E- Government Service Quality And Its Effectiveness

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We live in the era of “e-communication”. Governments around the globe rely on e-communication, that is “e-governance”, to govern the public and private activities according to their conditions. It’s also the fastest and the easiest mode of communication. The aim of this paper is to recognize patterns, themes, methodologies and approaches used in e-government and explore the usefulness of e governance with support of secondary data and reviewing the literatures and previous research papers. Moreover, the paper discusses the issues, challenges and limitations in the e-government and provide recommendations regarding how to overcome those limitations. To do so, the study critically analyzes the development and various definitions of the e-government concept such as: Explaining the processes of e-government projects with ethical environments. Addressing the, limitation and challenges faced and ways of strengthening e-government research. At last, findings related to strategies to make e-governance effective and conclusion will be drawn.

Introduction

Strategic and organizational are the dimensions to electronic government (e-government). Using websites is a strategy used to reach a broader audience, or to promote government policy by the use of technology itself. Improving use of resources, enabling information flow and efficiency improvements could be included in organizational aspects. To preserve these objectives, the public services offered by the government websites should induce users’ interactivity on several platform: organizations, citizens and external interests. Thus, there must be enhancement in quality of services delivered to citizens, like providing convenient access to e-government services (Turban et al. 2008). Nevertheless, Chutimaskul (2008) expressed that several e-government services were developed without enough consideration to the quality of the service or aspects of usage, and Papadomichelaki (2006) confirmed that concerns about the quality of e-government services had expanded. While Zeithaml (2002) stated that quality of services is important including security, reliability and ease of use. Connolly and Bannister (2008) remarked differences between countries in usage of e-government services which is governed thru the extent to which citizens can assure their desires online.

A formerly assessment by the research corporation of Sultanate of Oman e-services, Gartner (2007) said that as development plans differed, online services varied among citizens, and comparisons between projects were unreliable, accordingly the quality of the services are specific or under review. Even though in the last few years usage of internet increased dramatically in Oman, this hasn’t reflected in quality of e-government services (Al-Sobhi and Weerakkody 2010). The authors highlight that users’ acceptance depends on service quality while analyzing the aspects that influence e-government in Oman. Thus, the purpose of this research is to study the e-government service quality in Oman and study the limitations and propose suggestions concerning how to overcome these limitations and come up with methodological and innovative research.

Literature Review

Research findings on e-government service quality is represented briefly into two parts, first part explores perception of an e-service quality and its factors and the other portion concerns government e-service valuations.

E-service Quality:

The concept of e-service quality is derived from eservice which can be the key factor for online organizations. E-service quality is conceptualized by Collier and Bienstock (2006) as users' perceptions, the outcome of service delivered and service recovery process in case of service failure. Moreover, enhancing the quality researchers are establishing procedures and attributes concerning appearance, accessibility, availability, communication and reliability. For assessing website quality Yoo and Donthu (2001) proposed a scale, SITEQUAL based on four aspects: ease of use, visual design, processing speed and security, another scale is WebQual developed by Loiacono et al. (2002). This scale consists of several variables: in-built operations, custom-built communications, trust, response time, ease of understanding, visualization and innovativeness. Similarly, Barnes and Vidgen (2002) built their WebQual scale based on information quality, usability and service relations quality. Therefore, there're several dimensions that might have a major effect on online users' perceptions of e-service quality (Lee and Lin 2005; Alanezi et al. 2010).

Quality of e-Government Services

Over the past two decades, global information and infrastructures technology including e- services has grown rapidly and the Internet is a substantial service medium. At the same time as each government organization deliver a standalone website which might offer a range of interactive services, public sector's that interactions with others is the complexity that situate government in development of integrated services (Chutimaskul et al. 2008; Al-Sobhi and Weerakkody 2010).

To increase transparency and efficiency in e-services, Ancarani (2005) acquired an evaluative model for Italian local government by adapting traditional models and develop to capture views and responses from the users.

