e-Government

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PREFACE

One the many challenges facing the countries in the Asia-Pacific today is preparing their societies and governments for globalization and the information and communication revolution. Policy-makers, business executives, NGO activists, academics, and ordinary citizens are increasingly concerned with the need to make their societies competitive in the emergent information economy.

The e-ASEAN Task Force and the UNDP Asia Pacific Development Information Programme (UNDP-APDIP) share the belief that with enabling information and communication technologies (ICTs), countries can face the challenge of the information age. With ICTs they can leap forth to higher levels of social, economic and political development. We hope that in making this leap, policy and decision-makers, planners, researchers, development practitioners, opinion-makers, and others will find this series of e-primers on the information economy, society, and polity useful.

The e-primers aim to provide readers with a clear understanding of the various terminologies, definitions, trends, and issues associated with the information age. The primers are written in simple, easy-to-understand language. They provide examples, case studies, lessons learned, and best practices that will help planners and decision makers in addressing pertinent issues and crafting policies and strategies appropriate for the information economy.

The present series of e-primers includes the following titles:

- The Information Age
- Nets, Webs and the Information Infrastructure
- e-Commerce and e-Business
- Legal and Regulatory Issues for the Information Economy
- e-Government;
- ICT and Education
- Genes, Technology and Policy: An Introduction to Biotechnology

These e-primers are also available online at www.eprimers.org. and www.apdip.net.

The primers are brought to you by UNDP- APDIP, which seeks to create an ICT enabling environment through advocacy and policy reform in the Asia-Pacific region, and the e-ASEAN Task Force, an ICT for development initiative of the 10-member Association of Southeast Asian Nations. We welcome your views on new topics and issues on which the e-primers may be useful.

Finally, we thank all who have been involved with this series of e-primers-writers, researchers, peer reviewers and the production team.

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TABLE OF CONTENTS

INTRODUCTION

Information and communications technologies (ICTs) are playing an increasingly vital role in the daily lives of people, revolutionizing work and leisure and changing the rules of doing business. In the realm of government, ICT applications are promising to enhance the delivery of public goods and services to citizens not only by improving the process and management of government, but also by redefining the traditional concepts of citizenship and democracy.

The effects of ICTs on societies are both far-reaching and uneven. On the one hand, ICT is fueling the transition from industrial-based economies to knowledge-based societies. On the other hand, ICT still has little or no impact in the lives of people in many countries. This wide disparity in the impact of ICT around the world today underscores the uneven progress of economic development. It also highlights the critical role of government in the information age.

The goal of this primer is to clarify the major issues surrounding e-government, as well as to provide readers with best practices in e-governance in the developing world. Leaders committed to e-government are demonstrating that by combining technology with new ways of operating, government can be made much more effective, efficient, transparent and responsive.

I. DEFINITION

What is e-government?

Definitions of e-government range from “the use of information technology to free movement of information to overcome the physical bounds of traditional paper and physical based systems”[1] to “the use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees.”[2] The common theme behind these definitions is that e-government involves the automation or computerization of existing paper-based procedures that will prompt new styles of leadership, new ways of debating and deciding strategies, new ways of transacting business, new ways of listening to citizens and communities, and new ways of organizing and delivering information.[3]

Ultimately, e-government aims to enhance access to and delivery of government services to benefit citizens. More important, it aims to help strengthen government’s drive toward effective governance and increased transparency to better manage a country’s social and economic resources for development.[4]

What advantage does e-government pose?

The key to e-government is the establishment of a long-term, organization-wide strategy to constantly improve operations with the end in view of fulfilling citizen

needs by transforming internal operations such as staffing, technology, processes and work flow management.

Thus, e-government should result in the efficient and swift delivery of goods and services to citizens, businesses, government employees and agencies. To citizens and businesses, e-government would mean the simplification of procedures and streamlining of the approval process. To government employees and agencies, it would mean the facilitation of cross-agency coordination and collaboration to ensure appropriate and timely decision-making.

What are the types of e-government transactions?

e-Government services focus on four main customers: citizens, the business community, government employees, and government agencies. e-Government aims to make interaction with citizens, businesses, government employees, government agencies and other governments more convenient, friendly, transparent, inexpensive and effective.

In an e-government system, individuals are able to initiate a request for a particular government service and then receive that government service through the Internet or some computerized mechanism. In some cases, the government service is delivered through one government office, instead of many. In other cases, a government transaction is completed without direct in-person contact with a government employee.

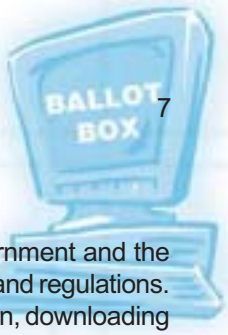
What are the specific types of services delivered through e-government?

The four types of e-government services are Government-to-Citizen (G2C), Government-to-Business (G2B), Government-to-Employee (G2E), and Government-to-Government (G2G).

G2C includes information dissemination to the public, basic citizen services such as license renewals, ordering of birth/death/marriage certificates and filing of income taxes, as well as citizen assistance for such basic services as education, health care, hospital information, libraries, and the like.

Box 1. Singapore's e-Citizen Portal[5]: A Case Study in G2C Transactions

Through Singapore's e-citizen portal (www.ecitizen.gov.sg), Singaporeans are able to access about 1,600 e-services pertaining to business, health, education, recreation, employment, and family. Of this, 1,300 e-services are completely transacted by citizens with government online. The e-citizen portal is divided into categories based on the real-life needs of every individual, with every single ministry and statutory board providing e-services through the same portal. Singaporeans thus have one-stop access to government services; they are spared having to navigate through the bureaucratic jungle. A few of the popular e-services offered are: submitting application forms for purchase of apartments, searching for school information, employment search, career development, and voter registration.As of June 2002, about 77% of public services deemed feasible for e-delivery were enabled for online delivery.



G2B transactions include various services exchanged between government and the business community, including dissemination of policies, memos, rules and regulations. Business services offered include obtaining current business information, downloading application forms, renewing licenses, registering businesses, obtaining permits, and payment of taxes. The services offered through G2B transactions also assist in business development, specifically the development of small and medium enterprises. Simplifying application procedures that would facilitate the approval process for SME requests would encourage business development.

On a higher level, G2B services include e-procurement, an online government-supplier exchange for the purchase of goods and services by government. Typically, e-procurement Web sites allow qualified and registered users to look for buyers or sellers of goods and services. Depending on the approach, buyers or sellers may specify prices or invite bids. e-Procurement makes the bidding process transparent and enables smaller businesses to bid for big government procurement projects. The system also helps government generate bigger savings, as costs from middlemen are shaved off and purchasing agents' overhead is reduced.

Box 2. China's Golden Customs: A Case Study in G2B Transactions

The Golden Customs project was proposed by Vice Premier Li Lanqing in 1993 to create an integrated data communications system connecting foreign trade companies, banks, and the customs and tax authorities. The system aims to speed up customs clearance and strengthen the authorities' ability to collect tax and duty payments. The Golden Customs project allows companies to submit import and export declarations to customs authorities, calculate duty payments, and check import and export statistics. This electronic data tracking system allows customs departments to verify a range of data through networks to facilitate customs management and prevent illegal activities, one of the initial conceptual attractions of the project. In 19__ this system enabled China customs to solve criminal and smuggling cases valued at approximately RMB80 billion (US$96 million) and increase tariff payments by RMB71 billion (US$86 million).

G2E services encompass G2C services as well as specialized services that cover only government employees, such as the provision of human resource training and development that improve the bureaucracy's day-to-day functions and dealings with citizens.

