The Role of E-government in Fostering Public Trust and Innovation in Public Service Delivery[1]

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Abstract: Twentieth century governments have experienced a serious trust crisis. The conventional wisdom that the government is the expert that could effectively and authentically provide public service" met its challenge. A global movement on reforming, innovating, and reinventing the government has been on the go. After more than twenty years of trials and tests, the intellectual community is starting to contemplate that the solution for the newly articulated tension between individual freedom and social control, free market and governmental intervention, and civil society and governmental rule, may once again lie with technology, just as it was the case over a hundred years ago when technology brought about a sharp increase in productivity that resolved the strenuous relationship between different social classes. E-government, a concept blending electronic technology with government work, appears to be at the core of this inquiry.

I. Introduction

Growing evidence over the past decades demonstrates the emergence of a global field of inquiry at the intersection of government, society, and information and communication technologies. This field is characterized by terms such as "digital government" (DG), "e-government," "e-governance," or "information society" (Dawes, 2006). To what extent may this inquiry result in meaningful understanding of the role of information technology in governmental work and further, in meaningful implementation of information technology to improve the management of public affairs and public service delivery, remains an unsatisfactorily answered question. This paper, drawing support from theoretical arguments and practical evidences, argues that in order to enhance governmental transparency, citizen trust, increase operational efficiency, democratic participation, and social cohesiveness, a more profound change in institutional arrangement will have to eventually happen. Empirical evidences will need to be furthered obtained in order to identify innovative practices that have long lasting impact along these dimensions.

II. Eroding Social Trust Called for Change

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An effective democratic society depends on the confidence of citizens place in their government. Payment of taxes, acceptance of legislative and judicial decisions, compliance with social service programs, and support of military objectives are but a few examples of the need for public cooperation with state demands (Braithwaite and Levi, 1998). However, in the United States, survey data over the 30 years from the 1960s to the 1990s have clearly demonstrated a sharp decline of citizens' trust in government, the federal government in particular, due, as has been forcefully argued, to the failure of the government to meet performance expectations (Jennings, 1998; Bianco, 1998; Osborne and Gaebler, 1993). The global government reform movement initiated by Margaret Thatcher, former British Primer Minister, and Ronald Reagan, former US president over 30 years ago, has involved a consistent set of efforts to devolve, decentralize, privatize, and marketize governmental functions (Lan and Rosenbloom, 1992; Osborne and Gaebler, 1993; Gore, 1993). More recently, theoretical and empirical efforts have started focusing on searching for alternative solutions to traditional bureaucracy. These alternative solutions include partnered, networked and collaborative efforts between the government and the private sector in the management of public affairs and delivery of public service (Considine and Lewis, 2003; Goldskmith and Eggers, 2004).   This reform trend has been well captured by American scholar Dick Armey:

Table I. Government Reform Trends in the United States and Some Major English Speaking Countries.

	Administrative State	Privatized State	Marketized State
Principal State Mechanism	Hierarchy	Network	Market
Principle Role of State	Control	Coordinate	Disburse
Principal State Responsibility	Deliver	Persuade	Audit
Principal State Values	Equity, Accountability, Ethics, Public Interest	Competition, Efficiency, Public-private Partnership	Individual preferred Self-interest

Source: Armey, 2006.

As the Table I describes, the reform trend has been moving from an administrative state to what we today call a marketized state.   The role of the state has changed from control, service delivery, to coordination, disburse, persuasion and auditing. The principles of the government have gone back to classical economic theories: market competition and individual preferred self-interest. For this，he asked, "Is State-Centered Public Administration Dead? "

Regardless of his question or his typology, which many of us have various urges to address, the reform efforts in the past thirty years have undeniably expressed two important social sentiments: 1). citizens are not happy with the traditional bureaucracy and do not trust it could do a good job in managing public affairs and deliver public service; 2). In spite of thirty years of efforts, a viable and satisfactory solution has not yet been found. In their paper summarizing the new public management movement, including Clinton Administration's reinventing efforts,

Rosenbloom and Piotrowski (2006) argued that the two most important goals in the National Performance Review (NPR): 1) making the government better and cost less, and 2) Building citizens' trust in it, have both failed.

Where lies the solution for the human predicament that the entire world is stuck with. The answer may very well be: e-government.

