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E-Services Quality: A Perspective of Service Providers and Service Users

Taiseera Hazeem AlBalushi

Abstract

Electronic service, refers to services offered over the information and communication technologies. These services are becoming increasingly important with continuously developed application in various domains (business, government, education and health) as these services provide benefits to all parties concerned from service providers, service users and the society. This chapter will shed light in e-services, definitions, components, and characteristics. As service providers want to boost the efficiency and quality to reach more users to utilize these services, a prime challenge in developing these services with high quality to meet users expectation becomes a must. Quality plays a major role to keep up a trust between service providers and users. Eight main quality dimensions are proposed as per the studies to examine the perspective of service providers and service users for government services (personalization, usability, performance, web design, security, user involvement, satisfaction and loyalty).

Keywords: e-service quality, e-government, quality factors, service provider, service user

1. Introduction

The world is becoming a small society which is totally blended with technology, therefore, prompt services technology need to be implementing in the society to meet its demands. These services are becoming y complex in volume and type to meet society's increasing expectations out of these services. Due to the advancements in ICT and digital transformation as well as the growing rate of internet and mobile technologies users has led to the emergence of new business models causing huge and rapid changes in service production as well as users expectations and behaviors. The impact was even dramatic in the public sector and e-government as its substantial growth was evident in last two decades to describe how ICT is utilized to boost the efficiency and quality of public administration in a government setting.

e-government is regarded as second revolution in public management/administration due its substantial critical role in transforming the way public services as well as the relationship between government (service providers) and citizens (service users) [1]. As e-governments thrive to offer their best services with highest level of quality, they rely on the quality and the usage by service

users [2]. To achieve highest level of trust between user/citizens and governments, quality is regarded as a key factor in this formula. As the main objective of e-government to make their services accessible and access the information smoothly and easily. The governments needs to continuously invest in their information technology, operations and infrastructure to assure reliable communication which ultimately satisfy the high quality service expectation of users/citizens [3].

An extensive amount of research was conducted from various domains (services, marketing, information systems, e-government) to measure service quality and various scales and models, frameworks were also proposed by different scholars as summarized by [4, 5] covering the domain of service quality, e-service quality and e-government quality.

In this course of study, a systematic literature review (SLRs) research methodology was carried to explore all relevant quality models, methods, factors, indicators, measures used in the process of maintaining the quality of service which satisfies the users/citizen satisfaction and loyalty level. The main purpose of this chapter is therefore to draw a roadmap as per existing studies of key elements for e-service quality dimensions which in return plays a significant role in enhancing overall service offering and usage by service providers and service users. As a result, this research will pave the way to put into the context in preparation for more studies to validate the presented quality factors in various service domains.

2. E-service quality

Service quality is becoming considerable area of research from various domains (operations, marketing, hospitality and information technology). SERVQUAL is a pioneer model which represent ten service quality dimensions for measurement of quality which are: responsiveness, competence, access, courtesy, communicating, creditability, security, understanding/knowing the customer, and tangibles [6]. The same model was revised by Parasuraman and et al. [7] it was simplified into five key dimensions: reliability, assurance, tangibles, empathy, and responsiveness. Although this model is one of the most classical models in measuring service quality it was adopted by many researchers in various domains [8–15].

It is very critical to main quality of e-services as more services online in response to the massive growth and demand by service users in light of the current situation. Various scholars offered means to measure quality in various context of applications. SITEQUAL [16] was initially developed to measure internet shopping sites perceived quality. On the other hand, Madu and Madu [17] argued that the quality can be measured by more extensive dimensions, thus proposed 15 dimensions of e-services quality; performance, features, structure, esthetics, reliability, storage capacity, Service ability, security and system integrity, trust, responsiveness, productive services, Web store policy, reputation, assurance and empathy. Quality was also studied in the domain of e-tailers and Cai and Jun [18] identified four effective dimensions which are: website design/content, trustworthiness, prompt/reliable service, communication. Additional five dimensions were proposed by Long and C. McMellon [19] which are: tangible, assurance, reliability, purchasing process, responsiveness. A *multiple-item scale (E-S-QUAL & E-RecS-Qual)* [20] was developed to measure *the quality of e-service of online shopping sites*. While Caruana et al. [21] proposed EtailQ a scale to measure online retailing service.

Quality was also measured in e-banking service in UK [22] identified seven quality seven dimensions: convenience/accuracy, accessibility/reliability, god queue management, personalization, friendly/responsiveness, customer service,

targeted customer service. Another study by Hussain [23] in e-banking domain as well identified six e- service quality dimension to have positive influence in measuring quality which are; reliability, responsiveness, ease of use, personalization, security, and website design. While a recent review study [24] found that reliability, efficiency, responsiveness, ease of use, security, website esthetic, credibility and personalization are key dimensions effecting e-banking domain.