Box 3. Mississippi, USA's Payroll Information Self-Service: A Case Study in G2E Transactions

As of October 2002 Mississippi state government employees could view their payroll and tax information records online through a secure, Web-based, self-service application called Access Channel for Employees (ACE). ACE is directly linked to the state's legacy payroll system, enabling employees with a log-in ID and password to view their payroll accounts (called W-2). Also, government employees who receive their paychecks through direct deposits can view

their last 10 pay stubs. Employees are notified by email when their pay stubs arrive and they can then review the information before actual payday.This application has given the state of Mississippi US$0.50 in savings for every W-2 form that is printed and mailed. Aside from the savings in cost, if employees spot mistakes on their W-2s, re-issuing these electronically takes only two days instead of two weeks. Of the more than 40,000 state employees of Mississippi, 17% have adopted and used this new application.[6]

G2G services take place at two levels: at the local or domestic level and at the international level. G2G services are transactions between the central/national and local governments, and between department-level and attached agencies and bureaus. At the same time, G2G services are transactions between governments, and can be used as an instrument of international relations and diplomacy.

Box 4. Global Cooperation on Transnational Crime: A Case Study in G2G Transactions

The inherently transnational nature of the Internet has not only seen the transformation of legitimate business activities, but also provided new opportunities for illicit business. In recent years, there has been a significant increase in the sophistication of organized crime and illegal trafficking activities, encouraged by the anonymity provided by the Internet.

To combat this growing trend, 124 heads of government came to Palermo, Italy in December 2000 to sign the United Nations Convention Against Transnational Organized Crime. In putting the convention into effect, the UN designed the "Global Program on Transnational Organized Crime" (www.uncjin.org/CICP/cicp.html) to improve information sharing and further enhance international cooperation.

The main objectives of the program are to:

- assess organized crime groups worldwide according to how dangerous they are and the kind of threat they pose to society;
- provide Member States and the international community with reliable information and analysis on the major emerging transnational organized crime groups;
- support and expand the technical cooperation activities of the Center for International Crime Prevention in the field of organized anti-crime strategies; and
- assist requesting countries in the formulation of policies and guidelines aimed at preventing and combating transnational organized crime.

The goal is to establish a network of data providers and national focal points in the field (i.e., law enforcement agencies, governments, NGO institutions, research centers and other relevant international organizations) to create a global database and reporting center for all Member States.[7]

Is the Internet the only medium for accomplishing e-government?

The Internet is indeed the most powerful means for delivering e-government. However, it is not the only, or the most appropriate, means. Developing countries

in particular need to take some constraints—from the infrastructural to the financial—into account when considering the best strategy for adopting e-government. Existing electronic service delivery channels must be put to use to provide the broadest access possible.

Box 5. Using Appropriate Technologies in E-Governance: A Philippine Case Study[8]

The Philippine Bureau of Internal Revenue (BIR) has introduced an electronic payment confirmation scheme using SMS (short messaging system on mobile phones) to guard against "fixers" who issue fake receipts to taxpayers. Called *e-Broadcasting*, the system provides taxpayers with direct confirmation within 38 hours that their payment has been received by the BIR's authorized agent banks. The system proved successful as a pilot project implemented in 2002. It will be implemented on a nationwide scale in 2003.

According to Dr. Richard Heeks, Director of the Institute for Development Policy and Management at the University of Manchester, developing countries aiming to use ICTs for good governance should opt for "intelligent intermediaries" in the early phases of e-government. "Intelligent intermediaries" are e-government models that incorporate human beings as intermediaries between citizens and the information infrastructure in order to provide the public with the widest possible points of access to government services. Realistic e-government projects will use such intermediaries at the onset, given limitations in the physical infrastructure of developing countries and the lack of access points for the general public to acquire government services. These intermediaries may come in the form of existing professionals (e.g., accountants for online tax systems, notaries for online registration systems), public servants (e.g., call centers or one-stop shop government offices), and NGOs or community-based organizations (e.g., staffed community telecenters) bringing together a combination of these various ICT channels to effectively deliver e-government.[9]

Box 6. Intelligent Intermediaries in Sri Lanka[10]

A joint project between UNESCO, the Ministry of Posts, Telecommunications and the Media, the Sri Lanka Broadcasting Corporation, and the Sri Lanka Telecommunication Regulatory Commission uses the radio as an interface between rural people and the Internet. A daily one-hour live radio program, in which an announcer and a panel of resource persons browse/surf the Internet in response to listener requests and questions, has proved able to overcome linguistic barriers to Internet use by non-English speakers. In addition to the live program, the Kothmale community radio station is developing a rural database, primarily by packaging public domain information often requested by listeners for offline use. The radio station also functions as a mini-Internet service provider by offering Internet access points at two public libraries located within the radio's target area and running an Internet café at the radio station.

II. THE GOALS OF E-GOVERNMENT

What are the goals of e-government?

The Working Group on e-Government in the Developing World has identified five broad categories of goals commonly pursued for e-government.[11] e-Government is a means to accomplish these broader social goals, goals that move beyond mere efficiency of government processes to that of overall reform and development. The goals are not listed in any particular order of importance, as each country must determine its priorities in e-government.

a. **Creating a better business environment.** Technology is a proven catalyst in increasing productivity and economic growth, especially in rural and underserved communities.[12] The use of ICT in government and the establishment of an e-government infrastructure help create a business-friendly environment by streamlining the interaction and improving the interface between government and business, especially SMEs. By cutting out redundancies in procedures and emphasizing immediate and efficient delivery of services, e-government creates the conditions that attract investors/ investment.

   This goal is highly dependent on the country, its industry strengths and its global competitive advantage. Once identified, these should be incorporated in the country's e-government strategy, with agencies, the bureaucracy and public services aligned towards promoting these sectors. E-procurement, for example, can open new markets to local businesses by opening up the government procurement process, making it more competitive and fair.

Box 7. Increased Investment Through E-Government: Singapore's GeBIZ e-Procurement Portal

Singapore's Government Electronic Business Centre (GeBiz), set up in June 2000 to simplify government procurement and tender activities, exemplifies e-government. As with other capital investments in Singapore, the motivation for developing GeBIZ is strategic, and moves beyond direct efficiency/cost savings. GeBIZ would mean consistency in procurement practice and greater transparency in transactions, thereby acting as a stimulus to the development of e-commerce in Singapore.With this integrated, Web-based e-procurement system, suppliers and tender bidders enjoy broader access to government tenders and quotations. Public sector agencies also enjoy the benefits of making electronic purchases of commonly used items from shared period contracts.[13] As of September 2001, the total transaction value conducted by GeBIZ hit US$50 million, with the number of public sector users exceeding 3,000. Tender publications have hit 3,000, valued at more than US$1.7 billion.[14]

b. **Customers online, not in line.** This refers to the effective delivery of public goods and services to citizens accompanied by quick response government with minimal direct intervention by a public official.

c. **Strengthening good governance and broadening public participation.** Promoting transparency and accountability in government through the proliferation of ICT in management and operations also opens opportunities for citizens to be more actively involved in the policy- and decision-making processes of government.

As a major tool in building a tradition of transparency and good governance, e-government can advance the fight against corruption. However, e-government by itself will not put an end to corruption. It must be accompanied by other mechanisms to be fully effective.

At the same time, e-government facilitates the swift delivery of complete information. The broad dissemination of information helps empower citizens and facilitate informed decision-making. The transparency of information will not only further democracy but also instill a sense of accountability among government leaders and compel effective governance.

d. **Improving the productivity and efficiency of government agencies.** Re-engineering processes and procedures to cut red tape, facilitate delivery of services, increase productivity of the bureaucracy, and increase savings are benefits inherent in e-government. More specifically, e-government can help:

- Increase government staff productivity, reduce overhead from fewer offices and less paper management, improve capacity for planning management by government (using better tools and improving access to critical information, for example, in city planning through the use of a GIS), and increase revenue as businesses and citizens actually apply for more licenses, due to the fact that the process is much easier and less corrupt.
- Induce cost savings in the medium to the long term. In the short term, however, staffing and costs tend to increase as government must offer multiple delivery platforms (both the traditional and e-government) during the initial transition.
- Streamline the operations of government. Most government processes have evolved over many years, and usually involve many steps, tasks, and activities. Streamlining government processes through ICT eliminates redundant procedures and helps to reduce red tape.