Related Works:

An e-governance framework concerning the interaction between government and its citizens was proposed by Chandwick and May in the year 2003, where they had focused the managerial, consultative and participative models. Two years later, Grant and Chau's proposed integration between managerial aspect and IT. In 2008, Coursey and Norris stated in their review that in order to incorporate the different government information and services, e-government should have web-technology which mainly focuses on latest technologies. For scrupulous representation of service characteristics, a model was presented by S.Adreozzi, P. Ciancarini, D. Montesi, R. Moretti. D. Gouscos, M. Kalikakis, and P. Georgiadis expound a minimal approach to model web service management attributes. Nevertheless, the whole above argued web services are either vastly server centric or device centric in nature. A proper distributed cloud computing web service that equipped effectively in egovernment is slightly obtainable.

Critique of Relevant Literature

A review of the literature results in several dimensions that measure e-service quality (Alanezi et al. 2010). Few indications have been developed to evaluate e-government status. One of them is by the United Nations' Division for Public Economics and Public Administration, to specify the progress made in implementing e-government services. Many researchers developed models which might excluded some phases of user's interaction with the website (Kim et al. 2006; Rotchanakitumnuai 2008). Each of these phases determines different level of service features and functions (Shareef

2009). These phases are as follows:

1. Existence: Provide information through their websites to their users and classifying the dimensions that contain elements of the website's related content to certify that e-government sectors are able to transform their traditional setting into e-service.
2. Interaction: Allows users to interact electronically through e-mail, chat rooms and download forums with providing reliable service to people. In addition, elements related to assess the users to perform their interactions smoothly must be included in category support.
3. Transaction: Enables users to carry out their transactions with concern of performance including privacy, security, credibility and processing time.
4. Transformation: Without visiting the governmental offices, users can able to complete a variety of e-services comfortably.

The categories identified in this study play huge role in the developmental stage. Besides, majority of models that have been developed in e-government service quality in literature review was adopted from e-commerce domain (e.g. (Barnes and Vidgen 2003; Jun et al. 2009; Papadomichelaki and Mentzas 2009; Sung et al. 2009; Bhattacharya et al. 2012)).

