e-Development - Place of Citizen Rights

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Abstract

The paper focuses on both the positive and negative implications of e-government for sustainable development. It identifies strategies to maximize the contribution of e-government in achieving durable developmental goals. The paper starts by conceptualizing and contextualizing the concepts of development, the digital divide, e-development and e-government. The so-called digital divide is conceptualized as a skills and resource access gap between digitally literate and digitally illiterate classes in society. It is argued that this divide is not new. Just the digital element is new. The digital divide is in many respects the great equalizer between developing and developed nations. It aggravates traditional functional illiteracy, but technology as the basis of the digital divide can also facilitate the achievement of functional literacy if it is used optimally. It is further argued that technology is just another tool like other policy instruments that can be employed constructively or abused by government in trying to achieve its goals. It can be both an obstructive and a facilitative factor in development, and its application must therefore be done in circumspect ways in order to maximize success with developmental efforts.

Traditional methods of service delivery in developing countries have frequently proved to be ineffective in achieving developmental objectives. Governments in developing countries are increasingly realizing that, whether they want to do so or not, they may have no other choice but to attempt the difficult policy route of migrating to electronic means of service delivery (e-government) if they are serious in their attempts to achieve sustainable developmental outcomes (ie migrating to e-development) . Different case studies are used to illustrate the viability and sustainability of the emerging e-development paradigm, and also the technological determinism driving this global phenomenon. The paper concludes that the new paradigms of e-government and e-development are currently still taking shape, evolving and consolidating into different patterns that will probably become clearer in future. It also concludes that no government will be able to avoid migrating soon to the new global technological application standards that are rapidly emerging, if they want to participate in mainstream international activities

Definition of e-Development

A national e-development strategy, or e-strategy, is a guide to policies, investments and implementation mechanisms on how ICT should be developed and used to achieve development objectives of the whole economy. It focuses the actions and resources of various stakeholders on national ICT-enabled development priorities. It explains the interdependencies and phasing among these actions and investments over the medium term. It specifies the multi-sectoral activities to be covered in a programmatic way and how the government, private sector, civic society and academia will be involved in such activities. It maps how institutions will collaborate and share responsibilities for ICT enabled development. E-development is composed of key and interdependent elements: an enabling policy and institutional environment, an affordable and competitive information infrastructure, a dynamic and competitive ICT industry, wide ICT literacy and education, strategic use of ICT to improve governance and public service delivery, broad use of ICT to extend access to education and transform learning systems, and incentives to promote the effective use of ICT for private sector development, financial systems modernization and civil society empowerment (Figure below). Collectively, e-development pillars cover the package of policies, investments and institutions that enables an economy to leverage ICT for overall economic and social development. At the heart of e-development are e-leaders and e-leadership institutions—individuals, networks and institutions that develop visions of knowledge

society, set policies and priorities, forge national consensus on reforms, and coordinate and synergize among e-development components.

Conceptual clarifications of Development

The Development is used here as an outcome of governmental interventions in society that succeeds in empowering people to consider feasible options in their lives and to make informed choices for the future. These choices relate to any action, from satisfying basic needs to consolidating middle class lifestyles to eventually being able to fulfill higher level personal and abstract needs and desires. Three different consecutive levels of development that build on each other are therefore conceptualized for purposes of this paper:

- **Developmental level 1: Satisfying basic needs above the indigent line:** food, water, shelter, clothes & personal safety.
- **Developmental level 2: Consolidation of a middle class life style:** Sanitation, health services, jobs, churches, recreation, schools, culture, shops, life cycle services.
- **Developmental level 3: Fulfilling higher level personal and abstract needs and desires**: the opportunity to live an enriched life according to one's own preferred alternative lifestyle. This higher order developmental level includes specialized **individual** interests and preferences (eg travel music, culture, sport, hobbies, etc).

Governments in developing countries constantly struggle to achieve and then to maintain the first two levels of development, while the focus of governments in more developed countries is on achieving and maintaining over time the third and highest order of development. In both cases, the traditional service delivery mechanisms og governments seem to be increasingly ineffective in achieving these objectives.

E-government is conceptualized here as a new approach to public services delivery in the form of internal public management, external service delivery and democratic interaction with society, primarily through electronic means (eg UN-DPADM 2003:3).

