E-Government Fundamentals

Author

Alshehri, Mohammed, Drew, Steve

Published

2010

Conference Title

Proceedings of the IADIS International Conference ICT, Society and Human Beings 2010

Copyright Statement

Downloaded from

Link to published version

Griffith Research Online

E-GOVERNMENT FUNDAMENTALS

Mohammed Alshehri and Steve Drew
School of ICT, Griffith University
Brisbane, Australia

ABSTRACT

Effective e-government is becoming an important aim for many governments around the world. Within this context this paper aims to review and reorganize the previous work about e-government such as: e-government definition, types, advantages and barriers to e-government. It provides essential background knowledge to the research subject, as well as highlighting the main concepts of e-government.

KEYWORDS

E-government, Fundamentals, Types, Advantages, Barriers.

1. INTRODUCTION

Information and Communication Technology (ICT) is one of the most important characteristics of our age and every new development changes our lives to some extent. Its evolution has dramatically changed how citizens interact with their government, creating an important development in their expectations (Dodd, 2000). Following e-commerce's evolution in the private sector, electronic government (e-government) seems to be the next generation of the development in the public sector. More and more governments around the world are introducing e-government as a means of reducing costs, improving services for citizens and increasing effectiveness and efficiency at national, regional and local levels of the public sector. 179 out of 192 UN members reported that they developed strategies to implement e-government systems and therefore e-government has been identified as one of the top priorities for governments across the world (UN, 2008). The main concepts of e-government will be discussed in following sections.

2. E-GOVERNMENT DEFINITION

E-government is also known by different terms such as Electronic Government, Electronic Governance, Digital Government, Online Government, e-Gov etc. (Grönlund, 2004, p. 1). In fact, there are many definitions for the term e-Government and differences reflect the priorities in the government strategies. Fang (2002) defined e-government as a way for governments to use the most innovative information and communication technologies, particularly web-based Internet applications, to provide citizens and businesses with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate in democratic institutions and processes (2002, 1). Moreover, the term "e-government", as used by the OECD E-government Project, applies to the use of ICT as a tool to achieve better government. Therefore, e-Government is not about business as usual, but should instead focus on using ICT to transform the structures, operations and, most importantly, the culture of government. The OECD report highlights that e-government is an important component in terms of overall reform agendas because it serves as a tool for reform; renews interest in public management reform; highlights internal consistencies; and underscores commitment to good governance objectives (OECD, 2003). World Bank, (2001) define E-government as the government owned or operated systems of information and communication technologies that transform relations with citizens, the private sector and/or other government agencies so as to promote citizens' empowerment, improve service delivery, strengthen accountability, increase transparency, or improve government efficiency (Ndou, 2004).

3. TYPES OF E-GOVERNMENT

E-government offers services to those within its authority to transact electronically with the government. These services differ according to users' needs, and this diversity has given rise to the development of different type of e-government. E-government functions can be classified into four main categories.

3.1 Government-to-citizen (G2C)

The majority of government services come under this application, towards providing citizens and others with comprehensive electronic resources to respond to individuals' routine concerns and government transactions. Government and citizens will continuously communicate when implementing e-government, thus supporting accountability, democracy and improvements to public services. The primary goal of e-government, is to serve the citizen and facilitate citizen interaction with government by making public information more accessible through the use of websites, as well as reducing the time and cost to conduct a transaction (Ndou, 2004). In applying the idea of G2C, customers have instant and convenient access to government information and services from everywhere anytime, via the use of multiple channels. In addition to making certain transactions, such as certifications, paying governmental fees, and applying for benefits, the ability of G2C initiatives to overcome possible time and geographic barriers may connect citizens who may not otherwise come into contact with one another and may in turn facilitate and increase citizen participation in government (Seifert, 2003).