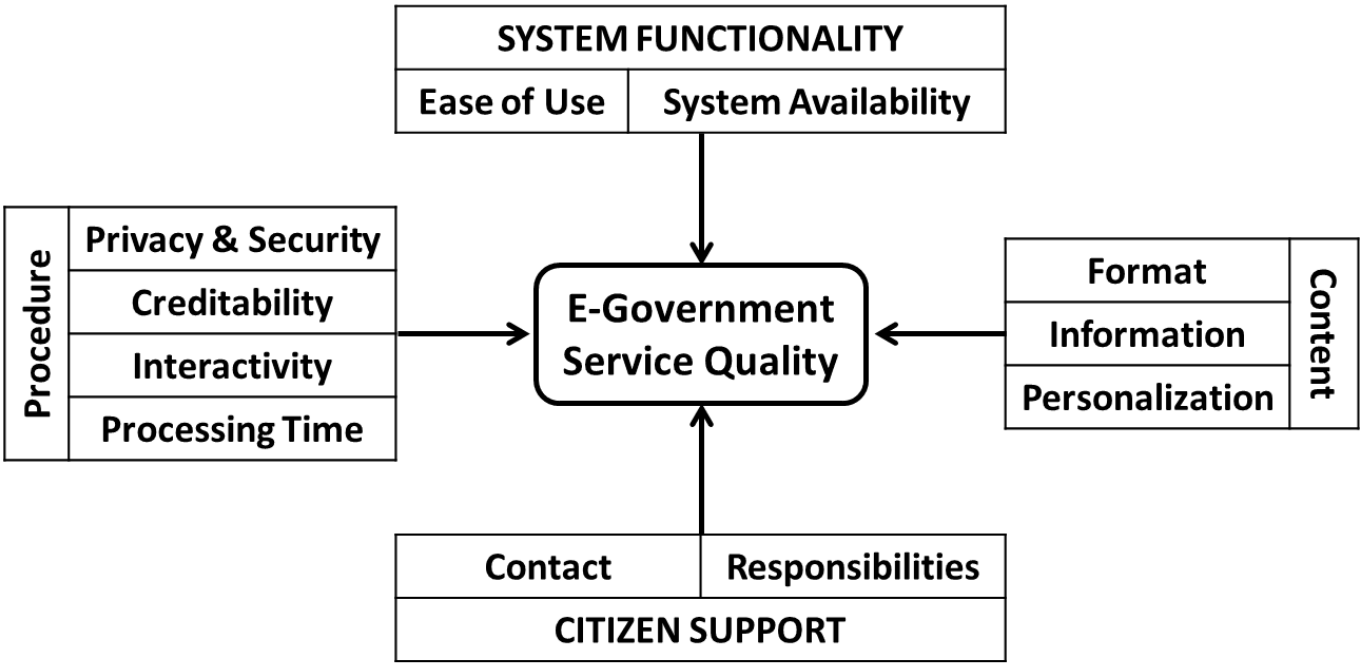

Figure 1. *Characteristics e-Government Service Quality.*

System Functionality

Each category consists of measurements and elements covering an e-government technological functions such as ease of use, and system availability.

- Ease of use: Describes the easiness to access the website and navigate too. Jun et al. (2009) stated that websites should be user friendly by providing simple steps, with logical registration to its online services

- System Availability: Relates to the technological feature of the website; i.e., access using diverse browsers, loading time, and freezing. Moreover, allowing users to upload files in a specific format is derived under this aspect (Obi 2009).

- Security: Refers to protection of personal details provided by citizens to prevent hacking and misuse. Parasuraman et al. (2005) defined it as “the degree to which the site is safe and protects customer information” (p.8).
