Chapter I
Key Issues in E-Government and Public Administration

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INTRODUCTION

Information and communication technologies (ICTs) are key elements supporting the growth of e-government initiatives. Public administration refers to the products and procedures that the government implements to interact with its constituents: citizens, businesses, employees, and other governments. To address the needs of these different constituents, a wide variety of government services are necessary. This chapter examines the impact of e-government on public administration from both the constituent and service perspectives. The chapter presents a holistic view of both challenges and advantages of implementing e-government in the area of public administration.

The discussion in this chapter will proceed as follows. Section 2 provides an overview of e-government. This section presents a classification of e-governments and also explains how typical e-government develops and looks at the wide variety of functions involved in public administration. Section 3 combines the areas of e-government and public administration and examines how closely and critically intertwined they are. The main advantages and challenges of implementing e-government projects to support public administration are also presented. Section 4 documents the future potential of e-government in public administration and discusses key issues such as e-voting and global access. Lastly the chapter concludes with a summary of ideas presented and some key terms and definitions.

BACKGROUND

This chapter examines the intersection between e-government and public administration. Each of these two areas represents a rich body of literature. In this section we first define e-government and its position in a global context. We then discuss the functions and goals of public administration. There is significant overlap between the goals of e-government and those of the public administration function.

Firstly, e-government refers to the use of electronic media (such as the Internet, intranets, hand-held devices) by governments to interact with

their constituents. "E-government can be viewed as the process for creating (adding) public value with the use of ICT (Capati-Caruso, 2006)." E-government projects occur at many levels throughout the world. Countries such as Canada, Singapore, and the United States are leading the charge as innovative leaders in e-government; with nations such as Brazil, South Africa, and Italy making important steps to increase their e-government infrastructure (Hunter & Jupp, 2001). E-government is a global phenomenon which is poised to see more growth in the future.

From a historical perspective electronic commerce (e-commerce) provides a referential platform for the development of e-government. E-commerce provides an electronic option for buyers and sellers to come together. The positive impacts of e-commerce include reduced search costs and improved price discovery (Bakos, 1998). Many e-government tasks are routine and non-commercial, however some of the benefits and challenges evident in the e-commerce domain also occur in the e-government domain.

Comparisons between e-commerce and e-government must be done cautiously. Even though they both use Web-based technologies and involve sharing information between two or more entities, significant differences persist. E-government deals with sensitive information (such as social services, taxes) that should not be made available to third party private for-profit businesses. The explicit goals of each application also conflict: e-commerce is used to drive revenue while e-government seeks to increase information sharing and task efficiencies.

E-government initiatives are classified based on the group that interacts with the government. Government-to-government (G2G) initiatives refer to governments interacting with other governments. One example can be a local municipality interacting with the state government for the payment or receipt of taxes. The movement of information from a lower level to a higher level of government is called vertical integration and is one of the more advanced characterizations of e-government. G2G also occurs horizontally where one department interacts with another equally significant branch of government. For example, there are projects that involve interaction between the department of transportation and the department of education (e.g., transit passes for school students).

Government-to-business (G2B) initiatives refer to communications and transactions facilitated by electronic means between a government and a representative business. A large part of the interaction between a government and for-profit businesses is through the collection of taxes, and bids on government contracts. In the non-profit domain, dissemination of grant requests and proposals represent more typical types of interaction. In either case, these are typical examples of the type of activities that are supported in the B2G domain.

Employees are the core of effective governance. Government-to-employee (G2E) initiatives cover the human resource management component of the relationship between the government and its employees. The three main benefits to be derived from the implementation of these types of projects are improved strategic planning; cost reduction; and service improvements between management and employees (Ruël, Bondarouk, & Looise, 2004). The tasks covered in the G2E domain range from online recruitment, training and testing, to self service systems where employees can modify their health plans, retirement plans and even federal withholdings.

The final group, and potentially the most critical one, is government-to-citizen (G2C). This refers to the government's interaction with the citizenry. A recent 22-country study indicated that governments around the globe identify that that a customer-centric focus is critical for e-government success (Hunter & Jupp, 2001). In areas with low Internet penetration, it might be the only area of focus for e-government projects because of the limited access. Citizens broadly refer to all individuals that interact with the government. G2C represents all electronic communications and transactions that occur between a government and one or more of its citizens. The individual referred to as "citizen" can be a foreign national, a student or a resident, and is typically involved with unique interactions with the government. Governments

tend to focus strongly on this category largely because one of the founding principles of governments and governance is to serve its people.