E-development is used as an umbrella term comprising the deliberate developmental application of e-government. It can therefore be conceptualized as the mainstream integration of electronic tools with other developmental tools in internal public management, external service delivery and democratic interaction processes between government and society, to empower individuals and communities to make informed choices among a range of feasible alternative courses of action, and in that way to enable them to develop their full potential in life in a more effective and sustainable way.

The **digital divide** is conceptualized here as a skills and resource access gap between digitally literate and digitally illiterate classes in society and among societies (see also Warschauer 2002. Chen & Wellman 2003:2, Bridges.org 2004:4 and Fink & Kenny 2004:1 also identify various usage and impact gaps in the literature and professional practices concerned across the globe). It is further not a new phenomenon. Just the digital element of the various divides is new. It further does not only exist between fully developed and developing states, but exists even within highly developed countries (bridges.org 2004). *"There is not one digital divide; there are many divides"* (Chen & Wellman 2003:2). It has created a new class of illiterate citizens in every society. Many elderly people in all societies are electronically functionally illiterate while younger people (even in developing countries) are becoming increasingly electronically literate. This phenomenon has significant implications for government and development.

Policy failure and policy success

The public policy process can be compared to a journey that is to be undertaken: a clear destination exists (policy objective), but different potential routes and vehicles to reach that destination can be taken (policy means and implementation strategies). Each alternative route or vehicle has its own advantages and disadvantages. Each alternative route or vehicle might therefore be the most suitable or appropriate choice, depending on its level of compliance with the dominant criteria or preferences of the intended user (eg costs, scenic attractions, time, comfort, etc).

Traditional methods of service delivery in especially poorer developing countries have, however, frequently proved to be largely ineffective in achieving middle class developmental objectives and even basic needs in the short, medium and longer term.

The main reasons for this state of affairs are multi-dimensional, including:

- seriously low levels of education among the population (compared with more developed nations), leading to
- a lack of higher level professional capacity in the labor market,
- vulnerability to external economic exploitation,
- an existential economy with a lack of creativity,
- an accompanying lack of social cohesion and commitment,
- a fragmented political culture prone to exploitation by inexperienced rent-seeking governing elites, resulting in
- bad policy design,
- bad policy implementation strategies, and
- a waste or abuse of scarce resources (rather than the lack of resources in many cases).

It is normally clear what needs to be done to maintain services and facilities and to meet new needs, but the knowledge and experience how to do it in the most cost-effective and cost-efficient way, and the necessary leadership commitments to do it, are frequently lacking. A growing realization is emerging that the main culprits in current policy failures in developing countries are in most cases bad management of existing resources that are to a large extent within the control of decision-makers (eg budget under-spending, waste, corruption, inefficiency, ineffectiveness, low productivity, etc). The most serious incidences of policy failure occur as a result of a lack of:

- Visionary ideas, moral and ethical commitment, integrity and leadership;
- Strategic management prioritization, co-ordination and integration;
- Financial discipline and control,
- Operational project management approaches, and
- Optimal use of technology to maximize efficient and effective outcomes.

In summary:
Policy failure in developing countries normally occurs as a result of:

- a lack of internal, domestic capacity for realizing good governance outcomes, rather than systematic foreign exploitation;
- policy implementation failure rather than policy design failure, and
- Bad resource utilization rather than a lack of resources.

The most obvious solution to policy failure is committed, appropriate education and training programmers in these fields and effective monitoring and follow-up programmers to ensure transformation progress to inculcate and then consolidate good governance lifestyles in policy processes. In these educational processes it is crucial to convey the message that good governance outcomes do not occur spontaneously or automatically but are the results of dedicated, hard work over a long period!

The transformational role of technology in the Field of agricultural and industrial society.
Developmental successes in industrial nations are generally attributed to successful implementation of integrated and synchronized policy strategies in various policy sectors, leading to sustainable developmental outcomes (Weaver, Rock & Kusterer 1997, Cloete 2000). One of the contributing factors in this regard, in addition to the crucial empowering role of education in increasing literacy levels and providing alternative possibilities for policy-related choices, is the significant role that technology had played in modernizing and transforming outdated practices and processes in those societies. Mechanization, however, has not only had positive consequences for society. In the industrial nations it increased unemployment, brought about impersonal, mass-based social lifestyles that alienated individuals from their families and from each other. It also turned out to be the primary cause of global pollution, with detrimental effects on personal and environmental health. Despite these and other negative consequences, where mechanization had been applied successfully, it made a significant contribution to a spectacular rise in the quality of life and general empowerment of people, and its negative fall-out can be effectively regulated if governments apply appropriate policy remedies to those problems.

