



Role of Government: As an Enabler,
Regulator, and Provider of ICT Based
Services

DRAFT

by

Subhash Bhatnagar,
Indian Institute of Management, Ahmedabad
(Consultant, World Bank Washington DC)

Asia-Pacific Development Information Programme
United Nations Development Programme
www.apdip.net/asian-forum

Abstract

This paper is written to serve as a basis for discussing the role of government: as an enabler, regulator, and provider of ICT based services in the Asian Forum on Information Communication and Technology Policy and e-Strategies being held at Kuala Lumpur from 20-22 October, 2003. The paper presents developments in the area of e-government in Asian countries. It discusses the kind of applications that have been developed, benefits that have been delivered, and the reasons why many developing countries in the world have been quick in adopting e-government. To exploit the full potential of e-government there are many challenges. Several factors that are necessary for building effective e-government applications are identified on the basis of an analysis of success and failures of e-government applications that have been developed so far. In the final section, the paper defines a role for governments in Asia that can enable them to exploit the full potential of e-government. The role encompasses a doer's role-- delivering government services electronically, and an enabling role that encourages private sector to deliver electronic services. Governments need to develop a vision and strategy, create an organization to support and catalyze e-government, build human capacity, and enact policies that will attract private investment in infrastructure and application development.

1. Introduction

There are three different perspectives with which developing countries have viewed information and communication technologies. The dominant perspective has been one of promoting growth of ICTs as one of the key sectors of a country's economy. The ICT sector presents a great opportunity for countries to enhance economic growth and employment as has been shown by India. The sector can also become a major source of earning foreign exchange and offer products and service that can be deployed by other sectors of the economy.

A second perspective that has emerged in the last five years is the deployment of ICT for delivering government services. Improvements in delivery of Government services are an important issue for many developing countries as the largest cost of inefficiency is borne by the poor. Electronic delivery can improve efficiency, cut delays for citizens, lessen corruption, and increase transparency. Applications that focus on online delivery of services to citizens, to businesses, and to different arms of government are covered within the broad definition of electronic government. E-government is about a process of reform in the way Governments work, share information and deliver services to external and internal clients. Specifically, e-government harnesses information technologies (such as Wide Area Networks, the Internet, and mobile computing) to transform relations with citizens, businesses, and other arms of government. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and cost reduction¹.

¹ For a comprehensive definition of e-government and examples of cases where these benefits were delivered, see World Bank web site on e-government <www1.worldbank.org/publicsector/egov>.

The third perspective defines the role of electronic media and communication within a society. Within the ambit of this view, governments have to deal with issues such as convergence of different technologies, private control over media, and censorship.

This paper is concerned with the second viewpoint that is focussed on the role of governments as an enabler, regulator, and provider of ICT based services.

2. Reasons for Adoption of E-Government by Developing Countries

E-government is primarily driven by a vendor/consultant push that stands to benefit from increased investments in hardware and consulting. It is also driven by a growing demand for better services from citizens, who now experience vastly improved services from the private sector. Some other factors that have contributed to the growing popularity of E-Government within developing countries are:

There has been a considerable demonstration effect of the constructive difference that e-government has made in advanced economies in the delivery of services, provision of information and internal administration of the public sector. Many developing countries that have developed significant capacity in building IT applications feel that they can leap frog to take advantage of the new electronic channels that are available for delivering government services.

In the last decade, many countries have gone through a process of economic liberalization and economic growth under advice from multi-lateral lending agencies. Many large countries like India and China have grown at 6 to 10 percent over the last decade. Having completed the first phase of economic policy reform, such countries are now under compulsion to move to the next phase of reform i.e. governance reform. Since e-government pilots have demonstrated a positive impact on corruption, transparency and quality of service, these countries see e-government as an effective tool for governance reform.

There is significant intra-governmental competition between government departments that are eager to move forward in implementing E-Government.