E-government growth can be explained by considering an evolutionary pathway. One model describes four stages for the growth of e-government (Layne & Lee, 2001):

- **Stage 1:** Cataloguing. Online presentation of information.
- **Stage 2:** Transaction. Limited forms and services available online.
- **Stage 3:** Vertical integration. Top down links of different systems.
- **Stage 4:** Horizontal integration. Links across different functional units.

However, not all e-government projects follow all four stages. There can be multiple interactions in development, as well as an end to further growth beyond a specific stage. E-government is a tool that facilitates improved delivery of products and services to all participants that interact with the government.

Secondly, as mentioned earlier, public administration refers to the products and procedures that the government implements to interact with its constituents: citizens, businesses, employees and other governments. "Public administration is the use of managerial, political, and legal theories and processes to fulfill legislative, executive, and judicial mandates for the provision of governmental regulatory and service functions (Rosenbloom & Kravchuk, 2005)." This is a very broad definition and it encompasses many different theories and applications. This chapter focuses mainly on the managerial aspects of public administration, due to its relevance for implementation of e-government. Of course there are always political and legal undertones, however an examination of those issues are beyond the scope of the current discussion.

In general, public administration involves providing service to citizens and to the public. This implies an orientation towards providing solutions to problems faced by individual citizens, groups of citizens and society as a whole. Thus, public administration can also be considered as the study and implementation of policy, the main goal of which is to identify public interests and to develop and implement adequate means of satisfying them.

Government services can be grouped as follows: human services; community services; justice services; transportation services; land resources; business services; financial services and others (Bakry, 2004). In addition to providing traditional services to the public, such as those related to health care and transportation, public administration involves a variety of administrative activities. These include, for example, making strategic decisions, coordinating, controlling and regulating activities, issuing permits and licenses, and providing documents and other information.

Another way of considering the many functions of public administration is to view them from the standpoint of the constituent or beneficiary of the service. For example, government provides services to citizens, businesses, employees and other government entities. The following section considers these constituents in more detail.

Issues in e-government have a direct and critical impact on the administration of public services. Discussions of e-government initiatives in the public administration domain are relevant for the following reasons:

1. Government agencies share information with the public in the Web domain.
2. Both internal and external governmental transactions are executed through electronic channels.
3. The Web is a critical mediator between a government and its constituents.

E-government consists of four main constituents and public administration encompasses many different functions. Table 1 illustrates e-government constituents and some examples of areas of interaction that occur with public administration. Some or all components involved in these transactions can be conducted in a Web-based environment.

Table 1. Interaction of e-government and public administration

Public Administration Functions / E-government Constituents	Human Services	Community Services	Transportation	Justice	Land Resources	Financial Services
Citizens	Consumer safety	Post offices	Driver licenses	Law enforcement	National parks	College scholarships
Businesses	Safety standards	Worker training	Regulate trucking	Control cyber-crime	Water conservation	Loans and grants
Employees	Evaluate standards	Support community groups	Provide transportation	Report violations	Execute transfers	Payroll processing
Governments	Military bases	Flood recovery	Regulate trade	Public safety	Land transfers	Budget creation

ADVANTAGES OF E-GOVERNMENT IN PUBLIC ADMINISTRATION

There are numerous potential benefits related to the implementation of e-government, (Fahnbulleh, 2005) such as:

- Lower overall administrative costs to government
- Provide more efficient government operations
- Create a stronger and closer relationship between citizens and government
- Provide easier access to government for all
- Improve the level of service to citizens
- Allow greater access to decision-making
- Empowerment of citizens
- Provide more transparency in government with more responsibility

The main advantages presented by e-government to public administration can be summarized as follows: paper reduction; transaction efficiency; and improved governance. All three advantages are further described in the following sections. We further note that is some specific instances defined advantages can have unexpected consequences.

Paper Reduction

Government offices and agencies are notorious for the amount of paper that they utilize for routine transactions. To combat this problem, in 1998 the U.S. federal government passed the Government Paper Elimination Act (GPEA) which required the use of electronic means instead of paper, when possible, for all official business. The deadline for implementation was October, 2003. The GPEA plays a key role in supporting the growth of e-government (Fletcher, 2002). In effect, the GPEA made it a government mandate to move functions online, instead of leaving the decision to voluntarily adopt the use of Web-based information technology to individual agencies.

