E-Government: Enabling Asia-Pacific Governments and Citizens to do Public Business Differently?

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1. Introduction

E-government is the use of information and communication technology (ICT) to promote more efficient and cost-effective government, facilitate more convenient government services, allow greater public access to information, and make government more accountable to citizens. E-government applications vary widely in the diverse Asia-Pacific region, which ranges in terms of population size from the People's Republic of China (PRC) to Nauru, and in terms of per capita GDP from Singapore to Nepal.

E-government is still only in its initial phase in most countries, and has played so far only a minor role in supporting public sector reform and poverty reduction. This paper begins with a brief review of the experience so far of e-government in supporting public sector reform and poverty reduction in other regions. It then gives some examples of adoption of e-government in the Asia-Pacific region, to see the extent to which the benefits observed in other regions have materialized here. It points out some reasons why the pace has been slower in the public sector than in the private sector (in Asia-Pacific and in general). It then gives examples of six stages of e-government, and reviews both the benefits and challenges of each stage, highlighting different processes of adoption in different types of jurisdictions. There follows a discussion of three cross-cutting challenges effecting all stages. Since a brief article such as this must be highly selective, the concluding section will sketch out directions for further research.

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1 The views expressed in this paper are the author’s own, and do not represent those of ADB. Earlier versions were published as Wescott (2001a) and Wescott, Pizarro, and Schiavo-Campo (2001). This and other URLs cited were all accessed on 7 September, 2001.

2 Some define e-government more restrictively, making it the public sector equivalent of e-commerce, see World Bank (2001). Others take a broader approach; see Economist. 2000. This article takes the broader approach, to reflect the many benefits that can result from other ICT applications in the public sector. Major English dictionaries do not yet list the word “e-government” or the phrase “electronic government.”
2. Principles Emerging from Global Experience

Analysts identify a number of potential benefits and pitfalls of adopting e-government. Heeks (2001) gives many examples of managerial reforms supported by ICT, including improving effectiveness and efficiency of personnel management, parts procurement, accounting, health care, and unemployment benefits claims. There are also examples of ICT supporting more effective state and local government, (e.g., Dow Jones Interactive, 2001; Brown, 2001), although Salazar (2001), Ranerup (2001), Benjamin (1998), and West (2001) point out that expected benefits are often blocked by managerial and technical difficulties and insufficient attention to the information needs of communities. Kaboolian (1998) and Silcock (2001) are among the many arguing that the opportunities presented by ICT for improved administration, among other factors, are leading to a global convergence on a standard reform model; others such as Bellamy and Taylor (1998) argue that ICT is more likely to reinforce than to change embedded information and communication capabilities in governance institutions. Berman and Tettey (2001) maintain that in African bureaucratic settings with limited technical capacity, authoritarian decision making, and strong patron-client relations, ICT may fail to produce the hoped-for results, while another application can succeed in such an environment.

Dutton (1996) suggests that ICT-enabled reforms can yield many benefits, including lower administrative costs, faster and more accurate response to requests and queries (outside normal office hours as well), direct access to transaction or customer accounts held in different parts of government, and the ability to harvest more data from operational systems, thus increasing the quality of feedback to managers and policymakers. However, these systems can only deliver on their promise if different offices and people are willing to share information (Landsbergen and Wolken, 2001). Bardach (1998) found in a study of innovation awards given to government agencies in the United States, that a common characteristic was that the agencies used technology in innovative ways; for example, allowing citizens to handle common legal matters on-line. Gosling (1997) gives examples of the use of “smart cards” to allow access to an increasing range of government services—a kind of electronic one-stop shop. These could prevent fraud or misuse of public services and benefits, resulting in increased public confidence in welfare and taxation services.

Overall, several lessons can be drawn from global experience with e-government to date. First, ICT is a tool, potentially powerful yet essentially no different from a photocopier or a car, in the sense that user needs and requirements must come first and dictate whether and how the ICT tool should be used. For certain functions, pencil and paper, or a telephone,

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A survey of 1,800 United States agencies (West, 2000) finds that e-government has fallen short of its potential.
or a face-to-face meeting, or a visit to the library is far more effective than computers or the Internet. This obvious point must be stressed because governments, consultants, or aid provider agencies often encourage computerizing everything in sight. Indeed, it could be argued that ICT innovation is now largely supply- and marketing-driven rather than dictated by the needs and requirements of the users. Thus, as for any tool, it is essential to assess a proposed ICT change realistically and compare the costs with the actual benefits expected from it.

Second, the ICT “techie” and the “public manager” should not work in isolation from one another. Improvements in public-sector effectiveness stem largely from better rules and procedures in the sector concerned. To apply advanced ICT to obsolete or inefficient rules and processes means in effect to computerize inefficiency. Doing the wrong thing faster is not progress. On the other hand, the absence of relevant ICT knowledge risks either costly mistakes or missed opportunities for dramatic service improvements.

Third, ICT cannot substitute for good public management and internal controls. When Algeria’s state-owned banks introduced a computerized system, the result was not to improve the banking system, but to make more visible the inadequate accounting system and the frequency of manual errors (Korac-Kakabadse, Kouzmin, and Korac-Kakabadse, 2000). In this way, ICT can contribute to structural reforms, but is only part of the process.