These successes are also a source of pride. Some countries have already demonstrated, the best consequence of their experimentation and innovation in this field, there is a competition taking place with developed countries. So, for example, Brazil launched an electronic voting system: they are very proud that it is a better system than that of the United States, and it seems this has become an incentive for these countries to catch up with the developed world

Spread of the Internet in the urban areas of many developing countries is starting to create a critical mass, not as considerable as in most developed countries, but large enough to lead the government to deliver online services. In the large and highly urbanized countries in Latin America or Asia, it has become possible to deliver these services. In some places where e-government has been introduced, it has shown that it can work, and it can have a wide impact on government efficiency and effectiveness.

3. Variety of Applications and Delivery Models

Applications of E-Government can be categorized according to the constituency that is served.

Delivery of services to citizens: Services have been made convenient, and easy to access. Delays have been reduced. The rules governing service can be made transparent, and consistent across different branches of the same department. Many departments have been able to reduce corruption through e-government².

Delivery of Services to Business and Industry: Business and industry are concerned with the cost of setting up a business. A significant component of this cost is the administrative permissions and license that must be obtained to establish and operate a business. Electronic delivery can lead to quick turnaround of license applications and lead to an overall reduction in costs³. Additionally rules can be made transparent and consistent across departments. Corruption, which may form significant part of costs, can be reduced, making the business more competitive.

Increased Efficiency of Departments/ Govt. Enterprises: E-government can lead to lower cost of operations and higher productivity. Governments in Asia are unable to realize the benefit, as they are unwilling and unable to cut down the number of employees after the introduction of electronic delivery.

Significant reduction in costs can result from a paperless environment in which electronic document flow from workstation to work station for approval and action⁴. There are one-time costs of hardware/software and other operating expenses associated with such applications. Perhaps the maximal cost reduction takes place in storing paper files. The most important advantage is one of greater effectiveness because the administrative burden on decision-makers is lessened, releasing time for important issues of policy and decision-making.

Often the data captured by the electronic system enables tighter monitoring of productivity of employees, easy identification of pressure points for delay and corruption, and accumulation of historical data that can be easily mined for policy analysis. Another significant advantage is the ability to share data across agencies and departments in an electronic form.

Countries have used three distinct delivery models.

Departments going on-line: Here citizens interact with departmental/private operators who access data and information from on-line terminals located in the premises of the

² See OPEN case study in Seoul where corruption has been lessened in issue of licenses by municipal corporation by enabling on-line tracking of application status combined with several other measures. <<http://www1.worldbank.org/publicsector/egov/seoulcs.htm>> Also BHOOMI case in Karnataka, India illustrates reduction in corruption in issue of certificate of land titles to millions of farmers <http://www1.worldbank.org/publicsector/egov/bhoomi_cs.htm>

³ See the examples of business registration in China <http://www1.worldbank.org/publicsector/egov/zhongguancun_cs.htm> where the processing time has been cut significantly

⁴ see example of SmartGov in Andhra Pradesh Secretariat

department. If care has been taken to reengineer the back end processes, significant benefits can be delivered in terms of time, costs, and number of trips to the department. Such a model tends to result in greater departmental ownership enabling significant re-engineering of processes. Even though each department becomes more efficient, for availing different services citizens need to visit a different departments.

Conveniently located Service Centers in public places: Multiple services are offered at each location: payment, issue of licenses and certificates. Such counters can quickly move traffic from departmental counters to service center (as happened in the case of Brazil⁵). Building such centers, which must deal with several departments, requires significant coordination and perhaps setting up a separate agency for the project. Services from municipal, state and federal governments can be offered under one roof. Counters at these service centers are manned by public/private agencies. Many countries have outsourced the running of these centers to private operators who add other value-added services like payment of insurance to augment their income⁶.

