IT QUALITY AND eGOVERNMENT NET BENEFITS: A CITIZEN PERSPECTIVE

Abstract

Understanding success in Information Systems (IS) is a complex challenge made more difficult when set in the public sector environment. While private sector studies may focus on efficiency, quality and reliability, public sector evaluation must combine these concerns with accountability, citizen trust and the creation of public value. New methods for thinking about the evaluation of government activity are developing. Public Value in particular is proposed as being appropriate to capture the breadth of purposes and proposed outcomes of public services. This research adopts the Public Value approach to provide the first empirical assessment of eGovernment success from a citizen perspective. It is also the first study to identify the important IT Quality dimensions that have a positive impact on success. This paper identifies the specific constructs within Information, System and Service Quality that significantly predict citizen value perceptions. This level of granularity provides an important contribution in advancing a deeper understanding of the dynamics of eGovernment success. The novel environment of Web 2.0 in eGovernment is also explored, resulting in new findings that define what citizens’ value in this mode of interaction. Important implications for future eGovernment and eCommerce research are discussed, as this study points to the need for sophisticated measurement tools for the distinct environment of Web 2.0. This research therefore contributes to the body of knowledge by increasing our understanding of what citizens’ value in eGovernment services and what aspects of IT Quality influence eGovernment success.

Keywords: D&M IS Success Model, eGovernment, Public Value, Net Benefits, IT Quality
Introduction

eGovernment promises citizens and businesses more efficient services and a more responsive government. Recently, strategies for eGovernment have moved beyond simply improving access to services, by including the goal of better democratic engagement, wider political participation and the creation of public value. However, despite substantial investment, increasing failure rates have prompted critics to argue that policy makers are not achieving this vision. New technologies, such as Web 2.0, provide innovative ways to deliver these benefits by enabling unprecedented levels of engagement and participation. As governments break new ground with these social networking tools, there is a dual challenge of not only harnessing this new technology to deliver the benefits of better citizen interaction, but also accurately evaluating the effectiveness of government websites.

Although much research has been conducted on eGovernment supply-side metrics (Helbig et al. 2009; Reddick 2005; Reddick 2006), citizen needs or perceived values have not been adequately accounted for (Streib et al. 2006). As self-motivation plays a critical role in Internet-based usage (Muhlberger 2005), there is an increasing imperative to understand what citizens’ value in their interaction with eGovernment services and what features of the system influence that perception. Due to the increased deployment of Web 2.0 technologies, there is a further challenge to explore what benefits and impacts are pertinent from this new form of citizen interaction.

This study builds upon the prior work of Scott et al. (2009) to derive a validated instrument for measuring eGovernment Net Benefits. The D&M IS Success Model (DeLone et al. 2003) has been successfully used to study IS in an eGovernment context (Prybutok et al. 2008; Teo et al. 2008; Wang et al. 2008) and this paper presents the development of measures in order to explore success and the determinants of success. Specifically, this paper aims to develop a comprehensive Net Benefits measure, based on the paradigm of Public Value (Moore, 1995) and to evaluate what impact IT Quality (information quality, systems quality and service quality) has on citizen perceptions of eGovernment success.

Accordingly the research questions were: What are the conceptual dimensions of eGovernment Net Benefits? What aspects of IT Quality affect citizens' perceptions of benefits from eGovernment, their satisfaction with eGovernment and their intention to reuse eGovernment services?

In order to explore the impact of IT Quality on citizens' perceptions of success, a standardised instrument representing Net Benefits was developed. This research study meticulously followed Churchill’s (1979) paradigm for instrument development, generally regarded as one of the most influential methodological guides for instrument development in the MIS field (Boudreau et al. 2001; Straub et al. 2004; Straub 1989). This research combines the heuristics and techniques recommended by Straub et al (2004) with the construct development process developed by Churchill (1979) to produce a rigorous eGovernment Net Benefits instrument.

The findings in this paper present an exploratory validation of this instrument. eGovernment success is suggested to comprise of nine dimensions: Cost, Time, Personalisation, Communication, Ease of Information Retrieval, Convenience, Trust, Well-Informedness and Participate in Decision-Making. The instrument has been empirically tested with survey data gathered from a pilot survey of ninety experienced users of eGovernment services. The paper then presents and discusses the significant causal relationships between constructs representing IT Quality and Intention to reuse, User Satisfaction and Net Benefits.

eGovernment

Electronic government consists of using technology, particularly the Internet, as a means to deliver services to citizens, businesses and other entities, with the purpose of providing convenient access to government information and services (Gronlund et al. 2004; Hughes et al. 2006). More recently however the rhetoric of many national and supranational governments and agencies has evolved from targeting the online delivery of public services to loftier ambitions of improving relations between the citizenry and the administration through enhanced participation in democratic processes (Commission of the European Communities 2006; US Government 2002). While engaging citizens online in a meaningful way remains difficult (Kolsaker et al. 2008), the goal of wider political participation is becoming a pressing challenge as Governments seek the creation of public value (Grimsley et al. 2007a; Helbig et al. 2009). As such, definitions of eGovernment may have to reconceptualise the nature of interaction between Government and citizen, from merely providing access to services to fully engaging in democratic processes.
The revolution of the Internet from a passive medium to a rich, interactive communication platform has the potential to transform many areas of business, government and society in general (Kim et al. 2009). New social media provide revolutionary opportunities for user participation and social collaboration stimulating a paradigmatic cultural shift in the dynamics of social interaction (Parameswaran et al. 2007). The emergence of social computing includes the use of Web 2.0 applications such as wikis, blogs and social networking tools (Kim et al. 2009; McAfee 2006) where the emphasis is on the creation of social organisations and a structural shift from top-down to bottom-up (McAfee 2006). Similar changes are influencing how citizens interact with Governments, mediated by new Internet technologies. As society is fundamentally reshaped by these changes, governments are faced with an unprecedented opportunity to engage the citizen in active, engaged democratic participation as the evolution of eGovernment 1.0 approaches eGovernment 2.0 (Peristeras et al. 2009).