Fourth, there are major risks of possible alteration or loss of records during migration from manual to electronic systems, and the chance that essential functions won’t be performed while new systems experience teething problems. To minimize these risks, organizations can, among other things, maintain manual backup until the integrity of the electronic system is assured, ensure the capture/creation of reliable records to serve as evidence of accountable acts and transactions, safeguard the integrity and authenticity of all records within the regime for as long as they are required, and provide for the accessibility and updating of records (Pederson, 1998).

Fifth, the introduction of ICT can reduce corruption by better enforcing rules, reducing discretion of officials, and increasing transparency. Indeed, Heeks (1998) points out that officials may resist new ICT systems for fear of losing corrupt incomes. Yet, while ICT eliminates many opportunities for corruption for those who do not fully understand the new technology, it opens up new corruption vistas for those who understand the new systems well enough to manipulate them. In a sense, ICT permits an intergenerational shift in corruption and rent seeking.

Sixth, ICT can do little on its own to alleviate poverty. A well-known champion of ICT, Ted Turner, has stated, “... the poor don’t have medicines, they’re dying, and they don’t have electricity. Bringing more computers to developing countries is not going to solve these problems.”

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Finally, even if one finds that ICT has helped managerial reforms to take hold, many of the shortcomings of such reforms are not affected. For example, Jones (2000) points out that it is not possible to measure precisely many of the outputs and outcomes of public services. Indicators may be vague and subjective, or based on nonuniform units of measurement, or influenced by external factors outside the control of the agency. It may be hard to find conclusive evidence that one department is performing better than another, since the outputs and outcomes produced are not readily comparable with one another (Wescott, 2001b). Laudon and Laudon (1998) note that e-government systems can address such problems in certain situations, for example, by helping to compile and analyze large databases of social security performance data. Yet Deleon and Green (2001) point out that even when conclusive evidence is provided to decision makers, it may be ignored due to the crush of everyday events.

3. Information and Communication Technology in the Asia-Pacific Region: The Six Stages of E-Government

The above caveats notwithstanding, there can be no doubt of e-government’s potential to promote accountability, transparency, and participation; improve the efficiency and effectiveness of public-sector operations; widen access to public services; and disseminate information to the public and get feedback from relevant stakeholders and service users. Unfortunately, ICT’s wonderful potential has hardly been tapped in most Asian and Pacific countries. Some jurisdictions, such as Singapore and Hong Kong, China are quite advanced in e-government, but they are the exceptions. In this section, we run through some of the uses of e-governance in the region. To organize the analysis, we consider the uses of e-governance in six possible stages, namely

- setting up an e-mail system and internal network,
- enabling interorganizational and public access to information,
- allowing two-way communication,
- allowing exchange of value,
- promoting digital democracy, and
- allowing joined-up government.

It is important to realize that not all governments or agencies will or should progress through all six stages. Nevertheless, the schema is a useful one for organizing our thinking about the development of e-government.

a. Stage 1: Setting up an e-mail system and internal network

Most governments in the region begin by setting up systems focusing mainly on internal processes, and the first networked application in many agencies typically supports basic administrative functions such as payroll and accounts. Adopting such systems can deliver important benefits, but can also carry considerable risks. On the benefit side, ICT can allow a significant reduction of information handling costs and compliance costs, with the sav-
ings coming from reduced labor costs and speeded-up and more accurate processing of tasks. For example, a personnel information system can routinely prepare separation documents for staff past the normal retirement age, helping to avoid the situation prevalent in many Asian and Pacific governments of staff working and being paid for many years past this age. A debt management system can also routinely bring up payments due, thus helping to avoid penalty fees and other problems.

Another type of stage-one system is e-mail. Although e-mail can reach outside of organizations via the Internet, most government organizations in the region use it mainly for internal messages. E-mail has many advantages over other systems and can greatly improve information sharing, coordination, and feedback. For example, e-mail can lead to an increase in lateral (and bottom-up) communication, because of its informality and because it does not need to be sent up and back down through the hierarchy and can be dispatched directly to the person concerned. However, the very ease of use also carries with it the risk of miscommunication, and sensitive and critical messages are still best given over the phone or in person (E-mail politics.com, 2001).

Different examples of internal systems are the Republic of Korea Supreme Prosecutor’s Office and the Seoul District Prosecutor’s Office, which in 2000 established computer crime investigation departments located in local prosecutors’ offices nationwide. The innovation is aimed at effectively addressing offenses that are becoming more and more technological and tactical, and also at assisting investigation of corruption with modern computer techniques (Paek, 2000). In Pakistan, the entire tax department is being restructured, and ICT systems are being introduced, with the purpose of reducing contact between tax collectors and taxpayers (Maqbool, 2000).

