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## Preliminary Study on Citizens' Satisfaction of E-Government Services in Jordan

دراسة أولية حول رضا المواطنين  
عن الخدمات الإلكترونية الحكومية في الأردن

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### Abstract

Contemporary governments all over the world are investing in finding new e-service provision approaches as well as improving their existing channels to be matched with citizen's needs and hence increase citizens' satisfaction. Citizens' satisfaction is considered as a prerequisite to e-government adoption, usage and diffusion. This research aims at studying the impact of system quality, information quality, trust, and privacy on Jordanian citizens' satisfaction with e-government services. The study shows that all the identified factors in the proposed research model would have an impact on Jordanian citizens' satisfaction with e-government services.

**Keywords:** E-Government Services, Jordan, Privacy, Quality, Trust, User's Satisfaction.

## الملخص

تستثمر الحكومات المعاصرة في جميع أنحاء العالم في إيجاد طرق جديدة لتقديم الخدمات الإلكترونية، فضلاً عن تحسين قنواتها الحالية لتتوافق مع احتياجات المواطن، وبالتالي زيادة رضا المواطنين. يعتبر رضا المواطنين شرطاً مسبقاً لتبني المواطنين لخدمات الحكومة الإلكترونية واستخدامها وبالتالي انتشارها. يهدف هذا البحث إلى دراسة تأثير جودة النظام وجودة المعلومات والثقة والخصوصية على رضا المواطنين الأردنيين عن خدمات الحكومة الإلكترونية. توضح الدراسة أن جميع العوامل المحددة في نموذج البحث المقترح سيكون لها تأثير على رضا المواطنين الأردنيين عن خدمات الحكومة الإلكترونية.

**الكلمات المفتاحية:** الحكومة الإلكترونية، الخدمات، الأردن، الخصوصية، الجودة، الثقة، رضا المستخدمين

## 1- Introduction

Contemporary governments all over the world are investing in finding new e-service provision approaches as well as improving their existing channels to be matched with citizens' needs and hence increase citizens' satisfaction. However, users' satisfaction is not only tied with having electronic channel of governmental services. In this context, the majority of e-Government research has been dedicated to measure users' satisfaction (e.g., Floropoulos et al., 2010; Rana et al., 2013a, 2013b; Rana et al., 2014; Teo et al., 2008; Wang & Liao, 2008). These studies focused on evaluating the IS success models (DeLone and McLean, 1992, 2003; Rai et al., 2002; Seddon, 1997) without any variations or even considering some other external variables such as privacy, security, reliability, responsiveness, perceived risk, trust, etc. Furthermore, trust as a predictor for the quality constructs (system and information quality) and privacy concerns have not been examined as pre-requirements for citizens' satisfaction. Kunstelj et al. (2007) acknowledged that the supply side-driven devel-

opment might not result in the promised outcomes where users' satisfaction and expectations are on top of the priority list in e-Government.

The objective of this research is to bridge the above gap by examining trust significance in terms of system quality and information quality of e-Government portals and how important privacy concerns are in influencing citizens' satisfaction in Jordan. This research aims to strengthen the theoretical foundations of the proposed research model in measuring the demand side of citizens' satisfaction by studying the relationships of the identified factors along the IS success model. This allows Jordan's policy makers to recognise the extended aspects of citizens' satisfaction based on the trust and privacy of the e-Government services offered by the government of Jordan. For example, a recent research done by Weerakkody et al. (2016) has revealed the importance of trust and cost as well as the quality constructs (system quality and information quality) to users' satisfaction. The identified factors have shown a significant impact on U.K. citizens' satisfaction

with e-government services. Jordan has a different e-Government system in relation to maturity level, services delivery channels, and population. Therefore, we aim at studying the impact of a number of constructs on the Jordanian users' satisfaction with e-Government services.

The paper is structured as follows: section 1 is an introduction; section 2 briefly provides a background of the e-government initiative in Jordan; section 3 identifies the research model; section 4 discusses the research and its main indications; section 5 consists of the conclusion and future work.

## 2. Literature Review

The e-Government program of Jordan aims to deliver high-quality services to consumers, businesses and organizations, improve government performance and efficiency, ensure public sector transparency and accountability, enhance Jordan's competitiveness, reduce costs, increase ease of interaction with government, promote the development of Jordan's ICT sector, develop the skills of public sector employees, boost e-commerce activities, and improve privacy and information security (AL-Yaseen et al., 2013; Ciborra and Navarra, 2005; Mofleh et al., 2008a, 2008b; Al-Jaghoub and Westrup, 2003). The previous research on e-government adoption and service quality has largely focused on the developed countries, but little attention was given to examine e-government services quality and citizens' satisfaction in developing countries in general and the Arab countries in particular.