Self Service through a Portal: The portals are designed to offer a variety of services and the interface is organized in a fashion that makes it convenient for citizens to access the services (using a life cycle approach as in UK and Singapore⁷). Complete backend computerization is needed and usually there is a middle ware, which directs requests for access to information from different departmental data bases/web sites. Integration at the back end is needed for data sharing. There should be policies governing data definitions, structure of data and layered architecture of individual departmental applications. Such self-service delivery naturally presumes a high Internet penetration; willingness and ability of citizen to use the Portals. This in turn requires security and mutual trust (which builds with each successful outcome). Many countries have experienced a gradual build up of usage. Canada had 11% people using the Portal in 2002 even though 60% citizens have access to Internet. Adoption rate has to be driven through conscious actions like training and other incentives. Building a portal requires strong centralized leadership for extensive co-ordination. Even then the goal of a joined up Government where a particular service requires approvals from many different departments, is difficult to achieve.

⁵ For a detailed description of experience with service center locations in Bahia and Sao Paulo in Brazil see < <http://www1.worldbank.org/publicsector/egov/bahiaSAC.htm>> and < <http://www1.worldbank.org/publicsector/egov/poupatempo.htm>>

⁶ For a detailed description of private operators running service centers in Andhra Pradesh, see the description of e-seva centers at 14 location in the city of Hyderabad, India< <http://www.ap-it.com/eseva.html>>

⁷ The government online portal of UK is organized so that a citizen can access services in multiple ways. One of these ways is: issues beginning with before the birth of a new child, after the birth of a child, nursery education, lone parents, just for dads, adopting and fostering etc. In case of Singapore services and information are categorized into 15 etowns which cater to various essential touch-points in life - Business, Defense, Education, Elections, Employment, Family, Health, Housing, Library, Recreation, Safety & Security, Sports, Transport and Travel. For details see www.ukonline.gov.uk and<www.ecitizen.gov.sg>

4. Some Examples of Successful Projects from Different Countries

In many developing countries, a very large number of Government departments publish information on Web sites. By and large these sites are poorly designed, not kept updated, and do not own responsibility for the quality of information. Initially this effort was targeted at attracting foreign investments, but as Internet penetration grows in urban areas, many sites focus on delivering information and services to citizens and businesses. A significant number of developing countries from Asia and Latin America have implemented transaction oriented e-government applications on a pilot basis. A few of these pilots in Chile, India, Brazil, South Korea have been replicated on a wider scale.

The table below analyzes documented case studies of e-government applications from different developing countries. The table lists the countries where such applications have been developed and identifies a few benefits that have been realized. These applications represent *the low hanging fruit*; applications that deliver significant benefit and yet are not difficult to implement.

TABLE-I

Application	Examples	Social and Economic Impact
1. Delivering Citizen services		
Payment of property taxes, Issue of Land titles	CARD in AP, Karnataka, Maharashtra, BHOOMI in Karnataka	Transparency, faster processing for citizens, reduced corruption, increased productivity for offices
Income tax on-line	Singapore, Brazil, Jordan, Chile, Mexico	Convenient, quicker refunds, Better compliance, cost savings
Issue of driving license, motor registration, passport, birth certificates, social security and collection of fines	Citizen Service Center (Mobile and in-shopping Malls) Bahia, Brazil, FAST in Hyderabad, Gujarat, Karnataka	Cut delays, several services under one roof, reduced corruption, reduction of intermediaries
On-line issue/payment of electricity, phones, and water bills, and fines	E-Seva in Hyderabad, FRIENDS in Kerala	Convenient locations, quicker processing time, customer does many tasks in one visit
2. Delivery of services to Business and Industry		
E-procurement	Mexico, Philippines, Bulgaria, Brazil and Chile	Reduce advertisement costs, lower costs due to better prices, transparency
New business registration	Jordan, Jamaica, China	Cut down time and number of visits, Convenience on filing tax returns/ quicker refunds
Tax collection (sales tax, VAT, and corporate Income tax)	Gujarat check post, Cameroon, Chile Singapore and Mauritius	Cut down time and number of visits, convenience on filing tax returns/quicker refunds, Increase in revenue collection for Government