III. Information Technology is the Enabling Technology for Public Service Change

Various definitions of e-government exist (Fountain, 2001). At the initial stage, the term was a little more than a general recognition of the confluence of information technology developments and the application and use of these technologies by government entities. Subsequently, it has been used as a symbol of institutional reform leading to a new social paradigm. Countries all over the world are now paying serious attention to e-government, despite their differences in political systems, cultures, economies, and developmental stages. In lieu of this trend, e-government can therefore best be defined as the use of information technology to manage public affairs more effectively, deliver public service more efficiently, and achieve democratic governance more equitably (Lan, 2005).

Various arguments of the impact of technology on social change have always existed. In the domain of information technology, at least four important schools of thoughts co-existed. 1). The decentralization/democratization school emphasizes the progressive potential of IT in government, business, education, the home, and almost all spheres of life (Toffler, 1970; Negroponte, 1995). The dystopian school emphasizes the internal contradictions of information systems and promulgates a cautionary counter to the enthusiasms of the first school (Orwell, 1949; Vallas, 1998). It argues that adverse impacts on lower-level workers are believed to be the greatest (Vallas, 1998) and that governments have been found to leap into the information age while suppressing civil liberties, freedom of the press, and democratization. (Garson, 2000). The third school is the socio-technical systems theory, which combines elements of the first two, but at the expense of predictive theory. It rejects technological determinism and views information system as being determined by social choices and demands. The fourth school, the global integrationist school transcends the optionism/pessimism duality of the first two schools and is critical of both while still laying the basis for predictive theory. It combines a dystopian pessimism about the likely outcomes of unregulated IT development with relative optimism, not in the benign nature of market forces as with decentralization/decentralization theory, but in the possibilities for global inter-governmental integration of information technology with socio-economic policy. It focuses on the globality of worldwide information networks as a transformative socio-economic force (Garson, 2000).

In spite of the differences, these arguments could be boiled down to three consensus: 1). Technology is an important, or least, one of the important changing agent battling against human inertia for stability and status quo, and has always led to eventual social change. 2). Information technology is not just one technology, but an enabling technology that has the potential for epoch-making. 3). Information technology will not be able to do it. Responses from the society are what characterize the eventual social changes.

Indeed, stability and change are two dominate views of human history. Their prototype thoughts can go back to Greek philosophers who lived before Socrates, Parmenides, and

Heraclitus. For Parmenides, stability was the only reality, being was continuous, changeless. Change, in the form of creation and passing away, was inherently contradictory and therefore illusory. For Heraclitus, change, in the form of the striving of opposites, was the only reality, and stability was illusory. The river image, improved by the later philosopher Cratylus, was the model for existence.

Our present attitude toward change is essentially the view of Parmenides. We like to conceive our institutions—nations, religions, business organizations, industries, physical laws, values as stable. Over and over, the humans have struggled to create institutions which will endure, to formulate values which will hold not only for us but for all men at all times. Change of values is seen as deviance, undependability, flightiness. Values are presumed to be firm and constant. To the existent that we admit historical change, we see it according to the model of progress—steady change occurring within a stable framework of value. Similarly, our concepts of human identity-occupational, regional, professional-rest on the assumption of a continuing stable state. Even character we see as the ability to retain values and norms formed early in life. Yet, laws, actions, occupations, professions and even our concept of character can be seen, after the fact, to have changed; it is only that we are somehow protected from awareness of these changes while they are occurring. … The drive to stability forces us to ignore the change that is occurring now and to deny or explain away the change that has occurred…

However, the human society does not remain the same throughout. Technology, for one, is one of the most important change agent. The United States, besieged by the continual introduction of new products and processes into our lives, has accepted technological change as a permanent part of the society and a form of progress. Technological innovation has demands and effects of its own on the nature and structure of corporations, industries, government-industry relations and the values and norms that make up our idea of ourselves and of progress (Schon, 2005, p. viii). In his Future Shock, Prophet Alvin Toffler discussed the possible impact of information technology versus the enabling technology preceded it. He argued that Bronze/Iron is the technology that underlined the agricultural society, steam engine is the technology that underlined the industrial revolution, and information technology is going to underline a new revolution that will guide the human society into an information age. A model of social and governance change can be derived from his initial argument.