Bauer et al. [25] developed a scale named as eTransQual to measure e-service quality with dimensions: functionality/design, enjoyment, process, reliability, responsiveness. Another hierarchical approach proposed by Fassnacht et al. [26] who identify three quality dimensions with sub dimension which are: Delivery quality (attractiveness of selection, information quality, ease of use, technical quality), environment quality (graphic quality, clarity of layout), out-come quality (reliability, functional benefit, emotional benefit).

Another hierarchical approach was proposed by Heinonen [27] with four quality dimensions and sub dimension which are: technical (outcome of service interaction), functional (interaction between the customer and all kind of interfaces of company for both personal and technical prospective), temporal (perception of the time of service), and spatial (customer perception on the physical place). While PesQ model [9] identifies four quality dimensions which are: web design, customer service, assurance and order management. Another six dimensions of e-service quality which are: trust, customized communication, ease of use, website content and functionality, reliability, and speed of delivery were proposed by [28]. Ha et al. [29] explores four dimensions which have a good impact on customer adoption of online shopping the dimensions are: website design, customer service, privacy/security, atmospheric/experiential. Akinci et al. [30] revised E-S-QUAL and E-RecS-QUAL of [20] in the context of e-banking in Turkey. While Lin et al. [31] develop a scale SSTQUAL for self-service technology which identifies seven dimensions which are: functionality, enjoyment, security/privacy, assurance, design, convenience, and customization.

Santouridis et al. [32] examined the applicability of e-service quality scale E-S-Qual and identify four dimensions which are: efficiency, fulfillment, system availability and privacy. On the other hand, Janita [33] explored service quality dimensions in B2B e-marketplaces and identify four dimensions which are: reliability, privacy, utility or the information, valued-add service. On the other and in the area of online service satisfaction, While Li [34] identified the key dimension in the domain of e-commerce websites in china: identify system related dimension and service related dimensions which are: system related (efficiency, ease of navigation, reliability, personalization, ease of use, speed) and service related (responsiveness, assurance, delivery, and customer service). Achchuthan et al. [8] Developed an model with five e-service quality dimensions which are: tangibility, empathy, responsiveness, reliability, and assurance. This was in the context of electricity services.

3. E-government service quality and dimensions

The rapid growth in information communication technology has change the way of communicating between governments and their citizens because of this change a new form of government introduced known as electronic government [35]. It has become significantly important to understand the relationships between the quality of the government services and its impact on users/citizens satisfaction. Quality dimensions of e-service become an important ingredient for e-governments to measure the users/citizens satisfaction. Many scholars explored

different approaches to find out the effective quality dimensions and measuring methods of online service quality which influences on the quality of e-services in context of e-government [2, 31, 35–51].

It is becoming an extreme challenge for e-government to maintain the service quality to ensure users/citizens satisfactions and loyalty. Therefore, and in order to meet this target, it is important to measure the quality of the service by quality factors/indicators known as dimensions. This will help in assuring that service provides are offering the services as per user's expectations. Thus, selection of dimension is based on their importance, reflected in the review of the literature during the studies in the domains e-service quality e-government service quality and also on web site quality. The main quality dimensions from the literature are discussed below and summarized in **Table 1** with their focus (service providers, service users). The focus of the studies was extracted as part of the methodologies used for data collection and analysis conducted by majority of the earlier studies in this area. It is significant to highlight that most of the studies presented regarded the achievements of high level of quality has resulted in achieving user satisfaction and loyalty.

3.1 Personalization

Personalization refers to the level of customization available under the control of the users per their needs and requirements. Alanezi et al. [56] admired from SERVQUAL unique feature of providing individual care to customers, which can only be possible by increasing capacity of citizens to customize e-government portal according to their needs. While, Surjadjaja et al. [52] identified that customization feature plays an enormous role in enhancing satisfaction of customer by easing out them in performing their normal routines of payments and services. Where, Lee et al. [53] accentuated that service quality improved the satisfaction level of citizen and left a positive impact, that increase the customer trust on the services offered by the customized e-government portal. In addition to that, Lee et al. [53] observed that personalization satisfied specific needs of customers with different choices. While, Suomi et al. [55] endorsed the importance of customization, as it help to designed the services pattern according to citizens personal choice. Where, Gilly et al. [59] identified that personalization in an online environment enhanced the trust and satisfaction of citizen over the system and allow them to provide personal information freely on their systems. While, Shareef et al. [69] describes personalization as an extent where, an efficient government portal performed their functions efficiently and always available to help their citizens in their needs.