The transformational role of electronic technologies in 21st century knowledge society
Exactly the same arguments as those put forward about the role of mechanisation in industrial development, are applicable to the current impact of electronic technologies in society. The application of electronic technologies is a

recent phenomenon. The first mass-produced personal computer only materialised in the early 1980's in industrial countries. By the start of the 21st century, however, it was already clear that electronic technologies are following a parallel development path to mechanisation a century earlier. There was a dramatic increase in the use of knowledge and information technologies in society over the last decade, and a general international trend towards a closer integration of information technology with virtually every policy sector imaginable (even to extent of placing electronic bar codes into refuse bags to determine contents and ownership, for charging user fees). The increase in the application of information technologies in government is accompanied by strong dissenting perspectives about its utility in different settings, and about the alleged linear path of technological innovation (Kakabadse, Kakabadse & Kouzmin 2003).

Where appropriately introduced in lesser developed countries, IT has also had a beneficial impact on work processes by automating and transforming these processes into more efficient and effective processes and the resulting products into more competitive outputs. This is true both for the private sector and for public and voluntary sector service delivery systems both in lesser and more developed countries (eg Splettstoesser & Kimaro 2000 about the successful application of decision support technologies in Tanzania, one of the poorest countries in Africa, and Wagner, Cheung & Fion Lee 2003 about illustrations of successful knowledge management projects in developing countries). Despite these successes, many cases of failure have also been recorded (egov4dev 2003). Many of the reasons for these failures also correspond to the above-mentioned policy failure scapegoats (DPADM 2003:6).

Because it is such a recent phenomenon, the negative consequences of technological modernization are only now slowly starting to emerge. The biggest negative impact so far seems to be potential personal health problems ranging from detrimental physical symptoms as a result of sitting still in a cramped position for long hours or using the digital mouse for long periods, to alleged electro-magnetic radiation by computer display screens and cell phones to a similar psychological alienation of individuals from others that is the long term result of the mechanized (Fordist) society. At societal level the substantial expenses to effectively digitizing work processes have severe opportunity costs especially in developing countries, and can obstruct the provision of other basic services and facilities to poor communities.

A general acceptance of this point of view has so far been delayed and complicated by:

- Insufficient appreciation of the utility of such tools;
- open suspicion of and even deliberate resistance against the increased use of electronic tools in public management, linked to
- the complexity of digitising existing programmes, and
- low levels of computer literacy,
- Serious resource constraints in the face of different priorities, especially in developing countries.

The use of electronic management tools can, though, provide important benefits to public management outcomes, including:

- the education of public officials in information technology, and through this,
- achieving more systematic management design, implementation and assessment of public programmes,
- facilitating the development of a culture of transparent performance,
- capacity-building for more effective and efficient service delivery, and
- Fulfilling better the governance functions of the state (Cloete 2003).

Impact of the digital divide on development

As explained at the beginning, the so-called digital divide is conceptualized as a skills and resource access gap between digitally literate and digitally illiterate classes in society. Global data patterns indicate that younger people in all societies are more digitally literate than older people, although the lack of access to technology obviously aggravates the digital illiteracy in developing countries much more than in more developed countries. The digital divide aggravates the traditional functional illiteracy ratios that are normally regarded as the literacy divide between lesser and more developed nations. This leads many observers to despair about the potential to close this developmental gap between the haves and the have-nots.

Technology-assisted policy success and failure
The application of electronic technologies must be done in circumspect ways in order to maximize success with developmental efforts (OECD 2003a). If used appropriately, technology can facilitate development by increasing literacy (and paradoxically assist in bridging the so-called digital divide), as well as providing more effective access than traditional service delivery systems to resources for poor communities. These resources include easier and cheaper access to information from government, communication and interaction with government and conclusion of transactions with government, through electronic channels, integrated services and roaming services (see also Digital Opportunity Initiative 2001). This meets the requirements of e-development.

The technological and information revolutions are sweeping the world and are fast becoming universal standards, as indicated above (eg DPADM 2003, UNPAN World Pub Sector Report). Globalization increasingly enforces these electronic standards in different ways on all nation states that participate in international activities (eg the speed with which e-mail and cellular phones have replaced the landline telephone and fax machine as preferred communication instrument even in poor communities, and the growing significance of the internet as marketing tool). Technology is becoming cheaper and more powerful at the same time, which makes it affordable even in poor countries.