Customs on-line	A total of 70 countries such as India, Jamaica Philippines, Tunisia and Mauritius	Quicker clearance, less corruption
Trade facilitation	Dubai, Yemen , Tunisia Mauritius and Singapore	Quick turnaround of ships in ports
Municipal services	OPEN Seoul Municipalities in India, and Latin American countries	Quick permissions and issue of licenses, access and permissions
3. Internal efficiency: E-mail and electronic work flow in Government		
Use of email and video conferencing	Many government offices	Usage is low, Faster communication, less travel
Document management and work flow for paperless operations	SmartGov in AP	Speed of file disposal, traceably of actions, greater accountability
4. Empowering Citizens through Access to Information		
Publishing budgets central and municipal level	Argentina, India and Turkey	Greater transparency
Publishing project-wise expenditure, executing agency	Panchayat web sites in Karnataka	Transparency and lower corruption
Services through rural kiosks Market information, Application Forms, complaints , ecommerce	1000 kiosks in a dozen pilots in India, pilots in Latin America and Africa	Save travel time, lessen corruption, Better negotiating power, increased accountability, and access to markets

5. How to build successful e-government applications?

Significant Process Reengineering Required: For successful reforms the existing methods and procedures need to be mapped. Often, different branches of the same department do not use the same procedures as local context and conditions result in variations being introduced over time. An important aspect of initiating e-government is to document the existing procedures, simplify them in a manner that task can be completed in as few steps as possible without compromising on the basic purposes. Often, the tasks are carried out in a mechanical fashion because with time, the original purpose of carrying out these tasks has been lost or forgotten. This entire process of simplification of documents and workflow, points of approval and audit is termed as reengineering. Most of the e-government applications, which have proved to be successful in reducing total processing time, and curtailing costs, have done so through a substantial reengineering of their processes. Such reengineering must precede any exercise in automation.

The end result of reengineering may be to modify processes resulting in fewer steps and fewer people to perform the tasks. It means that the way the civil servants were working earlier needs to be modified. Introduction of technology also means changes in the way work is done. All this produces a considerable resistance from the lower levels of civil servants. A great challenge in implementing e-government is to overcome this resistance through education and training. E-government projects have to consciously strive to provide benefits to civil servants at this level, as they are the

ones that tend to lose power and authority over citizens when electronic delivery of service is introduced. E-government projects need to focus on making the entire process of decisions making more transparent. Because of automation, the workflow is regulated and often civil servants lose the flexibility to deal with applications in any sequence other than the one dictated by the computerized workflow. This takes away the power of patronage and inability to expedite work. On the other hand, inability to stall work can be noticed easily because both the public and the supervisors now have the capacity to track information and application as they move from work station to work station.

Successful implementation of projects requires that there is a clear focus on the purpose for which the application is being built. The intended beneficiaries of the application are identified and benefits that will accrue to the stakeholders are concretized. In fact, specific benefits like reduction in time or number of trips to an office need to be targeted and made public. It is only then that the process of reengineering can work towards an ultimate goal.

Strong Project Management skills are needed within the department. Project managers need to clearly identify goals and benefits in concrete terms. The task is often vast, not manageable within the resources that are available internally to a Government department. Adoption of established standards and protocols can minimize customization. If of-the-shelf software is available it should be used instead of reinventing the wheel⁸. Systems analysis, which provides the necessary cues for reengineering, should be done internally. Design, software development, data preparation, training, etc. can be easily outsourced.