The snowballing spread adoption and implementation of e-government has attracted the attention of many researchers in the developed and develop-

ing countries to conduct investigations in this field. Moreover, the need of understanding e-government development and exploring factors that influence e-government development in the developing countries have drawn the attention of many researchers (Siau and Long, 2006). It is clear that governments around the world are forced to rely more on the electronic channels to provide businesses and their citizens with their services; however, they are requested to deliver superior quality of service over the web, labelled as e-service quality, in order to gain their satisfaction and ensure continuity in the usage of such services. Delivering high quality service is a prerequisite for business success and survival and considered an essential strategy for success (Reichheld & Schefter 2000; Zeithaml et al. 1996).

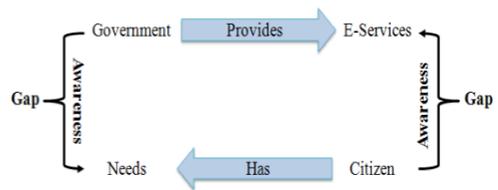


Figure 1 Gaps in the G2C e-service provision (AL-Yaseen et al., 2013)

Figure 1 shows two main and important gaps within the government-to-citizens (G2C) e-service provision process. These gaps occur when governments provide a set of services to citizens who have service needs; however, governments are not fully aware of citizens' service needs, at the same time citizens are not fully aware of the available services that can help them to address their needs. In Jordan, these two gaps form main challenges to G2C e-service provision (AL-Soud, 2012).

There has been some research in this area. In 2012, the Norm Based Life

Event framework (NoBLE) has been developed to build a life-event oriented government-to-citizen (G2C) e-service provision portal (AL-Soud, 2012). This was meant to improve the mediation processes between the e-government services, citizens and businesses supply and demand. The development process started in 2010 aiming at developing a mechanism to effectively match citizens' needs with government's information and service at particular points of citizens' lives (AL-Soud and Nakata, 2010). The matching mechanism has lied on the use of organizational norms to determine which service can be offered to which citizen at what life event (AL-Soud, 2012). The validation of the developed framework has used information and services available on the official site of the Jordanian e-government; official employees were part of the validation process (AL-Soud, 2012). The results were extremely useful; the participants of the validation process were able to locate the desired information and/or service in an easy and quick manner. Nonetheless, the system could easily anticipate their needs using other parts of the NoBLE framework. In 2014, the government of Jordan represented by the Ministry of Information and Communications Technology launched the new version of its official site of e-government based on a life-event approach. Nonetheless, Al Shibly and Tadros (2010) have examined factors which have an impact on e-Government acceptance by Jordanian employees. They found that system quality, information quality, and perceived ease of use, all have significant effect on e-Government acceptance in Jordan.

A number of studies have used IS Success models to analyse users' satisfaction with e-Government services

(e.g., Chen, 2010; Cohen, 2006; Floropoulos et al., 2010; Gotoh, 2009; Hu et al., 2009; Rana et al., 2013a; Weerakkody et al., 2016; Teo et al., 2008; Zaidi et al., 2014). For instance, Chen (2010) has examined a number of quality constructs as antecedents (i.e., system quality, service quality, and information quality) to test taxpayers' satisfaction while using online tax-filing systems. The study proved that there is a strong influence by quality antecedents on taxpayers' satisfaction with online tax-filing systems. The results also showed that the constructs of system and information quality are more important than the service quality in measuring the satisfaction of the taxpayers.

On the other hand, Floropoulos et al. (2010) have measured the Greek taxation information system and its success from the perspective of expert employees. They used a number of constructs in their study, namely: system quality, information quality, service quality, perceived usefulness, and users' satisfaction. The study proved that there are strong associations between the five tested constructs. This is in line with Gotoh's (2009) study in which theoretical model was proposed to measure the performance of e-Government services in Japan; the study showed that the system quality had an indirect impact on users' satisfaction.

Therefore, there are different variations of IS success models and this has been explored by a number of recent publications (e.g. Rana et al., 2013a; Zaidi et al., 2014; Weerakkody et al., 2016). Although some studies have developed models in which they considered trust as a construct, one of them have considered quality constructs as the determining factors of trust (Weer-

akkody et al., 2016). Weerakkody et al., 2016 have considered quality constructs (information quality and system quality) as the determining factors of trust and cost as a key factor of users' satisfaction. However, privacy as the key factor of users' satisfaction has not been considered yet to help in understanding its impact on users' satisfaction. Therefore and due to the lack of research in this direction, this empirical research would contribute to fill the existing research gap.