Technology can, however, also be a serious impediment to development. Costs can sometimes be prohibitive, while low levels of general literacy and a lack of appropriate levels of technological infrastructure, expertise, commitment and resources, have also proved to be significant obstacles to technological development, especially in the developing world (bridges.org 2004:7-8). The combined effect of still-developing technologies, a lack of a critical mass of technological infrastructure and the insufficient appreciation of the utility of such instruments, referred to above, resulted in a situation that is not at the moment fully conducive to widespread adoption of electronic management assessment support tools in governments across the worlds, even in countries regarded as leading e-government advocates (Cloete & Needham 2002). The situation in developing countries is even worse

Regional e-Developments

I**ndia** is a case in point. India did not start with the abstract concept of knowledge for development or building a knowledge economy. Its entry point was building a global niche in ICT services, then expanding this to ICT-enabled services, extending connectivity to rural areas, and most recently, to delivering public information and services electronically. Did India raise its aspirations to build a knowledge economy, and to leverage its ICT competencies to transform its innovation networks and systems, its education and learning systems, its governance and public services, and its collaboration and partnerships with the rest of the world. In essence, India moved from a successful but narrow focus on ICT as an industry, towards the broader concept of e-development as enabler for overall economic and social transformation. Similarly, many other countries have been using ICT as an entry point for transforming their whole economy: Finland, Ireland, Korea, Malaysia, Singapore, China (including Hong Kong and Taiwan), and Costa Rica, to mention a few. Both poor and middle income countries now view e-development as a unifying and inspiring vision for their development, as well as a pragmatic and tangible tool for managing knowledge, building networks and modernizing transactions across their whole economies.

National e-Governance Plan

Over the years, a large number of initiatives have been undertaken by various State Governments and Central Ministries to usher in an era of e-Government. Sustained efforts have been made at multiple levels to improve the delivery of public services and simplify the process of accessing them.

e-Governance in India has steadily evolved from computerization of Government Departments to initiatives that encapsulate the finer points of Governance, such as citizen centricity, service orientation and transparency. Lessons from previous e-Governance initiatives have played an important role in shaping the progressive e-Governance strategy of the country. Due cognizance has been taken of the notion that to speed up e-Governance implementation across the various arms of Government at National, State, and Local levels, a programme approach needs to be adopted, guided by common vision and strategy. This approach has the potential of enabling huge savings in costs through sharing of core and support infrastructure, enabling interoperability through standards, and of presenting a seamless view of Government to citizens.

The National e-Governance Plan (NeGP), takes a holistic view of e-Governance initiatives across the country, integrating them into a collective vision, a shared cause. Around this idea, a massive countrywide infrastructure

reaching down to the remotest of villages is evolving, and large-scale digitization of records is taking place to enable easy, reliable access over the internet. The ultimate objective is to bring public services closer home to citizens, as articulated in the Vision Statement of NeGP.

Pakistan's E-Government Programme

Pakistan launched E-Government programme in 2005 with the aim to deliver public service information, efficiently, effectively and economically to the citizens. Pakistan's E-Government programme included GIS for Agriculture, Natural Resources & Urban Property of Pakistan, Mapping and Database of National Cartographic Data. The programme also included establishment of Land Records Management Information System. Apparently, none of these geospatial applications can be developed with single data set. Therefore, multiple data sets are required that are possessed by different organizations due to varying mandates for data collection. Hence, the need to have a cross organizational platform such as NSDI for exchanging, sharing and reusing spatial as well as non-spatial information is inevitable. Moreover, NSDIs are built on Internet technology, which provides an ideal distributed environment for widespread sharing, exchanging, integration and dissemination of spatial as well as no spatial data. Therefore, it is good pportunity to make use of internet technology as access network provided by the E-Government programme of Pakistan for the development of NSDI in the country.

During the last five years many western programmes and ideas have been adopted in Pakistan including Electronic Government (E-Government) program. The Government of Pakistan (GOP) announced its E-Government programme in 2005. A dedicated rganization named Electronic Government Directorate (EGD) was established as coordinating body under the administrative control of Ministry of Information Technology (MIT). Though a number of E-Government definitions exist in literature however, it is important to know how E-Government was conceptualized in Pakistan. According to Pakistan's E-Government strategy and Plan, "E-Government is defined as the usage of Information and Communication Technologies (ICT) to support processes within the government as well as for the delivery of services to its consumers, including other organizations, citizens as well as businesses" (p.7).