3.2 Government-to-business (G2B)

Government to business, or G2B, is the second major type of e-government category. G2B can bring significant efficiencies to both governments and businesses. G2B include various services exchanged between government and the business sectors, including distribution of policies, memos, rules and regulations. Business services offered include obtaining current business information, new regulations, downloading application forms, lodging taxes , renewing licenses, registering businesses, obtaining permits, and many others. The services offered through G2B transactions also play a significant role in business development, specifically the development of small and medium enterprises (Pascual, 2003). Fang (2002) argued that G2B applications actively drive e-transaction initiatives such as e-procurement and the development of an electronic marketplace for government purchases; and carry out government procurement tenders through electronic means for exchange of information and goods. This system benefits government from business' online experiences in areas such as e-marketing strategies. The government-to-business G2B is as useful as the G2C system, enhancing the efficiency and quality of communication and transactions with business also, it increase the equality and transparency of government contracting and projects (Moon, 2003).

3.3 Government-to-government (G2G)

This refers to the online communications between government organizations, departments and agencies based on a super-government database. Moreover, it refers to the relationship between government and its employees as outlined below. The efficiency and efficacy of processes are enhanced by the use of online communication and cooperation which allows for the sharing of databases and resources and the fusion of skills and capabilities. It renders information regarding compensation and benefit policies, training and learning opportunities, and civil rights laws in a readily accessible manner (Ndou, 2004). The vital aim of G2G development is to enhance and improve inter-government organizational processes by streamlining cooperation and coordination .On another G2G front, the use of information technologies by different governmental agencies to share or centralize information, or to automate and streamline intergovernmental business processes such as regulatory compliance, has produced numerous instances of time and cost savings and service enhancements (Gregory, 2007).

3.4. Government-to-employee (G2E)

Government to employee is the least sector of e-government in much e-government research. Some researchers consider it as an internal part of G2G sector and others deal with it as a separate sector of e-government (Riley, 2001).G2E refers to the relationship between government and its employees only. The purpose of this relationship is to serve employees and offer some online services such as applying online for an annual leave, checking the balance of leave, and reviewing salary payment records, among other things (Seifert, 2003). It is a combination of information and services offered by government institutions to their employees to interact with each other and their management. G2E is a successful way to provide e-learning, bring employees together and to encourage knowledge sharing among them. It gives employees the possibility of accessing relevant information regarding compensation and benefit policies, training and learning opportunities, and allowing them access to manage their benefits online with an easy and fast communication model. G2E also includes strategic and tactical mechanisms for encouraging the implementation of government goals and programs as well as human resource management, budgeting and dealing with citizens (Ndou, 2004).

4. BENEFITS OF E-GOVERNMENT

The adoption and use of the e-government strategy can provide significant benefits for government in the delivery of more effective and efficient information and services to all e-government sectors. It enables government agencies to align their efforts as needed to improve service and reduce operating costs (Ndou, 2004). OECD (2006) thoroughly examined e-government initiatives in its members' countries and listed the advantages of e-government as: improving efficiency in processing large quantities of data; improving services through better understanding of users' requirements, thus aiming for seamless online services; helping achieve specific policy outcomes by enabling stakeholders to share information and ideas; assisting government economic policy objectives by promoting productivity gains inherent in ICT and e-commerce; contributing to governments' reform by improving transparency, facilitating information sharing and highlighting internal inconsistencies; and helping build trust between governments and their citizens, an essential factor in good governance by using internet-based strategies to involve citizens in the policy process, illustrating government transparency and accountability.

E-government has potential for stronger institutional capacity building, for better service delivery to citizens and business, for reducing corruption by increasing transparency and social control (United Nations Division for Public Economics and Public Administration, 2001, p. 5). A study by the Intergovernmental Advisory Board (2003, p. 1) "High Payoff in Electronic Government: Measuring the Return on e-Government Investments" recommends that any successful e-government program should address at least one of the following areas: financial – reduced costs of government operations with enhanced revenue collection; economic development; reduced redundancy - consolidating and integrating government systems; fostering democratic principles; and improved service to citizens and other constituencies.