The use of electronic media for public administration services reduces many of the existing problems associated with paper-based methods for data collection. The most common problems to be addressed are loss of paper, destruction of data, and inconsistent data entry. The move towards paper reduction is not a panacea in itself, but it provides a platform where various constituents can interact with the government in an online environment. Some argue that without a paper trail, there can be a lack of accountability as well as the non-existence of a back-up mechanism if the electronic system fails.

Transaction Efficiency

Renewing a driver's license; issuing a new building permit; and collecting taxes are all typical daily transactions that occur between a government and her constituents. The constituents in these examples can individually or collectively involve a citizen, an employee, a business or another government agency. The use of electronic technology instead of a paper-based system usually results in increased efficiency.

How is efficiency measured? One classic and simple method for determining increased efficiency is time. If the transaction takes a smaller amount of time to complete using medium A instead of medium B, then it is more efficient. The use of e-commerce improves economic efficiency and provides a platform for sustaining growth (Bakos, 1998). E-commerce has been an important precursor for developments in the area of e-government. Consequently, many of the benefits harnessed from e-commerce implementation are evident in the e-government domain.

Savings of time and money are two of the most important factors to predict potential usage of e-government services (Gilbert, Balestrini, & Littleboy, 2004). In the area of public administration, all sectors can benefit from reduced costs and time efficiencies. Understandably, these benefits will not be achieved overnight. However there is great potential for increased transaction efficiency in the future.

Improved Governance

Governance refers to the systems, methods and procedures that define how a government operates. Improved governance and increased accountability is possible through the inclusion of societal participants in the major activities of governments (Ackerman, 2004). E-government provides the tools for increasing transparency in public administration.

Information in the hands of citizens makes them more connected to government and aware of internal processes that may initially have been perceived as a black box. When a citizen is able to access information, forms and reports, and execute transactions themselves in real-time, they achieve greater ownership of the process.

The Internet provides the platform for active participation in government, as well as an avenue for activism and lobbying that can affect the political process (Marche & McNiven, 2003). Participation by a large number of interest groups can improve overall governance in a particular region or country.

In a democratic society, increased transparency, as it relates to public policy, is generally perceived as a positive outcome. However, in more restricted societies, control of the Internet and Web-based activities is used as a tool for maintaining government control and affecting governance. Improved governance is thus an advantage of e-government that is constrained by the societal and political norms of the region in which it is implemented.

CHALLENGES OF E-GOVERNMENT IN PUBLIC ADMINISTRATION

There are numerous potential barriers related to the implementation of e-government. A recent paper identified the following as key barriers (Fahnbulleh, 2005):

- Concerns about inadequate security and privacy of data
- Unequal access to computer technology by citizens
- High initial costs of setting up an e-government solution
- Resistance to change

Different platforms identify these challenges in different manners. In this chapter we are specifically interested in the challenges and barriers as they pertain to effective public administration. The main challenges identified are trust, resistance to change, digital divide, cost and privacy and security concerns. Even though we discuss each of these separately they do not exist in isolation. One challenge can have an effect on one or more

of the other categories. For example resistance to change might be influenced by a lack of trust, or the digital divide can be further widened because of inadequate funding. In the following sections we explore the challenges in more detail.

Trust

Trust can be defined along two dimensions: as an assessment of a current situation, or as an innate personality trait or predisposition (Driscoll, 1978). Trust in itself varies with the individual and the situation. Issues pertaining to government can stimulate strong feelings of trust or mistrust in different constituents. The implementation of public administration functions via e-government requires the presence of two levels of trust. The first is that the user must be confident, comfortable and trusting of the tool or technology with which they will interact. The second dimension of trust pertains to trust of the government. If a constituent has limited trust in either the technology or the government, it hampers their use of e-government systems.

Trust is an important recurring theme in user decision making. More specifically, trust has been examined in the context of electronic commerce (Jarvenpaa, Tractinsky, & Vitale, 2000; Koufaris & Hampton-Sosa, 2004) and it is a significant factor affecting an individual's purchase decision. By extension, an individual constituent that has previously not established trust in the e-commerce domain can transfer that lack of trust to other areas, such as e-government.

