal computer, which immediately prints out the amount due, and it is paid out. So, both efficiency and transparency have been greatly improved, and even the small producers are receiving their due. Moreover, milk producers are now experimenting with some pilot initiatives, by being connected through the Internet to a ‘dairy portal’, where they can access information on how to improve their productivity, or recognize if their cattle suffers from a disease. A dairy unit can interact with its collection centre through the system, providing many services, including veterinary assistance and artificial insemination services.\(^1\)

In this case, knowledge and information have directly benefited the rural communities and have had an impact on poverty alleviation. Another way to impact rural poverty is to enable the rural people to use e-commerce, which can give greater opportunity to smaller producers to sell to distant markets, to know the market prices, have better negotiating power, and sell their products to alternative distribution chains.

**PROFILING A PIONEER: ANDHRA PRADESH**

The state government in Andhra Pradesh adopted e-government very early. It has a well-documented strategy\(^2\) guiding the entire effort. It has succeeded in selling the idea of building a SMART (Simple, Moral, Accountable, Responsive, and Transparent) government to its employees and citizens. The success of some of its large-scale applications have been recognized nationally.

A key element of AP’s strategy is to pilot applications that are likely to have high impact, through state funding. After implementing the applications successfully at the pilot site, the private sector is invited to participate in the roll-out to other locations. For example, in the case of TWINS, two private sector vendors have bid for the roll-out of the pilot to nineteen other locations. The entire investment in hardware, software, and networking will be borne by the vendors. The government will provide the sites suitably remodelled to serve as a TWINS centre. All the operational expenses will be borne by the vendor except for the salaries of the counter staff, which will consist of government employees drawn from different departments. The vendor will be reimbursed a fixed transaction-based fee. A bidding process was held to get the lowest quotation of fee.

By creating suitable media coverage of the e-governance applications developed in AP, the AP government has acquired an image of a leader and innovator in IT applications. This image enables them to attract vendors for partnering their
future endeavours. The vendors are willing to bend backwards to associate with the AP government in the hope of generating business elsewhere in the country. Thus, the AP government is able to use its first-mover advantage to drive bargains with the vendors, which other state governments may not be in a position to do.

In applications involving interfacing with citizens, the private sector has an opportunity to earn additional revenue streams by providing value-added services to citizens who come to pay utility bills at the TWINS centres. The government encourages its private partners to offer services, such as the collection of insurance premium, bus and train reservations, and so on, for which a transaction fee could be collected from the citizens.

In applications where the above model does not work, the government has invited bids from the private sector to Build, Operate, and Transfer (BOT). Thus, for handling the online issue of vehicle registration and driving licences in the Fully Automated Services of Transport (FAST) project, when no private vendor was willing to put up the investment on a transaction fee model, the alternative BOT model was tried. In this model a fixed fee is provided to the vendor to create the infrastructure and maintain it over a three-year period. At the end of this period the entire infrastructure is bought back by the government at a depreciated price of 5 to 10 per cent. Almost all the applications implemented so far have focused on improving the interface with the citizens. However, with the exception of the computerization of Mandal revenue offices and the rural centres of the Computer-aided Administration of Registration Department (CARD), most of the other applications serve a largely urban population.

The Chenna Reddy Institute, the apex training institution for the state civil service, plays a pivotal role in the government reform process in AP. The institute has created a good computing infrastructure to provide hands-on training to government staff. It hopes to build sophisticated administration applications at the institute. These applications would serve to demonstrate the potential of IT to the trainees who come to the centre. The training centre now focuses on programmes for the highest level of political and civil service executives. These programmes are designed to have a problem-solving focus, so that reform ideas are not just discussed, but also acted upon. In many ways the institute is working as a think-tank for the process of reforms in the state. Significantly, coupled with the enthusiasm of the central team leading the IT effort, there is the push from the chief minister in the form of monthly monitoring of departmental performance. This monitoring not only reviews the IT initiatives, but also demands analysis from departments, which can only be provided efficiently through computer systems. Thus, the importance of information and analysis are emphasized.