Table II Technology and Human Evolution

	Agricultural	Industrial	Informational
Enabling Technology	Bronze	Steam Engine	Information Technology
Impact on Humans	Limited Extension of Physical Capacity	Massive Extension of Physical Capacity	Extended Mental Capacity and Hence, Human Power.
Impact	Survival	Affluence	Freedom
Forms of Society	Rural	Urban	Virtual
Values	Land is life	Money makes the devil go.	Knowledge is power.
Pace of Change	Slow	Medium	Fast
Governmental	**Feudal**	**Bureaucratic**	**Networked**

Structure			
Public Service Level	Limited	Improved	Extensive

" It is one thing for a craftsman to improve his craft. It is one thing to establish a business on the basis of an invention made by an independent inventor. It is quite another thing for an organization to undertake regular and systematic investigations which will obsolete its current products and methods of production and cause it to change in ways it is bound to find uncomfortable is not downright disastrous (Schon, 1967, P xiv). In a similar logic, it is one thing to use information technology to improve what the government is currently doing, and it is quite another for us to undertake regular and systematic investigations which will obsolete how current government does its work and re-engineer new governmental institutions and processes on the basis of the new technology. For this, e-government has emerged not merely as a specialization in public administration, but as a transformative force affecting all levels and functions of government (Pavlichev, and Garson, 2003). The incentives for pursuing increased accountability, transparency, equity, efficiency, and democracy, could be built on the basis of the new technology.

Has efforts been made institutionally to design a new system of governance on the viability of the new technology? To answer this question, we could spend some time examining the e-government efforts in the United States, a leader in information technology use, and China, a fast growing giant in reform and in the use of information technology.

IV. E-government Efforts in the United States and in China

In the United States, the use of information technology to re-invent the government was set on the election agenda of the Clinton Gore Administration in early 1990s. The concept of information superhighways has led to large-scale federal and state government investments in developing high performance computers and information pipelines. In 1993, a Clinton-Gore Administration taskforce proposed "National Information Infrastructure: Agenda for Action" which emphasized the impact of information technology on employment, education, and health care system reform. Millions of dollars from all levels of the governments and, consequently, private businesses, were poured into the construction of the information backbones. Gradually, as the technology evolved and our understanding of the process deepened, the plan became both more ambitious and realistic.

A joint report of the National Performance Review and the Government Information Technology Services Board, Access America: Reengineering Through Information Technology, issued Feb. 3., 1997 introduced the term of "e-government" (Office Vice President, 1997a). In his December 17, 1999 memorandum to the heads of executive departments and agencies, President Clinton directed these officials to take certain actions in furtherance of "electronic government. On May 18, 2000, Senators Fred D. Thompson (R-TN) and Joseph I. Lieberman (D-CT), the chair and ranking minority member, respectively, of the Senate Committee on Governmental Affairs unveiled a Web site on electronic government, or e-government to collect ideas from citizens on how the government might offer more services and better information online. During June 2000, the concept became part of the campaign offerings of the two major party candidates for the presidency (Relyea

and Nunno, 2000). President Bush made "expanding e-government an integral part to his five part management agenda for making government more focused on citizens and results (Vision for government reform: citizen-centered, not bureaucracy; results-oriented, market based-actively promote innovation).

In July 2001, Office of Management and Budget (OMB) established an E-Government Task Force to identify priority actions that could achieve strategic improvements in government (Forman, 2001). In Feb., 2002, Mark Forman, associate director for Information Technology and E-government presented a full report (done by 81 taskforce members from 46 agencies) on E-Government Strategy to Michell Daniels, OMB director, for the 2003 government budget. The goals of "President's Expanding E-government Initiative are: 1) make it easy for citizens to obtains service and interact with the government; 2) Improve government efficiency and effectiveness; 3) Improve government's responsiveness. The action plan identified by the task force included:

1. Improve customer service by focusing on 24 high-payoff cross-agency initiatives that can be quickly developed (18 to 24 months) and have the potential to save the federal government billions (Federal government spending in IT was 48 billion in 2002, and over 52 billion in 2003, E-government Strategy, Feb., 27th, 2002).

2. Implement actions to overcome the identified key barriers concerning culture (sustain leadership and commitment, interagency governance structure, priority to cross-agency work, engage interagency user/stakeholder groups) and architecture (OMB leads government-wide business and data architecture. OMB sponsors architecture development for cross-agency projects). FirstGov.gov will be the primary online delivery portal for G2C and G2B interactions. The key barriers are: technology used for automation not for creating effective and efficient solutions, islands of automation, lack of trust (e-authentication to establish secure transactions and identify authentication, incorporate security and privacy protections into each business plan, provide public training and promotion); inadequate resource allocation (move resources to where it has the greatest return); and stakeholder resistance (engaging congressional committees and stakeholders).