Box 8. The Benefits of E-Government at the Philippine National Bureau of Investigation (NBI)[15]

In previous years, the Philippine NBI had been the object of many complaints because it took at least three days to secure an NBI clearance. An NBI clearance is required when applying for employment, passports, visas, licensure examinations, and the like. This clearance ensures that the citizen does not have a pending criminal case or existing criminal record. Thus, at any given time as many as 30,000 citizens wait in line for an NBI clearance at the NBI head office.

Today, people can renew their clearance in five minutes from an NBI kiosk located in the air-conditioned convenience of Metro Manila's shopping malls. The improved NBI computerization system has resulted in many benefits, including:

- **A two-fold increase in revenue.** The issuance of clearances is the NBI's largest revenue earner. The agency used to earn only P150 million a year due to slow processing of applications. But now, due to improved computerization, the agency earns more than P270 million a year.
- **Significantly reduced graft and corruption.** The renewal kiosks have significantly reduced graft and corruption by reducing opportunities to bribe employees to "facilitate" the approval process or falsify documents.
- **Expanded public service.** The NBI clearance renewal kiosks can now issue more than 30,000 clearances to jobseekers and visa applicants everyday. Being mall-based, these kiosks are more accessible to the public.
- **Decongestion of the main NBI compound.** The new NBI computerization system has effectively decongested the Bureau of the long line of clearance applicants. From 30,000 people a day, the applicants' queue has been reduced to 4,000 people. Ultimately, the NBI hopes to enable applicants to secure their NBI clearances from the comforts of their homes by logging in to the NBI Web site.

e. **Improving the quality of life for disadvantaged communities.** ICT makes it possible for government to reach marginalized groups/communities and improve their quality of life. This means empowering them through their participation in the political process, as well as delivering much-needed public goods and services.

Ultimately, the goal of e-government is to enhance the interaction between three main actors in society—government, citizens and business—in order to stimulate political, social and economic progress in the country.[16]

How does government become more responsive and accessible with ICT use?

With its emphasis on the use of information technology in the delivery of services, e-government presents a government agency with the opportunity to re-think how it delivers services. Specifically, e-government offers the agency the opportunity to: examine its current operations and procedures, identify business processes and practices that can be streamlined, implement those streamlined business processes, and implement new technologies that enhance those improvements. In the process of streamlining business operations, a properly implemented e-government solution provides the agency with the opportunity to focus its resources on service delivery efforts that are most efficiently provided through direct contact versus other means.

ICT will ultimately re-engineer government processes and transform governance. It is not enough to deliver services efficiently and effectively by compressing the steps required to accomplish certain procedural requirements. What is more important is to simplify government processes altogether, change the concept of

governance, and thereby transform the relationship between government and citizens.

Moreover, increased information access and transparency in government processes leads to greater accountability and transparency, as online or computerized processes remove discretion from government officials and provide watchdog groups and senior government officials with a mechanism to monitor potential corruption abuses by lower level government officials.[17]

Box 9. Transparency and Accountability:
Greater Openness of Local Government in South Korea

At the highest level in the Municipal Government of Seoul there were concerns about the lack of accountability and the presence of corruption in the issuing of local government licenses and permits. This led to the development of the OPEN system (Online Procedures Enhancement for civil applications), an anti-corruption Web portal that provides citizens with a range of relevant information, including the overall goals of the anti-corruption drive and an explanation of the rules and procedures for permit/license application and processing.

OPEN also displays an anti-corruption index that summarizes survey results on process performance. It provides citizens with specific information by allowing them "real time monitoring of the progress of an application for a permit or license". Some of this information can also be found in paper form but, for the increasing number of Seoul citizens or citizens groups with Internet access, OPEN has reduced the barriers to obtaining government information. They are therefore better informed, the process of government is more open, and the rationale for bribery has been largely removed. Feedback from citizens has been very positive, and there has been a dramatic decrease in reported corruption. These achievements have in large part been due to the integrated approach taken, ensuring that technological change serves public sector reform goals rather than vice versa.[18]

III. E-GOVERNMENT AND HUMAN DEVELOPMENT

How do ICTs facilitate good governance?

ICT is an enabler of efficient and effective functioning of government. In turn, a more efficient functioning of government allows for improved and better governance.

Box 10. Argentina's Cristal Government Initiative:
Public Funds Information on Demand[19]

The mission of Argentina's Cristal government initiative is to disseminate online, and in an easily understood format, all information concerning the use of public funds. This includes information not only about the amounts of money devoted to different programs, but also how these funds are administered.

The Cristal Web site was specifically created to fulfill the mandate of a law that requires that the State make available "to whatever institution or interested person" the following information related to the administration of public funds:

- execution of budgets, to the lowest level of disaggregation;
- purchase orders and public contracts;
- financial and employment data concerning permanent and contracted staff;
- an account of the public debt, including terms, guarantees, interest costs, etc.; outstanding tax and customs obligations of Argentine companies and people;
- regulations governing the provision of public services; and
- all information necessary for the communitary control of social expenditures.

A primary goal of the Cristal program is to create a better informed citizenry that can exercise more effective control over their political representatives. While the content of the Web site is directed to all citizens, journalists are a particularly important audience of the site, as newspapers and television enable a much wider dissemination of its contents.

What are the implications of equality of access to government information and services?

The implementation of e-government facilitates citizen participation in governance by increasing access channels to government. It broadens opportunities for citizen participation, opening new channels of communication between constituents and their representatives and bringing marginal groups (i.e., women, physically challenged, indigenous peoples) into mainstream participatory channels.

But just as e-government initiatives have the potential to democratize the delivery of basic services and "level" the effects of development, these same initiatives can also further distance citizens from government and even deepen existing disenfranchisement. Policy-makers, in trying to achieve development goals through e-government, should consider projects that would deliver the most benefits to the broadest number of people.

What is digital democracy?

Digital democracy is a term used when the use of information and communications technology enhances citizen participation in the democratic process. It is the computerization of political discourse, policy-making and the political process with the end in view of increasing, enhancing, and deepening citizen participation in the policy- and decision-making processes of government through a spectrum of activities—electoral campaigns, voting, consultation and participation in the policy process, public opinion polling, and communication exchange between elected officials and constituents.

While opportunities are increasing for citizens to be more actively involved in the policy-making and decision-making process, much of government decision-making is still hidden from the wider public. ICT integration in government processes facilitates greater openness, transparency, and accountability. As more information

is given to the public, greater citizen engagement in the overall policy process is considered as necessary as greater accountability for public officials.

Box 11. Online Assembly: Virtual March on Washington[20]

On the 26th of February 2003, an advocacy event was spearheaded by the Win Without War Coalition to get individuals across the United States to direct a steady stream of phone calls, emails, and faxes to the White House and to every Senator with the following message: DON'T ATTACK IRAQ."We will let our fingers do the marching and demand that our voices be heard," said Tom Andrews, the national director for Win Without War, the group that organized the protest. Andrews said about 400,000 people had registered through the group's Web site for the call-in campaign. "Well over 1 million phone calls were made in just eight hours by people from every state in the country" on Wednesday, he said. "Every senator's office and the White House switchboard received at least two and often more calls per minute."

In what ways can e-government enhance digital democracy?

Improving access to public information and services. Government carries the burden and responsibility of ensuring that citizens, communities, businesses, and civil society are equipped with complete information so that they can make timely and appropriate life decisions.

Through ICTs—broadly defined to include television, radio and telephones—the public can more easily access information and services. By providing the public with details of government activities and providing them with venues to actively participate in these activities, e-government compels officials to be more transparent and accountable for their actions and decisions, as well as to improve not only the delivery of services but also the quality of these services.

