

FACTORS AFFECTING TO USAGE OF E-GOVERNMENT SERVICES WITH THE MEDIATING
ROLE OF INTENTION OF CITIZENS' INTERACTION IN JORDANIAN UNIVERSITIES: A
PILOT STUDY

Hazem Mohammad Al-Kaseasbeh(1), Yoshifumi Harada(2), UmmiNaiemahbintiSaraih(3)

School of Business Innovation and Technopreneurship, Universiti Malaysia Perlis, Perlis, Malaysia

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Abstract: E-government has become a significant area of research in the field of information systems (IS) and a leading area of development for governments worldwide. The current study defines e-government as the use of ICT for using and delivering government services. Although there is a rich body of evidence that demonstrates the benefits of e-government for citizens, businesses, and governments, citizens and governments continue to face challenges represented in the increasing usage of e-government. The purpose of the study is to emphasize the Jordanian e-government services in light of the investigation as to how citizens' satisfaction, citizens' behaviour and perceived risks influence the usage of e-government services with the mediating role of the citizens' intention in the interaction with this relationship. The study explored the determinants based on the responses obtained from the employees working in Jordanian universities. To achieve the reliability of the instrument, the researcher analyzes a small sample of the population by using SPSS software. The reliability of the instrument was validated by conducting the preliminary study, where it obtained reasonable normality and highly reliable coefficients of measures (0.796-0.903). Also, the effectiveness of the instrument was validated by examining different specific antecedents of usage of e-government services.

Keywords: citizens' satisfaction, citizens' behaviour, perceived risks, usage of e-government services, intention of citizens' interaction.

Introduction

Jordan is "one of the few countries in the Middle East with a long history of the commitment of good governance and ICT-related initiatives" (Ciborra & Navarra, 2005). In recent years, Jordan's efforts to provide e-government services to the public have been recognized (Alomari, Sandhu, & Woods, 2010). Although the e-government program in Jordan is still at the premier stages, Jordan has developed relatively an advanced e-government service delivery capabilities in a two-way interaction and e-democracy (Chatfield & Alhujran, 2009). Also, the United Nations' e-government readiness reports ranked Jordan as one of the top 5 among the Arab countries. Nonetheless, e-government in Jordan faces the problem of low usage levels of these electronic services (Al-Jaghoub, Al-Yaseen, & Al-Hourani, 2010; Al Hujran, Aloudat, & Altarawneh, 2013; Mofleh, Wanous, & Strachan, 2008; Rana & Dwivedi, 2015). Accordingly, more than 85% of Jordanians never used e-government websites and electronic services (Al-Jaghoub et al., 2010; Al-Soud, Al-Yaseen, & Al-Jaghoub, 2014; Kanaan & Masa'deh, 2018).

Jordan mainly relies on global experts to set up e-government initiatives (Kor, Orange, Elsheikh, Cullen, & Hobbs, 2008) and perceive such initiatives as pure IT projects. In most cases, this is catastrophic as little attention is given to the specific national context of Jordan in terms of culture, politics, social issues, traditions, trust, public values, literacy and gender segregation. Consequently, there are several reasons to failure of e-government initiatives in developing countries. According to Heeks (2003), the primary reason behind e-government initiatives failure in developing countries is the gap experienced between the design and reality of e-government systems implementation such as Jordan. The Jordanian e-government project has been launched more than twelve years ago; however, there is a modest demand for e-government services among Jordanian citizens (Al-Soud, Al-Yaseen, & Al-Jaghoub, 2014). The key reasons for this unpretentious demand are the high cost of the internet, security fears, and lack of awareness. Also, the internet is not a preferred way for dealing with government transactions, and trust in the internet is the crucial reason for this unpretentious demand (Al-Khasawneh & Futa, 2013; Al-Soud et al., 2014; Rana & Dwivedi, 2015).