- Interactivity: Interaction public sector with citizen and enabling them to request to keep the user informed when further action is desired. Thus, reminders or such events are involved in this dimension.
- Processing Time: Facility of the e-service to fulfill a request or provide a service in a realistic response time.
- Content: content that provided in e-government website classified into three main aspects firstly, information and it should be accurate, easy to understand, updated and reliable, second is format which is well organized, attractive graphics, logo that reflects its functions, and lastly visualization which consists of choice of languages beside the official language, font size and other website’s links.

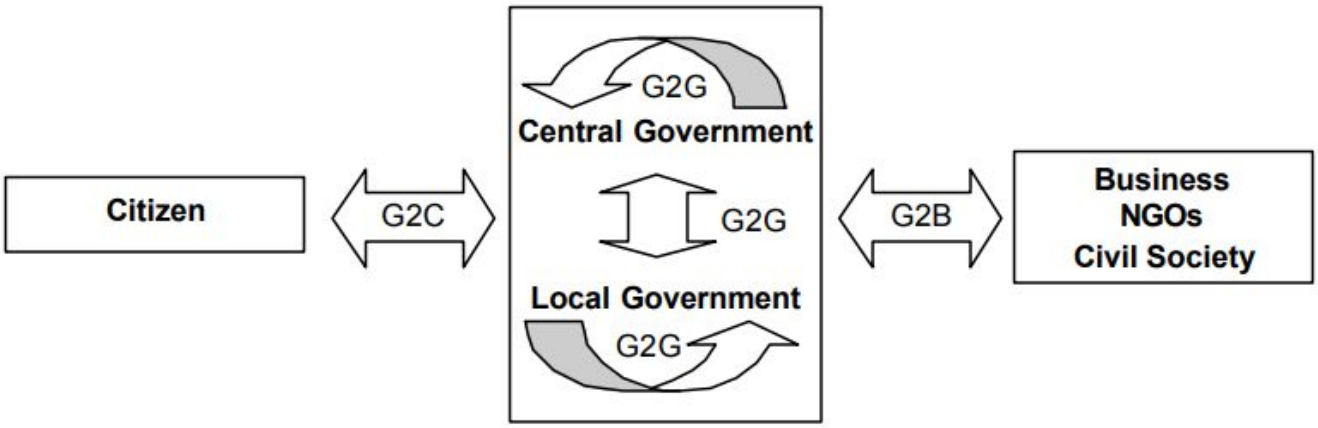

Figure 2. *Interactions between main groups in e-governance*

Proposed cloud-based framework of e-governance

Cloud computing is computing over a cloud, where it contains of commodity machines and a software layer (called Hadoop). Hadoop is responsible for distributing applications, parallelizing and managing through the machines, detecting and recovering machine failures.

