Framework for Evaluating Global E-Government Websites

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ABSTRACT

The proliferation of government involvement in e-initiatives has gained significant recognition across the globe. Evidence from previous studies suggests that e-government programs are beneficial to participating countries. Specifically, researchers have suggested that e-government programs enhance the delivery of cost effective service to stakeholders of governmental institutions. Based on established principles of Web design and e-government practices, this study proposes a framework for assessing e-government websites that are made for a global audience.

INTRODUCTION

With the exponential growth of commercial activities via the Internet and the gradual reduction of access barriers to this mode of communication across the globe, the electronic marketplace is becoming the preferred medium of exchange of goods and services. For example, the Forrester Research Group (2005) recently predicted that the size of global online transactions will grow to $12.8 trillion in 2006. Yu and Fang (2005) also point out that the pace of investment in global information infrastructure has increased considerably during the last decade with annual investments of over $180 billion dollars. Researchers in the information technology discipline, Liu, Koong and Chugani (2005) have also pointed to the increase in the popularity of the internet in our present modern society because governmental agencies such as the Department of Education and the Housing and Urban Development Agency in the United States have provided grants that have minimize the Digital Divide. In response to these developments in the commercial electronic marketplace in the United States, the governments of various countries across the globe are also beginning to implement Internet enabled service delivery programs geared towards the needs of their stakeholders. (World Market Research Center, 2001; Lee-Kelley and James, 2003).

Recently, academic researchers, and global research organizations such as the United Nations (UN) have consistently emphasized the global saliency of the emergence of the delivery of

government services via the Internet (UN, 2003). These Internet enabled service delivery programs deployed by the different government institutions across the globe is popularly referred to as "E-government." E-government researchers such as Banerjee and Chau (2004) and Basu (2004) point out that e-government operation are common to varying government institutions in different countries. Examples of benefits that have been found to accrue to countries implementing e-government services include the delivery of enhanced services and the realization of cost-effective service operation. (Lee-Kelley and James, 2003; UN, 2003; Accenture, 2004).

STATEMENT OF PROBLEM

As e-government programs continue to grow across the globe, researchers are making efforts to better understand the e-government phenomenon. Specifically researchers have focused on developing studies to explicate the strategic importance of implementing global e-government services (Akman, Yazzici, Mishra and Arifoglu, 2005; Gil-Garcia and Pardo, 2005; Grant and Chau, 2005). Other researchers have also identified key areas of concern in the e-government literature. For example, Wei (2004) identified four major global e-government development issues that demands special focus: (1) evaluation of global trends, (2) the Digital Divide problem, (3) identification of nation-state development approaches, and (4) the role of governments in the development of e-initiatives.

Researchers have also developed studies pertaining to the E-government practices of different countries across the globe. For example, Lee-Kelley and James (2003) studied factors influencing the adoption of e-government in the United Kingdom. They found that individual demographic characteristics were not significant in predicting the adoption of e-government services. Ifinedo and Davidrajuh (2005) investigated the e-readiness of countries located in the Nordic region of Europe (Norway and Estonia) from the perspective of e-government development and the Digital Divide problem. The results of their findings indicated minimal differences in the e-readiness of the selected Nordic region countries. Using China and Korea as case studies, Yu and Fang (2005) found that the role of government in emerging economies is critical to the development of e-infrastructures that supports e-government endeavors. Additionally, public research and industry research institutions have also reported that countries with matured and transactional based e-service programs such as U.S. and Canada are reaping financial benefits from e-service delivery (UN, 2003; Accenture, 2004).

The general consensus common to the findings of e-government studies suggests that e-government programs are (a) recognized globally (Akman, Yazzici, Mishra and Arifoglu, 2005; UN, 2003) (b) beneficial to participating countries (Lee-Kelley and James, 2003; UN, 2003; Accenture, 2004), (c) enabled through significant investment in information technology infrastructure (Yu and Fang, 2005), and (d) influenced by the e-readiness/enabling environment of the nation state (Wei, 2004; Ifinedo and Davidrajuh, 2005).

