ASSESSING E-GOVERNMENT SERVICE DELIVERY (GOVERNMENT TO CITIZEN)

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Abstract
The area of e-government has been receiving great attention since one decade throughout the world. Governments of various countries are trying to achieve reasonable level of satisfaction in providing highest quality of services to their citizens. The governments all over the world are providing online-services to citizens over the internet through web portals. A critical element of the assessment of e-governmental services is the development of user friendly web sites. To deliver advanced quality of services it becomes important to understand how citizens sight and assess online services. Hence there is a great need to assess the underlying factors and dimensions of e-government service delivery which will help in assessing the e-service quality. The aim of the study is to determine the e-service quality from the citizen's point of view. After through literature review we conceptualize and propose a framework (e-GSQA) which will be designed, developed in this study and will be validated using e-tax services of India in upcoming study by the author.

Keywords: *e-government, e-services, quality, assessment, e-tax*
JEL Classification: M10, M15, M30

1. INTRODUCTION

E-government can be expressed as the use of information and communications technologies by governments to enhance the quality of services and information provided to their citizens, and other stakeholders in efficient and cost effective

ways. In order to provide better services and retain the citizen's confidence, government should have better understanding of how citizens perceive and evaluate the quality of the electronically offered services. Bare amount of information about the quality and efficiency of e-Government is available; this is due to the lack of effective measures to evaluate e-Government quality (Carbo & Williams, 2004).

There is a need to understand e-government user's perceptions and also important to understand what constitutes a high quality e-government online service quality. As governments are viewed as service providers, a high quality service will ensure a high level of user citizens' satisfaction. Based on above discussion it becomes clear that further study is needed to reveal and interpret the current researches about understanding the dimensions of e-service quality from the citizen's perspective. Hence for determining the e-service quality appropriate dimensions are identified and we conceptualize an e-government service quality assessment framework (e-GSQA).

2. LITERATURE REVIEW

Vast amount of literature is available which focuses the area of e-service of e-commerce. Most of the studies show that many researchers speak on the e-service quality of e-commerce. Some of the known models for assessing e-service quality are SERVQAUAL (Parsuraman et. al. 1985), E-S-Qual (Parasuraman et., al., 2005), SITEQUAL (Yoo and Donthu, 2001), and E-GovQual (X. Papadomichelaki , 2009) etc. Practitioners have been using these instruments for assessing e-service quality of retail and e-banking sectors. Similarly e-government is an area where citizens interact online for availing the e-government offered services, hence for determining the e-service quality, studies used many dimensions from the above mentioned models. Researchers compare e-commerce and e-government domain as identical since channel of service delivery is same. Therefore it becomes important to perform thorough literature review in area of e-service quality in e-government also in e-commerce.

2.1. E-SERVICES & CLASSIFICATION

E-services defined by various researchers. Zeithaml states that e-service is web services which are delivered through the Internet. In e-service customer's

interaction or contacts with service providers is through technology, such as their web sites. Customers have to rely entirely on information technology in an e-service encounter (Zeithaml et al., 2000). Rust and Lemon (2001) conceptualize e-service as information service or self service since the primary value exchanged between the two parties (buyer and seller) is information. Internet is a network which permits the exchange of information. Literature proposes several definitions for digital services. Focusing on the e-commerce/e-business domain Tiwana and Ramesh refers to service as "Internet based applications that fulfill service needs by seamlessly bringing together distributed, specialized resources to enable complex, (often real-time) transactions". Services in e-government play a very important role, they represent the main way to support government in reaching citizens with specific, dynamic, explicit and implicit needs. In other words, digital government services encapsulate public administration functionalities and information making them available through digital interfaces (Buckely, 2003).
A common classification of services in e-government is related to the users: Government-to-Citizen (G2C) services provide full support to citizens, Government-to-Business (G2B) services to firms and Government-to-Government (G2G) services to the same or different administration.

2.2. DIMENSIONS OF E-SERVICE QUALITY MEASUREMENT

As discussed before that most of the models introduced for measuring service quality related to the online shopping, online retailing, and online banking environment. Since all these areas offer online services using web portal so the following given comparison table shows the various dimensions for measuring e-services which previous researchers used.