**eGovernment 2.0**

In the face of heightened user expectations, fuelled by the rapid development of the Internet, Governments are encouraged to invest in new web capabilities and embrace user participation (Baumgarten et al. 2009). Technologies such as Web 2.0 provide innovative ways for Government agencies to advance to the final stages of eGovernment by using the unique characteristics of social computing to enable political participation (Moon 2002). eParticipation is thus becoming a critical component for Governments (Peristeras et al. 2009; Sæbø et al. 2008). eParticipation provides opportunities for citizens to shape current politics and policies and from the Government perspective offers a useful way of engaging with the concerns and views of their citizens (Goldfinch et al. 2009).

As evidenced by various benchmarking reports, many Governments have begun the process of embracing a new vision for government customer service, designed around serving citizens in a more personalised citizen-centric manner (Accenture 2006; Capgemini 2007). Governments and supra-Governmental bodies have further developed policies outlining commitments to strengthening the opportunities for citizens to participate in democratic decision-making (Commission of the European Communities 2006). Most recently, the Open Government Directive launched in December 2009 by President Barack Obama, is an ambitious strategy aimed at transforming the agencies, departments and offices of the Federal Government to achieve the ideal of transparent, participatory and collaborative government. Building on The Open Government Act in 2007, this directive specifically identifies emerging Internet technologies to open new forms of communication between a Government and its people and create an enabling policy framework for open Government (Whitehouse 2010).

Given the current focus of improving the value of eGovernment offerings and particularly to engage and increase levels of civic engagement, interest in how to leverage these opportunities is understandable. However, measuring the effectiveness of eGovernment remains a critical task for successful implementation. Measuring eGovernment success is currently not well understood in either practitioner or researcher communities. The development therefore of standard measures is an urgent task to enable investments in technologies to justify their value and contribution to the quality of service provided by government organisations.

**Public Value**

Measuring success in the public sector is however a difficult task. Hefetz and Warner (2004) outline the challenge for public managers by arguing that while private sector firms focus on efficiency, quality and reliability, public managers must combine these concerns with accountability, the creation of trust and public preferences. The nature and breadth of the purposes and proposed outcomes of public value serves to distinguish the task of eGovernment evaluation from commercial endeavours (Grimsley et al. 2007a; Grimsley et al. 2007b).

In reaction to this challenge, Scott et al. (2009) propose the use of Public Value as a new method for meeting the challenges of efficiency, accountability and equity in understanding success. First articulated by Moore (1994, 1995), the Public Value approach is gaining considerable interest as an alternative to previous public management approaches, which have been criticised for emphasising narrow concepts of cost-efficiencies (O’Flynn 2007). Public value can be understood as the value or importance citizens attach to the outcome of government policies and their experience of public services (Moore 1994). Public Value provide a new way of thinking about the evaluation of government activity, as a new conceptualisation of the public interest is defined in an effort to best balance efficiency and effectiveness (O’Flynn 2007; Stoker 2006).
Stoker (2006) explicitly identifies innovation in ICT as playing a critical role in providing mechanisms to enhance the engagement of citizens in this process. Within the eGovernment context, the notion of public value argues that eGovernment policy makers must balance tangible criteria of efficiency and economic gains, to include social objectives associated with broader social responsibilities of public value such as trust, social inclusion and sustainability (Grimsley et al. 2007a).

**IS Success and eGovernment**

The goals of eGovernment are to improve the quality of the service, increase the efficiency of administrative processes and enable more effective participation and engagement with service users (Gronlund et al. 2004; Helbig et al. 2009). However, although IS Success models have been applied in numerous contexts predominantly the private sector, little research has been conducted in identifying measures that determine eGovernment success. As such there is a need to examine whether traditional IS success models can be extended to examine eGovernment systems success. Gable, Sedera, & Chan (2008) have developed and validated a multi-dimensional success instrument for enterprise systems from the perspective of public sector employees. Prybutok, Zhang, & Ryan (2008) also utilise the D&M Model to examine whether leadership and IT quality have positive delivery outcomes for public sector workers. Wang & Liao (2008) have empirically validated the DeLone and McLean IS success model in the context of G2C eGovernment systems and recently, Teo et al (2008) studied the relationship between trust and eGovernment, with results showing that trust in government is related to trust in eGovernment web sites. These studies provide evidence of the explanatory power of the D&M IS Success Model in an eGovernment context. However, there is a lack of focus thus far on the development of eGovernment success measures and specifically an absence of research that examines Net Benefits from a citizen perspective.

**eGovernment Net Benefits**

The development of comprehensive measures for Net Benefits is sparse in studies on IS success and in the eGovernment field. The majority of studies measuring individual impact focus almost exclusively on the impact of IS in the work environment (Petter et al. 2008). Net Benefits are typically measured in these studies using perceived usefulness or job impact as the most commonly used measure (Adams et al. 1992; Segars et al. 1993). Consequently the types of benefits assessed often take a utilitarian focus on productivity, efficiency and task improvement, for example Gable et al. (2008). This one-dimensional approach to studying the impact of IS success in the workplace is understandable given the purposes for which the majority of systems have been created. In the area of eGovernment however, the intention by designers and policy makers is broader, encompassing the goals of greater participation and engagement as well as providing more efficient processes. There is a need therefore to develop success measures that reflect this environment and accurately capture the variety of potential benefits citizens may perceive in using eGovernment. It is also necessary to underpin the creation of such a measure with a well-developed theoretical framework such as Public Value, tailored for the complex environment of the public sector.

While many studies have espoused such potential benefits, there are few studies that seek to empirically examine or identify factors from the perspective of the citizen (Reddick 2005). Gilbert, Balestrini, & Littleboy (2004) propose six factors relating to efficiency benefits of eGovernment services, identifying items representing avoid interaction, cost and time as most significant to users. In a similar study, Kolsaker & Lee-Kelley (2008) undertake an examination of citizens’ attitudes towards eGovernment and find that in relation to service usage the ability of the portal to satisfy personal needs ranked higher than other benefits. The authors suggest this is in part influenced by the experience of commercial web sites. These exploratory studies, although useful, do not exclusively canvass the views of experienced users of eGovernment therefore reducing the overall contribution to understanding citizen Net Benefits. Grimsley & Meehan (2007a) also identify benefits particular to the public value paradigm in a study on evaluation led eGovernment design. The authors focus on control, well-informedness and influence based on their analysis of the work of Moore (1995).