Overall, it can be said that these findings highlighted the critical importance of the e-government phenomenon globally and also suggest that the strategic implication of implementing e-government programs has been well articulated. While previous studies have articulated the strategic importance of implementing e-government service, a paucity of research exists

concerning the comprehensive evaluation of the service delivery practices of e-government Websites. Given the cost and benefits associated with e-government service delivery globally, there is an urgent need to develop a comprehensive framework that can be used to evaluate the efficiency and effectiveness of these e-government investments from a global perspective.

STATEMENT OF THE OBJECTIVE

Following the background information provided in the previous section, the purpose of this study is to propose a framework that can be used for evaluating e-government websites that have a global reach. The results of this study will be of benefit to Web developers and e-government project designers because it contains processes and variables that are mission critical for delivering e-government services to residents as well as non citizens. End-users, business consultants, global security experts, information technology integrators, and international law enforcement professionals will also find the model proposed in this study useful. As always, academic and industry researchers will also find the attributes and components discussed interesting.

METHODOLOGY

The proposed model will be presented using a three step approach. First, the concept of e-government will be explicated with a broad review of the e-government literature. Next, the content for the framework for the assessment of e-government Websites will be presented. Finally, the study will conclude with an evaluative discussion of the insights gained from explicating the framework and also identify prospective areas that may warrant further research considerations.

Concept of e-government.

A review of the e-government literature suggests that researchers can interpret the e-government phenomenon in different ways. However, Wei (2004) points out that the e-government phenomenon does have a universally accepted definition in the literature. Grant (2005) posit that the construct of e-government in the literature suggests varying meanings and that the general notion of improved service delivery to the citizens via the Internet, and the idea of integrating service and market development are two major elements usually associated with the construct of e-government.

In order to account for the varying interpretation of the e-government phenomenon, the next section will outline the different factors usually used in capturing the scope of the e-government concept. The scope of the e-government concept includes: nature of e-government, domains and level of e-government, stages of e-government development and strategic focus areas. Each of these conceptual definitions is defined and discussed as follows:

Nature of e-government.
In relation to the nature of e-government, Grant and Chau (2005) identified six major characteristics that are associated with the operational definition of e-government from pervious

e-government studies. These primary attributes include (1) provision of information and electronic service delivery, (2) enabler of organizational change in the public service, (3) deployment for context specific application, (4) reliance on knowledge from varying functional areas with particular reference to information technology capabilities, (5) involvement with integrated input from both internal (public sector employees) and external stakeholders (citizens), and (6) international /cross-border endeavors issues. The last attribute is expanded in this paper because cross border issues involve non-citizens that are targeted prospects as well as foreign intruders that are not necessarily desirable.

Domains and levels of e-government.

E-government researchers have indicated that varying levels of e-government services can be identified amongst the e-government programs from different countries (Koh and Prybutok, 2003). In particular, Banerjee and Chau (2004) identified three domains of e-government services, namely; (1) Government-to-government (G2G), (2) Government-to-business (G2B) (3) Government-to-citizens/non-citizens (G2C). Specifically, these domains have four levels/stages of activities.

- The first stage of e-government activity is called the "informatisation" stage because its focus on information provision that may be lacking in bidirectional communication channels and generally deployed to cater for the G2C and G2B service domain.
- Unlike the first level, the second level involves bidirectional communication (e.g., email, chat rooms) in the G2C and G2B domain. The integration of G2G activities such as the provision of information addressing the country's foreign investment policies may also be introduced at this level.
- The third level supports transaction services for citizens and businesses. This stage may also involves advance G2C, G2B and G2G applications such as facilitating electronic tax processing and license application filled by citizens and businesses.
- The fourth level involves the transformation of government practices via the opinions and feedback of stakeholders, (e.g., e-voting) collaborative activities among government agencies such as the courts and the police and more integrated communication amongst government agencies and their stakeholders.