A more complex type of stage-one system integrates all departments and functions across an organization with a single computer system, which can serve the particular needs of all the different departments. Such “enterprise resource planning” systems can help integrate financial data and standardize human resource information. These systems also enable more data (e.g., expense items) to be shared between different departments, thereby reducing the number of times data has to be collected (Koch, Slater, and Baatz, undated). For example, the Ministry of Finance and Planning of the Government of Sri Lanka is presently designing an integrated system along the lines envisioned by Parry (1997) and Parry and Harding (2001) in Figure 10.1.5

The ministry has a vision of rebuilding itself into a high-performing organization. It starts with the important advantage that recruitment has not been politicized, as in some other ministries and public agencies in Sri Lanka. The vision is in part determined by the permanent secretary’s previous job in the Central Bank, which is about to implement a reorganization that will include a 50-percent cutback in staff. The ministry plans to set up a new

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5 Grateful acknowledgement is given for permission to use Figure 1 from a presentation prepared by the Deloitte & Touche Consulting Group, Singapore, for a workshop in March 1999 sponsored by the Asia-Pacific Development Information Program, United Nations Development Programme.
implementation unit, which will be run according to private business practice, and will
work with each government department to help it reorganize around the new systems
being designed, thus avoiding the risks and expense of customizing software (as described
later). It is envisioned that over the long term, the unit will grow larger and the ministry
smaller. This model has been followed successfully in other countries by finance ministries
that have moved to integrated financial management systems as a way to offer competitive
compensation and an attractive working environment.

These systems may be integrated with the Internet (e-mail, messaging), electronic commerce,
and workflow, and present opportunities to the public sector in the areas of financial
management (treasury/cash management), human resource management (including pay-
roll, records management and benefits administration), and facilities/resource management
(including procurement, forecasting, and materials management). Although these systems
were initially proprietary and client/server-based, the latest versions are increasingly Internet-
based, allowing information to be accessed by anyone who needs it, and reducing training
and other costs.

b. Stage 2: Enabling interorganizational and public access to information

The next stage is to enable better interorganizational and public access to information, and
for this, the first step for an organization often involves developing systems that help to
manage workflow. Workflow is a general term applied to the ability to move images, files,
documents, etc., from workstation to workstation, using specific business rules for review,
authorization, data entry, data editing, and task assignment. Business processes that are accomplished by moving paper can now be managed electronically, from the very beginning to final disposition, and the delays normally associated with hard-copy documents and manual processing can be minimized with workflow systems.

Promising ICT applications in Asian and Pacific public sector workflow systems include, among others, claims processing and management; bid and proposal routing and tracking; handling of customer service and complaints; grant and scholarship award, approval, and processing; and human resource recruitment and hiring. For example, the National Tax Service of the Republic of Korea recently introduced its Tax Integrated System. This is a computerized system that accumulates all tax-related information; as a result, unfair influence of tax officials in selecting taxpayers to be audited has been considerably reduced. In addition, manual assessment of 5 million cases on a yearly basis has been replaced by computer-assisted assessment, making face-to-face meetings between tax officials and taxpayers unnecessary (Han, 2000).

Governments are also enabling interorganizational and public access to information through the Internet. The most common form for this is a website with information organized by ministries or departments, rather than by services needed by citizens. Some governments go even further. For example, in a bid to make transactions more transparent to the public, the Philippine Department of Budget and Management (DBM) has started posting on the Internet monthly details of all accounts payable and major budgetary releases for each government agency, along with the names of the contractors and the amount of payment they are supposed to receive. Through this scheme, private contractors can check the veracity of department officials’ pronouncements against the DBM budgetary releases. The DBM also posts its budget on the Internet after its passage by Congress and approval by the President (Republic of the Philippines, 2000).

In another example, the PRC Ministry of Agriculture had to cut its staff by 45 percent in 1997, forcing it to rethink its business processes and its use of ICT. The ministry now uses Intranets to prepare, review, approve, and publish documents online, thus reducing the demands on staff, and making the steps more transparent. The ministry’s “infocenter” also pulls together large-scale databases on farm statistics. Furthermore, information kiosks have been introduced as a pilot in one province. Local governments are gathering and making available price data and other information at these kiosks to ensure that farmers are able to get the best price for their crops. The ministry is hoping to expand the kiosks to other provinces (Kalathil, 2001b).

7 Another much-publicized success is the Open System of the Seoul Metropolitan Government, said to have increased transparency and reduced delays in obtaining licenses and permits. See Im and Jung (2001).
c. Stage 3: Allowing two-way communication

The next stage allows two-way communication between the government and the public, using ICT. The first step toward achieving this is to post one or more telephone/fax numbers/e-mail addresses on a website, and encourage the public to send in messages. There are many possibilities for initiating this communication process. For example, the Beijing city government's website allows visitors to select from categories such as government services, laws and regulations, a news center, links to other government departments, and an e-mail section. The latter asks citizens to “make suggestions about the capital's development, or criticize work you are dissatisfied with”; clicking on the appropriate link generates an e-mail addressed to the relevant office. Alternatively, users can join an electronic question-and-answer forum on issues such as how to move one's official residence to Beijing in order to work there (the response lists specific regulations and procedures [Kalathil, 2001a]).