Recent studies that review progress in the eGovernment field consistently call for more research to study the demand for eGovernment services from a citizen-based perspective (Helbig et al. 2009; Reddick 2005). These studies point to an emphasis on supply-side studies that benchmark the existence of services without considering the underlying dynamics of actual usage. Those studies that analyse citizen usage tend to have a narrow focus of eGovernment benefits, none displaying a comprehensive perspective on eGovernment success. This study aims to extend previous efforts to understand eGovernment usage by drawing together a comprehensive set of benefits.
**eGovernment IT Quality Measures**

Online information dissemination is the primary function of e-government. Increased information quality can have an impact on levels of openness and transparency perceived by the citizen and also on levels of well-informedness (Grimsley et al. 2007a; Thomas et al. 2003; Welch et al. 2005). Studies have shown a need for information to be relevant, accurate and up-to-date (Gilbert et al. 2004). Teo et al (2008) reveal that information quality is more strongly associated with the routine requirements of the citizen, whereas system quality and service quality of Web sites are associated with a deeper use of the online facility. This study includes the following constructs representing Information Quality: Accuracy, Relevance, Reliability, Timeliness, Completeness, Ease of Understanding and Presentation. Items representing these constructs were adapted from prior studies conducted in an eGovernment context (Barnes et al. 2006; Gilbert et al. 2004; Teo et al. 2008; Wang et al. 2008).

System quality denotes the citizen’s perception of the technical performance of the Web site in information retrieval and delivery (Seddon 1997). System quality is an important determinant of Web site users’ satisfaction and subsequent usage. System quality of an e-government Web site can be ease of use, response time, usability and integration (Teo et al. 2008). A better system quality and a better service quality are further related to user satisfaction (McKinney et al. 2002; Teo et al. 2008). This study used Ease of Use and Response as constructs representing System Quality adapting items from (McKinney et al. 2002; Teo et al. 2008; Wang et al. 2008).

Service quality, the overall support provided by the service provider (DeLone et al. 2004), has been tested by Wang & Liao (2008) in the eGovernment context. A more complex interpretation tested by Barnes & Vidgen (2006) included security and empathy in eGovernment context. Service quality is related to increased user satisfaction (Teo et al. 2008; Xiaoni et al. 2005). Prybutok et al (2008) evaluate the linkage between IT (service) quality and positive outcomes i.e. net benefits and report significant findings to support this relationship (Kettinger et al. 1994; Seddon et al. 1996). This research adopted Security, Empathy, Responsiveness and Reliability as constructs representing Service Quality and used items from prior research (Barnes et al. 2006; Pitt et al. 1995; Teo et al. 2008).

**Research Framework**

The objectives of this research were to explore eGovernment success and the determinants of success from a citizen perspective. This study builds upon the prior work of Scott et al. (2009) to derive a validated instrument for measuring eGovernment Net Benefits and evaluates the impact of IT Quality (information quality, systems quality and service quality) on eGovernment success. Our study is therefore motivated by the following research questions: What are the conceptual dimensions of eGovernment Net Benefits? What aspects of IT Quality affect citizens' perceptions of benefits from eGovernment, their satisfaction with eGovernment and their intention to reuse eGovernment services? This research used data from a survey involving ninety experienced users of eGovernment web sites to provide a preliminary validation of the Net Benefits measure and explore the impact of IT Quality on Success.

Figure 1 contains the schema for our proposed research model showing the hypothesised relationships and individual items within the constructs. The hypothesized relationship between Use, User Satisfaction, Net Benefits and the IT Quality constructs is based on the theoretical and empirical work reported by DeLone and McLean (2003). The expectation of causal interrelations between these constructs is further based on the empirical review conducted by Petter et al (2008). Accordingly, relationships are hypothesised, for example System Quality will positively influence citizens’ perceptions of Net Benefits, in line with the causal arrows indicated.
In keeping with rigorous scale development procedures recommended by authorities in the field (DeVellis 1991; Lewis et al. 2005; Netemeyer et al. 2003; Straub 1989), this research adopted the well-known instrument development process developed by Churchill (1979) in order to develop a reliable measure of Net Benefits. The following sections provide a detailed account of the steps, procedures and protocols followed in this endeavour.

**eGovernment Net Benefits Model Development**

The first step of instrument development aims to establish the domain of the idea (Lewis et al. 2005). This study utilises the conceptual framework of the DeLone and MacLean IS Success Model to construct a Net Benefits success measure centred on the perspective of the citizen. The concept of Public Value (Moore, 1995) provides a theoretical framework within which to conceptualise the broad dimensions of success as they relate to the public sector. Therefore, developing a measure of success based around public value enables an assessment of what citizens’ value in the impact of eGovernment. DeLone and McLean (2003) include the concept of Net Benefits in the updated success model in order to capture the outcome of the information system as it impacts the individual or organisation. DeLone and McLean (2003) consider the idea of Net Benefits preferable to impact as this better captures the balance of positive and negative impacts of the system on the user (Seddon 1997). In defining Net Benefits, DeLone and McLean (2003) recommend three issues be taken into account when specifying the conceptual context: what counts as a benefit, to whom and at what level of analysis.

The clear focus of this study is an evaluation of the citizen’s perspective of eGovernment success and it is thus the user that defines the context or frame of reference as called for by (DeLone et al. 2003). Similarly the benefits are to be measured from the individual’s perspective defining the level of analysis for this study. The concept of public value, as defined by Moore (1995) and Grimsley & Meehan (2007) in the eGovernment context, requires a balancing of efficiency, effectiveness measures and this paradigm anchors our perspective on the definition of eGovernment Net Benefits. Therefore, we define Net Benefits to be ordered around three broad objectives: efficiency, effectiveness and improved democracy. As such the following definition served as a guide to identify relevant dimensions of the Net Benefits constructs along with the extant literature: “a positive benefit experienced by a citizen resulting from direct interaction with web-based eGovernment systems”.