Papadomichelaki and Mentzas (2009) argued that trust consists of privacy and security and is defined as "the citizen's confidence towards the Website concerning freedom of danger risk or doubt during the e-service process." Gefen et al. (2003) have stressed the importance of trust as a vital aspect of e-services. Papadomichelaki and Mentzas (2009) have defined privacy as the "protection of personal information, not sharing personal information with others, protecting anonymity, secure archiving of personal data and providing informed consent."

### 3. Research Model

#### a. IS Success Models

DeLone and McLean's IS success model of 1992 has formed the base for IS success theories and models. DeLone and McLean (1992) proposed an IS success model with six main factors, namely, information quality, system quality, use, users' satisfaction, individual impact, and organizational impact. There have been several studies to further develop the proposed model (Seddon, 1997; Seddon and Kiew, 1996), which resulted in replacing the variables, individual impact, and organizational impact, with net benefits that refers to benefits at different levels of analysis

(DeLone & McLean, 2003). We used the IS success model as a base to develop our research model and clarify the relationship between our external constructs and users' satisfaction.

#### b. The proposed research model

The theoretical development in this study is based on a number of IS success models (DeLone & McLean, 1992, 2003; Seddon, 1997). The emergence of e-Government has been one of the significant developments in public administration in the past few years. This has significantly raised the extent of citizens' expectations while interacting with the government and accessing its information and offered services. Therefore, it is important to consider the trust level of citizens while testing satisfaction. Consequently, we had trust as a prominent variable in the proposed research model. We also considered privacy as an external variable, which reveals the fear of citizens while submitting their information electronically to the government.

Previous studies have shown the significance of adding new relevant constructs to IS success models, such as trust and privacy (e.g., Chen, 2010; Cohen, 2006; Floropoulos et al., 2010; Gotoh, 2009; Hu et al., 2009; Rana et al., 2013a; Weerakkody et al., 2016; Teo et al., 2008; Zaidi et al., 2014). In this research study, we propose a research model that consists of system quality, information quality, trust, privacy, and users' satisfaction. The proposed research model (see Figure 2) claims that system quality and information quality will have a significant impact on both trust and users' satisfaction. Trust will have a significant impact on users' satisfaction. Privacy will also have a significant impact on trust as well as a significant

impact on users' satisfaction. Future research will test these relationships to find out whether these constructs have a positive or negative impact on each other.

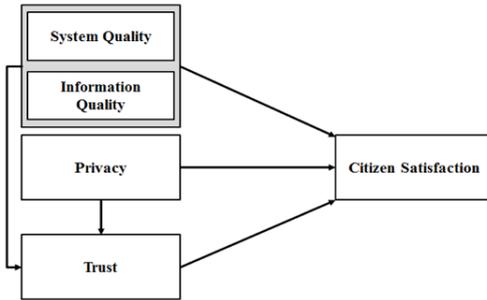


Figure 2: The proposed research model

As shown in Figure 2 there are a number of relationships between three constructs, namely, quality constructs (system quality and information quality), privacy, and trust. They would also have a significant impact on users' satisfaction.

### i. Quality Constructs

As mentioned earlier, most of the previous research on e-government adoption and service quality has largely focused on the developed countries. As a result, little attention was given to examine e-government services quality and citizens' satisfaction in developing countries in general and the Arab countries in particular. We divide quality constructs into system quality and information quality. System quality is determined through the citizen interaction with the system while completing a particular task. Information quality is determined through the citizen's experience and belief that the provided information is useful and valid. In the context of this research and due to the level of e-government maturity in Jordan we deal with the quality constructs (information

and system) as a unified unit.

Research has proved that a good system quality leads to high users' satisfaction (DeLone and McLean, 2003). This indicates that there is a positive impact of system quality on citizens' satisfaction. Previous studies on IS success models have linked information quality with users' satisfaction (Floropoulos et al., 2010; Rai et al., 2002; Wang & Liao, 2008; Weerakkody et al., 2016). The better information quality the higher users' satisfaction is. Online trust has been found to be positively associated with constructs such as system quality and information quality (Henriksen et al., 2013). Therefore, it can be argued that information and System quality of e-Government services in Jordan might have a positive and significant impact on citizens' satisfaction.

### ii. Trust

As mentioned earlier, trust is significantly associated with information quality and system quality (Weerakkody et al., 2016). Nicolaou et al. (2013) argued that better information quality is more likely to have a positive impact on trust. Citizens' realization of accurate information shows that e-Government is capable of providing updated and accurate information that helps in fulfilling citizens' desired needs. We believe that better information and system quality contribute to the process of obtaining users' trust. Therefore, it can be argued that better information and system quality of e-Government services in Jordan have a positive and significant impact on users' trust.