Box 12. Access To Information And Services: Online Delivery of Land Titles in Karnataka, India[21]

The Department of Revenue in Karnataka has computerized 20 million records of land ownership of 6.7 million farmers in the state. Previously, farmers had to seek out the Village Accountant to get a copy of the Record of Rights, Tenancy and Crops (RTC), a document needed for many tasks such as obtaining bank loans. There were often delays and harassment. Bribes had to be paid. Today, for a fee of Rs.15, a printed copy of the RTC can be obtained online at computerized land record kiosks (called Bhoomi centers) in 140 *taluk* offices. In the next phase, all the *taluk* databases are to be uploaded to a Web-enabled central database. RTCs would then be available online at Internet kiosks, which are likely to be set up in rural areas.

Enhancing political participation. ICTs have made it possible for citizens around the world to be included in the policy process, to have their voices heard, to

participate in the policy development process, and ultimately, to influence decision-making. ICTs have opened numerous channels of participation not usually open or available to the broader public. Many instances around the world today have shown the potential of ICTs to change society through the participation of a wide variety of people from various social and cultural backgrounds, social strata, and religious beliefs.

Box 13. Technology and Grassroots Politics[22]

Technology is energizing grassroots politics of all stripes: call it powering up. In the Philippines, protesters using cell-phone text messaging mobilized hundreds of thousands of demonstrators in January 2001 to help oust President Joseph Estrada. Miguel Arroyo, husband of new President Gloria Macapagal Arroyo, says her supporters kept urging everyone to head to the Edsa shrine, the main focus of the People Power II movement. "We texted everybody to go running there: 'edsa. edsa: everybody converge on edsa!'" In China, tens of thousands of followers of the spiritual group Falun Gong continue to exist—despite a harsh crackdown—in a vibrant community fed by the Web and encrypted text messaging. Last November, after learning from foreign news sites of the arrival of the first American President since the Vietnam War, hundreds of thousands of citizens lined the streets of Hanoi to welcome Bill Clinton despite a state information blackout.

Technology is tilting the balance of political power away from government and toward the individual. Multinational interest groups like Greenpeace and anti-globalism protesters can promote their aims and coordinate world campaigns instantly. Dissidents, rebels and terrorists can publicize, organize and attack in virtual territory beyond state control and reach wide audiences without trusting their message to the filter of the media.

Governments still dominate the political equation, of course. But online activists are chipping away at their grip on power, adding a new voice to debates that often can't be ignored. In foreign policy, unsanctioned cyber wars like the U.S.-China dustup are increasingly common during times of international tension. In 1999, hackers in China and Taiwan exchanged cyber fire over then President Lee Teng-hui's claim of statehood, as did Indonesian nationalists and supporters of independence for East Timor.

In the end, it's difficult to regulate access to technology or its use. The nature of the Internet—borderless, fast, atomized, anonymous—works against the state's traditional grip on power.

Engendering women empowerment. Governments must pay special attention to providing women not only with access to information technology (IT), but also with IT training and education. ICTs are particularly useful for giving voice to women in developing countries who traditionally are isolated, invisible and silent. It presents new opportunities for women to improve their lives, economically, politically and socially.

e-Government can provide marketing and promotion services for women's businesses such as handicrafts, garments and traditional arts. Female farmers can increase their productivity and profits with access to information on improved agricultural inputs, weather, markets, new production techniques and farming technologies.[23] In addition, policies that increase women's access to credit contribute significantly to poverty alleviation.

e-Government can also be used to strengthen women's participation in the political process, help women exercise their fundamental rights, improve the performance of elected women officials, strengthen advocacy of women's issues, and disseminate knowledge.[24] Providing channels for participation in policy-making that targets women's concerns is a critical component of e-government.

Finally, women in developing countries want to rise above poverty, disenfranchisement and marginalization. While ICTs may not be a panacea, various e-government projects, such as health and agricultural portals, give women a chance to improve their lives.

Box 14. Improving Service Delivery To Women Through ICT: The Women's Services Portal in British Columbia, Canada

To improve service delivery to women, the Government of British Columbia has created a portal dedicated to delivering services for women. The women's services site (http://www.bcconnects.gov.bc.ca/citevnt/womenserv.htm) is embedded within the British Columbia government portal called "BC Connects" (www.gov.bc.ca).

This Web site provides information, government assistance and training to women in general, as well as to aboriginal, immigrant and minority women living in the province of British Columbia. The services include application for business loans and childcare subsidy, employment preparation training, job matching, health information services, and counseling and legal aid.

IV. THE CHALLENGES OF E-GOVERNMENT

Who pays for e-government?

Like any government infrastructure project, e-government can be done in phases and the costs of implementation will depend on current infrastructure availability, supplier and user capabilities, and mode of service delivery (whether through the Internet or through telephone hotlines and one-stop shops). The more complicated and sophisticated the kind of services the government wants to offer, the more expensive it is.

Governments should focus on small, self-financing or outsourced projects. Because e-government projects must be financially sustainable, there must be a revenue/cost-reduction model in place from the beginning. Smaller projects with a clear revenue-generation strategy and minimal initial investment are the most likely to be sustainable over the long term. For instance, Web sites are one of the easiest and cheapest ways to achieve high impact e-government with a minimum of investment.

e-Government projects are, more often than not, long-term endeavors, requiring large capital infusion in software, hardware, infrastructure and training. A viable

financing plan should not only pay for the immediate needs to jumpstart e-government; it must also consider its long-term financing options for the sustainability of the project.

There are various business models for funding e-government projects, and the private sector plays a critical role in these. Under partnership arrangements, the private sector builds, finances and operates public infrastructure such as roads and airports, recovering costs through user charges. Various financing schemes exist—from soft and development assistance loans from donor/multilateral aid agencies to partnerships and outsourcing deals with private third party vendors under special financing schemes (e.g., the Build-Operate-Transfer or BOT scheme) that can minimize the initial cost to government.

BOT and its variants are usually the favored financing models/arrangements for government projects that require large and immediate financing from the private sector. Under BOT, the private sector designs, finances, builds, and operates the facility over the life of the contract. At the end of this period, ownership reverts to the government. A variation of this is the Build-Transfer-Operate (BTO) model, under which title transfers to the government when construction is completed. Finally, with Build-Own-Operate (BOO) arrangements, the private sector retains permanent ownership and operates the facility on contract.[25]

Cooperation, rather than competition, with the private sector can facilitate effective e-government. Government can encourage private sector investment by complementing and supporting private sector efforts rather than duplicating them. The key to e-government is to improve citizen access to service delivery, not further expand the role of government. Government should not attempt to create products and services where public-private partnerships or private service providers can adequately provide these products and services more efficiently and effectively.[26]

Box 15. E-Government Financing Through BOT: Malysia's National e-Procurement System

e-Perolehan is a US$71 million secure electronic marketplace and e-procurement service that enables the government of Malaysia to purchase goods and services over the Internet. This service, launched in July 1999, enables end-to-end transactions, from direct purchase to request for tender and request for quotation to awarding of bids. The project is to be completed in three phases over a period of 8 years, with development and nationwide roll-out within 34 months, involving 4,288 government purchasing centers, 35,000 suppliers and roughly 350,000 products.

e-Perolehan is financed through a build-operate-transfer scheme involving Commerce Dot Com Sdn. Bhd., an electronic commerce joint venture company between Puncak Semangat Sdn. Bhd. and NTT Data Corporation. Commerce Dot Com Sdn. Bhd. will undertake the total financing of the project in exchange for exclusive service operator rights to the Malaysian

supplier community. Suppliers can host their products and prices online free of charge, reducing their overhead costs. On the other hand, government benefits from a more streamlined procurement process. Other government departments throughout the country will be able to access the pricing information online. A minimum e-Perolehan transaction fee of 0.8%, and a maximum of RM9,600 (approximately US$2526.32) will be charged when a sale transpires. Through e-Perolehan, transaction costs are reduced from US$250 per transaction to an average of US$17. Commerce Dot Com Sdn. Bhd. estimates that the return on investment (ROI) will be around 15%-20% annually. It also expects to recover its investments in the third year of operation, with a revenue of RM 50-100 million (approximately US$13.158-26.316 million) annually.[27]

In addition, to spur SME development and increase competition the Malaysian Government installed in 2001 a network of telecenters nationwide to enable smaller-sized suppliers to trade online with all government procurement centers. The telecenters, located in all state and district capitals, will help non-IT savvy suppliers perform online transactions such as submitting registration applications, providing catalog details or simply getting connected to the Internet. Suppliers will save up to 50% in registration costs by using the system.[28]

How do you get the wider public to actually use e-government services?

