E-Government Services Framework

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INTRODUCTION

E-government generally refers to the delivery of national or local government information and services via the Internet or other digital means (Relyea, 2002). E-government refers to the ability of government to interact electronically with citizens, businesses, and other governmental entities. The interaction may be in the form of obtaining information, filings, or making payments, and a host of other activities via the World Wide Web (Abramson & Means, 2001; Bertucci, 2003; Sharma, 2004; Sharma & Gupta, 2002).

The benefits of e-government usually include improved: quality of citizen services, internal efficiencies, law enforcement, education and information, promotion and outreach activities, safety and security, health care services and management, and involvement of citizens in the democratic process. Many believe that e-government can provide seamless services to draw agencies together, leading to more citizen-centric services (Grönlund, 2002; Gurstein, 2000; Venkatachalam, Shore, & Sharma, 2003). Many countries have decided to employ information and communication technologies (ICTs) to enhance delivery of government services to their citizens, and are thus at various stages of e-government implementation (Ho, 2002; Holliday, 2002; Layne & Lee, 2001; Netchaeva, 2002; United Nations & American Society for Public Administration, 2002; Sharma, 2004; Sharma & Gupta, 2002, 2003; Taylor, 2002). After examining studies conducted by various researchers on e-government models and frameworks, this article presents a holistic approach to create an e-government framework.

BACKGROUND

Virtually all developed and other OECD nations have launched comprehensive and challenging e-government initiatives and all levels of governments are increasingly using the Internet as another way to deliver information and services to citizens (Fletcher, 2002). E-government constitutes the way public sector institutions use technology to apply public administration principles and conduct the business of government (Riley, 2003a, 2003b; Riley & Riley, 2003). There are several models that attempt to explain the way in which e-government has evolved or is evolving. The first step into the e-government (or online government) world is a basic Web presence. Accenture (2003) describes three levels of online delivery capability before the final stage of service transformation (Ho, 2002; Sharma, 2004; Sharma & Gupta, 2003; UN, 2002; UNDESA, 2003).

Various authors have described four to six stages of e-government implementation (Layne & Lee 2001; Moon, 2002; Netchaeva, 2002; Sharma & Gupta, 2003; Silcock, 2001: United Nations & American Society for Public Administration, 2002) but all of them show the development of e-government services as an evolutionary process. For example, Silcock (2001) describes six stages which she characterizes as dynamic; these include: information publishing/dissemination, official two-way transaction, multipurpose portals, portal personalization, clustering of common services, and full integration and enterprise transformation. Netchaeva (2002) describes more or less similar stages without giving them specific terms, but she condenses them to five stages, whereas the UN (2002) categorizes five stages as: emerging, enhanced, interactive, transactional, and seamless (fully integrated). Layne and Lee (2001) proposed a four-stage growth model for e-government development: cataloguing, transaction, vertical integration, and horizontal integration. The cataloguing stage is the one in which governments establish an online presence. The Web site is usually one in which government information is made available. In the second stage, transaction, government customers are permitted to enter into transactions online, such as paying license fees and fines. The third stage, vertical integration, is one in which local, state, and federal agencies engaged in fulfilling the same customer need, or function, are linked together so as to form a seamless service. In the final stage of their model, horizontal integration is applied to break down the boundaries between functional silos within government.

Moon proposed a five-stage model, with stages named: information dissemination/cataloguing, two-way communication, service and financial transactions, vertical and horizontal integration, and political participation. Moon's stages one and two are extensions of Layne and Lee's stage one. His stage three is Layne and Lee's transaction stage. The two stages of vertical integration and horizontal integration that Layne and Lee had in their model have been concatenated into one stage by Moon. Moon has a

fifth stage that recognizes the political dimension of e-government.

Sharma and Gupta's e-government framework not only includes the stages of growth model like Layne and Lee, but also contains supporting structures that are needed to achieve e-government stages and the delivery channels of e-government (Sharma & Gupta, 2003).

AN E-GOVERNMENT FRAMEWORK

Implementing a comprehensive e-government framework is a challenging task, as it requires many agencies, departments, and policy makers to coordinate their efforts, in addition to preparing the technology and support infrastructure; the soft infrastructure which includes the laws, rules, and regulations that must be changed in order to facilitate the development of both the new infrastructure and information services (Detlor & Finn, 2002; Kaaya, 2003). The previously described e-government's frameworks or models only describe the "supply side" of an e-government framework. These frameworks could be helpful to measure the presence and delivery of government service through the Internet or other digital means, however, these frameworks do not provide any indicator to measure the quality of service, the amount of citizens' engagement and participation, and use of service (West, 2001; Economic and Social Commission for Western Asia (ESCWA), 2003; European Commission/CGE&Y Study, 2002; United Nations & American Society for Public Administration, 2001). The philosophy of e-government should result in citizen-cantered and demand-oriented online service delivery (La Porte, Demchak, & de Jong, 2002; LaVigne, Simon, Dawes, Pardo, & Berlin, 2002; Zweers, & Planqué, 2001). Our proposed framework, as shown in Figure 1, is more holistic in nature and addresses both the demand and supply side of e-government implementation.

Back End Systems

Back end systems consisting of legacy data applications, ERP, workflow system, document management systems, and other data management systems. This part of the framework suggests that whatever the stage of e-government, it requires a massive integration of data that is spread across many government agencies. Many document technologies like imaging document management and workflow technologies, ERP systems, e-mail, and groupware systems are integrated to achieve structure and efficiency for data management (Dawes & Pardo, 2002; Knapp & Sanders, 2000). It also suggests that the integration of data may also result in much reengineering of various government processes (Sharma, 2004; Sharma & Gupta, 2003).

The Supply Side

The supply side stages of e-government evolution are well addressed by most of the researchers whereby the evolution is usually depicted as a four-stage process. These stages are: presence, interaction, transaction, and transformation as illustrated in Figure 1 (Sharma, 2004; Sharma & Gupta, 2003).

The Demand Side

The demand side of the framework describes customers' (including citizens, businesses, government, and employees) access to online government services through multiple channels. Including this in the framework ensures that e-government addresses the need for a critical mass of manpower, knowledge, and skills sufficient to support an e-governance strategy. Unless citizens are trained and have requisite skills to participate in e-governance, citizens' participation, and engagement would be a difficult task for evolving electronic democracy (O'Siochru & Constanza-hock, 2003; Sharma & Gupta, 2003; Surman & Reilly, 2003; Watson & Mundy, 2001).

The framework for e-government is incomplete if it is not supported with a required legal and regulatory infrastructure. The support infrastructure includes an integrated network of banks and financial institutions to serve as an automatic clearing house and a legal and regulatory structure to support payments online and protect privacy. Security must be a top priority during the creation of a support infrastructure for an e-government (Cresswell & Pardo, 2001).

FUTURE TRENDS

The contemporary literature on e-government shows that while most governments worldwide have a presence on the Web and are at least at the beginning stages of e-government development, few of them offer sophisticated online services involving interactive transactions (Gant, 2004; Garson, 2004; Sharma, 2004). E-government is rapidly moving to its full potential of e-governance and e-democracy (United Nations & American Society for Public Administration, 2002; UNPAN, 2002). E-government will ultimately lead towards direct democracy. Direct democracy means direct vote of all (interested) citizens on all important issues. Each vote should be preceded by a wide discussion and self-education of the citizens on the issue(s) to be decided. This would require unrestricted