Deloitte Research study (2003) states that the strategic application of IT mainly e-government has the potential to radically reduce the amount of time, money and effort that businesses and citizens must spend to comply with rules and regulations. It might do so in many ways: providing information in one easy-to-access location; simplifying delivery of services to citizens; improved interactions among government units and with business, industry and citizens; improved productivity (and efficiency) of government agencies; simplifying and streamlining reporting requirements; reducing the number of forms; making it possible for citizens, businesses, other levels of government and government employees to easily find information and get service from the government and government agencies; making transactions (paying fees, obtaining permits) easier; and more effective, cheaper and more convenient delivery of information, knowledge and services. Seifert & Bonham (2003) point out that implementation of e-government not only saves resources, but it can also significantly increase service levels by reducing time spent in bureaucracy. The desire to provide new and improved services has a tendency to concentrate more on improving the citizen's experience interacting with the government when seeking out information or trying to obtain various services. The evolution of e-government and technology creates the potential for new services to emerge, which contributes to improved service quality.

5. BARRIERS OF E-GOVERNMENT IMPLEMENTATION

There are several challenges that can delay progress towards realizing the promise of e-government. The variety and complexity of e-government initiatives implies the existence of a wide range of challenges and barriers to its implementation and management. This section, will briefly introduce the most important and common challenges and barriers as follows.

5.1 ICT Infrastructure

The implementation of e-government initiatives face some technological difficulties such as lack of shared standards and compatible infrastructure among departments and agencies. ICT infrastructure is recognised to be one of the main challenges for e-government. Internetworking is required to enable appropriate sharing of information and open up new channels for communication and delivery of new services (Ndou, 2004). For a transition to electronic government, an architecture providing a uniform guiding set of principles, models and standards, is needed. Sharma & Gupta (2003) point out that implementation of the whole e-government framework requires a strong technology infrastructure. In order to deliver e-government services, government must therefore develop an effective telecommunication infrastructure. In addition, they stated that successful e-government implementation would depend upon how the capacities of various infrastructures are structured and how they are capitalized with an integrated focus.

5.2 Privacy

Privacy and security are critical obstacles in implementation of e -government in citizen concern (OECD, 2003). Privacy refers to the guarantee of an appropriate level of protection regarding information attributed to an individual (Basu, 2004). Government has an obligation to ensure citizens' rights regarding privacy, processing and collecting personal data for legitimate purposes only (Sharma & Gupta, 2003). Concerns about website tracking, information sharing, and the disclosure or mishandling of private information are universally frequent. There is also the concern that e-government itself will be used to monitor citizens and invade their privacy. Seifert (2003) emphasised that e-government should be approached with an eye toward the protection of individual privacy. Both technical and policy responses may be required when addressing the privacy issue in an e-government context. In addition, there is a need to respond effectively to privacy issues in networks in order to increase citizen confidence in the use of e-government services. Citizen confidence in the privacy and careful handling of any personal information shared with governmental organizations is essential to e-government applications. Basu (2004) mentioned that in developing countries, many people are so concerned with privacy and confidentiality issues they decide to forego e-government opportunities. A comprehensive privacy policy should specify citizens' rights to privacy and mandate that personal data be collected and processed only for legitimate purposes (Teeter & Hart, 2003).

5.3 Security

Security of an information system means protection of information and systems against accidental or intentional disclosure to unauthorized access, or unauthorized modifications or destruction (Layton, 2007). It refers to protection of the information architecture including network, hardware and software assets and the control of access to the information itself (Basu, 2004). Furthermore, Seifert, (2003) points out that information security, referred to as cyber security or computer security, is an important e-government challenge as it is a vital component in the trust relationship between citizens and government. Thus, security policies and standards that meet citizen expectations are an important step toward addressing these concerns (Sharma & Gupta, 2003). Security can be classified into two elements: network security and documents security. It should include maintenance and e-infrastructure protection in the form of firewalls and limits on those who have access to data. Furthermore, the use of security technology, including digital signatures and encryption, to protect user IDs, passwords, credit card numbers, bank account numbers, and other such data being transmitted over the Internet and stored electronically is essential to fulfilling security goals in e-government applications (Feng, 2003). People need to be educated on the importance of security measures,

such as private passwords, to ensure their own protection. Cohen & Emicke (2002) point out that while security will remain an obstacle to e-government, it will not extensively affect its progress as the public learns to work with and accept its occasional lapses. Also, they mentioned three keys that affect the success of security. The first involves continuous improvement and upgrades in an attempt to stay ahead of criminals. The second is that security be visible and foreboding to deter would be criminals. Finally, it must be accepted that no security system is perfect and that all can eventually be overcome. However, governmental organizations, being responsible for the collection, maintenance, and distribution of sensitive or confidential information, should consider methods of providing security for collected information as well as for their web sites. Thus, a body of security professionals should be setup to respond to threats and breaches. Also the need for authority and an infrastructure encryption system has to be given top-priority (Feng, 2003).