Following the deductive approach recommended by Webster et al (2002), this research employed the technique of content analysis in order to capture the dimensions of eGovernment Net Benefits from an extensive review of the literature (Weber 1985). This process included the careful review of literature from several disciplines, Information Systems (IS) (eGovernment, eCommerce, General IS), Public Administration and included both journal and academic conference sources. Keyword searches were performed targeting the title, abstract and keyword list of published material. Multiple databases were included: Web of Science, ABI-Inform for example. The chosen keywords initially reflected the key elements of the construct: “eGovernment success”, “eGovernment benefits”, “eGovernment Net Benefits”, “eGovernment efficiency”, “eGovernment effectiveness”, “eGovernment participation” for example. Multiple variations of the term eGovernment were also employed as defined by Gronlund and Horan (2004). As recommended by Weber and Webster and Watson (1985; 2002) this process
followed an iterative pattern targeting different pieces of information, ultimately however identifying and determining specific parts of the construct domain. The search strategy also included several other sources of material: practitioner-oriented magazines, trade magazines, private-sector reports, reports conducted by public and private sector research groups and an extensive review of Government strategy documents and policy material. This lengthy process was supported by the prior development of broad categories relating to the elements of the constructs – efficiency, effectiveness and improved democracy (Lewis et al. 2005). This method enabled the literature to generate dimensions that were conceptually relevant to the eGovernment Net Benefits domain (Tojib et al. 2008). The broad groupings initially defined as part of the domain definition, were iteratively refined until relatively distinct groupings emerged, which in turn embodied the specific dimensions of the Net Benefits construct (Lewis et al. 2005).

Following this process eleven dimensions were identified grouped around three broad categories: the Dimensions were Cost, Time, Communication, Avoid Personal Interaction, Control, Convenience, Personalisation, Ease of Information Retrieval, Trust, Well-Informedness and Participate in Decision-Making falling under the categories of Efficiency, Effectiveness and Improved Democracy (see Table 1 for details). The categories and dimensions correspond to the overall focus on perceived citizen value of eGovernment systems in that citizens have direct experience of the potential efficiency, effectiveness and improved opportunities to engage in democratic activities available through web-based eGovernment initiatives.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
<th>eGov Goal(s)</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Cost saving to the user from using the online channel</td>
<td>More efficient services</td>
<td>(Gilbert et al. 2004)</td>
</tr>
<tr>
<td>Time</td>
<td>Time saved by using the online channel</td>
<td>More efficient services</td>
<td>(Gilbert et al. 2004; Kolsaker et al. 2008; Wang et al. 2008)</td>
</tr>
<tr>
<td>Communication</td>
<td>Efficient method of communicating with local/central govt</td>
<td>More efficient services</td>
<td>(Kolsaker et al. 2008)</td>
</tr>
<tr>
<td>Avoid Personal Interaction</td>
<td>To receive public services without having to interact with service staff</td>
<td>More effective services</td>
<td>(Gilbert et al. 2004)</td>
</tr>
<tr>
<td>Control</td>
<td>The ability to exert personal control over the service</td>
<td>More effective services</td>
<td>(Gilbert et al. 2004; Grimsley et al. 2007a)</td>
</tr>
<tr>
<td>Convenience</td>
<td>The ability to receive the service how and when the individual wants</td>
<td>More effective services</td>
<td>(Gilbert et al. 2004)</td>
</tr>
<tr>
<td>Personalisation</td>
<td>The ability to tailor the service to the individual</td>
<td>More effective services</td>
<td>(Gilbert et al. 2004; Kolsaker et al. 2008)</td>
</tr>
<tr>
<td>Ease of information retrieval</td>
<td>Useful and helps the user understand about the service</td>
<td>More effective services</td>
<td>(Kolsaker et al. 2008)</td>
</tr>
<tr>
<td>Trust</td>
<td>Increase in trust and confidence in Government</td>
<td>Improved democracy</td>
<td>(Teo et al. 2008; Warkentin et al. 2002; Welch et al. 2005)</td>
</tr>
<tr>
<td>Well-informedness</td>
<td>Better informed, knowledgeable about government policy</td>
<td>Improved democracy</td>
<td>(Coleman 2004; Grimsley et al. 2007a; Kolsaker et al. 2008; Thomas et al. 2003)</td>
</tr>
<tr>
<td>Participate in decision-making</td>
<td>Involved, exert influence in the democratic process</td>
<td>Improved democracy</td>
<td>(Coleman 2004; Grimsley et al. 2007a; Kolsaker et al. 2008)</td>
</tr>
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</table>

**Step 2 - Item Generation**

The second step is a master list of items generated from the set of dimensions identified as part of the Net Benefits construct (Churchill 1979; Lewis et al. 2005). Multiple items were generated for each dimension to ensure reliability and internal consistency (Nunnally 1978). Indeed DeVellis (1991) recommends that a pool twice the size of the final scale will be required. In this case cognisance was also taken of item redundancy, the desired level of internal consistency and also respondent cooperation (Netemeyer et al. 2003). Wherever possible, items from existing scales that had been empirically tested were considered and adapted for use in the new measure. Several authors of core studies, see Table 1, were contacted and the corresponding instruments were examined for inclusion e.g. (Gilbert et
al. 2004; Kolsaker et al. 2008; Teo et al. 2008). Follow up contact ensured that the context for use was clearly understood. Some of the principles used for the process of item generation follow those used by Moore and Benbasat (1991). First, items were categorised according to the dimension they were originally intended to address. This resulted in an initial pool for each of the dimensions. Then items considered too narrow in focus or particular to a certain innovation were culled. Finally, new items were created for dimensions with fewer than 3 items or where the total meaning of the dimension had not been covered. This process yielded the majority of items for the measure with some additional items created to increase the overall pool. A total of 48 items was generated for eleven dimensions.

Content Validation Process

This procedure began with the selection of a group of experts knowledgeable about the construct, with the overall objective of ensuring the adequacy of items and dimensions of the Net Benefits construct (Lewis et al. 2005; Moore et al. 1991; Straub 1989). In total 11 content experts were willing to participate in the study. Three (3) experts were drawn from academia and eight (8) represented various professional positions within the public sector. The experts from academia were recognised international leaders in their respective fields and were able to provide a range of knowledge from different discipline areas including IS Success, eGovernment, Public Administration and Public Value in particular. The public sector practitioner experts all held leadership positions within their respective professions. Three (3) individuals participated from the General Services Administration (GSA) of the United States of America Federal Government. Two (2) individuals from the Whitehouse Administrative staff were interviewed and one (1) official from the Environmental Protection Agency (EPA) of the Federal Government. Two (2) further individuals were interviewed from the Canadian government both with responsibility and expertise in surveying citizens and evaluating eGovernment initiatives. The combination of practitioners provided expertise in key areas of the measure. The mixture of academic and practitioner experts is a well-used approach and ensures a high degree of representativeness of the construct at both the conceptual and practical level (Grant et al. 1997). Eleven (11) experts were regarded as sufficient, the literature advising a minimum of 3 and a maximum of 20 (Gable et al. 1993; Lynn 1986; Tilden et al. 1990).