E-government has started as a tool to enhance government performance in publishing information, communication, and transactions with beneficiaries (citizens and businesses) through using ICT, especially the Internet. Although public investment in e-government projects is growing each year substantially to enhance governance processes and services in Jordan, yet citizens and businesses prefer to use traditional methods in a face-to-face fashion rather than using web-based applications to perform their services (Abu-Shanab, 2014; Al-Khasawneh, 2013). These preferences are controlled by the lack of trust in online information transfer (Alomari, Woods, & Sandhu, 2012). Unlike the traditional methods of interacting with governments, e-government services provision is unique due to the disparity and impersonal nature of communication on the internet, where e-government architecture is organized as an internet-computer based domain (Al-Hujran, Al-Debei, Chatfield, & Migdadi, 2015).

Based on the above, a better understanding of the factors that influence citizen adoption of e-government services in Jordan is a critically important issue. Improvements in this domain would be helpful to policymakers regarding the design of e-government services. It would also be useful to public organizations in improving their service delivery processes to increase the level of citizens' adoption of these services. Moreover, government agencies would find this valuable in retaining their current users and attracting new ones.

Usage of E-Government Services

Since the advent of the Internet, governments have been using a variety of customer service channels with different characteristics used for communication, interaction, transaction and distribution of products and services. Besides the traditional channels, like the front desk and phone, citizens have access to a variety of e-services provided by many government agencies. From a government perspective, increased usage of service delivery through the digital channels is expected to improve efficiency, overall costs and customer service (Danila & Abdullah, 2014; Madsen & Kræmmergaard, 2015). Citizens who use e-government services express higher levels of satisfaction (Reddick, 2010). However, there is no comprehensive data available to review the e-government services usage, and data are not yet systematically collected and uniformly available across countries worldwide. Also, there are only a few studies of some developing countries such as Bahrain, Pakistan, Nigeria, Saudi Arabia, Bangladesh and other Gulf region countries. Therefore, this section highlights the e-government services usage and their challenges. However, the most critical challenges facing e-government services are the gap between available services and usage and low e-government services usage.

The Intention of Citizens' Interaction

Citizens' interaction refers to citizen participation with the government initiatives designed to facilitate citizen interaction with e-government services, which is what some observers perceive to be the primary goal of e-government (Reddick, 2005). These initiatives attempt to make transactions, such as renewing licenses, paying taxes, and applying for benefits, where less time consuming and more comfortable to carry out (Mouakket, 2010). Hence, e-government initiatives lead to lower information costs as well as lower processing costs, thus saving human resources and providing more effective service levels which are available 24 hours a day, 7 days a week. This provides citizens with greater flexibility in processing transactions at their convenience rather than only during working hours (Al-Hakim, 2007). Two aspects are considered most important in the context of e-government: online information and online services, which include transaction and interaction, processes.

There are two streams of research in e-government (Lawson-Body, Illia, Willoughby, & Lee, 2014). The first stream is the electronic democratization theorists link e-government to e-participation and the electronic democratic process. The second stream is the economics theorists focus on efficient and effective service delivery through electronic means. Mossberger, Wu, and Crawford (2013) criticize the external focus of public governance by considering the citizen as a customer and recommends empowerment of the citizens through information technology to consider them as "owners" of services. Welch, Hinnant, and Moon (2005) state that even though citizens have higher expectations regarding interactivity, governments often convert citizens to a passive customer instead of stimulating their participation in public affairs. In his review of the e-government literature, Yildiz (2007) suggests examining more deeply the processes of involvement in e-government projects instead of the outputs of the projects. He also suggests linking the research to mainstream public administration research to examine the appropriate role of the citizens in e-governance. In their empirical evaluation of government-to-citizen relationship, Tolbert and Mossberger (2006) identify two paradigms for government-to-citizen relationship:

entrepreneurial (which is customer and service-oriented) and participatory (which focuses on accountability, transparency, responsiveness). Chadwick and May (2003), identify three models of interaction between states and citizens. Chadwick and May (2003) identify three models of interaction between states and citizens. First the managerial model focuses on the improvement of service delivery. Second, the consultative model facilitates transmitting of citizens' opinions to the government. Finally, the participatory model focuses on the interaction between citizens and government with participation in decision making. They conclude that the democratic possibilities of the Internet are likely to be marginalized if the managerial model becomes dominant. However, the managerial model needs to be developed by enhancing service delivery and increasing citizen interaction (Carter, Weerakkody, Phillips, & Dwivedi, 2016; Nica & Potcovaru, 2015).