The goals set for the programme were:
• Increase efficiency and effectiveness of the government
• Increase transparency and accountability in decision making
• Enhance delivery of public services to citizens efficiently and cost effectively

GOP planned implementation of its E-Government programme in following four phases (p.8). These phases match to Baum, C., & Maio, A.D. (2000) presented model. Informational: This is the first phase and includes the provision of information alone. The quality, usability and currency of the content determine the value of this phase of E-Government. This is the least complex of all the phases. Interactive: In this phase, E-Government provides some degree of online interaction. For instance, citizens can enter complaints or job applications online. This phase does not include secure transactions such as financial or other transactions that require a high degree of authorization and audit. Transactional: Provides secure transactions with high level of authorization. Citizens can now apply online for passports, NICs and make payments online. This requires a high degree of security and basic infrastructure allowing for secure transactions. Collaborative: In this phase citizens and businesses collaborate with the government on processes, projects, etc. This is especially important for businesses working together with the government on projects, for public-private partnerships, NGOs, citizen forums, etc. This phase requires a collaboration infrastructure, which brings together suppliers, consumers and the government in a network with the object of increasing value creation. (Source: Pakistan's E-Government Strategy)

The idea of **e-Sri Lanka** originated in the private sector, primarily in the National Chamber of Commerce and among local software industry leaders. Inspired by the success of the Indian software export industry over the previous decade, the private sector proposed building a US$1 billion, export-focused software industry in five years. Then Sri Lanka's minister of science and technology took the proposal to the president of the World Bank. These were unusual steps prompted by the lack of a contact point for e-development within the Bank's mainstream lending operations. Through a series of advisory services and operational missions, the Bank worked closely with all stakeholders of the country. In the process, the initial idea was broadened to encompass all elements of e-development and to reflect the views key stakeholders and interests of the whole economy. Initial skepticism in the Bank provided a challenge to the task team leader to build a strong team, with staff drawn from across the Bank—which proved critical in building ownership and alliances within the institution—as well as consultants spanning

different areas of expertise. The overall vision, the strong client interest, the initial resistance within the Bank —all this helped cement bonds among the new team members. It also helped motivate and focus the team's efforts in mobilizing counterparts in Sri Lanka's private sector, the country's Political leadership and leading authorities in the emerging field of ICT. Despite diverse backgrounds and disciplines, the local Sri Lankan team too was shaped into a highly motivated group, both by the challenges it faced and by the window of opportunity created by the political interest in an energizing vision. E-Sri Lanka also offered a unique opportunity to move Bank assistance in this area to a higher plane and to integrate best practices in leveraging ICT to accelerate national development, boost competitiveness, and alleviate information poverty. The next phase was to build local capacity and to manage political pressures and changing expectations. The Bank's team lacked full-time counterparts and a focal point for e-leadership and strategic coordination in Sri Lanka. The first priority was to develop local capacity by establishing an ICT agency that embodied public-private partnership. The low level of ICT awareness and literacy among parliamentarians made gaining parliamentary approval for creating a new agency a challenge, but the effort eventually succeeded. Since, the design of the e-Sri Lanka program survived several political shifts by adapting to emerging conditions, learning quickly from experience and remaining focused on the vision of e-development. Experience during this period showed how important are demonstration projects, coalition building, and strategic communications in building the "authorizing environment"—the mandate of an organization and its political and legal support. The e-Sri Lanka program was ultimately approved for financing by the Bank's board in August 2004. Much has been learned from implementation since then.

E-Sri Lanka consists of six component programs

ICT policy, leadership, and institutional development—a policy development and capacity building program to create an enabling environment for the knowledge economy and develop the local institutional capacity to lead and implement an ambitious ICT program.

ICT human resource development and industry promotion—an innovation fund to build ICT human resource capacity and create jobs through a dynamic ICT sector, foreign and local investment in the sector, and diffusion of ICT among small and medium-size enterprises.

Regional telecommunications network development—a smart least-cost subsidy scheme to extend the information infrastructure and connectivity to serve poor and rural areas.

Tele-center development—smart subsidy and entrepreneurial development schemes to develop affordable access to ICT tools, ICT literacy, local content, e-government services, and e-commerce applications—utilizing the new information infrastructure and e-government applications.