To give some examples, personalization factor checks how well the service provider understand and respects the personal needs of the users while using these services with respect to language preferences and the way information presented in the portal to satisfy user needs. The portal is also relating to other websites that the users may be interested.

3.2 Usability/ease of use

Usability measures effectiveness, efficiency and satisfaction of a user as a result of utilizing the e-government portals. Where, ease of use explained as the availability of all necessary information which also be facilitated with advanced options for searching significant information. Several studies [57, 60, 61, 63–65, 89] observed that ease of use allows citizen's to utilize offered services frequently and also

Dimension	Model/instrument	Focus
Personalization	Antony Model [52], Lee Model [53], Ibrahim Model [54], Suomi Model [55], Alanezi Model [56], Alanezi Model [57], Al farsi Model [58], eTAILQ [59]	Service users
Usability/ease of use	SITEQUAL [60], WEBQUAL [61], WEBQUALTM [62], Santos Model [63], Fassnacht Model [64], WEBQUAL [65], Alanezi Model [56], Ladhari Model [66], Rehman Model [35], Sabote Model [67], Alanezi Model [57], Chen Model [68], Shareef Model [69], Hussain Model [70], Hein Model [71], Alfarsi Model [58].	Service users
Performance/efficiency/ responsiveness	Madu Model [17], SERVQUAL [72], Rev. SERVQUAL [73], E-S-Qual [74], E-Retail [19], Lee Model [53], Santoos Model [63], EGOVAST [47], E-GovQual [75], Shebani model [76], Sabiote Model [67], Santouridis [77], E-GovQual [78], Sharma Model [79], Stiglingh Model [80]	Service users
Web design	SITEQUAL [60], WebQual [81], eTailQ [59], Lin Model [53], Jun Model [82], E-S-QUAL [74], Caruana Model [83], PeSQ Model [84]	Service users and service providers
Security	SERVQUAL [72] SITEQUAL [60], Madu model [17], eTailQ [59], Antony Model [52], Santos Model [63], Caruana Model [83], Stoel Model [29], Suomi Model [55], Alanezi Model [56], Alanezi Model [57], e-SQ [66], SSTQUAL [31], Bhattacharya Model [42], Shareef Model [69], Sharma Model [79], Hussain Model [70], Stiglingh Model [80], Shanshan Model [85], Al farsi Model [58]	Service users and service providers
User involvement	Bhattacharya Model [42], Alanezi Model [57], E-GovQual [78], E-GSPTA [86]	Service users
Satisfaction/trust	Madu Model [17], WEBQUAL [61], WEBQUALTM [62], Antony Model [52], Jun Model [82], WEBQUAL [65], Tadisina Model [87], E EGovQual [88], E GovQual [75], Osman Model [49], EGSPTA [86]	Service users
Loyalty	Caruana Model [83], Shareef Model [69]	Service users

Table 1.
Quality dimensions and related studies.

influenced on soul satisfaction of citizen which also enhance customers trust on utilizing e-government services. Where, Shareef et al. [69] accepted ease of use a main formative dimension of service quality of e-government public administration. Accordingly, Mentzas et al. [90] affirms that the effectiveness of e-government portals enhanced with the availability of certain features such as, site map, FAQ's and availability of information about the services offered by e-government portal. Thus, availability distinctive features on e-government portal help to ease out the necessities of citizen and provide high degree of satisfaction to them.

This factor checks elements such as, how the users assess the portal structure with respect to ease of use, clarity and confidence. It also checks the portal for user friendliness and efforts required by users to interact with the portal.

3.3 Performance

Performance measures the responsiveness and reliability experienced with e-government offered services. Alanezi et al. [56] observed that performance of

the e-government portal depends on the response time of queries of the citizen. In addition to that, Alanezi et al. [57] also studied that immediate response on the queries help citizen to sort out their problems. Whereas, Shareef et al. [69] considered performance an extent that has to fulfill by the government portal according to the expectation of their citizens. While, Stinglingh et al. [80] accentuated that efficiency and responsiveness as an integral part of performance of that allows citizen to evaluate the quality of the offered services. Where, Mentzas et al. [75] relates performance with the efficiency and reliability of the services offered by the e-government portals.

Some of the items that effects the performance of the website can be response rate to queries and complains, facilitated communication and response from service providers, and providing information on timely manner.