Previous studies on the IS success model in e-Government have highlighted the vital role of trust on users' satisfaction (Balasubramanian et al., 2003;

Teo et al., 2008; Weerakkody et al., 2016). Weerakkody et al. (2016) argued that fewer studies have discussed the relationship between trust and users' satisfaction. This is justifiable as satisfaction is usually regarded as an antecedent of trust. However, previous research has described users' satisfaction as an outcome of trust (Teo et al., 2008). Consequently, we agree with Weerakkody et al., (2016) and argue that high levels of trust in e-Government services will lead to higher levels of users' satisfaction. Therefore, it can be argued that high levels of trust on e-Government services experienced by the Jordanian citizens will lead them to be highly satisfied with using such services.

### iii. Privacy

People are gradually using the Internet as a channel to obtain government's services and information. This development forces them to register in the government portals in order to use e-Government services, obtain governmental forms, apply for work, retrieve tax information, and be involved in a number of other functions with different government agencies – all on-line. This trend towards e-Government and the electronic channel delivery of government services has increased the governmental collection and usage of personally-identifiable data of citizens.

Privacy is globally recognized as a human right. Several international policy frameworks and statements in the fast-changing information age state that the personal information of people must be treated fairly when collected and used. This includes personally-identifiable information collected and used by government agencies. Therefore, and with these growing government-to-

citizen online interactions, it is essential to guarantee that government agencies would adopt and maintain adequate privacy practices when collecting personal information from citizens. A study by ALSoud et al. (2014) showed that privacy concerns appear to be one of the major challenges for adopting e-Government services and, therefore, should be attended to while designing, developing and implementing new e-Government services.

According to Papadomichelaki and Mentzas (2012) privacy consists of the protection of personal information, anonymity, and personal data archives, and of obtaining informed consent. Therefore, it can be argued that protecting the privacy of citizens' information while using the e-Government services in Jordan has a positive and significant impact on trust and satisfaction.

### 4. Discussion

The purpose of this research is to study a number of factors that are known globally to have an impact on users' trust and satisfaction on e-Government services, and then study them in the context of Jordan. The study of the aforementioned constructs have contributed in developing the proposed research model, which has been primarily based on the IS success model (DeLone & McLean, 1992) and on two external constructs namely, trust and privacy. The proposed research model consists of five main constructs, namely, information quality, system quality, trust, privacy, and users' satisfaction. A number of arguments predicted that there are significant relationships between these five constructs. The proposed research model predicts that both information quality and system quality (quality constructs)

would have a significant impact on trust and users' satisfaction; trust also would have a significant impact on users' satisfaction. Trust is significantly associated with information quality, service quality, and system quality (Weerakkody et al., 2016). Furthermore, privacy would have a significant influence on trust and users' satisfaction.

By significant we mean that there is a relationship (whether positive or negative) that is worth testing. The significant impact of the quality constructs on users' satisfaction originated from the fact that the better the information quality provided over the e-Government portal is the higher users' satisfaction with e-Government services becomes. Also, the more efficient the e-Government system is the higher users' satisfaction with e-Government services become. As mentioned earlier, there are a number of studies (e.g., Floropoulos et al., 2010; Teo et al., 2008) that have explored the IS success models to measure users' satisfaction with e-Government services and have also revealed support for these relationships.

This shows that e-Government officials should consider the importance of information quality of e-Government systems, and how they can increase users' trust in the system and information quality of e-Government services. The e-Government system quality can be tested in various dimensions, including the ease of locating a service, service information validity, service usefulness, service delivery, etc. Trust is unquestionably very important and prerequisite for users' adoption of e-Government services. It is the role of the government to build and maintain trust in e-Government's users by fulfilling their needs and by establishing a transparent envi-

ronment ensuring equal treatment for all users. As discussed earlier, privacy has a significant impact on trust and users' satisfaction. It is the role of the government to make sure that any breach in users' information privacy is to be taken seriously. The government should also secure users' trust in its ability to render the protection of users' privacy a serious matter and a priority. There is no doubt that the higher the trust in e-Government system is the better users' satisfaction with e-Government services will be.

## 5. Conclusion And Future Work

This study highlighted the impact of information and system quality of e-Government services on trust and e-Government users' satisfaction in Jordan. The study also highlighted the importance of privacy and its impact on users' satisfaction. Therefore, a research model has been proposed based on IS success model to understand the identified constructs (information quality, system quality, privacy, and trust) on users' satisfaction on e-Government services. The study revealed the significance of the identified constructs and made some arguments in this context that call for further verification in future research.

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