3. Develop a technology framework (integrated government wide business architecture) that provides for the integration of government services and information. E-Authentification (security, privacy, and electronic signature to ensure citizen trust) and development of Federal Enterprise Architecture (enterprise wide architecture) to provide technical solutions and business and information architecture to eliminate redundancy; focusing on homeland security, economic stimulus, social services, and back office operations.

They proposed to organize four citizen centered groups:

• G2Citizen: build easy to find, one stop portal for citizens to access high quality government services;

• G2Business: reduce government burden on businesses by eliminating redundancy data collection and better leveraging E-business technology for communication;

• G2G: make it easier for state and local governments to meet reporting requirements and process transactions (grants, etc.);

• IEE (Internal efficiency and effectiveness): Make good use of technology to enhance intra-agency interaction performance.

In 2002, President George W. Bush stated in his memo that "Implementation of E-Government is important in making government more responsive and cost effective (July 10, 2002). On Dec. 17th, 2002, President Bush signed H.R. 2458, the E-Government Act of 2002. The Act:

- Advocates a citizen focused approach to government IT policies and programs;
- Establishes an Office of Electronic Government in the Office of OMB;
- Formalizes the establishment of a CIO Council;
- Permanently authorizes and amends agency information security requirements through Federal Information Security Management Act   (FISMA);
- Protects the confidentiality of certain types of data trough the Confidential Information Protection and Statistical Efficiency Act (CIPSEA);
- Supports activities that OMB and the executive branch are already pursuing under the President's Management Agenda's Expanding Electronic Government initiative.

Essentially, the Act codifies and expands OMB's leadership role by establishing the Office of E-Government headed by a Presidentially appointed administrator who is in charge of: capital planning and investment control for IT (5 million in 2003);   the development of enterprise architectures; information security; privacy; access to, dissemination of, and preservation of government information; accessibility of IT for persons of disability; and other areas of e-government. The Act also endorses and requires agencies to support cross-agency initiatives such as E-rulemaking, Geo-spatial One-stop, E-records management, E-authentication and disaster management, and the FirstGov.gov portal.

In August of 2003, OMB issued E-government Act implementation guidance to agencies providing direction for agencies to complete the specific activities and products required by the Act in improving effectiveness and efficiency (March 8, 2004).

At the local level, many progresses have been made as well. As early as the 1980s, King and Kraemer studied information systems in governments and found that city governments were among the most active in pursuing the use of information technology to service delivery. Phoenix is one of such cities. In the past two decades, Phoenix has grown over 40 percent. The recent statistics show that it is the sixth largest city in the United States with a population of 1.37 million and a territory of 484.5 square miles. Ranked the best management city by the 2000 Governing Magazine, Phoenix is known as an innovation power-house among the American cities and a leader in the use of information technology.   In the 1980s, the city had a decentralized information technology infrastructure, islands of automation in various departments, and disparate applications and email systems. In the 1990s, a city wide centralized information services approach was advocated.   The name of the project was known as Phoenix at Your Fingertips (PAYF).   It aimed at establishing a single point of entry for Phoenix's electronic information and services for citizens, building a citywide network (PhoenixNet), developing Intranet/Internet services (Phx Web), and initiating web-based GIS structure for the use of some city departments.   Starting in 1995, technology planning was combined with budgeting process, the city increased funding for IT, and worked to assure adherence to city wide IT policies, standards, and guidelines.   Towards the end of the 1990s, the city has already a well-established process for IT planning and implementation. Coordination groups were established such as:

- Information Technology Contacts

- LAN Administrators
- PhxWeb Coordinators
- GIS Steering Committee
- SAP User Groups
- Telecommunications Liaisons

All technology plans were reviewed by Information Technology and Budget and Research departments. Information Technology made city wide information technology use standards and policy, and ranked all funding requests to meet the established funding level, and promotes interdepartmental communication and information sharing.

The process is lengthy, frustrating, and time-consuming. Monthly meetings were held and often nothing would happen for a long period of time. Nonetheless, it was through these enduring tag-of-war, the city gradually consolidated their integration of departmental efforts. City wide information infrastructure was built so that citizens could have one portal entry into the city's web page while different departments and divisions have individuals maintaining and updating their own pages. The city identified its "e-government objective as "using information technology to streamline government by providing efficient and effective services and information to citizens and businesses."