Table 1: Review of existing e-service quality models and their dimensions

Kaynama and Black (2000) "E-QUAL"	Zeithaml et al (2001)	Liljander et al (2001)	Loiacono et al. (2000) *WEBQUAL"*
1. Responsiveness, 2. Content and Purpose, 3. Accessibility, 4. Navigation, 5. Design and Presentation, 6. Background, 7. Personalization and	1. Reliability, 2. Responsiveness, 3. Access, 4. Flexibility, 5. Ease of navigation, 6. Efficiency, 7. Assurance/trust, 8. Security/privacy,	1. User Interface, 2. Responsiveness, 3. Reliability, 4. Customization 5. Assurance	1. Information fit to task 2. Interaction, 3. Trust, 4. Response time, 5. Design, 6. Intuitiveness, 7. Visual appeal, 8. Innovativeness

customization	9. Price knowledge, 10. Site aesthetics 11. Customization /personalization.		9. Flow (Emotional appeal), 10. Integrated communication, 11. Business processes 12. Substitutability
Lin and Wu (2002)	Zeithaml (2002)	Van Riel et al (2004)	Yang, et al. (2004)
1. Information content 2. Customization, 3. Response rate	*Core e-SQ* Efficiency, Reliability, Fulfillment Privacy. *Recovery-SQ* Responsiveness, Compensation, Contact	1. Usability, 2. E-Scape Design, 3. Customization, Assurance 4. Responsiveness.	1. Reliability 2. Responsiveness 3. Competence 4. Ease of Use 5. Product Portfolio 6. Security
Yoo and Donthu (2001) SITE-QUAL	Li, Tan and Xie (2002)	Zeithaml, Parasuraman and Malhotra (2005) "E-S-QUAL"	Agrawal (2007)
1. Ease of Use 2. Processing Speed 3. Aesthetic Design 4. Interactive Responsiveness	1. Website Design 2.Customer Service 3. Reliability 4. Privacy	1. Tangibility 2. Reliability 3. Responsiveness 4. Integration of Communication 5. Assurance 6. Quality of Information 7. Empathy	1. Information 2. Interaction 3. Integration 4. Access 5. Corporate Image 6. Emotional engagement 7. Active Service Recovery 8. Assurance
Anand Agarwal et. al. (2009) EGOSQ	X. Papadomichelaki et. al. (2009) E-GovQual	Parasuraman et. al. (1988) SERVQUAL based instruments for measuring e-service quality	
1. Information 2. Interaction 3.Integration 4. Accessibility 5. Emotional engagement 6. Active service recovery 7. Assurance 8. Transparency	1. Ease of use 2.Fuctionality of interaction environment 3. Contents appearance of information 4. Trust 5. Reliability 6. Citizen's support	Note: some studies can be seen related to measuring the e-service quality. Researchers introduced new measurement scales but these scales followed most of the SERVQUAL dimensions.	

Source: Anand Agrawal et al.(2009) EGOSQ-Users' Assessment of e-governance Online-Services (With some additions by author)

Using above models researchers measured e-service quality. Here is discussion on few more studies. Madu and Madu (2002) develop a 15 dimensions scale of e-service quality based on better understanding of customer perspective and

providing services to meet the needs and expectations of customers (Madu and Madu, 2002). An 11 sub-dimensions scale developed based on the two dimensions of eservice quality (Santos, 2003). Field et al. (2004) develop a process model for assessing and improving service quality by identifying eservice system entities and transactions between those entities and mapping key quality dimensions onto them (Field et al., 2004). Gounaris et al. (2005) suggest that the different dimensions of perceived service quality are influenced by different antecedents (Gounaris et al., 2005). As mentioned earlier, Parasurnaman et al. (2005) develop the dimensions for core service delivery and recovery services delivery in eservice quality (Parasuraman et al., 2005). Kim et al. (2006) extend the dimensions developed by Parasuraman et al. into a 9 dimensions scale in eservice quality in order to use them for content analysis and evaluation of web sites in the apparel retailing sector. DeLone et. al., (2003) introduced the information success model which includes system quality, information quality and user satisfaction quality as main dimensions. Studies show that some researchers use the term "process quality" with respects to "system quality".