The proposed framework, Hadoop consists of four components which are User Interface UI, Authentication Check AI, Web Service Mapping WSM and Job Scheduler JS.

Figure 3. *Proposed components of Hadoop*

The user requests through e-government web service after interfacing, the latter verifies the user, once its validated, Hadoop refers WSM and map to e-government web service and fetch with the

requested one and submit it to the JS. Then the job is sent by scheduler to idle volunteer hardware, where the sending jobs are loaded and get completed successfully.

Cloud computing software can be accessible from network using thin client; thus, it can support spread of the masses. Framework proposed in this paper of e-government is based on cloud computing where Hadoop is at the top and being accessed by thin clients or by commodity hardware's (PC, mainframes, clusters, …etc.). However, the commodity hardwares are of two types:

1. Active commodity hardware which need egovernment web services.
2. Idle commodity hardware used for processing web services which are supplied to thin clients.

Commodity hardware can't be busy all the time, some are idle, hence used in optimize order to enhance the benefit of cloud computing, by providing simple interface to the user.

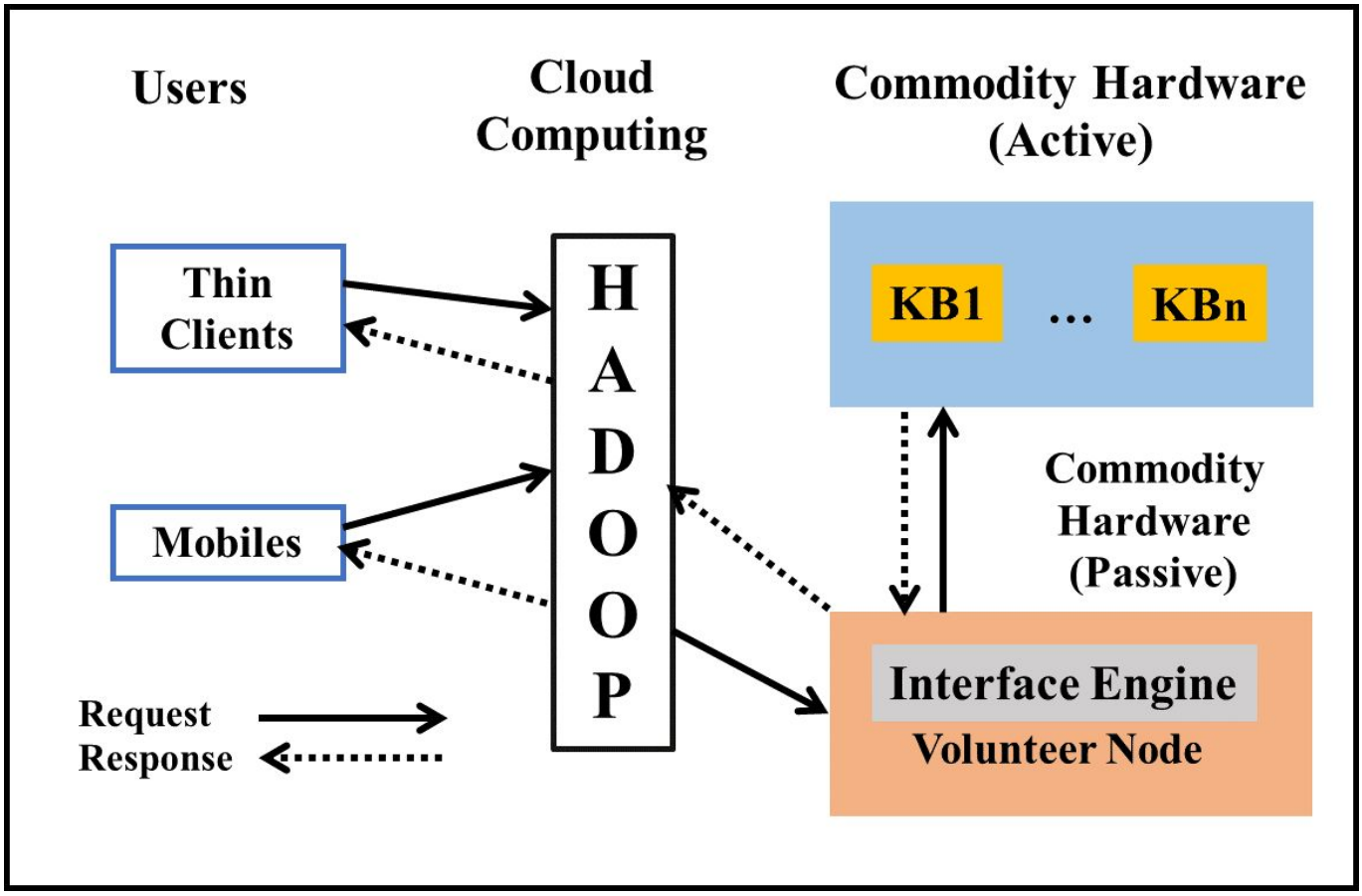

Figure 4. *Proposed framework*

The proposed figure shown below illustrates the interaction between user and egovernment web service. The user requests for service, Hadoop verifies the nature of request and provide government web service. But if the user requested an expert device, then Hadoop use interface engine, to use that volunteer nodes are selected. Interface engine refer the active commodity hardware for knowledge base and pass that to Hadoop to end users.