Panel members were asked to address whether the item contents adequately measured all dimensions of the construct and overall, how representative the items are of the content domain (Berk 1990). Experts were asked to review the consistency of items with the conceptual definition (Lynn 1986). The panel finally assessed the entire instrument for completeness and representativeness of the content domain (Lynn 1986).

The expert qualitative review indicated that the list of dimensions was comprehensive and no additional dimensions were required. As the experts agreed with the list of dimensions and did not identify any new domain areas this group were not requested to reassess the instrument (Lynn 1986). The group of experts however did provide substantial advice regarding instrument design. A second round of content validation was conducted using a sample of subjects drawn from the target population. As users have strong familiarity with the constructs through direct personal experience, these individuals are an important component of the content validation process (DeVellis 1991; Grant et al. 1997). In total fifteen (15) users of eGovernment took part in this round of content validation. The overall purpose of this stage was to pilot test the instrument; accordingly participants were asked to complete the questionnaire, then comment on difficulties in completing the instrument, offer suggestions for improvement as well as advising on item statements that should be removed or those that were felt to be missing (Dillman 2007; Lewis et al. 2005).

Step 3: Field Study Data Collection

The field study was conducted in the USA. Since 2002, the US Government has set efficiency, effectiveness and recently citizen engagement as key strategic priorities for eGovernment programs (US Government 2002). Progress in eGovernment has been significant with the USA consistently ranked in first place in the United Nation’s Global E-government Readiness Report, from 2003 to 2005 (UN 2005). The same report ranks the USA third for e-participation initiatives and is highlighted for developing best practice in this area (UN 2005). From the citizen perspective, there is also evidence to suggest that users willingly engage with eGovernment service offerings in the USA and show a desire to use the Internet to search for information, transact with government and use this medium to participate in debates on government policy (Reddick 2005). Given the combination of sophisticated e-service development and growing citizen usage, the USA is best positioned to provide a rich set of responses with which to
test the research model.

Drawing on the definition of the domain in step 1, relevant users should be citizens who have had direct experience of benefits accruing from their usage of eGovernment web-based systems. The sampling frame strategy therefore requires a sample of users who are citizens and who display a wide experience of eGovernment web site usage. This study is the first attempt to actively target a range of experienced users of eGovernment web sites to develop a measure of Net Benefits. Previous studies that evaluate citizens’ perspectives on eGovernment either do not attempt to gather data from experienced users (Belanger et al. 2008; Carter et al. 2005; Gilbert et al. 2004; Kolsaker et al. 2008) or use a limited sample set and do not control for either experience of usage or recency of use in data collection (Barnes et al. 2006; Teo et al. 2008). In order to develop an accurate measure of Net Benefits this research places a premium on the level of experience across a range of activities and the requirement of recent usage to ensure accurate impressions are recorded from the respondent.

The University environment was chosen as the most appropriate site for locating suitable participants for the sampling frame. The sampling frame used in this research extended to a varied population, including undergraduate, graduate, postgraduate, faculty and staff of Universities. This technique, used also by Palmer (2002) and Moore and Benbasat (1991), suggests that findings may be more generalizable across subjects, settings and time. In the case of the requirements of this study, the intention was also to develop a sample similar in characteristic to the reported frequent user of eGovernment services. From a review of national data (Princeton 2001), Reddick (2005) defines the most likely eGovernment user to be educated to third level, a worker in the public sector and a highly experienced user of the Internet. In a more recent study, more than 74% of experienced Internet users went online during the 2008 Presidential election in the USA to take part or to get news and information about the campaign (Smith 2008). This contemporary study confirms the increasing incidence of experienced Internet users availing of web-based functionality to participate in democratic activities. Previous studies have also shown university students to be an opportune sample in the area of eGovernment as respondents are typically frequent users of the Internet and eGovernment services in particular (Carter et al. 2005; Teo et al. 2008). Familiarity with web sites and frequent interaction with government web sites particularly for education, national service and sporting purposes, result in student populations exhibiting sophisticated personal experience in eGovernment usage and do not require this sample to imagine a hypothetical context. Furthermore, students have been a frequent, valid source of data collection for eCommerce research possessing key characteristics of being frequent, experienced users of the Internet (McKinney et al. 2002; Palmer 2002). As such the sampling strategy of targeting the University environment strongly matches the profile of experienced eGovernment users.

In order to gather responses pertinent to the Net Benefit items the research instrument provided respondents with a predefined list of US Federal Government Web sites and extends a response item used by Teo et al (2008) to capture the nature of usage on each site. Respondents were also allowed to include other web sites they have used, indicating the functions utilized. Previous studies of citizen eGovernment usage request respondents to choose either from a predefined choice of web sites (Belanger et al. 2008; Carter et al. 2005; Wang et al. 2008) or to choose a web site they are familiar with and recall the last time they accessed it (Teo et al. 2008). These studies compile all responses to form a combined data set for analysis. From a review of previous studies of eGovernment users, the provision of a list of web sites for respondents to choose is a common approach (Barnes et al. 2006; Belanger et al. 2008; Carter et al. 2005; Morgeson et al. 2009; Wang et al. 2008). The identification of candidate sites tends to select those that are most popular with highest likely usage rates and which cover a broad range of Government functions e.g. tax filing, motor vehicle registration, employment services, eGovernment information portals and tourism services.