Early successes in the state were based on aware and enthusiastic civil servants acting as champions of reform. The AP government has recognized the importance of educating its senior civil servants to design and execute e-government projects. It spent Rs 70 million on a four-and-a-half-month training programme designed by the Indian Institute of Management, Ahmedabad, to train twenty officers to function as chief information officers. The programme covered a wide array of
interdisciplinary topics, such as technology assessment, process re-engineering, change management, information analysis, and project management. The programme was offered as a sandwich of classroom training alternated with hands-on project work.

The successful strategy of AP highlights the importance of:

1. leadership by elected executives;
2. clearly articulated programmes for online service delivery, focusing on measurable benefits;
3. developing a mature IT infrastructure and back-office use;
4. building an administrative culture oriented to service; and
5. the presence of strong in-house project management skills.

The AP government understood that it did not have either the finances or the skills to undertake an ambitious e-government programme, and therefore relied heavily on building a partnership with the private sector.

THE CHALLENGES AHEAD

In the last few decades, organizations have tended to try out several management movements to bring in incremental change, such as management by objectives, zero-based budgeting, decentralization, rightsizing and reinventing government. However, almost all of these movements have failed to deliver their full promise. Will e-government turn out to be yet another buzzword, or can it truly transform governments in their dealings with different stakeholders?

The experience so far has been somewhat encouraging. In isolated pockets, innovative e-government applications have already been implemented. However, the real challenge is to have a wide-scale impact. Making e-government widespread entails bridging the digital divide, enabling access to the Internet in rural areas and setting up information kiosks. Save a few political leaders and civil servants who believe in the idea of reform and who have initiated innovative applications, the vast majority is yet to awaken to the potential of e-government for reform. A major task is to build institutional capacity for governance reform. Whereas some of India’s state governments have re-engineered administrative processes to improve service delivery time, reduce corruption, and increase transparency, others appear to be more interested in only appearing to be modernizing, while making only half-hearted attempts to reform government functioning.

A large number of sceptics still need to be convinced that investments in IT are as essential as in other forms of infrastructure. What really seems to be missing, in both e-government and e-commerce, is documented research on the impact created by these initiatives on economic development. The information is largely anecdotal, with no clear pointers to whether the benefits are commensurate with the costs.

E-government comprises alignment of IT infrastructures, business processes, and service content towards the provision of high-quality and value-added


e-services to citizens and businesses. Ubiquitous e-government services require the relaxation of time, place, and other accessibility constraints, as well as compliance with architectural principles, such as true one-stop services and life-event orientation. Critical issues arise with respect to:

1. prioritization and pilot scoping of e-government services projects,
2. exploitation of multi-device/multi-channel access technologies,
3. re-engineering and security of back-end IT infrastructures, and
4. evaluation of operational schemes.

A significant amount of training inputs would be necessary in all of these areas. Training packages would have to be developed for senior levels of bureaucracy and political executives, on the potential and challenges of implementing e-government. More substantive training programmes will be needed to train the chief information officers and project leaders who will implement specific projects. Also, funding assistance is needed to build Internet infrastructure, procure e-government solutions, and get customized software developed to implement e-government applications.

Many of the applications developed in India may not be seen as true e-government applications, as some part of the service delivery (particularly the processing of payments) is not electronic. The delivery model is not self-service and applications requiring interdepartmental coordination are still not online. However, the applications have delivered significant benefits to all stakeholders, and that is what should provide the incentive to go ahead. No developing country is likely to be fully ready to embrace a comprehensive programme of e-government. Still, in many areas, applications can be developed which e-enable a large part of the transactions and deliver significant benefits. Rather than wait for complete readiness, an approach of learning by trial is recommended. Benefits need to be articulated in detailed terms. Finally, the underlying concern for those who implement e-government applications must be the impact of e-government initiatives on transparency, corruption, and poverty.

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