Reengineering government—a coherent investment program in ICT applications, information sharing, knowledge management, process reengineering, service innovation and human resources to deliver faster, more efficient, and more transparent government services to all citizens and businesses.

E-society—an innovation fund to mobilize local knowledge, digitize and share local content, and use ICT for social development and grassroots participation, toward promoting social capital, mutual understanding, equitable access to knowledge and empowerment of the poor. The overall design of the e-Sri Lanka program captures many synergies among these components. The newly created national ICT Agency is designed, authorized and equipped to realize these synergies and to partner with other stakeholders to create an ecosystem for capturing future synergies and leveraging ICT for development. Monitoring and evaluation

Systems are also designed to promote coordination across the whole program and maximize learning and adaptation throughout implementation.

E-governance in Nepal

Information and Communication Technology (ICT) has become the most efficient means of communication and information dissemination. It has made an immense and complex impact on economies, societies, and cultures. The rapid advancement of ICT in recent years has provided enormous benefits to any given society that has embraced its use. The advent of e-governance may be regarded as one of the end results. E-governance is defined as the application of ICT in establishing interaction between the different levels of government, business, and the citizenry. In addition, e-governance utilizes ICT to simplify and improve the democratic and business aspects of a government. The automation of internal government activities reduces costs while improving Response time and interaction with citizens and other government agencies reduces overhead expenditure. The main objective of e-governance is to provide a friendly, affordable, and efficient interface between a government and its people. It is about ensuring reater transparency, accountability and objectivity, resulting in cost-effective and high-quality public service. E-governance is also about providing a single window for government services at all levels. It is related to

producing a streamlined framework for vernment offices and organizations. Lastly, it seeks to develop ICT tools and media, which will help citizens and businesses, keep pace with new opportunities in today's knowledge economy. Nepal faces many challenges in implementing e-governance. These include political issues, inadequate human resources, the lack of a legal framework, little public awareness about ICT and poor ICT infrastructure across the nation. Due to the lack of integrated planning, ICT resources available in government offices are underutilized. There is also a strong opposition from government officials, as they believe ICT is a threat to job security. Hence, to discuss these issues and the ways to address them, the ADBI, the UNAPCICT and the NITC joined hands to organize a high level seminar on e-governance. The organizers brought 35 high-level government officials together in one venue, so that they could formulate practical actions plans for the implementation of e-governance, initially within the ministries or agencies they represent, and eventually throughout the entire government system. The goal of the seminar was to achieve a consensus on major e-governance program issues, through expert consultation and group discussions.

The specific objectives are:

- To critically analyze the advantages and disadvantages of e-governance;
- To identify the major issues of e-governance;
- To reach a consensus on these issues;
- To prioritize the types of e-governance services; and
- To draft action plans for introducing e-governance programs.

e-Developments in Bangladesh

e-Government is a serious strategic consideration at the policy-making level in the context of making the government more transparent, efficient, and service-oriented. The National ICT Policy of 2002 gives due importance to the issue of e-Government, declaring that "the Government shall use ICT systems within the public administration to improve efficiency, reduce wastage of resources, enhance planning and raise the quality of services." The policy further states that "the Government shall implement ICT systems to provide nation-wide coverage and access by any citizen to the government databases and administrative systems which can be used to extend public services to the remotest corner."

Among the many promises of the digital revolution, it has the potential to strengthen democracy and make governments more responsive to the needs of their citizens. E-government is the use of information and communications technologies (ICT) to transform government by making it more accessible, effective and accountable. E-government includes:

- Providing greater access to government information;
- Promoting civic engagement by enabling the public to interact with government officials;
- Making government more accountable by making its operations more transparent and thus reducing the opportunities for corruption; and
- Providing development opportunities, especially benefiting rural and traditionally underserved communities.

Hence, e-government will be a powerful tool to help all types of economies (developed, developing and in transition) to bring the benefits of the emerging global information society to the largest possible part of their respective populations. These are the reasons why e-government, after spreading through developed market economies, has now become a priority in an increasing number of developing countries. Around the world, significant resources are being mobilized, as well as additional human resources and energies, to develop, implement and promote the use of e-government. However, since such resources remain scarce in regard to the immense tasks of socioeconomic development and poverty alleviation, it is essential that they be used wisely and with a maximum chance of success. Benefiting from other countries' experiences, understanding their successes and failures, and adapting that knowledge to the characteristics of one's socio-economic environment will be vital to the future of e-government in Bangladesh.