ICT can facilitate communication even if the citizens are not directly using ICT. For example, the Computer-aided Administration of Registration Department (CARD) is one of the major success stories of e-government in the Indian state of Andhra Pradesh. About 214 registration offices have been completely computerized since April 1998, leading to registration of deeds in one hour and the issuance of encumbrance/valuation certificates in 15 minutes. This is an enormous improvement on the previous property valuation system, which, due to its opacity and time-consuming procedures like manual copying, indexing, and storage of paper documents, forced citizens to hire middlemen. As of February 2000, about 700,000 documents had been registered under CARD; there has also been a modest increase in revenue after factoring out the normal upward trend caused by a growing economy (World Bank, 2000).

In the Dhar district of Madhya Pradesh, another Indian state, citizens can get basic information and assistance on a range of issues such as, for example, broken hand pumps, through an Intranet kiosk linked to the district headquarters. Village committees contract management of the kiosks to local businesspersons, who recover costs through fees for services, including obtaining and filing official forms, publishing classified advertisements, and searching through a database for the right match for a prospective bride/groom. In addition, 34 high schools have kiosks linking them to local educational contents on the Intranet (Gyandoot, 2001).

E-government has also been successful in the Pacific island countries, although a realistic approach must be suited to their small size and limited administrative capacity. For example, a United Nations electronic meeting in January 1998 linked governments and NGOs in 10 Pacific island countries, and apart from a productive exchange, there was also a saving of about US$25,000 in travel costs and of travel time by busy officials. In another example, health workers with questions get quick, low-cost help over an electronic network (Ward and Spennemann, 2000; Soures, 1998).  

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These examples point out important differences in the pattern of adoption up to this stage between middle- to upper-income governments on the one hand, and low-income governments on the other. The former are replacing existing processes with online service delivery to citizens, while the latter are building completely new communication links between citizens and governments where little or nothing existed before. (For example, in Hong Kong, China, an estimated 65 percent of amenable government services are available online, and 90 percent are expected to be enabled by the end of 2003 [Office of the e-Envoy, 2000].) Countries from both groups are also providing public access computers for citizens.

d. Stage 4: Allowing exchange of value

In the next stage, ICT supports the development of more flexible and convenient ways for citizens to conduct business with the government. The Singapore Government has developed online, round-the-clock facilities for transacting business such as welfare claims, tax assessments, visa applications, and license renewals. There are also many instances in the region of government-to-business transactions that take place on such systems. For example, the Philippine Customs Bureau has developed an online system for customs payments, processing of clearance documents, and releasing of shipments from customs control. A computer program called “Selectivity” categorizes shipments into high-, medium-, or low-risk transactions so that they can be coursed through appropriate examination procedures. All this has led to fast and secure transmission of payment details, and the time for reconciling of payments collected by banks and remittances to the National Treasury has been reduced from four months to a few days. These other systems also minimize the chance of fraud and corruption arising from contact between business people, officials, and messengers (Parayno, 1999). The Thai Customs Department will eliminate all manual processing of import and export documentation in late 2001, thus increasing transparency and efficiency, and reducing opportunities for corruption (Bangkok Post, 2001); before, 26 separate documents were required for processing each export consignment.

Another good example is the Republic of Korea where, from 2000 onwards, the purchase of commodities and all accounting transactions conducted between the Public Procurement Service (a central government organization responsible for procuring commodities and arranging contracts for construction projects involving government facilities), public organizations, and private supply firms has been via electronic data interchange (EDI). Starting from 2001, all other tasks that can be are being executed through the EDI system as well. In addition, cyber shopping is in operation for the procurement of office supplies, cultural products, and recycled goods, and there are plans to expand this. Computerization of contract data is underway, as is the use of automation, to simplify procedures and thus reduce the opportunities for officers to contact customers for illegal purposes. To help prevent prospective contractors from submitting false documents, databases are being set

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up for the prequalification and cost-accounting processes, and for storing information on supply firms; documents from contractors (including performance records) will be obtained using computer networks of relevant organizations instead of directly from contractors (Kang, 2000).

It is expected that Asian and Pacific governments will increasingly follow the example of other regions and set up electronic production networks, where, for example, information requests, license renewals, tax payments, and e-procurement are outsourced to public and private specialist organizations (Jones, 2001). For instance, the Hong Kong, China government web portal is entirely financed and maintained by a private company, thereby reducing the cost and risk to the Government (Office of the e-Envoy, 2000). Governments are also expected to follow the lead of the private sector in creating partnerships with suppliers and customers, together with whom they can find ways to cut costs, improve quality, and share the benefits.

e. Stage 5: Promoting digital democracy

There are at least two important sets of ICT applications that can potentially support participatory and democratic processes in the region: applications that empower civil society organizations, and those that allow citizens to vote and otherwise express opinions over the Internet. ICT can also support self-organizing networks, which are said to be increasingly important in governing industrial democracies. In this view, government is only one of many interdependent actors in a policy network, and greater attention to network approaches can restore trust and confidence in policymaking (Kooiman, 1993; Kickert, Kling, and Koppejan, 1997). Open, bottom-up, participatory networks have shown their strength in the private sector in several cases of computer software development (Apache server, Linux, Perl, Oxford English Dictionary, etc.) and implementation (Napster and Gnutella distributed file-sharing systems). These build on notions of swarm intelligence, where a set of (mobile) agents can communicate directly or indirectly with each other by acting on their local environment and collectively carry out distributed problem solving (Bonabeau, Dorigo, and Theraulaz, 1999).