5.4 Policy and Regulation Issues

Feng (2003) points out that e-government is not a technical issue, but rather an organizational issue. Implementation of e-government principles and functions requires a range of new rules, policies, laws and governmental changes to address electronic activities including electronic archiving, electronic signatures, transmission of information, data protection, computer crime, intellectual property rights and copyright issues. Dealing with e-government means signing a contract or a digital agreement, which has to be protected and recognized by a formalized law, which protect and secure these kinds of activities or processes. In many countries, e-business and e-government laws are not yet available. Establishing protections and legal reforms will be needed to ensure, among other things, the privacy, security and legal recognition of electronic interactions and electronic signatures (Caldow, 1999). The effort must incorporate a holistic view, one that is not just focused on technology. Legal reforms and new policy directives may have to be adopted before the online world can function smoothly. Archaic laws, old regulatory regimes, overlapping and conflicting authorities can all greatly complicate or altogether halt a project.

5.5 Lack of Qualified Personnel and Training

Another major challenge of an e-government initiative can be the lack of ICT skills. This is a particular problem in developing countries, where the constant lack of qualified staff and inadequate human resources training has been a problem for years (UNPA&ASPA, 2001). The availability of appropriate skills is essential for successful e-government implementation. E-government requires human capacities: technological, commercial and management. Technical skills for implementation, maintenance, designing and installation of ICT infrastructure, as well as skills for using and managing online processes, functions and customers, are compulsory. To address human capital development issues, knowledge management initiatives are required focusing on staff training in order to create and develop the basic skills for e-government usage. Ongoing access to training is a fundamental prerequisite as the rate of change increases and new technologies, practices and competitive models appear. The full economic benefits of ICT depends on a process of training and learning skills, this is universal for all governments (OECD, 2003).

5.6 Lack Partnership and Collaboration

Collaboration and cooperation at local, regional and national levels, as well as between public and private organizations, are important elements in the e-government development process. However, collaboration and cooperation are not easy factor to achieve. Governments often exhibit considerable resistance to open and transparent systems as they try to preserve their authority, power and hierarchical status (Nodu, 2004). Citizens distrust their governments, especially where there has been a history of dictatorship, political instability or large-scale corruption. To ensure that the public and stakeholders will be partners in the e-government effort, it is important to try to build trust in government (Carvin, 2004). Collaboration between the private and public sectors is needed too, in order to provide resources, skills and capabilities that the government may lack. A 'new' development model is emerging that focuses on partnership among stakeholders in the knowledge-based development program. Government should play the role of facilitator and encourage the private sector to participate in e-government development and implementation (Nodu, 2004).

5.7 Digital Divide

The ability to use computers and the Internet has become a crucial success factor in e-government implementation, and the lack of such skills may lead to marginalization or even social exclusion (UNPA & ASPA, 2001). The digital divide refers to the gap in opportunity between those who have access to the Internet and those who do not. Those who do not have access to the Internet will be unable to benefit from online services (OECD, 2003). In the case of the digital divide, not all citizens currently have equal access to computers and Internet, whether due to a lack of financial resources, necessary skills, or other reasons. In fact, computer literacy is required for people to be able to take advantage of e-government applications. Government should train its employees and citizens in basic skills of dealing with the computer and Internet in order to let them participate in e-government development applications. In addition, Smith (2002) points out that making computer available in public locations, such as grocery stores, post offices, libraries, and shopping malls, may help in addressing the gap between those households that have access to the Internet and data services and those who do not. Feng (2003) mentioned that the lack of Internet access among certain sections of the population was considered the most important barrier to e-government development. Indeed, this lack of access among vulnerable or low-income citizens prevents them from being able to make use of those services provided specifically to them. UN (2008) survey found that an increasing in digital divide in developing countries increases the cost of technical barriers in launching and sustaining e-government services.