The objective of this paper is to offer concrete guidance to government officials and others, presenting a comprehensive index of e-government models and resources for Bangladesh, focused on success stories in Bangladesh and other developing world. This paper presents the ingredients of a roadmap– for policymakers considering electronic government in Bangladesh as a mechanism for governance reform.

e-Government Initiatives

Some of the major e-government projects in Bangladesh are briefly outlined below. This is by no means a comprehensive list.

Finance Division under Ministry of Finance: The Finance Division under Ministry of Finance has developed customized software for budget planning, sensitivity analysis, impact analysis, financial projections and preparation of various reports.

National Board of Revenue: The main function of this department is to earn revenue on behalf of the government of Bangladesh. It facilitates the trade community through services such as Counter Bailing. It provides facilitation to the government for negotiation of bilateral treaty. And it also provides support to the Ministry of Finance in preparing the annual budget for the government of Bangladesh. The NBR is one of the most advanced users of ICTs in the government, with several sophisticated software applications managing their routine internal work. Some of the software applications used in the Customs Department are: ASYCUDA++ (Automated System for Customs Data), BOND**,** DADO**,** VALUATION**,** and CIMS (Customer Information Management System). Some of the software applications used in the Tax Department are TAN System, TCAN (Tax Collection Account No)**,** and CCS (Challan Collection System). Some of the software applications used in the Tax Department are VIS (VAT Information System) and VMIS (VAT Management Information System).

Stock Exchanges: Both Dhaka and Chittagong Stock Exchange are highly computerized and networked, allowing citizens to trade with much more ease than before. Such as enhanced system of stock trading has contributed greatly to reduce corruption, to save time of businessmen, and to improve market responses.

Ministry of Science and ICT: Creating web-sites containing information about various ministries

Roads and Highways Department under Ministry of Communication: The e-Government initiative of Road and Highways Department (RHD) involved the launch of a website that provides a variety of information, data and notices to users. Website users include the private sector, related government offices, ordinary citizens, and donor agencies. The website features the following services:

- Personalized access
- Information about the Department of Roads and Highways
- Information about zonal operations of the Department
- Contractor database
- Schedule of rates database
- Tender database
- Project Monitoring System

Bangladesh Planning Commission: Creating software for interfacing between development and revenue budget. The IT system at Bangladesh Planning Commission has the following features:

- File sharing facilities through LAN
- Video Conferencing
- Electronic Notice Board
- Digital Library containing policies of Bangladesh in searchable format, minutes of meetings, other useful documents etc.
- ADP database facilities
- Software for tracking movement of files

Hajj Office under Ministry of Religious Affairs: Through an innovative e-Government initiative, the Ministry of Religious Affairs has launched a website in 2002 to provide some information-based services to the pilgrims, their relatives and friends, agents and related government officials. The interactive website can be used for searching information about individual pilgrims, including current location and status, send and receive messages from individual pilgrims, for accessing various information regarding rules and regulations etc.

Rajshahi City Corporation: The Rajshahi City Corporation (RCC) has taken a landmark step in developing an Electronic Birth Registration System (EBRS) that provides citizens with a unique identity card that citizens can use for various services such as education, health care etc.

BANBEIS under Ministry of Education: The Bangladesh Bureau of Educational Information and Statistics (BANBEIS), the statistical wing of the Ministry of Education, has created a geographic information system (GIS) map-based software that provides information on density of academic institutions in particular regions, individual institution-level data, and other useful educational statistics. This information system is being used for various policy-making purposes regarding identification of needs and more equitable distribution of resources.

Board of Investment: The Board of Investment (BOI) is the principal private investment promotion and facilitation agency of Bangladesh. BOI's present services could be categorized broadly under the following tasks: 1) Investment Promotion through publications and other means; 2) Investment Facilitation through various services for investors, such as registration, permits, infrastructure etc.; 3) policy advocacy through suggestions to the government. The BOI has one of the most sophisticated e-Government software applications in the government, which includes service tracking system that gives the most recent status of different registration processes.
Among the services that the website provides are:

- Registration (foreign/joint venture/local) application
- Amendment of registration IRC recommendation
- Work Permit approval
- Foreign loan approval
- Land allotment recommendation and other
- Utilities services approval

The Board of Investment is also currently developing databases for its various services with support from the SICT Project.