Citizen Satisfaction

The importance of e-government services has always been of interest to governments and researchers because of its influence on the relationship between citizens and their governments (Chan, Lau, & Pan, 2008). The e-government services are also considered as the key driver of a government's effectiveness and as such is a useful tool with which to increase citizens' satisfaction with government performance (Lean, Zailani, Ramayah, & Fernando, 2009; Reddick, 2011). The internet has allowed the governments of today to enhance the efficiency of the e-government services and many have provided Internet-enabled e-government services to their citizens, thus facilitating better services (Doong & Wang, 2014; Ebbers, Pieterse, & Noordman, 2008).

Governments have displayed an interest in the exploration of the determinants of citizens' intentions to interaction in the e-government services development. Initial acceptance is the first stage for e-government services success. The citizen interaction (i.e. feedback from citizens then enables governments to enhance the e-government services) is crucial for the long-term operation of the e-government services. Accordingly, citizens' satisfaction with e-government services is the primary key for citizens' intentions to interaction.

Citizen Behaviour

A study conducted by Graafland-Essers and Ettetdgui (2003) showed that citizens attitudes and behaviours towards e-government vary from country to country. There is little doubt that the growth of e-government initiatives coupled with an increased preoccupation with the mass media with ICT and computer competence, has created anxiety in the minds of many people. Attitudes towards technology have been found to influence Internet usage and online transaction services, and this factor has become the most significant contributor to the overall attitude toward Internet shopping (Shim & Eom, 2008). Welch, Hinnant, and Moon (2005) state that "the attitude toward the preferred pace of e-government implementation of public servants is more affected by broad society-wide concerns such as equity (digital divide), the attitude toward the preferred pace of e-government implementation of citizens is more affected by potential legal issues such as equity (digital divide), security, and privacy violation."

Perceived Risk

Risk is typically defined in terms of the citizen belief in the likelihood of gains and losses (Mayer, Davis, & Schoorman, 1995; P. A. Pavlou, 2003; Warkentin, Gefen, Pavlou, & Rose, 2002). When the risk is present, trust is mandatory (Corritore, Kracher, & Wiedenbeck, 2003). In this context, P. A. Pavlou (2003) found that trust to be a significant antecedent of perceived risk. The perceived risk decreases when trust is present (Featherman & Pavlou, 2003; Grazioli & Jarvenpaa, 2000).

Since risk is difficult to measure objectively, the literature focuses on users' risk perceptions. Perceived risk is defined as the citizen's subjective expectation of suffering a loss in pursuit of the desired outcome (Warkentin, Gefen, Pavlou, & Rose, 2002). Perceived risk is composed of behavioural and environmental uncertainty. Behavioural uncertainty exists because online service providers may behave opportunistically by taking advantage of the impersonal nature of the electronic environment. In contrast, environmental uncertainty arises due to the unpredictable nature of Internet-based technology that is beyond the control of the consumer (P. A. Pavlou, 2003). In e-commerce, perceived risk reduces users' intentions to exchange information and complete transactions (P. A. Pavlou, 2003). Warkentin et al. (2002) suggest that perceived risk will have a similar effect on e-

Government. In addition to the relationship between risk and intention, research shows that trust reduces risk perceptions (Schaupp& Carter, 2010).