Organization for Economic Cooperation and Development (OECD) governments are in the early stages of exploring the use of ICT in supporting such interactive networks with citizens and other stakeholders, by providing information and opportunities for feedback via websites and e-mail. Some OECD governments have policy targets and guidelines for this, although the quantity, quality, ranges, and frequency of updating of information provided varies greatly. The majority of OECD governments are still at the pilot phase of e-consultation; some have launched their own electronic discussion groups (EDGs), while others participate in EDGs hosted by others. In a more extensive form of stakeholder involvement, a few OECD governments have tried to use ICT to support partnerships in which citizens actively shape policy options, but where government retains the responsibility for final decisions. In a related type of application, many OECD countries are using

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9 For an example of a leading provider, see www.ezgov.com.
Internet tools such as websites and e-mail lists for political campaigning, (O E C D, 2001a) and some have set up password-protected websites through which citizens can vote (Election.com, 2000). The broader use of ICT by citizens is said to have various effects related to political participation and social capital, with some pushing towards moderate idealism, inclusiveness, and consensus, while others push in opposite directions (D r a k e, 2001). Since very few of these countries have made an effort to evaluate the quality of the information they provide, or the impact of e-consultation or e-participation, it is too early to say whether these new systems are having a significant impact on citizen access (O E C D, 2001b).

In the Asian and Pacific region, civil society organizations have greatly increased their influence in recent years by using ICT. For example, an enterprising Bangladeshi approached the Grameen Bank, substituting a cellular phone for a cow as the object of business. A woman could borrow, say $200 from the Bank, purchase a handset and sell telephone services by going door to door to villagers, thereby making a living and thus paying off her loan. In two years' time, she managed to establish a partnership called Grameen Phone Limited and run a very successful commercial operation providing cellular services in both urban and rural Bangladesh (Friedman, 2000).10

In another example, in 2000, a Philippine nongovernment organization (N G O) gathered information on the alleged ownership of mansions by then President Joseph Estrada's mistresses from public-access computers in the Securities and Exchange Commission and anonymous tips received by e-mail, text messages, and phone calls. When traditional media outlets initially refused to run the story, the findings were publicized on the N G O's website (C oronel, 2000). Partly as a result of these findings, and of large demonstrations in M anila organized with the help of text messaging, websites, and e-mail lists, the President was forced to leave office. Interested civil society organizations also use ICT to combine forces, raise funds, and challenge international corporations and agencies. These challengers are diverse coalitions of N G O s, trade unions, extremists from the left and the right, and nationalists, and are organized in a loose, leaderless network, made possible by ICT, from which it is nearly impossible to identify a body to work out a negotiated solution (I n s t i t u t e of International Economics, 2001). This makes the work of these organizations more difficult, but also helps prevent the premature adoption of standards of so-called "best practice" that might instead be practices that protect the interests of particular organizations (J ones, 2001). At the same time, international bureaucracies can also use ICT to avoid troublesome protests by N G O s at their meetings. For example, the World Bank's T h i r d Annual Conference on Development Economics in Europe in 2001 had originally been planned to take place in Barcelona, Spain, but protesters threatened to disrupt it, so the meeting went on line. A more sinister use of ICT help terrorist groups in the region gain supporters, raise money and coordinate with like-minded organizations.11

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10 This project was partially financed by the Asian Development Bank through a $16.7 million loan and $1.6 m. equity investment in 1997, ref. BAN 7143/1603.

11 Re: “Tamils tigers” (Sri Lanka) see http://www.eelamweb.com/; on the “People’s War” (Nepal), see http://www.maoist.org/ which has a Spanish language section of its site to facilitate interaction with like-minded organizations in Peru.
Some commentators have argued that the spread of ICT in authoritarian countries could empower civil society by increasing awareness of government corruption and of the success of democratic forces in other countries in improving participation, accountability, and protection of human rights. There are examples from the PRC, one of which was discussed earlier, on how ICT is being used to improve government efficiency and effectiveness, and to better inform and seek feedback from citizens. Indeed, Cheung (1997) points out that ICT-enabled managerial reforms in Hong Kong, China in the 1990s were motivated, in part, by the desire of the colonial administration to implant an effective bureaucracy to counter antidemocratic practices in the soon-to-be Special Administrative Region. However, so far there is little evidence in countries like the PRC and Cuba that ICT has played an important role in facilitating democratic policy reform (Drake, Kalathil, and Boas, 2000).

In the long term, digital democracy will come to some countries of the region in another form. Citizens will have the opportunity to benefit from ICT-enabled voting sites such as those in the US (Election.com, 2000) and under consideration in Japan (Japan Times, 2001). However, the pattern of adoption will often be very different from that in developed countries. In the last Philippine election, for example, the Election Commission placed useful voter information, such as voting booth locations and voting hours, on its website, but since most voters don't have Internet access, local radio stations offered as a service to take questions from citizens by telephone and search the website on their behalf.