Training expenses should not be minimized. Successful projects typically spend about 10% of the budget on training⁹. Awareness about benefits of E-government has to be created in senior civil servants and political executives. Training is required for Project leaders who need to define project deliverables, deal (negotiate) with consultants and vendors, and manage an outsourced development process. Clerical staff needs to be trained on specific applications. Supervisors and managers need to be trained on using information. Citizens need to be made aware of on-line services and how to transact business on Portals

Partnership with private sector can be useful as the private sector has significant experience in developing IT applications. Several types of partnership arrangements can be used. For smaller countries it may be possible to find a single partner for the entire effort (not just a specific project) for developing a strategy, producing guidelines for design, reengineer processes, developing software, helping in procurement and providing training. Otherwise multiple partners may be used for

⁸ For example, many countries have implemented software called ASYCUDA developed by UNCTAD for implementing online customs clearance.
<www.asycuda.org/default.asp>

⁹ The case study on Computer Aided Registration of Deeds (CARDS) on the World Bank web site provides details of expenditure on various facets of implementation.
<www1.worldbank.org/publicsector/egov/cards.htm>

different tasks. The choice of partners can vary from multi national management consultants, IT vendors, and local companies. The task for partners can be defined in many ways. Partners may be asked to build; or to build and operate; or to build operate and transfer. Whatever the partnering arrangement, it must lead to building of local capacity. If private sector partners are involved, contracts should be drawn in a way that is fair and equitable for both parties—the Government and the private sector. The private sector is entitled to reasonable profits.

Electronic government does not mean that all the steps in the delivery of a service should be handled electronically. Significant benefits can be derived by handling a few of the critical components electronically, e.g. in Chile the e-procurement system announces the requirements of the government on a web site, but handles the bids in a manual mode. However, registered suppliers for the needed product/service are sent an email to broaden the choice of suppliers. Once the bids have been processed manually, the results are announced electronically on a web site. Significant costs have been saved in Chile because of expanded supplier choice and making the whole process of selection of suppliers more transparent. Yet the core process of bidding continues to be manual¹⁰. There are many examples where some components of an electronic service delivery continue to be handled manually¹¹. Yet, in all these examples significant benefits have been delivered to the users in terms of reduced time and less corruption.

6. E-government Readiness: Role of Governments

There are several dimensions to e-government readiness. One aspect of readiness is the maturity of technical infrastructure and back office use in various departments. For example, use of email across Government departments, would be indicative of readiness. Readiness also depends on the attitudinal make up of the civil service. Willingness to reengineer, share more information, and treat the citizen as a customer indicates high readiness. Attitudinal changes are difficult to bring about, unless there is a champion at the political level and strong leadership within the department. Departmental champions need to be identified and co-ordination committees created at departmental levels. A final aspect of readiness is an aware and demanding citizenry, which understands its rights, is willing to express them and to fight for them in case of laxity and inefficiency. By publishing performance data and citizen charters, e-government can be an instrument in promoting citizen awareness.

Delivering e-government services requires a high penetration of Internet in homes or presence of a large number of public kiosks. For handling e-payment and building

¹⁰ For more details on the Chilean e-procurement system and the site operated by a private sector company, please see <http://www1.worldbank.org/publicsector/egov/eprocurement_chile.htm>.

¹¹ For most of the applications documented by the World Bank site, payment is made in the traditional manner. For example radio frequency auction in Canada and US are done on line in a multi-staged process, but the final payment by the successful bidder still comes in as a check <www1.worldbank.org/publicsector/egov>

trust between citizens and government in doing transactions over long distance requires an enabling legal framework.

The role that governments have to play in enhancing the readiness for electronic delivery of services encompasses a doer's role-- delivering government services electronically, and an enabling role that encourages private sector to deliver electronic services. Governments need to develop a vision and strategy, create an organization to support and catalyze e-government, build human capacity, and enact policies that will attract private investment in infrastructure and application development.