In summarizing their experiences, the city IT leaders concluded that in order to be successful, a few elements are essential:

- Visionary leadership - both political and executive
- An Organization-wide Strategy and Commitment
- Technology Leadership
- Commitment to customer input and customer focus
- Human resources strategy
- Teamwork
- Start small and simple, add more complex services over time
- Develop processes to continue growth
- Funding

Looking back, city information technology leaders feel that e-government can not be done overnight. It is an evolutionary process that takes time. Interestingly, the CIOs leading the Phoenix e-government project to success is one who was not an engineer by training (political scientist major). His assistant, the one known as the "mother of E-Phoenix" was an accountant by training. This alone tells us a lot about the importance of the non-technical aspects in the process of e-government.

Comparing the federal and local process of e-government, a few lessons stand out prominent:

1). Visionary technical leadership is the key to success. In both cases, it is not the chief executive, but the technical leadership, that is designing the vision and process of e-government, which in turn, is endorsed by the top leader. The proposed strategy of the technical leadership defines and limits the e-government initiative. In both cases, the advocates for e-government and enterprise wide information solutions are not leaders with training in technical background.

2). Enterprise wide information infrastructure and institutionalized cross agency executive leadership are the bases of a successful e-government. Cross agency and

departmental management team, technical solutions, database compatibility, and institutional policies are critical in ensuring the operation of e-government.

3). Security is key to e-government success. It builds trust in the system by the information providers and users and helps to overcome stakeholder resistance. Prior to the 911, the e-government efforts meant dumping everything to the Internet, and many people felt uncomfortable about the process. Information island was the norm. 911 accelerated the awareness of security. The progress in the use of 128 bit encryption technology and PKI infrastructure for e-government transactions has increased users' trust in the internet and has made a difference in the way people use it.

4). Fast benefit return and performance review (investment model) is a way to ensure resource support, which is also critical for e-government success.

5). Starting from small to cultivate technical capacity, and using top-down executive implementation to consolidate institutional integration seem to be the trend. In this sense, the federal government is more forceful and faster in achieving across agency integration while the local government has to go through lengthy period of tug-of-war to achieve integration.

6) . The City works hard to promote the image of the city, sending out the message that the city is good place to work. It seeks help in recruitment when necessary, works to grow its own technical talent, uses available technologies to assist its hiring, and adopts flexible management strategies such as project management, outsourcing, improvement of the working environment for technical people including providing new equipment and uses a broad band of job categories. Additional funding definitely was a critical element; nonetheless, money can never be the solution for government that it can be for the private sector.

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While the United States is a developed country leading the science and technology revolution in many fronts, including information technology and e-government, China, as a developing country, is also making strides in the use of information technology. The investment it has made in e-government, easily emulates that of the United States in terms of its percentage to GDP or purchasing power in real term.

Table III.   The United States and China

2003	the United States	China	
Population	290,345,554	1,285,000,000	4.4 times
Territory	9,629,091 sq km	9.600,000 sq km	
GDP in 2003	$10,987 billion usd	$1,350 billion usd	8 times
per capita	$37,600	$1,051	ppp 10 times.
GDP growth	2.4% 2002 estimate	8.0%	
Fed (central Govt 2002 IT Purchase)	48 Billion USD	40 Billion RMB	

In terms of policy awareness, strategic planning, and policy making, China is closely trailing the international community. In 2003, the Chinese Government has started to increase its role in the e-government effort and worked at system integration. Some called the 2003

China's e-government year since E-government related publicity, legislation, system innovation, education and training, e-government consultative services, support for small and mid-sized enterprises got greatly increased (Network Weekly, 2003).

The government held high level consultative forums inviting IT experts from various nations to participate and provide suggestions (e.g. IBM Forum in Guangzhou). It held conferences with private IT corporations to identify their technical strengths and potential to participate in the e-government initiatives; it started to evaluate the outcome of its pilot e-government projects. For example, as Xinhua Net reported (Aug. 5, 2003), on August 2, on behalf of the Administrative Office of State Council, E-government Piloting Engineering Leadership group evaluated and accepted the outcome of a sample project in Nanhai district in Fushang city of Guangdong province. This is one of the 15th national key e-government pilot projects. Initiated in July 2001, it has established an e-government platform which possesses intellectual property right information, a unified e-government authentication and identification interface, and a trustworthy set of application systems including financial management, statistics service system, non-tax related financial management system, social security system, and enterprise labor compensation monitoring system.