**f. Stage 6: Allowing joined-up government**

In the sixth and last stage of e-government, there is both vertical and horizontal integration of service delivery. A web portal or smart card integrates information and services from various government agencies to help citizens and other stakeholders get seamless service without needing to know about the responsible government agency. Thus, users can obtain services across different geographic levels of government within the same functional area, and across different functions. As an example of the latter, a citizen could submit a change of address on her driving license, and the change would be automatically registered with the health, elections, and tax departments, thus avoiding the need for multiple filings (Layne and Lee, 2001). Citizens could also use these portals to make payments and other transactions, obtain a checklist of things to bring when applying for services in person, find answers to frequently asked questions and engage the services of relevant commercial enterprises. In the region, both Singapore and Hong Kong, China have state-of-the-art web portals (Government of Singapore, E-citizen, 2001), and in a recent worldwide study of e-government maturity, Singapore was ranked 2nd and Hong Kong 10th out of 22 countries surveyed (Accenture, 2001). The government of Taipei, China has also implemented a “one-window” service, using both Intranet and Internet for tax administration, public

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health and safety, and e-commerce (Kuo, 2001). Several Asian countries also have smart cards that help citizens get seamless health care service (Osborne, 2000).

An example in a less-developed setting is in the Indian state of Andhra Pradesh. Several projects connected to the state’s portal have been launched for better service delivery to the citizens: the already mentioned CARD, Twin Cities Network And Services, Fully Automated Services of Transport department, Multi Purpose Household Survey, Andhra Pradesh State Wide Area Network, and the Secretariat Knowledge and Information Management Systems. Connectivity has already been established and is operational between Hyderabad and all district headquarters, plus two other major towns. This connectivity will be taken to the mandal (district) and village levels next year and is proposed to be optimally used by government departments and agencies to translate e-governance into reality. A video-conferencing facility between Hyderabad and 25 other cities/towns has been operational since January 1999 and will eventually be extended to all major departments (Government of Andhra Pradesh, 2001).13

4. Cross-cutting Issues Concerning ICT in the Asian and Pacific Region

E-government is expanding in the Asian and Pacific region, but has far to go to catch up with some industrialized countries, and also with applications in a number of leading businesses in the region itself. In this section we will look at how the implementation of ICT can be accelerated in the region and what are the lessons learned so far, i.e., how three cross-cutting problems that have a bearing on the speed and character of developments over the next few years can be avoided.

a. How to accelerate the implementation of ICT

There are many reasons why Asian and Pacific governments have fallen behind both private businesses and OECD governments in adopting ICT systems. These include

• higher costs of ICT introduction due to the scale of public organizations;
• the inertia of existing options and habits;
• the paper trail required for approval processing;
• concerns about security;
• confidentiality of information;
• obsolete regulations and laws;
• lack of understanding and computer skills;
• concern by authoritarian regimes over increased information flow and citizen participation;
• difficulties of carrying out organizational change; and
• the nature of public sector financing and procurement practices.

The last two of these will be discussed in more detail.

To introduce ICT effectively, first of all, the ways organizations do business and the ways people do their jobs need to change. Such organizational changes may be more difficult in the public sector than in the private sector (OECD, 2001a). A typical sequence in an ICT project may start out by purchasing an off-the-shelf software package for, say, a new accounting or document management system. Then the agency discovers that the software does not support the way they currently do business. For example, the package may require inter- and intra-agency record sharing, which is not presently happening, or current practice may call for a paper trail for approval processing, or over-the-counter paper form filing, which the package won’t support. Public agencies may have additional requirements that a package doesn’t support, such as complex regulations and laws, and public sector officials might also have a lack of understanding and computer skills, and therefore may not comprehend, for example, that a computer firewall can serve much the same purpose as a padlock on a file cabinet.

At this point, two things can be done: change the way business is done to accommodate the software, which may mean taking some risks and shaking up important people’s roles and responsibilities; or modifying the software to fit the way business is done, which will slow down the project, introduce dangerous bugs into the system, and make upgrading the software to the vendor’s next release difficult, as customizations will need to be torn apart and rewritten to fit with the new version. Private companies are more likely to take the first route, while public organizations more likely to take the second, even though choosing the second route leads to delays, higher software costs and risks, and all too often a decision to abandon a project after large expenditures of time and money (Koch, Slater, and Baatz, undated).

Another important reason for relatively slow ICT adoption by governments concerns the nature of public sector financing and procurement practices. To ensure accountability, government agencies need to go through a lengthy process of securing funds, seeking competitive tenders, and awarding contracts. To prevent undue influence by any one official, many decisions along the way are made by committees, which can lead to compromises and an unclear focus. In addition, when acquisitions are finally made, the technology has often moved far beyond where it was when the project was first conceived; thus governments often install outdated systems. They also pay excessive prices, since new products may have come into the market during this period that can deliver the same ICT power for much less money. The difference between the outdated tender price and the market price is also an arbitrage opportunity for corrupt officials.