Developing a vision and strategy: Governments have to choose application areas where electronic service delivery will be promoted. Governments often identify those services where citizen contact is large or very frequent. Often departments that are known to be corrupt are also high on priority. The priority is linked with the overall political objective of the government – whether it is to attract investment, appear to be tackling corruption effectively, or to increase revenues from tax collection. Trial through a few quick strike projects is important, as the benefits need to be demonstrated to citizens and civil servants. Such pilots also help in understanding the key step of reengineering processes and managing change in a local context. E-government can be built in stages after a big picture is in place. First, on-line service delivery is provided within a set of chosen departments. Later many of these services are delivered on-line, under one roof, at conveniently located centers. Then all the services are web enabled and offered through a single portal. An assessment of the networking infrastructure and Internet penetration is necessary to determine the kind of delivery models that are viable. Building e-government through these stages requires a great deal of coordination amongst departments. Ministerial level coordination committees need to be formed. Managing expectations and maintaining credibility is important.

No government is completely ready on all the above dimensions. Some governments therefore hesitate to make a beginning. Experience of some countries like Mauritius, Jordan suggests that organization and coordination can be overemphasized at the expense of action in implementation¹². This lack of balance between planning and action can result in demoralization amongst the champions.

Departmental ownership of e-government is vital because no external agency can drive the kind of change that is needed in implementing e-government. However, if the implementation of e-government is left entirely to a department, then resources get wasted, and data sharing may be hampered. This would make it difficult to deliver those services where a large amount of documents and data must be shared across departments in the delivery of a service such as licensing for a beach hotel. Also, each and every department may not have the capacity to use the correct method and latest design techniques in developing the application. E-government effort should therefore be supported by a central agency, which can provide necessary guidance in use of correct methodology. For countries where a central support agency needs to be

¹² This observation is based on e-government mission work carried out in these countries by the author on behalf of the World Bank and the Commonwealth Secretariat.

created, the role, mandate, and size of the central support agency needs to be defined. Its appropriate home has to be established. Some of the tasks to be performed by a central agency are: assessing and enhancing preparedness; developing a strategy, implementation plan; building shared infrastructure; finding resources for re-engineering, application development and change management, developing guidelines, standards and best practices, developing public private partnership, identifying departmental champions, monitoring progress and impact, and overseeing a few quick strike projects.

One of the important steps in preparation for e-government is the building of capacity within the government to manage the implementation of projects. States like Andhra Pradesh in India, which is considered as pioneer in implementation of e-government, has invested heavily in the training of chief information officers. Andhra Pradesh has trained nearly 100 handpicked officers at the middle and senior levels in 3-4 month intensive residential programs. These trainees are expected to take leadership positions for implementing e-government across 70 departments of the state. The training provided an exposure to technology so that the trainees could comfortably deal with private sector partners in procuring various products and services. Analysis and design of systems, management for projects, reengineering of administrative processes and management of change are the other important topics covered in these training programs.

Governments also need to create an incentive system so those departments take a lead in implementing electronic service delivery. Policies need to be defined which enable departments to charge a user fee when the quality of delivery is significantly upgraded. If the departments are allowed to retain the user fee and make investments to build new delivery systems – this can serve as a strong incentive for e-government applications.

Systematic evaluation studies need to be conducted to measure benefits during and after implementation. So far the benefits of e-government have been largely anecdotal. Evaluation studies should be carried out by independent agencies. Stakeholders must indicate the benefits that have been delivered and problems that continue to be faced. Serious evaluations can provide feedback for a national strategy, as well as design and implementation of individual projects. Some of the projects that were deemed to be successful (and were awarded prizes by international organizations) have started faltering. A World Bank sponsored evaluation of four projects in India indicates that two projects are moving towards a failure¹³. Long term sustainability can be ensured if the innovation is not championed by just one individual administrator but is owned by the entire department

E-Government can advance the agenda on Governance and fiscal reform, transparency, anti- corruption, empowerment and poverty reduction. The potential is recognized but implementation is difficult. Pioneers in several countries have shown that gains can be real and projects can be implemented successfully. The challenge is to promote widespread use.

¹³ See the evaluation reports at <<http://www1.worldbank.org/publicsector/bnpp/gksp1.htm>>