Bangladesh Bank: Bangladesh Bank began to computerize its functions ahead of most other government institutions. Today it is one of the most fully computerized public institutions in the country. The following processes have been automated: export receipts; import payments; invisible receipts; invisible payments; scheduled bank advances; scheduled bank deposits; scheduled bank bills; scheduled bank debits; co-operative bank advances; co-operative bank assets/ liabilities; summary statements; central accounts of Bangladesh; loans and grants; exchange rates; monetary survey; broad money survey; salary bill of employees of Bangladesh Bank; Bangladesh Bank employees provident fund; press communiqué liquidity position, assets/ liabilities; export form matching; wage earners' remittance; secret test key development of National Credit and Commerce Bank Ltd.; secret test key development of National Bank Ltd.; and secret test key development of EXIM Bank Ltd. Bangladesh Bank has also established a dynamic, information-rich website (shown below) that contains information about important macro-economic indexes and other relevant financial information.

e-Government Procurement (e-GP) System

National e-Government Procurement (e-GP) portal (i.e. **http://eprocure.gov.bd**) of the Government of the People's Republic of Bangladesh is developed, owned and being operated by the Central Procurement technical Unit (CPTU), IME Division of Ministry of Planning. The e-GP system provides an on-line platform to carry out the procurement activities by the Public Agencies - Procuring Agencies (PAs) and Procuring Entities (PEs).The e-GP system is a single web portal from where and through which PAs and PEs will be able to perform their procurement related activities using a dedicated secured web based dashboard. The e-GP system is hosted in e-GP Data Center at CPTU, and the e-GP web portal is accessible by the PAs and PEs through internet for their use. The e-Government Procurement solution introduced under the Public Procurement Reform (PPR) Process is being supported by the World Bank and being used by all the government organizations which will help in ensuring equal access to the Bidders/Tenderers, efficiency, transparency and accountability in the public procurement process in the country. Considering different situations, responsibilities and availability of resources in different sectors and levels of the Government, The Support to ICT Task Force (SICT) has become familiar with diverse experiences. So far SICT has initiated 42 projects in different sectors. These projects have been taken up from 14 different sectors which are: Labor and Employment, Tourism, Power Energy & Mineral Resources, Others, Education, Rural Development, Water Resources, Communication, Industries, Social Welfare, Agriculture, Physical Planning, Law Enforcement & Security and Public Administration. Among these the highest number of projects has been initiated for Public Administration (See Figure). Law Enforcement & Security and Physical Planning sector are having second highest number of projects. From the project cost point of view the Law Enforcement & Security is the sector having highest priority.

Conclusions

In conclusion, the main arguments pursued in this paper are the following:

1. Traditional, non-technology driven developmental strategies have largely failed across the world, except in those few countries that have so far successfully embraced the potentially positive applications of technology for development as integral part of mainstream good governance strategies.
2. Driven by forces of globalization, technology is the norm for the future, whether we like it or not. Governments therefore have little choice but to use it for good governance outcomes.
3. Technology can obstruct or facilitate governance, development, service delivery and management, depending on how it is used. Technology is just another tool for development like other tools, subject to appropriate or inappropriate use. Like any other policy instrument it is subject to normative or utilitarian abuse by ruthless power elites. Applied correctly, it is crucial for developmental success as had been proved over time in developed nations.
4. Existing obstructions to the wider application of electronic technologies in development is not insurmountable: Good governance practices and examples indicate an effective facilitative impact of technology on development if applied appropriately.
5. The achievement of sustainable development is in future only possible in the format of e-development, within the context of good governance practices.
6. Adopting the e-development paradigm has serious implications for strategic decisions about re-allocation of resources and visionary and strong leadership and management practices in developing nations in order to transform policy failure into potential policy successes.
7. Developmental empowerment leading to capital asset creation or capacity-building in the different sectors of society seems to be the best way to proceed.
8. Technology and e-government have crucial roles to play in this regard, and governments have to ensure the existence or creation of specific boundary conditions to maximize the potential of policy success in this regard.
9. Technology is therefore a catalyst towards an emerging paradigm shift in the conception of what management entails and how it should be applied in practice to achieve developmental objectives.
10. The new paradigms of e-government and e-development are currently still taking shape, evolving and consolidating into different patterns that will probably become clearer in future. All governments have to consider the implications of these developments very seriously.

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