3.4 Web design

The dimension can be referred as a tangible dimension, as it is an only interaction point between the citizen's and the e-government portal. The dimension is related to the overall layout of the website that includes design and available content, also correlate with the different studies presented by various researchers. Where, Caruana et al. [53, 83] accentuated that the website design is related to the reputation of the organization and also influence customer confidence over the portals.

Web design factor is important to foster effective communication with service providers by providing relevant and accurate information. The portal design should be easy to use and understand as well as being visually appealing.

3.5 Security

This dimension measures users' perceptions of how safe and secure they are concerning their personal information over the web site. The sense of security that e-government is fully secured provides trust to citizen to use e-government portals for their chores. While, Shareef et al. [69] studied security as a magnitude of citizens trust where citizen feel safe to disclose their personal information while they are interacting with different offered services provided on e-government portals. In SITEQUAL, Donthu et al. [60] evaluated security as an important parameter that enhanced the citizen trust while utilizing services offered by e-government portals.

By adhering to proper security measures, users are assured by service providers that their information is stored securely, and their privacy is protected, and the data provided is not used for any other purposes.

3.6 User involvement

The dimension user involvement refers to connection of e government portal to the citizen. Some researchers [75] studied dimension as citizen support, whereas bhattacharya et al. [42] studied it as citizen centricity, while Alanezi et al. [57] studied user involvement as a high level dimension and discussed it as the support and opportunities offered by the portal to e government services users. The vastness of dimension covers the availability of guidelines and availability of linked social forums. In addition to that the dimension also covers the interaction between citizens and portal through feedback on the provided services and the information about the failure of services through email and sms.

When service provides regard the users as key stakeholders of portal success via providing channels (social media, blogs, forums, etc.) where they can comment and give feedback about services provided.

3.7 Satisfaction

Satisfaction is a reaction that a customer shows to the extent to which his or her needs and expectations are met by the service offerings. This dimension measure overall experience and positive feelings towards using e-government services. Zaidi et al. [91] termed satisfaction as emotional level of citizen which they get after attaining a successful transaction. Where, Parasurman [74] accentuated satisfaction as a degree of perceived quality services that citizen acquires in their routine purchase from e-retail store. Whereas, Madu et al. [17] considered satisfaction has a major role in loyalty of customer with e-stores. In addition to that, Haliru et al. [92] affirmed satisfaction of customer tends to decline, if they are not happy with the quality of service provided and they will not likely to repurchase from the same store, if they are not happy with the offered services and better value of provided services.

3.8 Loyalty

The dimension loyalty is directly related to the degree of satisfaction of service provided by e-government portals. The measure of loyalty can be observed through pattern of availing the e-service through government portal. Accordingly, Caruna et al. [83] identified that the reliability and fulfillment of their jobs they want to do. In addition to that, Caruna et al. [83] also affirms that the level of customer services and providence of satisfactory privacy and security asserts the citizens loyalty on e-government portals.

4. Discussion and conclusion

This study aimed to investigate the quality dimension that are most relevant to the measurement of e-government services from the perspective of services providers and service users. Through investigation of previous literature eight main dimensions were proposed (personalization, usability, performance, web design, security, user involvement, satisfaction and loyalty). Most of the identified dimensions are examined against users' needs and point of view. On the other hand, security and design can be looked at from service provider perspective to prioritize their IT related investment to achieve higher level of security in offering these e-services and to design an intuitive website design to reach out more service users.

The proposed scale is valuable to countermeasure the factors which are influencing the quality of service in domain of e-government services. While there is breadth and depth of research in identifying and examining quality dimensions as per users perspectives, there are few studies [93] that are focused mainly on exploring service providers priorities and viewpoints when offering services.

This study can serve as a basis for future research and a roadmap on e-government services evaluation to assess them with respect to quality standards in order to improve citizens satisfaction and to increase usage, and trust of e-government services.

5. Limitation and future research directions

Like any other research in the area, there are some limitations to this study that needs to be considered. The quality factors studied in this research is as per an extensive literature review with specific focus to e-government quality domain. Therefore, and in order to generalize the effect of the identified factors, further studies are required in order to identify more general quality factors applicable to any domain of e-service. This will lead to the identification oof more critical quality factors as well as their overall effect on user satisfaction and loyalty.

In addition, an extensive examination is required to validate the proposed dimensions through qualitative and quantitative research methodologies. This will help with more detailed description of each factor as well as creation of specific items and metrics under each factor. It will also provide an opportunity to examine the factors in real context with different service provider domains as the reported results will very due to quality factors prioritization with respect to their unique nature and operations.

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