5.8 Culture

Some barriers to the implementation of e-government are not technical, but the cultural implications of new technologies. Personal characteristics and subjective conditions are more likely to be influenced by cultural factors than are the objective conditions surrounding the development and diffusion of new technology (DeLisi, 1990). Cultural norms and individual behaviour patterns play a role in how citizens and policy makers use technology. Because culture plays a significant role in an individual's outlook, many people resist change and adopt new technologies slowly and with great deliberation (Feng, 2003). Hackney & Jones (2002) identified that improving working relationships between internal departments and external agencies, and adopting a corporate approach as keys to successful e-government. To achieve this, it was felt that major cultural changes are necessary. Organizational development should be included in the implementation process so that internal cultural changes are accommodated. Chang (2002) states that culture can be determined by several factors: social structure, religion, language, education, economic philosophy and political philosophy. Technical enhancements are not only structural changes, but also cultural changes. These cultural changes, though not as easily tangible, must receive at least as much planning so that technical change is implemented successfully.

5.9 Leaders and Management Support

The literature shows that without support from the top management, an innovation is less likely to be adopted. Thus, e-government implementation needs the support from the highest level of government for successful implementation. Top management support refers to the commitment from top management to provide a positive environment that encourages participation in e-government applications. Therefore, it plays a significant role in the adoption and implementation of e-government (Akbulut, 2003). Leadership involvement and clear lines of accountability for making management improvements are required in order to overcome the natural resistance to organizational change, to gather the resources necessary for improving management, and to build and maintain the organization-wide commitment to new methods of conducting government (McClure, 2001). The involvement of high-level leadership, as well as an integrated vision of IT, is vital to vertical e-government planning, the acquisition of necessary resources, the motivation of officials, the support of dealings with external partners and stakeholders, to interagency and ministry co-ordination. As can be observed in transitional democracies and developing countries, political leadership and an integrated vision of IT are what drive the development of e-government. Leaders who perceive a potential gain from the promotion of e-government are more likely to support such initiatives, even in the face of obstacles, while those who believe that they stand to lose from the implementation of e-government cannot be counted on for

sustained support (Seifert & Bonham, 2003). Therefore, government needs to educate the upcoming ranks of government leaders, managers and administrators in planning and managing ICTs across all public sectors, focusing on access opportunity, economic development, and effective delivery of public information and services (OECD, 2003).

6. CONCLUSION

E-government has the potential to greatly improve how government operates internally and how it serves its customers. E-government is much more than a tool for improving cost-quality ratios in public services. It is an instrument of reform and a tool to transform government. Thus, e-Government is not primarily about automation of existing procedures (which may or may not be effective), but about changing the way in which government conducts business and delivers services (The World Bank, 2005). This paper examined the literature to define and illustrate the types, stages, advantages and barriers of e-government. It is clear that e-government has many advantages to offer to all sectors of government. However, many critical issues face the implementation of e-government, some of which are non-technical in nature with wide impact and require comprehensive planning. The findings in this paper indicate that it is important to conduct deep research into obstacles facing e-government implementation and understand the relationship between these barriers in order to offer some solution to overcome them. More research will be conducted on e-government implementation stage models to investigate what is required for governments to apply stages incrementally in each separate department, and how governments might apply them to the whole organization as one project.

7. FUTURE WORK

The outcome of this paper indicates that it is important to conduct deep research into obstacles facing e-government implementation and understand the relationship between these barriers in order to offer some solution to overcome these challenges. More research could be conducted on e-government implementation stage models to investigate if the government can apply all the stages in every single department, or whether government have to apply it to the whole organization as one project.

REFERENCES

Akbulut, A. (2003). An investigation of the factors that influence electronic information sharing between state and local agencies. Louisiana State University.