2.3. THE ISO/IEC 9126 STANDARD FOR SOFTWARE QUALITY

The ISO/IEC 9126 standard was developed in 1991 by the International Organization for Standardization (ISO) provided the framework for evaluating software quality. It provides the framework for evaluating software quality providing the quality characteristics of the software throughout the development process. ISO/IEC 9126 contains six quality characteristics: functionality, portability, maintainability, efficiency, usability, and reliability, which are used for supporting the quality goals, quality assurance criteria, design review, verification and validation. These characteristics can be deployed for assessing e-government quality. The ISO/IEC 9126 standard is used as a tool to identify the quality considered in each application. The ISO/IEC 9126 standard describes an internal and external software quality. The internal software quality derives from the product itself. The external software quality derives from the behavior of the system of which it is a part, either direct or indirect. Both the internal and external software qualities are prescribed in a quantitative. ISO 9241 is another standard for ergonomics of human system interaction (Travis et. al 2007). ISO 9241 describes every aspect of usability including hardware usability, software usability, and usability processes. Furthermore, ISO 13407 is the standard of human-centered design processes for interactive system (ISO 13407).

3. CONCEPTUALIZATION OF E-GSQA

In this ongoing study we adopt the E-S-QUAL dimensions scale developed by (Parasuraman et al., 2005) as the measurement of customers' satisfaction on e-service quality in their online purchasing process. E-S-QUAL was developed for measuring e-service quality in business environment but these dimensions can be used for assessing citizen's satisfaction for measuring e-service quality. Similarly study follows one more model e-GOVQUAL developed by (X. Papadomichelaki et. al., 2009) focusing on reliability and validity though his model includes important dimensions. As discussed earlier, Parasuraman et al. (2005) develop the E-S-QUAL into a seven dimensions scale. Four of them are the core dimensions, and three of them are the recovery part of eservice quality (Parasuraman et al., 2005). The four core dimensions of E-S-QUAL are:

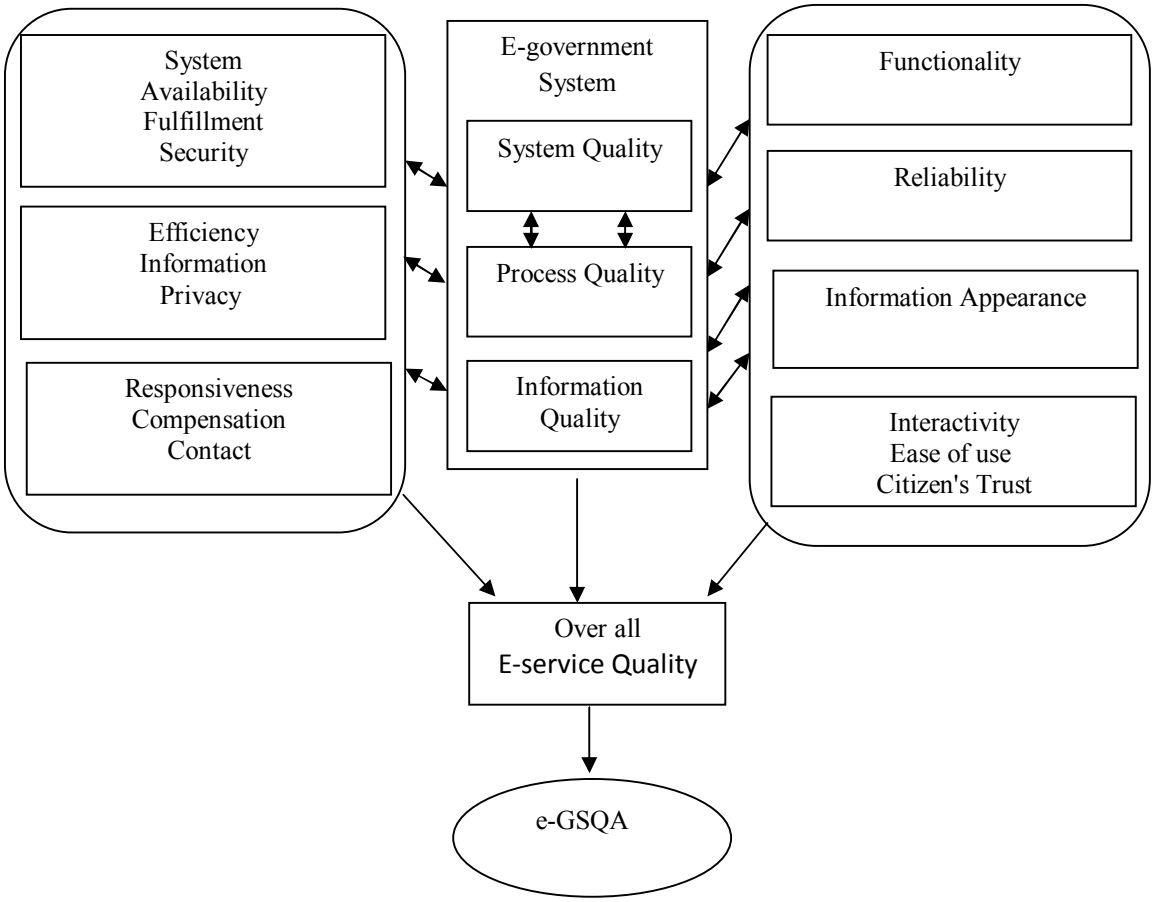
1. System availability: The correct technical functioning of the site.
2. Efficiency: The ease and speed of accessing and using the site.
3. Fulfillment: The extent to which the site's promises about order delivery and item availability are fulfilled.
4. Privacy: The degree to which the site is safe and protects customer information.