Towards the end of the year of 2003, the National Bureau of Measurement and Geographical Survey provided its 1:250,000 scale geographical information resources platform to over 30 central government departments for free, enabling a shared information resource sharing infrastructure platform (Xinhua Net, Dec. 22).

In Dec. 25, 2002, Guangdong province made public China's first integrated electronic government service platform, linking four key leading authorities in Guangdong, over forty provincial level departments and agencies, and 21 prefecture level municipalities. The provincial government has stipulated that municipalities and departments could not duplicate internet portals (South Daily, April 8, 2003). IBM, HP, and Accentrure participated in the bidding for one the 15th projects under the platform and IBM won the contract.

Convinced that international experiences in E-government have testified that top-down planning and implementation is the key to E-government success, the Administrative Offices of the Central Party Committee and the State Council issued the "State Information Leadership Group's Guiding Principles on China's E-government Effort (Document 17 of the Central Administrative Office, August, 2003) stipulating that, cities under the provincial level government can only have one internet portal to serve the public (logical separation of information which is non-public), administrative agencies will stop building vertical intra-agency and professional network,

The revenue for the 100 most influential IT corporations doubled in 2003 compared to their 2002 revenue (21 billion versus 12.4 billion yuan), and 83% of them think e-government campaign has greatly increased their work. Because of the trend in integration, it is estimated that in the next few years, hundreds of billions will be invested by the Chinese government in building its e-government.

Under the newly issued Guiding Principles on China's E-Government Efforts, ten trends will dominate China's E-government effort:

1. E-government will greatly enhance the administrative process of the government due both to the e-government initiatives and the recent simplification in China's process of administrative approval.

2. Some major projects in national level data warehouses will speed up. According to administrative consultative plan, four national level data warehouses will be built in the next few years: population, legal institutions, natural resources, and spatial GIS data warehouses, which will greatly enable information resources sharing in China.

3. Professional information resource warehouses will make great strides. On the basis of the four major data warehouses, the professionally defined databases such as taxation, customs , macro economics, finance, comptroller, shield, insurance, quality control, agriculture, and water resource management. Also, some new commercially related networks such as industry and commerce will appear.

4. Management and supervisory organizations will be established to monitor the E-government initiatives.

5. While continuing the construction of intranet, efforts will gradually move to construction of internet.

6. One service portal will on the agenda.

7. There will be more emphasis on the development, utilization, and sharing of the information resources.

8. Regional integration will be strengthened with the emphasis on the use of PKI as a solution.

9. Legislations, laws and regulations governing the e-government initiatives will be strengthened.

10. Training of leaders, professional project managers (information resources management and e-government project managers), and users will be greatly enhanced.

(Guanming Daily, Feb 26, 2004).

At the practice level, China is making significant strides. China started its e-government initiatives only a few years ago, symbolized by some large city projects (such as Beijing, Shanghai, and the Zhongguancun E-park). The Zhongguangcun E-park went online in 2000 and enabled 6,000 businesses in this Beijing based high technology businesses to apply for licenses, file monthly financial reports, submit tax statements and conduct 32 other "g to b" and "g to c" functions online. The system has greatly increased government transparency and efficiency, and reduced the opportunities for corruption. The mayor of Beijing announced that in five years, most government administrative functions in the city will be performed online as they are in E-Park.

Up to now, most of China's governmental websites are mainly for information dissemination. While it has developed many intra-government information islands, in a 2002 report, researchers found that China has only 6.4% of the government web that has enabled e-application and 18.6% has the capacity for citizen e-reporting and feedback.

However, exemplary examples also exist. By comparing the Web portal of China Net, an authorized government portal site published under the auspices of the China International Publishing Group and the State Council Information Office in Beijing, to the FirstGov.gov in the United States, the information content is as rich. The contents are timely, scrutinized for accuracy and authenticity. The FirstGov.gov saved billions of dollars in governmental printing, while the China Net provides an information service Chinese government barely had in the past. It filled in a niche and possesses huge readership. It is the one portal for governmental

services, for businesses, for news, for entertainment, and for social. The China net is run by one of the six largest network new groups , not only it offers information and raw statistics but also expert analyses of information.