Chang, L. (2002) Cross-Cultural Differences in International Management using Kluckhohn-Strodtbeck framework. Journal of American Academy o Business,Vol. 2, Issue. 1.

Basu, S. (2004). E-government and Developing Countries: an Overview. International Review of Law Computers and Technology, 18, (1), 109-133.

DeLisi, P.S (1990) Lessons from the Steel Axe: Culture, Technology and Organisation Change, Sloan Management Review, 32, (1), 83-93.

Deloitte Research. (2003). Citizen advantage: Enhancing economic competitiveness through e-government. Available at http://www.deloitte.com/dtt/cda/doc/content/Citizen_Advantage%282%29.pdf Accessed on 27 /8/ 2009.

Dodd, J. (2000) Delivering on the E-government Promise. A Government Technology Industry Profile: NIC. from http://bilisimsurasi.org.tr/cg/egitim/kutuphane/NIC.qxd.pdf. Accessed on 13/ 8/ 2009.

Fang, Z. 2002. E-Government in Digital Era:Concept, Practice, and Development, Thailand

Feng. L. (2003). Implementing E-government Strategy is Scotland: Current Situation and Emerging Issues. Journal of Electronic Commerce in Organizations 1(2), 44-6

Gregory, G. (2007) .E-government . Encyclopedia of political Communications. Los Angeles

Grönlund, Å. (2004). Introducing e-Gov: History, definitions, and issues. Communications of the Association for Information Systems, 15, 713-729.

Layton, T. (2007). Information Security: Design, Implementation, Measurement, and Compliance. Boca Raton, FL: Auerbach publications

McClure, D. (2001) Electronic Government: Challenges Must Be Addressed with Effective Leadership and Management. GAO-01-959T, Testimony before the Senate Committee on Governmental Affairs, on behalf of the U.S. General Accounting Office, http://www.gao.gov/new.items/d01959t.pdf , Accessed on 8/10/2009

Moon, M. (2002) The evolution of e-government among municipalities: rhetoric or reality. Public Administration Review 62 (4), 424-33.

Ndou , V. (2004). E-government for developing countries: opportunities and challenges. The Electronic Journal on Information Systems in Developing Countries 18 (1), 1-24.

OECD (2003), OECD E-Government Flagship Report "The E-Government Imperative," Public Management Committee, Paris:OECD.

OECD. (2006). Proposed outline for assessing e-government benefits. Retrieved Oct 8, 2009, from http://webdomino1.oecd.org/COMNET/PUM/egovproweb.nsf/viewHtml/index/$ FILE/GOV.PGC.EGOV.2006.1.doc, Accessed on 10/11/2009

Pascual,P. (2003). E-Government, E-Asian Task Force and the UNDP Asia Pacific Development Information Programme (UNDP-APDIP), Manilla

Riley, B.T. (2001) Electronic Governance and Electronic Democracy: Living and Working In The Connected World, Vol. 2, Commonwealth Centre For Electronic Governance, Brisbane, Australia.

Seifert, W. (2003). A Primer on E-Government: Sectors, Stages, Opportunities, and Challenges of Online Governance. Congressional Research Service: The Library of Congress.

Seifert, W & Bonham, G. (2003). The Transformative Potential of E-Government in Transitional Democracies. Public Management. Electronic journal Issue № 2. 22

Sharma, S & Gupta, J. (2003). Building Blocks of an E-government-A Framework. Journal of Electronic Commerce in Organizations, 1(4), 1-15.

Smith Barry (2002). E-government in Local Council's. Hunter's Hill Council.

Teeter, R., & Hart, p., (2003). The new e-government equation: ease, engagement, privacy and protection. The council for Excellence in Government.

United Nations Division for Public Economics and Public Administration, (2001). Benchmarking Egovernment: A Global Perspective - Assessing the Progress of the UN Member States., from http://pti.nw.dc.us/links/docs/ASPA_UN_egov_survey1.pdf Accessed on 19/12/2009.

United Nations, (2008). UN e-government survey 2008: from e-government to connected governance. United Nations, New York, from: http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028607.pdf. Accessed on 19/10/2009.

World Bank (2001) Issue Note: E-Government and the World Bank. November 5