"Computers and the Internet will be in every school, polytechnic, college, and university by the year 2003."

E-Government: Supporting Public Sector Reform and Poverty Reduction
b. The lessons learned so far... and what to do to avoid problems

i. ICT and corruption in the region

It is frequently assumed that the introduction of a more advanced ICT system reduces opportunities for corruption. The reality is more complex. While ICT does sometimes facilitate combating corruption, it can also, for many reasons, have no effect at all or even provide for new corruption opportunities.

First, the introduction of ICT skills often underpins managerial reforms by helping to better measure performance, facilitate outsourcing and contestability of public functions, reduce transaction costs, better enforce rules, reduce discretion, and increase transparency. However, computerization may also lead to an “upskilling” of corruption by providing new sources of corrupt income for ICT professionals and removing opportunities from those without ICT skills.

Second, with computer systems regarded as all-powerful and omniscient, some staff may lose confidence and cease their corrupt behavior, while corrupt computer professionals may find that computerized systems in fact increase their corrupt income by reducing competition. Computerization of records also often closes down access to some staff members, but opens up access to others who operate the ICT systems. Depending on the relative integrity of these staff, corruption may increase or decrease. Data quality and the myth of computer omnipotence may also mean that some managers fail to institute controls on computerized systems, because they assume that ICT removes the opportunities for corruption. This is probably the most dangerous basis for corruption, since a lack of controls will be clearly evident to those in a position to take advantage of it (Heeks, 1998). Finally, although ICT advances, like other technological changes, can improve the productivity potential of government organizations, Olson (2000) points out that only the managers and staff of these organizations know the actual improvement in productivity. It is in the collective interest of managers that their superiors underestimate the productive potential of such advances, so that their organizations may then receive more resources than they need, which can then be used to increase the income or leisure of management or staff. This form of corruption was widely practiced in the centrally planned economies.

Corruption is rooted in the cultural, political, and economic circumstances of those involved. ICT does little to affect these root causes, and has a potential role, but one that is limited and forms only a part of a much larger picture: at the national level, political will, ethical watchdog agencies, proper incentives for honest officials, and effective punishment for the corrupt ones (Quah, 2000); at the agency level, combating corruption is most effective when ethical values are part of the core business of an organization, supporting other factors like leadership and customer service to maximize stakeholder interests (Larmour and Wolanin, 2001).
ii. ICT national and regional strategies

To ensure that diverse ICT capabilities are effectively harnessed, coherent strategies that seek to develop a user charges policy and provision for subsidized services must be established at the national and regional levels. Appropriate legislation and regulations are also required in areas such as editorial control over networked information, public access to information, privacy and data protection, and intellectual property rights. An ICT strategy can make a clear distinction between the providers of ICT infrastructure and the suppliers of information and services, and may also specify how ICT coordination is achieved (e.g., through a central agency or steering committee) and ICT resources are divided among departments. It can also assign responsibility for updating information and responding to citizen requests.

An example of a national strategy is the “information technology for all Indians by 2008” policy, which was initiated by the Prime Minister of India in 1998 in a bid to make India an ICT superpower and one of the world’s largest generators and exporters of software within 10 years. As a first step, the high-powered National Task Force on Information Technology and Software Development was set up in May 1998. India’s national information technology policy entails the creation of a government-wide information infrastructure that will simplify service delivery, reduce duplication, and improve the level and speed of service to the public. This will also provide the public (businesses and individuals) with the opportunity to send and receive, through electronic terminals, information that currently passes between them and the government on paper. The policy requires the government to encourage the establishment of Internet service providers to make available access to even the most remote locations in the country. The government must also collaborate with the private sector to put in place secure electronic fund transfer systems, which are critical to the successful implementation of electronic commerce, and direct service delivery to citizens. The policy has measurable, time-bound targets for, inter alia, increasing ICT awareness, education, access, and government budget allocations (Government of India, 2001).

To increase ICT accessibility, computers and the Internet will be made available in every school, polytechnic, college, and university, and in all public hospitals in the country, by the year 2003. Likewise, government processes and procedures will be reengineered to bring about several benefits like transparency at work, reduced constraints, increased efficiency and productivity, and reduced cost of service delivery. Projects will be integrated across departments to provide a single point of contact for the electronic delivery of services to citizens, and maximum transparency in governance will be ensured through citizens’ charters for every government department and public body, which will be available over the Internet.

In another national example, the PRC launched a “Government Online” project in early 1999 to get most government agencies online. The project is initially encouraging agencies to post online information on their functions, duties, organizational structure, and admini-
Another approach is to develop regional ICT strategies. The concern of the Association of Southeast Asian Nations (ASEAN) about ICT is demonstrated by its recently created e-ASEAN Task Force, which will develop a broad and comprehensive action plan for an ASEAN e-space and will create competencies within ASEAN to compete in the global information economy (ASEAN, 2001). The task force will also establish an ASEAN information infrastructure, for which it will examine the physical, legal, logistical, social, and economic infrastructure needed to create the basis for ASEAN’s competitiveness in the 21st century.