Similarly this research began with an initial list of 61 Federal Agencies (West 2008), covering all federal department and agencies in the US Government and reduced the list of sites according to certain selection criteria. The selection process comprised four parts: firstly, each entry in the list was reviewed according to the factors reviewed from the literature above for suitability; secondly, the review was informed through data gathered from external sources that provided citizen satisfaction indices; thirdly, a detailed survey of each participant web site was performed; and finally the selection was informed by the advice gathered from the expert panel in the first round of content validation. In order to confirm the alignment of the chosen web sites with the Net Benefit construct dimensions, the selected web sites were benchmarked according to the relevant questionnaire items. Moon’s (2002) stage model was used to assist in the identification of levels of functionality. This process was conducted in June-August 2009 and repeated immediately prior to data collection to confirm the existence of the functionality identified.
Pilot Survey

A sample of users was gathered next (step 3 of Churchill's process). Email invitations were sent to students, faculty and staff from two participating Universities in the USA. Student groups represented undergraduate, graduate and postgraduate samples from Business, Information Systems, Public Administration and Arts faculties. Staff and faculty from the same discipline areas were also contacted. In total the pilot survey generated ninety (90) usable responses. Seventy-six (76) surveys represented complete responses to the pre-defined survey web sites (USA.gov, Whitehosue.gov, Regulations.gov, ED.gov, IRS.gov, SSA.gov) for which the respondent indicated the last access date was within 6 months. 14 other complete responses were added to this after criteria analysis accepted the specified survey web site and that the user had accessed the site within the last 6 months. The pilot study sample provided responses to all the item measures relating to the Net Benefits construct. The survey instrument also contained a wide range of IT Quality items as described earlier in this paper in order to explore in detail the impact of various features of quality on net benefits. These items were measured using a 7-point Lickert scale. The sample size was considered adequate, following the parameter estimate ratio of a minimum 5 responses per construct; the sample size allows for a ratio of 8.2 which is closer to the ideal ratio of 10 (Hair et al. 2006; Lewis et al. 2005; Netemeyer et al. 2003). The sample characteristics are outlined in Table 2.

<table>
<thead>
<tr>
<th></th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Male</td>
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</tr>
<tr>
<td>Female</td>
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<tr>
<td>Age (years)</td>
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<td>65+</td>
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</table>

The data from the pilot sample were studied to examine the reliability and validity of the net benefits measurement model (step 4 of Churchill’s model). The Bartlett test of sphericity and the measure of sampling adequacy (MSA) were examined to confirm the appropriateness of exploratory factor analysis (EFA). Having met the thresholds of sampling adequacy (KMO=0.65, Bartlett's test of sphericity $P < 0.001$) the EFA process was conducted using principle components analysis using the Varimax orthogonal factor rotation method. During this process, the factor structure was unconstrained allowing the data to suggest underlying dimensions. As suggested in the literature, this process was conducted in an iterative process, testing the efficacy of different techniques in interpreting the data. In particular different factor solutions were tested and compared in an endeavour to devise the best fitting structure accounting for the greatest percentage explained of the variance (Hair et al. 2006; Tabachnick et al. 2001).

The decision to retain or remove measurement items was influenced by the following guidelines: factors with eigenvalues greater than 1.0; items with communalities of .60 or greater; items with factor loadings of .65 or greater; items with cross-loadings of greater than 0.45 were dropped; and factors should exceed 60% of variance explained. Based on the factor analysis, nine factors were identified from the original eleven dimensions of eGovernment Net Benefits consisting of 30 items overall: Cost, Time, Personalisation, Communication, Convenience, Ease of Information Retrieval, Trust, Well-Informedness and Participate in Decision-Making. All remaining items loaded significantly on their respective factor, indicating unidimensionality and the absence of cross-loadings supported preliminary discriminant validity of the scale. Furthermore, the reliability coefficients were acceptable at above 0.74 indicating preliminary reliability (Nunnally 1978).

The results of the factor analysis revealed a different factor model than that of the post-content validation model (step 2). Items relating to the dimension of Control were removed in the factor analysis process due to insignificant loadings, cross loadings and low communality scores. One item was amalgamated with the factor Convenience to form a three-item factor. From an analysis of the extraction process the sixth factor appears to display convergent validity with significant loadings from three items as well as a significant communality score. This factor had an
acceptable eigenvalue of 1.298 and accounted for 5.901 percentage of variance of the factor model. A significant coefficient score of .748 provides further confidence of internal reliability. The newly formed factor, labelled Convenience, appears a logical construct within which to place the third item as the item refers to an action that may provide a convenience-based benefit to the user.

The dimension Avoid Personal Interaction was removed from the factor structure with one item included in the Time factor. The Time construct was formed with three original items along with the item from Avoid Personal Interaction. This set of items displayed significant convergent loadings and communality values. This factor had an acceptable eigenvalue of 1.158 and accounted for 3.859 percentage of variance of the factor model. The coefficient score for this construct also displayed a significant inter correlation value of .884. The amalgamated item can further be logically understood as providing a time-based benefit for the user of the web site wishing to avail of the advantages of expediting an automated service from the web instead of having to deal with an official. These alterations also therefore display face and logical validity.

All items measuring Cost, Communication, Personalisation, Ease of Information Retrieval, Trust, Well-Informedness and Participate in Decision-Making loaded on their respective factors, thus each retained their original name developed from the post-content analysis and expert review stage with a minimum of three items each, all of which displayed significant factor loadings on their respective factors.

This process resulted in the proposed factor model summarised in Table 3 below. This factor model accounts for 87% of cumulative variance. These results provide initial evidence of discriminant and convergent validity (Straub et al. 2004; Straub 1989) and suggest that the nine-factor model is a reliable and valid starting point to measure eGovernment Net Benefits1 (step 6/7 in Churchill’s model).

### Table 3: Summary of items and factor loadings for varimax orthogonal nine factor solution for eGovernment Net Benefits. * = Communalities ( n = 90)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Com 1</th>
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<th>4</th>
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</table>

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1 The *a priori* survey instrument is available for research purposes upon request.
IT Quality Impact on eGovernment Success

Having developed an exploratory, multi-dimensional measure of Net Benefits, the impact of IT Quality components (system quality, information quality and service quality) on citizen use, satisfaction and value was fully explored using data from the pilot sample. This study posited positive relationships in accordance with prior research using the DeLone and McLean IS Success Model. Accordingly, regression models were constructed to test the proposed relations. Using the pilot survey, composite scores for each of the proposed Net Benefits dimensions were regressed against IT Quality measures. This process was repeated to test the impact of IT Quality on composite scores for User Satisfaction and Intention to Reuse. Regression results from each success measure on IT Quality are displayed in Table 4.