Any sound e-government policy must consider a citizen-centered approach. This means that e-government should be an end-user or demand-driven service.

However, many citizens do not use e-government for several reasons, among these unfamiliarity with ICT, lack of access, lack of training, and concerns about privacy and security of information.

While e-government may provide ease and convenience in the delivery of public services, and offer innovative government services, none of these will prompt citizen use unless the concerns mentioned above are first addressed.

Box 16. Citizen-Centered E-Government: Singapore's eCitizen Help Centers

Singapore's eCitizen portal averages 3.1 million hits a month, a marked improvement from 200,000 hits a month when it was first launched in 1999. How did a developed country of 4 million citizens exponentially expand online public usage in less than three years' time?To ensure ubiquitous access to government e-services, Singapore established a network of eCitizen Help Centers since November 2001. These centers are equipped with Internet kiosks that give free access to the Internet to citizens. There are helpers to assist those who are not proficient with the Internet. To date, there are 24 eCitizen Help Centers strategically located near Community Development Councils (which function as a specific district's local administration handling community programs and social assistance services delegated from the ministries) and Community Centers (community clubs that organize cultural, educational and social/recreational activities to promote racial harmony and social cohesion).[29]

Why are security and protection of privacy important?[30]

Security generally refers to the protection of information system assets and control of access to information. Security policies and strategies are context- and information-specific.

Privacy refers to the right for information attributed to an individual (also called "nominal information") to be treated with an appropriate level of protection. Information privacy protection laws are often put in place to regulate this.

Protecting the privacy of citizens and assuring them that their personal information will not be compromised is critical in e-government because this is the key to user trust. Without this assurance, no one will be prompted to use e-government services.

For a more comprehensive discussion of this issue, refer to the ***e-Primer on Cyberlaws*.**

Box 17. E-Government and Privacy: Japan's National ID System

In August this year, local governments across Japan began feeding basic information on their citizens into a central database as part of a new resident registration network, despite complaints about the system from privacy advocates and refusal to participate by some municipalities.

Under the new system, everybody who lives in Japan will be issued an 11-digit identification number that can be used in many dealings with local government. It replaces a system under which people had to produce resident certificates to prove where they lived each time they dealt with local government and which required people to go through time-consuming procedures each time they moved.

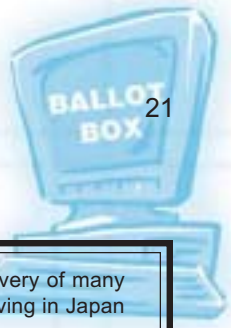
Information such as the person's name, date of birth, sex and address will be included in each person's file and all data will be stored in a centrally-run government server. The system aims to make life easier for both citizens and local municipalities and goes under the name Jumin Kihon Daicho Network, or Juki-Net for short. City halls all over Japan will have access to the database, making dealing with the government as simple as turning up with your ID number.

However, this ease of access is ringing alarm bells across Japan.

When the Juki-Net idea was first floated in 1999, the government promised that new data privacy and protection legislation would be in place by the time the system went into operation. However, some of the bills associated with this are still in the Diet, Japan's parliament. Many argue that until these laws are in place, the system should not be launched. Others contend that the problem with this system is the numbering of each individual.

Fearing that the privacy of their citizens may be at risk, some local municipalities are refusing to connect to the system.

The reaction from privacy advocates is perhaps expected but the refusal of some cities to join Juki-Net has come as an embarrassment to the government, which sees the system as a key part of its E-Japan scheme. E-Japan is an ambitious program that aims to make Japan the



world's most advanced IT nation by 2005. One of its key goals is online delivery of many government services, a service for which a centralized database of people living in Japan would be essential.

The proposed law forbids the use of the identification numbers by anyone apart from the bureaucracy and imposes duties on civil servants to keep information confidential and prevent information leakage to outside sources.

V. THE IMPORTANCE OF A NATIONAL STRATEGIC FRAMEWORK FOR E-GOVERNMENT

The implementation of e-government requires strong leadership and vision. It also requires a comprehensive strategy that is not only benchmarked on global best practices, but also sensitive to existing political and economic conditions/realities.

For e-government to become a reality, governments, in consultation with stakeholders, are advised to develop a National Strategic Framework, which articulates the government's vision, targets and milestones, technical approach and standards for e-government systems. Such a framework must address information privacy, security, maintenance, and interface standards.

However, it must be said at the outset that a national framework is not a prerequisite to any e-government project. To put this more precisely, critical e-government projects at the department/agency or local government levels should not be held up simply for lack of a national framework. Too many governments spend years and valuable resources on the process of developing a national strategy, when they could be moving forward on a few critical projects. What governments should realize is that a national strategic framework is an ongoing process and not a static document.

What are the two approaches to e-government?

There are two approaches to e-government. The first is the top-down approach. Characterized by a high degree of control by the central government, it usually includes the development of a strategy. The second is the bottom-up approach, in which individual departments and local governments independently move forward with their own projects, common standards are flexible, and overall national strategy is not so important. Singapore and China embody the top-down approach, while the US and the Philippines are closer to the bottom-up approach.

There are advantages and disadvantages to each method. The top-down approach facilitates integration. However, developing a national strategy, which the approach emphasizes, often takes years of bickering and the technology decisions tend to be poor (and therefore, costly and difficult to reverse). The bottom-up approach is less orderly and tends to some redundancy, but it also inspires innovation, resulting in a many grassroots projects.

In the end, the best approach to e-government depends on the individual country, on how its political system works, and on the level of technology competence in each individual government unit.[31]

Moreover, public awareness and support for e-government is critical for its success and its sustainability. Hence the need for stakeholder consultation in the process. Stakeholders include citizens, NGOs, businesses, various industries and special sectors, and the bureaucracy.

It is likewise important to understand global trends and to study global best practices of e-government projects and strategies. Only from studying other countries' successes and failures is a country able to effectively design its e-government strategy and avoid pitfalls that cost time, money and resources. Studying other countries' experiences will allow governments that are about to embark on developing their e-government strategies to define their priority areas based on their specific cultural contexts.

How do you build an appropriate e-government infrastructure?

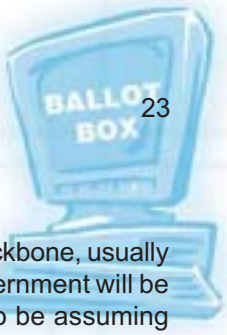
A Government Information Infrastructure (GII), which is a network that connects all government agencies, is needed to ensure that citizens enjoy the full benefits of e-government. Building a GII is a very expensive undertaking that requires cross-agency, cross-government planning. The following must be considered when building such a government backbone:

The cost implications. A financial feasibility study is necessary for such an endeavor. This cost-benefit analysis can help government decide either to open portions of the government backbone and charge access fees to telecommunications carriers or operators to sustain operations, or to altogether ride on an existing private network due to cost constraints.

The infrastructure issues. These include the country's existing infrastructure, current level of Internet penetration, telephone density, existing speed of technology change, allowances for convergence, and investment in broadband.

The benefits and risks. Having one's own backbone ensures that government communications are open and secure and operating 24 hours a day, 7 days a week and 365 days a year. However, this may mean regular funding for upgrades and maintenance of the network, and for hiring a team to support the network full time.