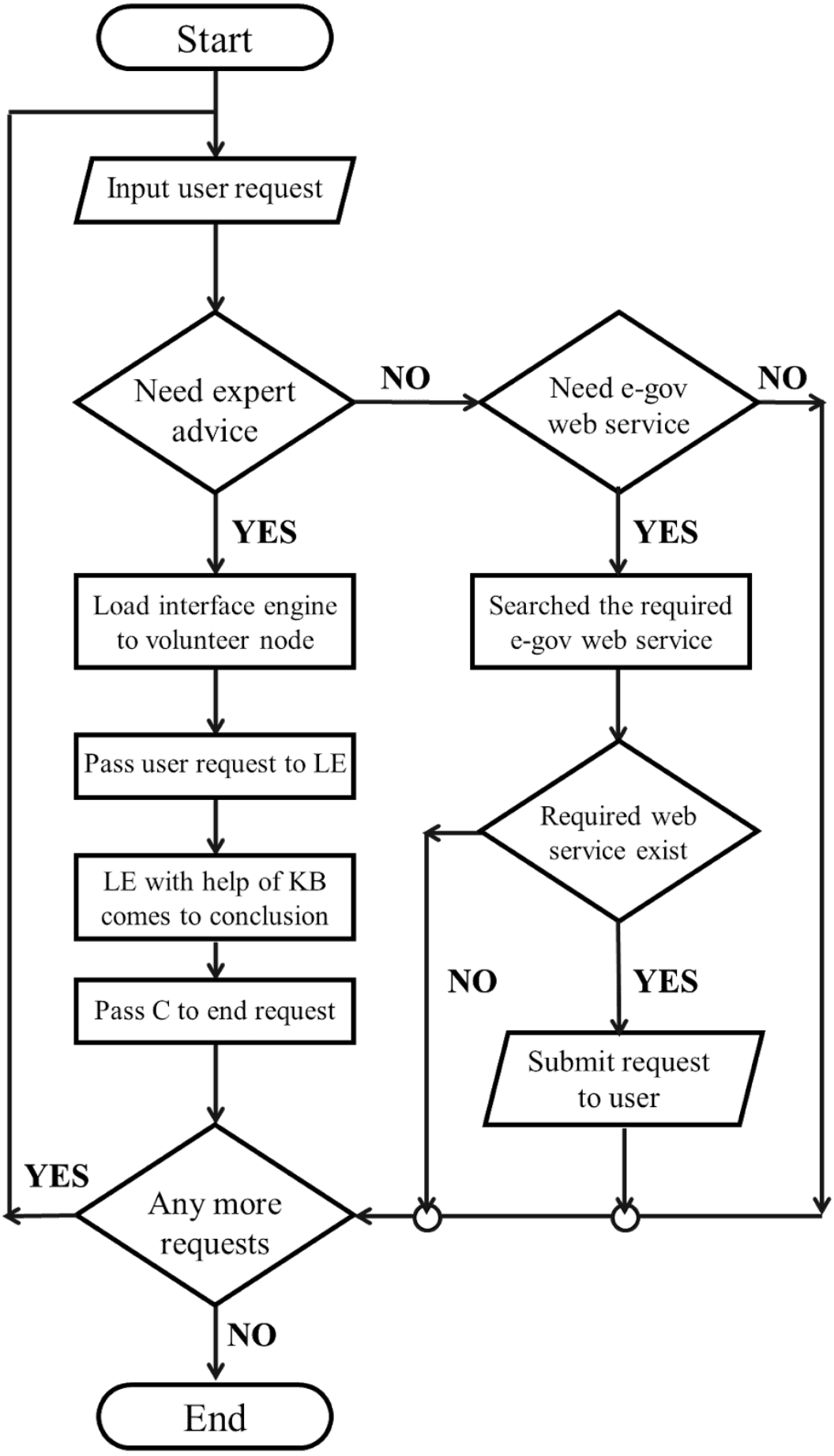
Start
Input user request
Need expert advice
NO
Need e-gov web service
NO
YES
YES
Load interface engine to volunteer node
Searched the required e-gov web service
Pass user request to LE
Required web service exist
LE with help of KB comes to conclusion
NO
YES
Pass C to end request
Submit request to user
YES
Any more requests
NO
End

Figure 5. *The above algorithm has emphasized on the entire user request*

Results And Discussions

In light of the discussion presented above, the quality of e-government service should cover all aspects of user interaction starting from the decision of using e-service, the success is determined by which the needs of users can be met. Since online processes increase challenges and issues beyond the manual process, therefore, the performance of e-service requires highest standard technology to enable service delivered to citizens. It is an aim for e-government to provide better and more efficient services, easily accessible, incorporated and the most important thing is to reduce user's time and effort.

Furthermore, processes must be explained to the users, the findings might help government planners make better plans regarding e- service.

Limitations faced in e-governments incudes definitional vagueness of e-government construct, under emphasis of complex political processes of e-government development and lack of process oriented in delivering the eservices to the citizens. In order to address these issues, several remedies are proposed for instance (i) observe the progressions within complex environment, (ii) addressing the problem by practical studies that will provide new concepts to enhance the understanding of e-government services and policies and (iii) tying manual process with e-service and adapt it to make reliable.

Conclusion

Over the past few years there has been a rapid growth in e-government research. The paper covered the dimensions that effect e-government service quality from user perspective. Moreover, it has presented some models in ecommerce domain and this study was conceptualized based on that literature and proposed process of interaction between user and website namely the system function, content, procedure, and citizen support which can reduce the misperception in e-services. While website is in development process, this paper is proposed to create awareness to consider user perception specifically include ease of use, information, system availability, security, personalization, format, interactivity, responsiveness and processing time when they access e-services. People in Oman are more tending to access and adopt an online environment e-services that follow their expectations. Further aspect of lower productivity, failure to respond online, language and font barriers frustrate access by potential users, sites should provide online citizens' support to answer enquires and fulfill the requests. To assure a safe platform for citizens' personal online data, security and privacy aspect must be considered.

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