Recently, confidential information on military veterans was compromised when a computer containing their personal information was lost. This type of incident can erode trust and user confidence in government systems. Trust, along with financial security, are two critical factors limiting the adoption of e-government services (Gilbert et al., 2004). It is thus important to maintain effective security mechanisms in the e-government domain to promote and protect consumer trust and confidence.

Resistance to Change

The innovation diffusion theory states that over time an innovation will diffuse through a population, and the rate of adoption will vary between those who adopt early—referred to as "early adopters"—and to those who adopt the innovation much later, referred to as "laggards" (Rogers, 1995). The varying rates of adoption indicate that some users are more resistant to accepting the innovation, which in this case is e-government.

The resistant to change phenomenon can explain much of the hesitation that occurs on the part of constituents in moving from a paper-based to a Web-based system for interacting with government.

Income, age, and education are all contributing factors that can result in resistance to the use of e-government initiatives. Further, innate personal characteristics, such as dogmatism, can work to increase an individual's resistance to change. If there is a great preference to maintain the existing status quo, then there is a greater likelihood that resistance to new methods of operation will persist. Long-term employees may be particularly susceptible to this problem, since they may have completed tasks the same way for many years.

Citizens, employees and businesses can all have their biases with respect to how transactions should be processed. However, government entities and public policy administrators cannot ignore the changes that occur as a result of the implementation of information and communication technology (ICT). In the early 1990s (Freeman, 1993) identified the important role that ICT would have in shaping public policy, and cautioned both rich and poor governments about neglecting its significance.

Education about the value of the new systems is one step toward reducing some of the existing resistance. It can also be particularly useful for a champion, such as a leader or manager, to buy into the new system at an early stage in the adoption process. The champion might be an employee that others respect, or a business that is known for setting trends in the industry.

Digital Divide

The digital divide refers to the separation that exists between individuals, communities, and businesses that have access to information technology and those that do not have such access. Social, economic, infrastructural and ethno-linguistic indicators provide explanations for the presence of the digital divide (Bagchi, 2005). Further the presence of the digital divide indicates that a community might not be fully equipped with the tools or knowledge to benefit from the implementation of e-government projects.

Many non-profit and community based organizations (CBO) provide valuable public services to various communities. Some of these organizations work very closely with government agencies via grant requests and information sharing. With the use of e-government for the dissemination of critical information, many of the smaller agencies that lack the necessary infrastructure may not reap the benefits available through the Web. In fact, many of the smaller CBOs succumb to the "organizational divide" where they lack the means to remain informed and current with the new technology (Kirschenbaum, Kunamneni, & Servon, 2002). The limited access to information can indeed impede an organization's willingness to support the adoption of new e-government projects in the public domain.

Economic poverty is closely related to limited information technology resources (Servon, 2002). An individual living at or below the poverty level is less likely to have a personal computer at home and may need to rely on work or public domains (such as public libraries) to provide access to e-government and other online services. Limited availability of the necessary information technology infrastructure can serve as a great deterrent to the adoption of any Web-based initiatives. As the digital divide narrows, broader adoption of e-government in the public domain becomes possible.

Cost

Cost is generally a prohibitive factor in the implementation of information technology, particularly in the public sector where other projects and initiatives might have a higher priority than e-government. Elected officials responsible for allocation of funds may also be unwillingly to promote such projects where the returns are not always visible in the short term and utilization of the technology is not guaranteed. Typically costs associated with e-government projects include: hardware, software, testing, training, migration to new system and maintenance. In 2004, the United Kingdom and Singapore respectively spent 1 percent and 0.8 percent of their gross domestic product (GDP) on e-government. Other nations are spending even less, because of other economic, social and political obligations. In the near future, cost will continue to be a significant challenge to extensive and comprehensive implementation of e-government projects for public administration.

Privacy and Security

Three basic levels of access exists for e-government stakeholders: no access to a Web service; limited access to a Web-service or full-access to a Web service, however when personal sensitive data exists the formation of the security access policy is a much more complex process with legal consideration (Wong, Tam, & Cheng, 2006). With the implementation of e-government projects, effective measures must be taken to protect sensitive personal information. A lack of clear security standards and protocols can limit the development of projects that contain sensitive information such as income, medical history. Further, users must be confident that the Websites they visit and transactions they complete are safeguarded against theft, fraud and unauthorized access. A one size model cannot fit all consumers.