The difference can be further seen in comparing the websites run by government and new groups at the local government level. China Shanghai (www.Shanghai.gov.cn) is the official portal of the Shanghai Government, while East Net (www.easttoday.com) is run by a news group consisting the major news media in China (Liberation Daily, Wenhui Xinming Newspapers, Shanghai People's Broadcasting Station, East Broadcasting Stateion, East TV Station, Shanghai Cable TV Station, Youth Daily Labor Daily, Shanghai Education TV and Shanghai Eastern Pearl, etc.). In spite of the extensiveness of the Shanghai governmental portal in comparison with many other governmental agencies, in terms of the richness of the content, it is no comparison to the Portal run by these newsgroups. The same situation applied to the Beijing City Government Portal (www.ebijing.gov.cn) and the Qianglong Net (QianLong.com). In terms of attracting readership, the advantages and disadvantages can be easily told. "We have been in fast lane in terms of number of citizen and the rapid momentum will continue subsequent years," said Wang, when unveiling a report on the survey.

Other than the experiences in the United States and in China, e-government practices in Korea, Hong Kong, Singapore merits serious attention. The size of a regular local governments and constantly troubled by stories of corruption or tyrannic decision-making, these governments have invariably offering an e-service that humbles many western leaders in information technology use.

V.　E-government Models for E-efforts Assessment

Previous literature have forcefully argued that to achieve desired success in transparency, efficiency, and democratic participation, e-government needs to involve more than just efforts in the improvement of the technology. In a previous paper, Lan and Falcone (1997) observed that four major factors contribute to the success of the use of information technology. They are: technical characteristics (ease of use, reach, interoperability, speed, format, stability, extensiveness, etc.); value of information processed, user technical propensity, and institutional arrangements which support and provide incentives for use of information technology.

However, evidences show that up to now, efforts in e-government has mostly concentrated in the areas of increasing the use of the technology for current public service practices rather than re-engineering governmental services using the available technology. Evaluation efforts have been made to assess what is now available, what can be done online, rather on how things can be done differently using the available information technology. Accountability, transparency, and equity issues have not been high in the research, as well as the implementation agenda (Holzer and Kim, 2003; OECD, 2003, Moon, 2005).

In terms of the improved technical characteristics such as ease of use, cost, and reach, statistics show that the users have greatly increased, and continued to at a rapid rate. In China, The increase of the internet users between 2002 and 2003 was 18.5%. In 2003, China's internet users reached 80 million, ranked second to the United States. Statistics from the China Internet Network Information Center (CNNIC)) show that the number of Internet users rose to 111 million at the end of 2005, an increase of 17 million this year. While US is still considered a

country having the largest amount internet users. In a few years, its number one position will be surpassed by China. This rate of increase of internet users is literally worldwide (OECD, 2003).

In terms of how government uses information technology to deliver its service. OECD's cross country provided a clear picture. In its 2003 study, it found that the level of online services availability in some of the European countries are as high as over 80% (Ireland, Sweden, et.).   Others are in the range of 40 to 60 percent, with the lower countries in the range of 20%.

In terms of percent of national sites offering online services, Germany is as high as 60 percent, In the 2000 ICMA survey which identified 2,899 municipal governments with populations over 10,000, 1,471 responded. Among them, 1,260 (85.3%) have their own websites, and 57.4 percent have an intranet. However, as a nation that was once the leader of e-government initiatives, the United States could have done even better. In their assessment of the websites of 100 large municipalities, only one US city (New York City) made the top twenty in terms privacy, usability, content, and service (only 16 has not established municipal websites (Holzer, and Kim, 2004).

Authors argued that the federal and fragmented system of governance in the United States creates obstacles to the use of the Internet, while smaller countries from Estona to Singapore produce innovations in the e-governance. Even though the United States has more Internet users than any other country today, the growth points in the use of the Internet in the next few years will occur in radically different places, ranging from Russia and Brazil to India and China (Rose, 2005). Moon, in his analysis of the US municipal e-government efforts, have also observed that in spite of the rhetoric of promised by e-government, many municipal governments have shared barriers such as lack of financial, technical, and personnel capacities and legal infrastructure to accommodate the fast adoption of the information technology.