Some governments may decide that building their own backbone is too costly and too time-consuming. Building a backbone may take years and billions of dollars to complete, and if governments want to immediately engage in e-government, there may not be enough time or money to do so.



An alternative is to ride on an existing private telecommunications backbone, usually one run by a large telecommunications carrier. This means that government will be entrusting the security of the network to the operator, who will also be assuming the costs of regular network maintenance and technical support and the risks of possible network sabotage.

In order to minimize the threat of security risks, governments who are riding on a private backbone will have to set up the following types of security measures: firewalls, intrusion detection software, encryption, and secure networks (such as Virtual Private Networks, Wide Area Networks or Local Area Networks) for government agencies that require high levels of security, such as the armed forces.

Box 18. Government Information Infrastructure: New Korea Net-Government (NKN-G)

The New Korea Net-Government (NKN-G) was constructed to improve the efficiency of government operations and delivery of public services in South Korea. It connects central and local governments, public institutions, research organizations and universities through optical fibers.

The NKN-G, which will be completed in 2015,[32] was developed within the larger framework of the Korea National Information Infrastructure (NII), which was prompted in 1992 by the government's fear that unless an information infrastructure was built, its basic industries would not be able to compete in the global marketplace. The NII was seen as part and parcel of Korea's national economic policy, with the NKN-G allowing for simple and swift delivery of public services in support of the national government's goal of transparent, accountable, and efficient government.

The construction of the KII involved the development of an advanced information infrastructure that involved not only communications services, but also Internet services, application software, computers and operating systems, as well as information products and services. Through the KII, Korean citizens are able to access information and services and transact business 24 hours a day, 7 days a week.

What is software architecture and why is it important in e-government development?

Software architecture refers to the high-level organizational structure of a software system. A well planned, secure and flexible e-government platform is necessary for governments to meet the growing demands for services delivered via the Internet and future delivery channels. Building a common architecture for e-government requires secure and trusted interoperable systems that will adopt existing Internet and World Wide Web standards for all government agencies, at all levels. This is a pragmatic approach that reduces the costs and risks of operating information technology systems while keeping the public sector in step with the global Internet revolution. The idea of an interoperable system within one government means that agencies can easily "talk to one another"—whether by sending email or

exchanging information—without any technical problems that hinder the smooth operation of government.

What are the risks and benefits of having an "open source" framework for e-government?

"Open source" software, such as the Linux operating system, is typically developed by programmers distributing source code modifications freely over the Internet. Two critical characteristics define open source software. One, users are given access to the source code, which allows them to modify, study or augment the software's functionality. Second, any licensing agreement allows distribution of the initial software and redistribution of that software in a modified form. If users make changes to the software, they may submit these to the community of developers for possible inclusion in future versions.[33] For a more comprehensive discussion of an "open source framework", refer to the primer, ***Nets, Webs and Information Infrastructures***.

Open source software poses several advantages for e-government systems. First, the capabilities of open source software are comparable, and in some cases superior, to their more expensive commercial counterparts. Reduced licensing fees and lower hardware costs make open source software highly attractive by comparison.

Second, open source solutions ensure interoperability and access to all users, regardless of whether they are using propriety platforms or open source software, allowing for smooth interdepartmental integration. Indeed, proprietary software that wants to attract and retain customers will support integration with outside products and support global standards.

Third, properly configured open source software is as secure as proprietary systems. In fact, some users argue that systems built on software coming from a single vendor are more vulnerable to attack than systems integrating software from different sources, such as Linux. Many attribute this to the fact that open source software is the work of programmers worldwide, both paid and voluntary, who collaborate through the Internet, contributing working software code which is reviewed by their peers. This diversity makes it largely impervious to viruses in contrast to closed source software. Its openness also guarantees that open source software has been thoroughly scrutinized for security vulnerabilities.[34]

Fourth, moving to open source software can be part of a government's strategy to cut down on piracy. Under most of the recognized open source software licenses, it is perfectly acceptable to purchase a single copy of software and install it on any number of machines, or simply download it for free off the Internet.[35]

However, there are also risks in the use of open source software. The first risk is that a preference for open source software could lead to installation of

products not suitable for user needs. The cost of not meeting essential needs for e-government and other applications could be greater than the actual savings from using open source. Second, when government factors in the cost of finding support technicians and developing additional functionality in software applications, open source may actually cost more than proprietary software. Other risks associated with the use of open source software are concerns with copyright and patents, liability, security and quality. Commercial or proprietary software create a sense of safety by assigning specific rights, defining legal limits, and providing a named commercial entity that theoretically stands behind the code.[36]

Box 19. Governments Around the World Increasingly Embrace Open Source[37]

Governments work with different e-government budgets. In Europe, local, state and federal governments spent US$7.8 billion in 2000; while the Brazilian government spent a mere US$200 million that same year. This is an indication that most developing nations may not be able to afford the cost of proprietary software and why free or low-priced software hold such powerful appeal.

Some countries have explicit policies on the use of open source software, while others are in the process of proposing legislation to this effect. The former includes Germany, France, the United Kingdom, Italy, Spain, China, Singapore, Australia and Brazil.

- The European Commission's Working Group on Libre Software has released a policy document entitled "Free Software/Open Source: Information Society Opportunities for Europe" (http://eu.conecta.it/paper/#foot16), which recommends the open source route for all government-funded software research and development among its member countries.
- In the final draft of the U.K. government's policy on open-source software, published in July 2002 by the Office of Government Commerce (OGC), the government says that in all future IT developments where interoperability is an issue, it will use only products that support open standards and specifications.[38]
- The Committee for e-Government of France announced in November 2001 that the French Agency for e-Government (ATICA) would be in charge of selecting open standards to be enforced all over public administrations in order to guarantee full interoperability. [39]
- The German government announced in 2002 that it has moved to standardize using Linux and an open source model at the federal, state and communal levels. This decision was made with three key objectives: raise the level of IT security by avoiding monocultures, lower dependency on single software vendors, and increase cost savings in software and operating costs.[40]
- In China, the government has moved to install the open source Linux operating system provided by Red Flag in an attempt to avoid reliance on U.S. companies, particularly Microsoft.[41]

VI. MAKING E-GOVERNMENT HAPPEN

The five steps are:

1. Develop a vision.
2. Conduct an e-readiness assessment.

3. Identify realistic goals.
4. Get the bureaucracy to buy-in and develop a change management strategy.
5. Build public-private partnerships.

Why is developing a vision for e-government important?

Before any government embarks on a big project, it must first determine what it aims to achieve. What are the goals and objectives of e-government?

A vision for e-government should reflect the larger development goals of the country, the broader concerns and goals of society.

It is important to get the public to buy into the vision and enhance stakeholder participation in the decision-making process of government. Including citizens, businesses and civil society in this exercise increases a government's chances of success in implementing e-government.

What is an e-readiness assessment?

It is important to take a government-wide inventory of assets. After determining what it has, a government must determine the quality of what it has, as well as what it does not have. Then it must write out a shopping list of what it needs to make e-government happen.

It is important to ask the following questions when taking an inventory.

People and skills:

1. What type of ICT skills do they possess?
2. What is their level of competency?
3. Are there enough of them with the skills necessary to run an e-government project?

Hardware, software and equipment:

1. What types of ICT hardware/software does each government agency have?
2. How old or how new are the equipment?
3. What does the existing physical infrastructure of government telecommunications look like?

Laws and regulations:

1. Are the appropriate policies and regulations in place for the development and implementation of e-government?
2. What policies and regulations need to amended or changed in order to implement and facilitate e-government?

Box 20. Benchmarking E-Government Progress: The Networked Readiness Index[42]

The Networked Readiness Index (NRI) was developed by Harvard University's Center for International Development as a macro-level measurement tool to help better understand "how different national environments affect the adoption and use of ICTs."

The NRI is an aggregate index capturing broad "readiness" levels. It is composed of two main component indexes: network use and enabling factors.