Similarly, the Asia Pacific Economic Cooperation (APEC) forum recently launched a wide-ranging action agenda for the new economy, which outlines programs that will use advances in ICT to boost productivity, stimulate growth, and extend services to the community (APEC, 2001). The action agenda includes ways to promote the right policy environment and build capacity for a framework to strengthen markets, e-commerce, knowledge, and skills development, and provide affordable and more efficient access to communications and the Internet. APEC supports the development of distance learning capacity in the region and of ICT as a core competency for teaching and learning to prepare young people to meet global challenges. It also strongly supports the development of ICT to enable networks to extend health and medical services to a wider community and to address basic health issues.

iii. Convergence versus path-dependence

What is the evidence that systems of governance in the region are moving toward convergence, and that ICT has a role in this? The record is mixed. On the one hand, some elements, such as rules and procedures on public financial management, do seem to be converging, as a result of agreements reached with international organizations and competitive pressure to attract foreign investors with predictable regulations and taxes. Such agreements may constitute signing on to global standards of multilateral organizations such as the International Monetary Fund, the World Trade Organization, and the OECD, or they may come from regional organizations (Pacific Islands Forum Secretariat, 1997a, 1997b). ICT that supports accounting, tax administration, and banking regulation would help to support this convergence, but these and other reforms will be principally driven by other factors. For example, many governments in the region are implementing new freedom-of-information legislation, and ICT can help to make this information accessible to citizens (Bhatia and Dreze, 1998), but there is no evidence that ICT has been a factor in this apparent convergence of similar laws in the region. Moreover, as Hood (2000) has ob-

14 See also websites of Jouhou Koukai Shimin Center (Freedom of Information Citizen Center), Tokyo, Japan <http://www.jkcc.gr.jp/> and Office of the Official Information Commission, Bangkok Thailand http://www.oic.thaigov.go.th/eng/engmain.asp.
served, the convergence taking place does not extend to bureaucratic cultures, or features that link administration to citizens or politics. For instance, Japanese local government administrations tend to have much smaller workforces relative to population, but more extensive responsibilities and larger budgets, as compared to their counterparts in Western, developed countries. This is because of historical factors such as social structure and traditions of voluntarism and contracting out, and are not due to managerial factors such as greater workforce efficiency or more extensive use of ICT (Naschold and Daley, 1999).

Perhaps the clearest area of convergence is in the area of NGO activism, where groups are using ICT to gather information, coordinate the work of organizations in the region with global counterparts, and increase the effectiveness of challenges to governments. For example, in the Philippine case of the uncovering of the Estrada mansions, ICT helped in improving standards of investigative reporting, although the process was less straightforward than it might have been in Western countries. This pattern does not apply to every country; Kalathil's (2001a) findings on the PRC argue that ICT is unlikely to promote democratic policy reform by itself, although it could facilitate it once such reforms came into force as a result of other factors.

6. Conclusions

No observation on e-government can apply to all countries in such a diverse region. Yet most Asia-Pacific governments are only in the initial phases of adopting ICT to improve financial management information and reporting, streamline the delivery of government services, enhance communication with the citizenry, and serve as a catalyst for empowering citizens to interact with the government. As they move forward, they should always fit the new technology to user requirements and the real objectives of the activity; see to it that the new technology goes hand in hand with improved rules and processes; recognize that ICT cannot substitute for good public management and internal controls, nor will it eliminate corruption in the absence of other measures; protect data and systems integrity; and aim at an integrated strategy and avoid a piecemeal approach that can fit specific needs but makes for a chaotic and even dangerous system.

As e-government becomes more widespread in the region, one can expect a progression through the six stages discussed previously. However, not all governments or agencies will reach all the stages, and there will be much variety within a government, as various agencies progress through the stages at different times. Nevertheless, despite these various challenges and the different processes of adoption in different types of jurisdictions, countries in the region are achieving some of the same benefits reported by the OECD countries that have adopted such systems.

E-government practices tend to reflect existing structures and ongoing reform processes in each country in terms of quality of administration, citizen participation, and extent of corruption. As in developed countries, e-government has not been a primary driver for reform, although it has helped support reform processes. However, this could be only an
interim finding, due to the early stage of adoption. For example, successful network management applications of ICT by citizens (including expatriates from regional countries) and NGOs has largely left out governments, preferring to confront them in the media or on the streets. Perhaps more inclusive networks could achieve greater results, and greater in-depth empirical research is also required.

On another point, several reasons were cited for slow adoption of ICT by governments in the region. More work is needed to better understand these and other factors and how to address them. Particular areas of the Asian and Pacific experience that haven’t received enough attention here or elsewhere include the policy dialogue leading up to the adoption of e-government; the need for standards of data interchange and network security; the role of central units to push through e-government initiatives; the need for new laws on e-commerce, intellectual property protection, and privacy; and the low-risk appetite of governments. A study of the latter could look at the main risks of ICT adoption, estimate the likelihood of each one’s occurring, propose mitigating measures, and gauge the effect of all this on ICT adoption.

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