<table>
<thead>
<tr>
<th>IT Quality</th>
<th>Net Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ServQual) Empathy</td>
<td>β = .947; R² = .894; F = 353.800, P = 0.000</td>
</tr>
<tr>
<td>(InfoQual) Accuracy</td>
<td>β = .604; R² = .970; F = 929.614, P = 0.000</td>
</tr>
<tr>
<td>(InfoQual) Timeliness</td>
<td>β = -.292</td>
</tr>
<tr>
<td>(InfoQual) Ease of Understanding</td>
<td>β = -.670</td>
</tr>
<tr>
<td>(ServQual) Security</td>
<td>β = .888; R² = .859; F = 63.090, P = 0.000</td>
</tr>
<tr>
<td>(ServQual) Empathy</td>
<td>β = .491</td>
</tr>
<tr>
<td>(SysQual) Response</td>
<td>β = -.429</td>
</tr>
<tr>
<td>(ServQual) Responsiveness</td>
<td>β = .587; R² = .756; F = 368.289, P = 0.000</td>
</tr>
<tr>
<td>(InfoQual) Presentation</td>
<td>β = .456</td>
</tr>
<tr>
<td>(InfoQual) Reliability</td>
<td>β = .191</td>
</tr>
<tr>
<td>(ServQual) Responsiveness</td>
<td>β = .384; R² = .628; F = 367.153, P = 0.000</td>
</tr>
<tr>
<td>(ServQual) Empathy</td>
<td>β = .188</td>
</tr>
<tr>
<td>(InfoQual) Reliability</td>
<td>β = .425</td>
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<tr>
<td>(InfoQual) Ease of Understanding</td>
<td>β = .301; R² = .957; F = 976.174, P = 0.000</td>
</tr>
<tr>
<td>(InfoQual) Reliability</td>
<td>β = .681</td>
</tr>
<tr>
<td>(InfoQual) Completeness</td>
<td>β = .316; R² = .619; F = 78.22, P = 0.000</td>
</tr>
<tr>
<td>(InfoQual) Reliability</td>
<td>β = .391</td>
</tr>
<tr>
<td>(ServQual) Security</td>
<td>β = .762</td>
</tr>
<tr>
<td>(ServQual) Empathy</td>
<td>β = .171</td>
</tr>
<tr>
<td>(InfoQual) Accuracy</td>
<td>β = .589; R² = .310; F = 16.11, P = 0.000</td>
</tr>
</tbody>
</table>

Table 4: The influence of IT Quality of Net Benefits
The findings summarized in Table 4 demonstrate that different dimensions of IT Quality impact different eGovernment success measures. These findings are useful in identifying the particular context in which favorable citizen benefits are achieved.

**Information Quality (IQ)**

Constructs representing Information Quality (IQ) were nearly ubiquitous in the impact on eGovernment success measures. Cost and Personalisation were the only Net Benefit measures not to report an effect from IQ. Clearly the impact of IQ is significant on general benefits such as time saving, convenience, communication but also critical on levels of openness, the development of trust in government and efforts to engage the citizen. This is an important finding as it empirically corroborates the proposition of these relationships in earlier eGovernment literature (Thomas et al. 2003; Welch et al. 2005). The important IQ dimensions are: Accuracy, Ease of Understanding, Reliability, Completeness and Timeliness. Particularly in terms of User Satisfaction, the completeness and accuracy of information form a powerful dynamic with the level of security and empathy perceived by the citizen. Creating a sense of community in a safe transactional environment, where the user perceives the level of information to be complete and accurate for their needs, appears to be a strong predictor of satisfaction. This finding contradicts previous research that reported an insignificant relationship between IQ and User Satisfaction (Teo et al. 2008). The influence of relevance and completeness of information together with responsiveness of the service form a significant effect on intentions to reuse government web sites. This finding again differs from existing research as only IQ had previously been identified in this context (Teo et al. 2008). The additional influence of responsiveness is an interesting contribution from this study. Clearly the importance of prompt service and being attentive to citizen needs, suggests that a premium should be placed on the need for high quality in customer service in order to encourage intentions to reuse the service.

**System Quality**

Constructs representing System Quality were the least influential on eGovernment success. System response quality was the only construct to significantly impact a success construct, Personalisation. Given that Personalisation is associated with a deeper use of the online facility, the sensitivity of the user to this attribute of the system is reasonable. Ease of use however, was not detected as influencing User Satisfaction or Intention to Reuse; this is an interesting finding as it is frequently a significant variable in eCommerce research. For example, empirical research in TAM studies frequently associate ease of use with constructs such as enjoyment. Perceived ease of use has been the subject of a substantial body of research, as the consequences of the usability of a system have clear implications on the image of the organisation and significantly impact the intentions of the individual towards the web site (Gefen et al. 2000; Huizingh 2000; Liu et al. 2000; van der Heijden et al. 2004). However, as users of eGovernment services generally have no choice in the service provider, it may be that the influence of perceived ease of use is less relevant to the satisfaction of citizen users. Intuitively, users in an eGovernment context generally avail of utilitarian services such as applying for services, benefits or searching for government information. These activities do not carry the same level of hedonistic value when compared to some eCommerce interactions. Thus, the impact of Ease of Use in an eGovernment setting appears to be low or indeed less relevant to the interaction, as it does in...
commercial studies. This finding corroborates the results of a similar study that reported low significance for this factor (Gilbert et al. 2004) but contradicts another study that identified a significant relation to satisfaction (Teo et al. 2008). This study extends our knowledge of this overall dynamic by identifying exactly which components of System Quality are significant.

**Service Quality**

A significant finding is the importance of empathy affecting personalisation, communication and trust perceptions among citizens. The need for empathy, the creation of personalised spaces online and a sense of community, is particularly interesting for practice and the development of eGovernment web sites. Clearly, this points to important net benefits perceived by citizens in the delivery of services through the online method. Given the popularity of introducing personalisation features in eGovernment initiatives, this finding gives credence to this method of delivering services. Furthermore, it is reasonable to suggest that the importance attributed to personalisation could in part be influenced by the experience users gain from their usage of commercial web sites c.f. (Kolsaker et al. 2008) for a similar interpretation. This particular finding is consistent with similar studies conducted in the eCommerce environment e.g. (Xiaoni et al. 2005).