Network use is defined by the extent of ICT proliferation in a certain country, measured by five variables: Internet users per 100 inhabitants, cellular mobile subscribers per 100 inhabitants, Internet users per host, percentage of computers connected to the Internet, and availability of public access to the Internet.

Four sub-indexes make up **enabling factors,** constructed to reflect not only the preconditions for high quality network use, but also the potential for future network proliferation and use in a specific country:

- Network Access (Information Infrastructure and Hardware, Software, and Support)
- Network Policy (ICT Policy, Business and Economic Environment)
- Networked Society (Networked Learning, ICT Opportunities, and Social Capital)
- Networked Economy (e-commerce, e-Government, and General Infrastructure)

In the NRI, the **e-government micro-index** is determined by government effectiveness in promoting the use of ICTs, availability of online government services, extent of government Web sites, and business Internet-based interactions with government.

What are realistic goals?

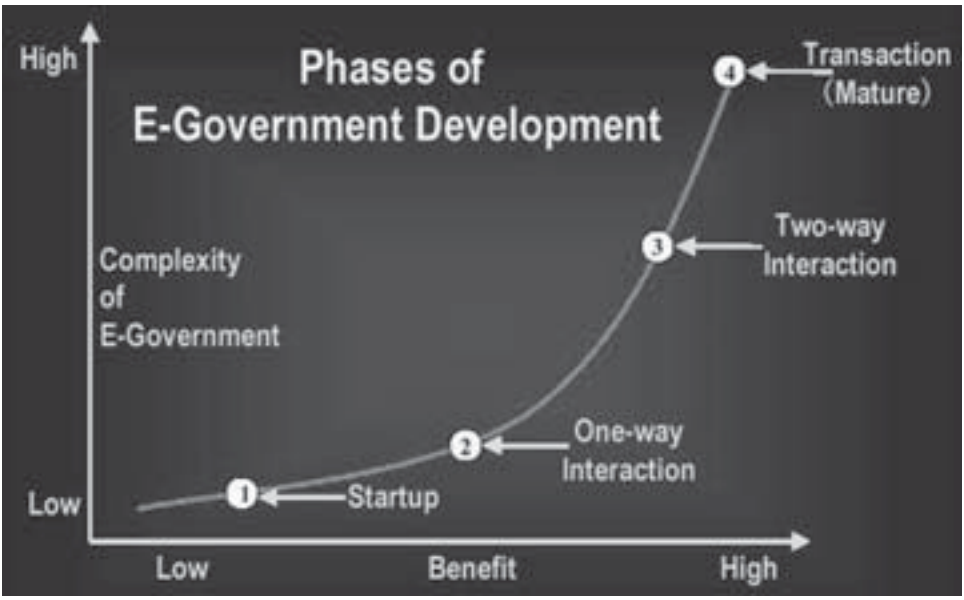
A good motto for e-government is "think big, start small and scale fast". This means the initial focus must be on projects which are mission critical applications and which are reliable and manageable rather than large and costly.

Identify which government services will be made available through e-government. Government should prioritize the services that they will initially offer online. It is best to pick those services that can, in the short-term, pay for themselves and create a margin large enough to finance other e-government projects. Services that should be prioritized are those that will improve revenue collection, improve financial management, and create a better environment for investment. These services are determined according to high volume transactions (focus on high-volume frontline government transactions), high public interface transactions and high revenue streams for government. An example would be online tax payments, renewal of licenses and permits, registration of businesses, and ordering of various data (i.e., birth and marriage certificates).

Set benchmarks to measure the success, failure or progress of an e-government project. Benchmarks act as a "reality check" for managers and policy-makers. They offer a way to measure on a regular basis whether e-government projects

are advancing, are sustainable and are delivering on what was promised. Milestones should also be established to track progress.[43]

Identify key agencies and champions in government that will take the lead in spearheading, developing and implementing the e-government projects. A committed and dedicated leader in a top management position is crucial to starting and sustaining an e-government project. Someone from the top management level is necessary because this individual must have sufficient authority to make a decision—or to overturn one, if necessary. If there are conflicts in an e-government project that require cross-jurisdictional, cross-department coordination, only someone at the level of top management is able to settle these issues. Finally, if there is resistance to changes arising from e-government, then only someone from a level high enough in management is able to motivate, encourage and if necessary, compel other workers to adjust and adapt to the changing environment.



(Reproduced with permission from Dr. Hongren Zhou, "Global Perspectives on e-Government," *The United Nations Department of Economic and Social Affairs)*

Figure 1. General Principle for e-Government Development[44]

Why is buy-in and change management important?

Participants in the initial development planning stage should include civil servants in order to give them a measure of "ownership" of the process and the product. It

is important to seek their input because then they feel that they are a part of something bigger than themselves, and this will motivate them and make them key instruments in selling the idea of e-government to other members of the bureaucracy.

Develop an information awareness campaign both within the bureaucracy and for the public. Part of any bureaucracy's resistance to change may be ascribed to lack of information and incomplete understanding of issues or of the changes that are taking place. For example, resistance may occur out of the fear that the automation of certain government processes and transactions will result in their replacement or loss of their jobs, loss of responsibility, or loss of "extra" income derived from bribes or unofficial payments. It could also arise from unfamiliarity with and fear of technology. Thus, it is important to make the bureaucracy understand the what, why and how of new projects. Government must make an effort to explain the changes, get employees involved by soliciting input, identify the pockets of resistance within these agencies or organizations and devise a plan to overcome them.

Create capacity-building measures to develop a culture of continuous learning within the bureaucracy. First, training and re-tooling of the bureaucracy to equip them for e-government is important. Through capacity-building measures, the bureaucracy is able to understand why and how ICT will revolutionize their work and their productivity. This will encourage them to learn more and know more. Capacity-building is more than just being able to use technology in day-to-day work processes, but also equipping and enabling the bureaucracy to handle information, make decisions, adapt to change and develop new competencies.

Second, it is crucial to identify trainors in e-government, as they will be charged with training others in the bureaucracy. Through them, a culture of learning will "trickle down".[45]

Third, incentives—such as promotion, awards, travel or financial rewards—should be given to those who provide leadership and excellence in the new work environment. Relatedly, government officials should be evaluated using objective performance criteria/indicators.

Why is leadership important to the success of e-government?

Strong political leadership is critical to the success of e-government because it ensures the long-term commitment of financial resources, personnel and technical expertise in the design, development and implementation of e-government projects. Strong leadership means garnering support for the projects at all levels of government, involving the public and meeting their needs and expectations, acting as a catalyst for intergovernmental collaboration, being willing to share the power and credit, establishing and meeting milestones, and maintaining a sense of urgency to complete the e-government project.

Box 21. E-Government Champions All Over The World

Chief Minister Chandrababu Naidu of Andhra Pradesh, India[46] has been a champion of e-government for the last 6 years. He spends at least an hour each day addressing some aspect of ICT or e-government. He has led in the development of a comprehensive blueprint for e-government. He has also pushed for the introduction and use of computers and e-government applications for agencies while securing multi-billion dollar funding for statewide ICT projects.

In 1991 *Prime Minister Mahathir Mohamad*[47] initiated Vision 2020, a plan aimed at "leapfrogging" Malaysia into the information age, accelerating Malaysia's progress into "developed nation status" and elevating it into a "knowledge economy" within a span of two decades. Vision 2020 was prompted by ever increasing competition with Malaysia's neighbouring countries, particularly China, over the provision of ever-cheaper commodities and manufactured goods. The information age and technology convergence presented the best opportunities for socio-economic transformation. A key to achieving this goal was the privatization of State-owned firms, such as Telekom Malaysia, and opening the market to competition. This was followed by the 1996 launch of the Multimedia Super Corridor (MSC), Malaysia's answer to Silicon Valley. The *Office of the e-Envoy in the United Kingdom*[48] was created in 1999 as part of the Prime Minister's Delivery and Reform team based in the Cabinet Office. The e-Envoy has broad responsibility over the UK's progress in the information economy, focusing primarily on e-commerce and e-government. Most notably, the e-Envoy has the main responsibility of improving the delivery of public services and achieving long term cost savings by joining-up online government services around the needs of its customers—the public. The e-Envoy is responsible for ensuring that all government services are available electronically by 2005, with key services achieving high levels of use.