In terms of user qualities, the progress of the technology has really brought about major changes. The younger generation that grows up with the technology is finding it an indispensable tool. I have traveled to very remote areas in China and found the youngsters surfing sway in 24 hour internet bars under very poor physical conditions. What needs continued effort is the constant improvement in the institutional arrangement, which is constrained by either or all three components of technology characteristics, user qualities, and accessibility of information. It is at the same time, the central core of e-government initiative.

Scholars observed that e-government includes four major internal and external aspects: 1). The establishment of a secure government intranet and central database for more efficient and cooperative interaction among governmental agencies; 2) Web-based service delivery; 3) the application of e-commerce for more efficient government transaction of e-commerce for more efficient government transaction activities, such as procurement and contract; 4). Digital democracy for more transparent accountability of government (Government and Internet Survey, 2000). In a different light, authors argue that international experiences show that the e-government processes can be divided into five stages: 1). Initiation--information dissemination through the internet; 2). Expansion--increased interaction between the government and the users; 3). Infrastructure construction, large investment in infrastructure building and expand application; 4). Integration-extensive, seamless transaction and interface between the government, the citizens, and the employees; and 5) Transformation,

governmental functions and processes significantly transformed on the basis of technology (Lan, 2005).

The practice in the United States, in China, and in many other countries clearly are still at the web-service delivery, e-transaction enhancement, and expansion of user stage. Their e-efforts have also been heavily constrained by the recently invoked security considerations. Sporadic examples existed in how internet exposure has revealed mal-local government practices, such as in China, but these practices have found resistance in the process of being institutionalized. The barriers to use information technology to enhance transparency, accountability, and democracy are more institutional rather than technical.

As for institutional objectives and challenges, if we look across country or regional boundaries, we found that the rhetoric in democratic countries such as the United States is to use e-government to enhance transparency, accountability, and democracy. Their major challenge is the contingency and complexity of creating an infrastructure that is compatible with a decentralized and networked system of governance using the available technology. In practice, however, the 911 has actually slowed down the process of making the government more transparent due to security consideration. In more authoritarian states such as China and Singapore, the priority is more on effective control and more efficient management operation. The Internet offers a solution for the central government to supervise local officials more closely and hence, prevent corruption that may undermine the popular support or even legitimacy of the national government. In some well developed OECE countries, the traditional bureaucracy is relatively more mature. While e-government technology is introduced, citizens are often frustrated if they have to sign on and off a number of different websites when their requested services involved the multiplicity of a number of different central and local government offices. Their conventional methods of operation is so entrenched in the existing bureaucracy, technology is only used to extent their current way of providing services. The one stop service notion is resisted and hard to implement (Rose, 2003).

The same challenges exist at the local level. Due to the nature of their work and direct relationship with the citizens, as long as they have committed visionary leaders, they are more likely be in a position to use the technology to enhance e-government practices in areas of transparency, accountability, citizen participation, and democracy. However, as large empirical studies have shown, "e-government adoption at the grassroots is progressing rapidly (if measured solely by deployment of Web sites). However, the movement toward integrated and transactional e-government is progressing much more slowly. Continuing research, particularly longitudinal study, is needed to monitor the evolution of e-government among U.S. local governments, especially to keep pace with the practice and to ascertain the actual impacts of e-government (Moon, 2005).

All the evidences have shown that e-government efforts have been a worldwide phenomenon. Consensus are on deployment of the technology and use of the technology for service delivery and transaction. However, the more important part of it—institutional design on the basis of the availability of the new technology, has been relatively slow in coming. The hope of the break-through lies more likely with local e-government innovations due to their ability to integrate local information infrastructure and their closeness to the grassroots of citizens' political life which have a real demand and direct incentive for transparency,

accountability, and democratic participation, or with international organizations which can afford to use ideal-type theoretical vision to guide the practice of the government into the next stage. After all, government is a human artifact, envisioned, designed, and run by the best minds of the human world. While e-commerce had led the way in e-revolution, only when it concludes with a new institutional design underlined by governmental efforts can we claim the success of a round of e-revolution. Either domestically or internationally, market alone can not do the job. Local integration and global inter-governmental integration of information technology with theoretical socio-economic policy can perhaps offer better opportunities for upgrading the e-government revolution than that of the national governments which often are found to prioritize parochial national political stability, national interests, national security, and national leader preferences over change, citizen demands, and democracy. International organizations may have a larger role then many often realize to play in assisting fostering the next stage e-government revolution.

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