Empathy is further present along with accuracy and relevance in the impact on the net benefit, participation. Users of eGovernment 2.0 services that reported experience in using web sites for participatory activities, appear to value the personalisation and social communities represented by the empathy construct. Although exploratory, this provides an initial insight into the value perceptions of citizens on web 2.0 services. Also important in this dynamic is the influence of the accuracy and relevance of the information provided by the Agency web site. This combination is interesting given that one of the web sites frequently chosen by respondents was regulations.gov, a portal providing specialist regulatory information for comment and citizen engagement.

**Discussion and Conclusion**

This research has made a number of contributions to the existing body of research on eGovernment success including the Web 2.0 environment. First, this paper has developed a preliminary, validated instrument for measuring eGovernment success including public value benefits from the perspective of the citizen. The selection of model constructs followed a rigorous measurement development process and used ninety survey responses to test the validity, reliability and completeness of the model. Although far from conclusive, the results of factor analysis offer compelling evidence of the proposed dimensions of Net Benefits to the citizen using eGovernment web sites.

Second, this paper contributes to IS research by providing an analysis of the impact of IT Quality dimensions on eGovernment Success. The influence of various dimensions are illuminating for eGovernment and IS researchers, pointing to areas for future research. The results are also useful indicators for practice, in the design and evaluation of eGovernment web sites.

**Implications for eGovernment Success Research**

This study is the first comprehensive, quantitative assessment of eGovernment success from the citizen perspective. The findings validate the model constructs and measures in an eGovernment context using experienced citizen users. Further data collection and confirmatory analyses are currently underway to complete the final steps of the Churchill development model. This research illustrates the importance of intangible benefits in value assessment, thereby demonstrating the efficacy of the Public Value approach to developing a balanced perspective on eGovernment web site evaluation. As success is usually reliant on multiple factors, the value of this instrument is that it provides a comprehensive view of success.

This research is also the first to identify perceived benefits from eGovernment 2.0 services i.e. participatory activities and also what quality features of the web site affect that perception. The influence of empathy for example, on perceived net benefits is a significant finding and supports the efficacy of using web 2.0 technologies to engage citizens, as indicated by the positive outcomes for these survey respondents. Maintaining high information quality is however an important condition on the success of this impact and has consequences for how Government agencies construct, maintain and support the quality of web 2.0 initiatives. As a result, these innovations may be more resource intensive than first envisaged. This finding has further implications for the use of Web 2.0 in the private
sector. It is reasonable to suggest that similar initiatives to connect to customers or create social networks to provide value to communities may also require close monitoring to ensure that the quality of the information does not detract from the benefit provided by the social network.

Trust has been identified as a strong eGovernment success measure across all user categories. This is a highly significant finding as Trust in Government has been studied in different contexts in eGovernment research e.g. (Carter et al. 2005; Teo et al. 2008), but not as a measure of success, as it is in this study. This study firmly posits Trust as an outcome variable in a Public Value context, in line with the understanding developed recently by Seltsikas and O'Keefe (2010). Exploratory factor analysis identified Trust as the dimension accounting for the greatest percentage of variance (32.532%) along with the highest Eigenvalue (9.760). It is also worthwhile to note the strong impact that perceived reliability and completeness of information quality have on citizen Trust. Along with a perceived secure environment for transaction and a sense of community, these constructs together provide a clear description of a technical environment likely to engender positive feelings of trust towards Governments.

The absence of Ease of Use as an influential construct reveals subtle differences in the perception between users of eCommerce and eGovernment towards desirable features of online services. The comparison of important usability features for example, between eCommerce and eGovernment use could further provide important insights into perceptions towards online services and is a useful area for further research. Another possible explanation of the relative lack of influence is that this variable may carry less importance in a Web 2.0 environment. This innovation creates unique interaction scenarios that remain largely untested thus far in IS research. This study points to quite sophisticated value perceptions from users that perhaps transcend perceived ease of use measures. Empathy and responsiveness for example, appear to generate more significant impact in this environment, supplanting the traditional measures of usability. As success is invariably contextual, it is therefore essential to continue to probe the particular motivations of eGovernment users and develop measures that accurately correspond to the idiosyncrasies of the environment.

The associations developed from IT Quality constructs further provide a rich picture of significant relationships among success dimensions. The impact of these quality constructs on satisfaction, use and net benefits is highly contextual and this exploratory analysis should prompt more in-depth studies to fully understand citizen value perceptions. A variety of findings seem to contradict previous research using IT Quality constructs and Satisfaction and Intention to Reuse (Teo et al. 2008). This study contributes useful knowledge therefore, as unlike previous research, the survey respondents for this study are experienced in using eGovernment web sites and diverse in age. Furthermore, this study provides a more detailed representation of IT Quality components and using various Net Benefit dimensions, analyzes possible relationships from a more precise value perspective than previous research. This level of granularity provides an important contribution in advancing a deeper understanding of the dynamics of eGovernment Net Benefits from the perspective of the citizen.

**Implications for Government Practitioners**

There are strong implications for practice as the survey instrument can be used to benchmark the success of eGovernment web sites provided by various agencies/departments. As such this instrument offers a practical means for public sector organizations to evaluate the success of initiatives that may have complex expected outcomes or benefits for citizens.

Strategically, public organizations can focus on creating public value through certain initiatives with a degree of certainty as to the resultant benefits perceived by citizens. Concurrently, the agency concerned can target particular features of IT Quality in the knowledge that these have an impact on the overall success of the initiative. For example, the completeness and reliability of the information provided has been shown to positively impact the level of trust citizens have when interacting with Government online. This is useful for web site designers and potentially influential in a policy-making context.

Finally, Governments have a responsibility to provide secure, quality services and engage citizens in the creation of public value. Government practitioners should take note of the premium this set of users place on high quality services; responsiveness for example, is a critical determinant of intention to reuse. Such high expectations must be met in order to achieve success and contribute to the ongoing challenge of eGovernment.
References

Capgemini "The User Challenge Benchmarking The Supply Of Online Public Services," Capgemini.


US Government "E-government strategy: Implementing the President's management agenda for e-government - Simplified delivery of services to citizens."