Development stage and strategic focus areas.

Layne and Lee (2004) proposed a four stage development process of e-government programs that included (1) cataloguing, (2) transaction, (3) vertical, and (4) horizontal integration of applications. The cataloguing stage entails the creation of a Website that functions as an information dissemination tool for the consumption of end-users. At the transaction stage, it facilitates transactional exchange between the government and its citizens are facilitated. The vertical integration stage involves information sharing via electronic connectivity among the different government agencies. Finally, the horizontal integration stage entails more integrated connectivity across different functional areas which can result in a high level of collaborative activities among the different functional government agencies.

From another perspective, these stages can also be viewed using a four-phase generic framework for explicating e-government program across the globe. In simple terms, they are (1) delivery, (2) citizen empowerment, (3) market enhancement and development, and (4) visibility and outreach (Grant and Chau, 2005). Both views are practical ones because they encompass integration issues across a spectrum of applications as well as users. In addition, the two views are progressive in that they are process driven.

THE PROPOSED FRAMEWORK

A framework consisting of three factors for the assessment of global e-government Web sites is presented in this section. The three factors are (1) external/localized service delivery, (2) internal service delivery, and (3) global service delivery. The explication of each of these factors will be done using the various elements associated with the scope of e-government discussed earlier. The rational for this approach is to highlight the associated link between the theoretical background of the e-government phenomenon and the proposed framework. Details about each of the factors is contained in Figure 1 and discussed below:
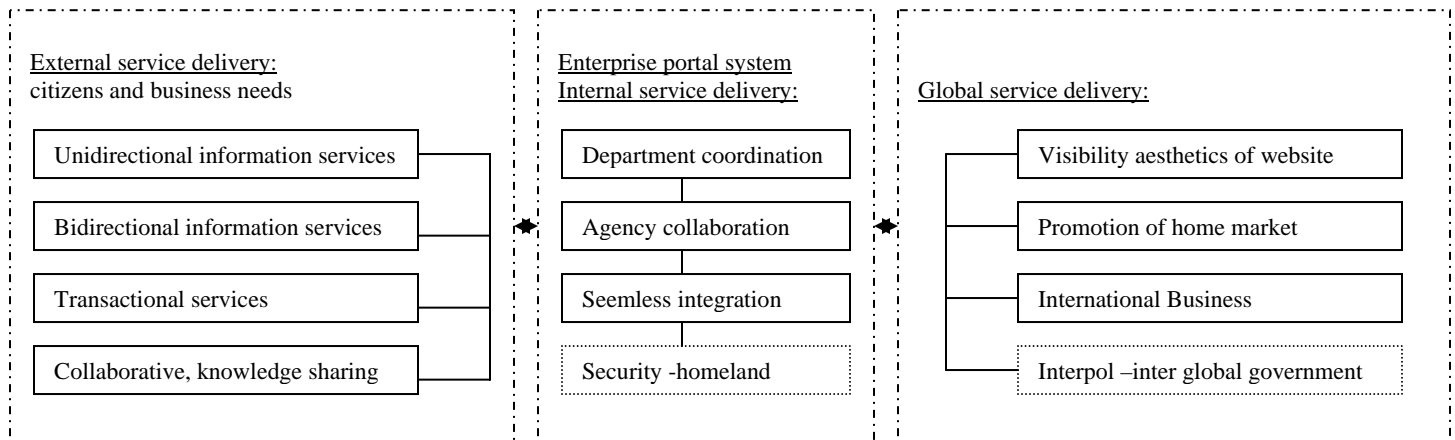

Figure 1. Framework for evaluating global e-government website attributes.

External service delivery.