FUTURE TRENDS

The last decade represented an era of strong growth in the domain of e-government. However, issues related to security continue to be a challenge. As more information is collected, additional vulnerabilities are exposed. Indeed, security is poised to be a recurring problem in this domain as the growth in this area continues to take place.

Great strides have been made in recent years and new practices and procedures are in the developmental stage. One of the future bridges between e-government and the implementation of public policy is electronic voting (e-voting). Even though the concept of e-voting still faces many concerns and challenges (Stone, 2006), it will remain on the public policy agenda for many years to come.

Besides security and e-voting, universal access to government services will also be an important issue in the future. In particular, individuals with special needs, seniors and persons with disabilities will be given strong focus. Full e-government access to persons with a disability is yet to be achieved (Jaeger, 2004). As the world's population ages, senior citizens will present unique needs and will request services that must be delivered in a manner that is readily accessible to them.

The issues presented above represent only a small portion of those future issues that will be relevant within the e-government—public administration landscape. The list is by no means exhaustive. As work in this area continues, new challenges will occur. Similarly, both tangible and intangible benefits, that were not previously expected, will be gained.

CONCLUSION

The use of information technology is clearly one of the major potential solutions in the desire to achieve improved governance. The use of e-government services to improve public administration functions will continue to have a strong impact on the operation of federal, state and local governments. E-government can also serve as a catalyst for the radical redesign of governmental organizations and agencies. There are numerous benefits and challenges that can result from these changes.

Change is inevitable and the movement to use technology to improve public administration services has been launched. It is thus critical that all necessary steps be taken to make these new ventures a success. This will require continued cooperation and support for all constituents: citizens, employees, businesses and government agencies.

Whether e-government in the public sector will flourish, or the implementation barriers will retard its evolution, will be determined by time. Ultimately, efforts will continue to propel growth, and effective assessment measures must be available to determine the level of success.

FUTURE RESEARCH DIRECTIONS

This section contains specific research directions, highlighting both managerial and technical aspects of e-government. In addition to the previously mentioned trends of security, e-voting, and universal access to government services, there are numerous other potential future areas of research related to e-government and the public sector. Most of these will either directly or indirectly involve the use of ICTs to address the challenges of improved governance.

Broad research directions include the technologies supporting e-governance, as well as e-democracy, privacy and the socio-economic impact of ICTs on public administration. E-governance involves an increased reliance on shared access to, and transmission of, stored knowledge in the form of digital data by public institutions. Further research can explore the user of technologies such as intelligent agents, virtual learning, global databases, and networked, digital libraries, as well as the impact of new media on ICT processes in public administration.

A subset of e-governance, known as e-democracy, involves providing services that enable democratic communication and civic participation among constituents through the use of shared digi-

tal networks. For example, research could involve the extent to which ICTs can improve democratic participation as well as the development of best practices for such participation.

The online provision of public information and services involves issues of privacy and raises questions concerning the protection of personal information. Although technological progress that helps to protect privacy is ongoing, much still needs to be accomplished in this area in understand the impact of ICTs on privacy and to safeguard the growing repositories of data that are required by an increasing reliance on ICTs. Research is needed to identify options for further development and to assess the legal, social and political consequences of inadequate privacy.

Finally, the socio-economic impacts of ICTs on public administration are potentially rich areas of research to pursue. Further understanding of the activities and relationships between citizens, organizations, public entities and other participants in the public administrations arena will be needed in order to insure that effective processes and systems are developed in the future. The opportunities for further exploration in these and other areas related to e-governance appear to be numerous and rich with potential.

The area of e-government provides a rich platform for both quantitative and qualitative research methods. To further develop the above suggested topics both researchers and practitioners can employ surveys, interviews and case studies to develop explanations and make predictions on the impact of e-government in the area of public administration.

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TERMS AND DEFINITIONS

E-Government: Government functions and services administered to citizens, businesses, employees and other government agencies via the use of the Internet. The four main categories are: government to citizens (G2C); government to businesses (G2B); government to employees (G2E); and government to government (G2G).

Early Adopters: Refers to the population of users that are among the first to purchase or use a new technology.

Laggards/LateAdopters: Refers to the population of users that adopt an innovation at a much later time.

Innovation: A product, process or idea that is perceived as novel to the user or audience.

Internet: Public network of computers, including servers and client machines.

Intranet: Private network of computers supporting a business or organization.

Public Administration: Refers to the products and procedures that the government implements to interact with its constituents: citizens, businesses, employees and other governments.