The Office continues to ensure that the country, its citizens and its businesses derive maximum benefit from the knowledge economy. It works to meet the Prime Minister's target of Internet access for all who want it by 2005 and supports work across government to develop the UK as a world leader in electronic business.

Why are public-private partnerships important?

There are many reasons for developing partnerships with the private sector in developing e-government projects. First, there is the possibility of cost-sharing projects, with a possible return on investment for the private sector. Second, the private sector has invaluable expertise that can be tapped by government in the areas of customer satisfaction, work productivity gains, and personnel efficiency. Third is the possibility of technology transfer from the private to the public sector.

According to the Working Group on e-Government in the Developing World in their policy paper entitled "Roadmap for the Developing World", the private sector is an invaluable partner in e-government especially given the "possibility of creating revenue streams from e-government services or where e-government projects can be replicated for other agencies or governments."

What principles should define government's relationship with the private sector?

The Working Group has identified five key principles that are important in defining government's relationship with the private sector in ways that are mutually beneficial.[49]

Box 22. Public-Private Partnerships in E-Government: The eSeva Project in Hyderabad[50]

The state government of Andhra Pradesh in India has developed the eSeva Project (www.esevaonline.com), consisting of 28 community one-stop shops all over the state where citizens can pay taxes and utility bills, register births and deaths, and apply for drivers' licenses and passports, among other transactions with government.

The eSeva Centers typically consist of a dozen counters with computer terminals run by clerks who can complete online any of the 32 government services available. Customers are spared from going to multiple offices to complete simple citizen transactions. This service has spurred usage: currently there are 600,000 households availing themselves of this service, in a population of 6 million.

The eSeva Centers are a partnership between government and the private firms, which provide the hardware and software in return for transaction fees, while government provides the staff.The eSeva Centers have been a successful pilot project due to this partnership, providing for a business model that will sustain the operations, while at the same time allowing the government of Andhra Pradesh to meet its objectives of "transparency, accountability, and speediness" and reducing the interface between government and citizen. The presence of computer terminals prevents the solicitation of bribes and makes corruption more difficult.

Respect "return on investment" (or ROI). For companies, this primarily means revenues. For government, this means efficient, reliable, robust services (and perhaps a share of revenues), and increased legitimacy and trust from citizens. For officials, this means receiving training, as well as professional opportunities and rewards for successful adoption of new procedures, work practices and responsibilities. ROI for officials is important as this will minimize "brain drain" from officials leaving government to join the private sector.

Minimizing "brain drain" requires planning. To minimize government staff turnover, it is important to develop innovative compensation packages and professional perks as incentives. Government might also want to consider including clauses in contracts with the private sector that prevent contractors from hiring project staff away from government. Similarly, government employment contracts might prevent staff from leaving their jobs over a given period after receiving training or extra education.

Create realistic business models for e-government projects. Companies need to sell e-government projects to their management, just as government needs to "sell" these projects to the public and to government officials. The partnership can be stronger if there are people in government who understand how companies work and people in the private sector who understand the needs of government. A solid, well-designed business plan will help.

Find each partner's strengths. Both business and government need to contribute actively to the partnership. Companies can be a source of cost-sharing, technology and project management expertise. Government needs to promote the use of e-government among the public and officials, as well as create a legal framework. It

must create incentives to help local companies grow and become viable partners in e-government.

Develop formal policies on outsourcing. Government must establish clear parameters for working with the private sector. Outsourcing requires government to use and develop new types of contracts—with clear benchmarks of performance—that will not only ensure the delivery of good and services, but also measure the performance of vendors and the quality of services received. More important, the bureaucracy needs to be trained in how to negotiate and draft such contracts.

Empirical evidence recognizes the critical role of the private sector as often a partner n vitalintegral actor in a a country's ICT component in the development efforts and progress. of ICT in general.In a capital intensive industry like ICT, the government has found itself a partner in the private sector. This is also true of e-Government. Having the private sector fully participate in e-government has many advantages. It could means passing off the costs of design, development, maintenance, and risk to the implementing firm. Moreover, by using private partners, state governments can build e-governance systems at greatly reduced costs , for start-up and ongoing operations. At the same time, more services can be delivered on a fee-for-service basis, with the private partner being paid from the fee revenues. Thus, e-government can be a tool for moving certain government services from tax-based financing to user fees, where only those actually using the service pay for it.[51]

How does the digital divide affect the successful implementation of e-government?

The digital divide refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communications technologies (ICTs) and to their use of the Internet for a wide variety of activities.

As governance becomes more dependent on public information made available on the Internet, and interaction with government is increased as a result of the proliferation of ICTs and the availability of the Internet, those who do not have access to ICTs are increasingly marginalized in public debate. Despite its democratizing potential, ICT can thus create a digital divide that results not only in the marginalization of those individuals who do not have access to or the skill to use the technology, but also in reducing the ability of citizens to engage government in public debate. Notably, this affects individuals or sectors in society that are already marginalized to begin with, such as women, the poor, micro and small enterprises, and the physically challenged.

How can e-government help bridge the digital divide?

e-Government can make possible the delivery of basic human services—services that are more pressing and more primary in developing countries than giving access to ICT to marginalized communities and sectors, and access to the political process.

ICT is a powerful tool for improving the quality and efficiency of government services, such as health and education, especially in places where resources are scarce and geography is an obstacle for communication.

Policy-makers should keep in mind that to bridge the digital divide through e-government, they must make e-government relevant to citizens. The latter's motivation for using ICT should stem from their having their needs addressed.

Advances in technology have seen the proliferation of non-PC devices that provide access to the Web. These are simple terminals that run a browser and take all applications from the Web. They are ideal in places with heavy public traffic and in easily accessible places like schools, municipal halls and public libraries. Information can be easily downloaded and public services may be delivered through these terminals. Much simpler devices that are quickly proliferating are touch-screen Web kiosks.[52]

Box 23. Bridging The Digital Divide Through E-Government: Community-Owned Rural Internet Kiosks[53]

The Gyandoot project in Central India was launched on January 1, 2000 with the installation of a low cost rural Intranet covering 20 village information kiosks in five blocks of the district. Later, more kiosks were set up. The entire network of 31 kiosks covers 311 Panchayats (village committees), over 600 villages, and a population of around half a million (nearly 50% of the entire district).

User fees are charged at the kiosks for the services provided. Local rural youth act as entrepreneurs, running these information kiosks along commercial lines.

The following services are now offered at the kiosks:

- Agriculture Produce Auction Centers Rates
- Copies of Land Records
- On-line Registration of Applications
- On-line Public Grievance Redress
- Village auction site · Transparency in government

Other services offered at the kiosks are online matrimonial advertisements, information regarding government programs, a forum for school children to ask questions, ask an expert, and e-mail (free for information on child labor, child marriage, illegal possession of land belonging to Scheduled Tribes, etc.).

To enhance the economic viability of the kiosks, they are given licenses to vend government judicial stamps, and powers to write petitions have been delegated to them. In addition, a public awareness campaign has been launched in the district to promote the kiosks.

Agricultural produce rates, land records and grievance services are the most popular features of the kiosks, accounting for 95% of their use. A few examples can underscore the benefits of the kiosks to the rural population:

- A complaint costing Rs. 10 brought drinking water to a tribal hamlet of 39 households.
- A cow was sold at an auction for 3,000 rupees.
- 256 milch animals were vaccinated in one day in response to an urgent e-mail alert.
- Access to market rates leads to better deals.
- There is greater computer literacy.

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