The external service delivery factor is subdivided into four levels of service offerings and they are focused on citizens and business needs. As in the case of the average e-government Website, this is the component that has the most direct interface with end-users who are residents or nationals. The service attributes identified include:
- unidirectional information services (examples: nature-information provision, domain-G2C and G2B, development stage/strategic focus-cataloguing and service delivery)
- bidirectional information service (examples: nature-automated interactive information services, domain-G2C and G2B, and development stage/strategic focus-citizen empowerment)

- transactional services (examples: nature-communication across functional areas, domain-G2C, G2B and G2G and development stage/strategic focus area-transaction/customer relationship management)
- collaborative two-knowledge exchange service (examples: nature-integrated input, domain- G2C, G2B and G2G, and development stage/strategic focus area-vertical integration and collaborative partnership).

Internal service delivery.

The second factor represents internal servicing and collaborative endeavors among the different government departments and agencies. This factor is critical to the framework because it serves as a feedback and continuous service improvement hub. Normally, an Enterprise Portal System (EPS) is required for the first two factors to function well. In short, the quality of external/local and global services provided through the e-government websites is dependent on the level of integration/collaboration among the varying government department and agencies. In the case of Homeland Security, this entity will most probably function as a major recipient of sensitive information. Given its function as an entity that will hinder or counter global threats to the nation and its partners, much of the activity will be in the background and will be transparent to end-users, irrespective whether they are nationals or foreigners.

Global service delivery

The third factor focuses on global service delivery with a particular reference to activities that are geared towards the aesthetics and visibility of the country in the global marketplace, the promotion of the home market, and the development of international business and Interpol related intelligence collaboration activities. Obviously, the major end-users of the first three entities of this factor will be primarily foreigners or prospects for targeted nations. Again, the last application, Interpol related intelligence collaboration will be carried out in the background with partners because it is related to the sensitive areas of security that may include such hate threats as terrorism or commercial crimes such as the espionage of business intelligence.

CONCLUSIONS, IMPLICATIONS AND DIRECTION FOR FUTURE RESEARCH

Using the works of Banerjee and Chau (2004); Griffith and Krampt (1998), Grant and Chau (2005), Koong, Liu and Williams (2002) and Layne and Lee (2004) this paper proposes a framework for the assessment of e-government Websites that are developed for a global audience. The value and contribution of the proposed model is inherent in the three components and its sub-elements that can be easily used by e-government experts and project designers to develop systems that meet the needs of external end-users, internal stakeholders, and clients or prospects from other nations. More than that, the model is useful because it contains service attributes that are static or interactive are inclusive of most major government e-delivery applications such as G2G, G2C and G2B.

From an assessment view point, the model provides a fairly comprehensive list of sub-attributes that can serve as starting point for measuring effectiveness and efficiency that can be conducted on government ventures and their return on investments. Measures assessed such as

hit ratios, number of visitors, opinion surveys, and actual revenue generated from services are examples some of the more easy to capture information using online real-time systems. Such practical feedback represents the most practical and accurate means that can be use for guiding policies about the types, levels, and priorities of e-government services that must be maintain or updated.

Obviously, the proposed framework requires that e-government service delivery be viewed from the perspective of internal, external and global service offerings. Moreover, it should be pointed out here that like all conceptual models, some fine tuning and adaptation to local factors many be necessary. However, the generic attributes presented is realistic and is possible because the technology is already available. This is why many of the attributes presented in the model are already a part of the body of knowledge. Put another way, the proposed framework is actually an augmentation of previous e-government frameworks because it provides a snapshot of the relevant categories of e-government service delivery programs by categorizing them into three logical processes.

A key aspect that needs to be addressed in future research studies is to identify and match the technologies available to the proposed framework. Such an endeavor would provide the e-government practitioners with a working knowledge of what is already feasible and what else that must be developed by the computing sector or industry to make global e-government work in its entirety. Such a study and findings will definitely be a plus for venture capitalist and research and development experts who are always looking for project ideas and innovations that have investment potential. Most of all, such a study will provide e-government experts with a realistic vision and plan in their implementation of e-government global Web systems that can really deliver services to external, internal as well as foreign audiences.

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