The ESQUAL has a recovery service quality scale (E-Rec-S-Qual) for problem solution. It is only applied when customers have questions or run into problems in eservice process. The three dimensions of E-Rec-S-Qual are:

1. Responsiveness: Effective handling of problems and returns through the site.
2. Compensation: The degree to which the site compensates customers for problems.
3. Contact: The availability of assistance through telephone or online representatives.

Some of the dimensions like functionality, reliability, information appearance, interactivity, ease of use and trust are considered from e-GOVQUAL (X. Papadomichelaki et. al., 2009). These dimension also suggested by ISO/IEC 9126 for software product quality.

Figure 1: Proposed e-GSQA framework for assessing e-service delivery



An extensive literature survey and critical studies of the existing approaches on, e-service quality, information quality, system quality, and various e-service related dimensions identified for assessing e-service quality of e-government in proposed study. All possible items related to the quality construct of e-government service have been included. Author did a survey in the form of interview in India from the users of e-Tax services. The survey was divided into 5- sections which included questionnaires on information quality, e-service delivery, website quality, citizen's satisfaction and trust. This survey helped author in understanding the citizen's opinions about the existing offered e-service quality. In each section varying number of questions were asked regarding specific dimensions of online service quality as identified. E-S-Qual by Parasuraman et al. (2005) gave the basis of designing questionnaires.

4. DISCUSSION & CONCLUSION

The introduced framework e-GSQA will improve both practitioners and researchers understanding about the quality criteria. Study shows the relationship between quality e-government services influences the citizen trust and satisfaction with e-government interactions. The purpose of this paper is to propose suitable framework and dimensions for measuring e-service quality in e-government. A literature review of various relevant researches in this area has been conducted thoroughly to determine the most appropriate dimensions that have been used in e-service quality. The proposed framework is based on revising the literature and modifying the E-S-Qual, and E-GovQual also ISO/IEC 9126 standards are considered in the studies. The framework includes various dimensions like web site quality, design, reliability, responsiveness, security, privacy, effectiveness, ease of use and citizen's trust. A high quality e-government service is the determinant factor for building trust in offered e-government services.

5. FUTURE WORK

Objective of this study was to design a framework e-GSQA which will help practitioners to assess e-government service quality and also citizen's trust. Next phase of this study will be the verification and validation. India e-government is offering various e-services in different areas hence validation of the proposed framework is to be done using e-tax services. The objective of choosing this area

is based on the idea that e-tax service is a one which is being availed by majority of citizen's.

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