Conceptual Framework

The theoretical framework is a logical foundation of the interrelationships among several variables that are identified through theories and literature review to arrive at reasonable solutions to the problem statement. Moreover, it provides a solid base for developing the hypotheses and measurement instruments (Sekaran & Bougie, 2016). Several factors influence the usage of e-government services in past literature. This empirical research is expecting to provide a more comprehensive and better understanding of the factors that influence the usage of e-government services generally and specifically towards e-government services in Jordan. The research model of this study is developed based on Expectation Confirmation Theory (ECT) (Hossain &Quaddus, 2012) which developed by Bhattacharjee (2001), as a primary theoretical perspective combine with Theory of Planned Behaviour (TPB) (Azjen, 1991), and perceived risk and trust model (TRM) (Bélanger& Carter, 2008). The above theories also contributed to the development of the research framework of the present study (Figure 1).

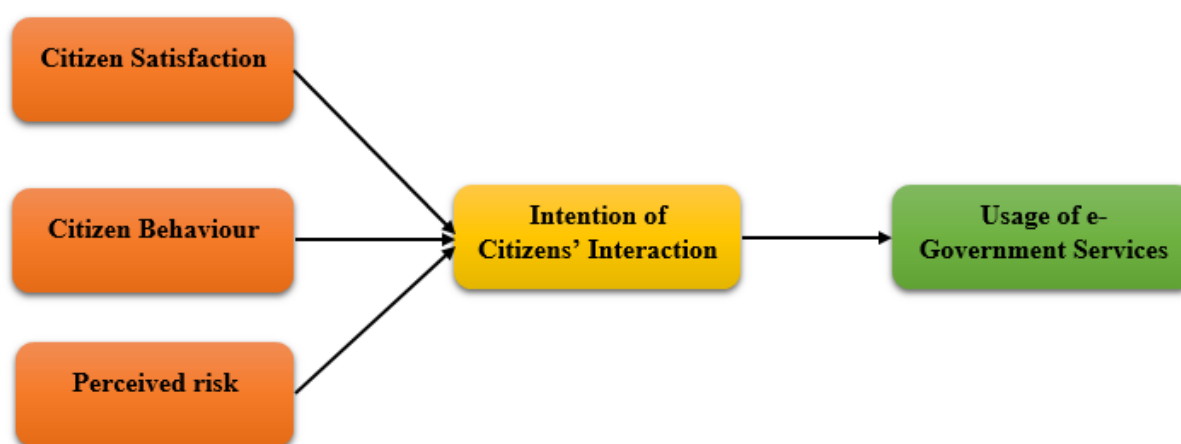


Figure 1: Theoretical Framework

There are two approaches to theory, namely induction and deduction. The deductive approach is applied when the theory already exists. In views of Collis and Hussey (2013), they postulated that the deductive approach could be used when the researchers do not require a theory from observation because the theory has already existed. The deductive approach is based on empirical observation and theory generated on conceptual and theoretical structures. Such a type of method is generally recommended for specific studies in which researchers work on a particular concept by creating assumptions and then verifying those assumptions (Collis & Hussey, 2013).

Regarding the inductive approach, it is also known as an abstract level where the concepts and propositions are the elements of the theory (Creswell & Clark, 2017). The induction level of the theory involves observations and investigations into the relationship between meaning and actions of the individual objects. This approach is incorporated the analysis process as the researcher seeks to understand the internal logic and purposive nature of human activities. The abstract level of theory is required qualitative methods for inquiry of the objects of the study, and data is collected without categorization and measurement (Creswell & Clark, 2017). In this current study, the theory already exists. The TBP, and ECT and model of trust and risk have tested and applied in previous studies. Thus, the deductive level of theory is selected for this study to investigate the e-government issues in public universities in Jordan.

As for the quantitative approach, it is a deterministic philosophy whose underlying assumption is that “causes probably determine effects or outcomes” (Creswell, 2013). Therefore, quantitative approach research seeks to identify and assess the causes that influence outcomes (Clark & Creswell, 2014). Thus, quantitative approach to research often requires a theory and involves in collecting data to prove or disprove the theory by examining the causal and correlational relationships among variables (Geroy& Wright, 1988; Neuman, 2006). They use precise numeric measures to test theories in a specific domain (Neuman, 2006). Moreover, the quantitative approach also

follows the philosophy of reductionism in which the objective is to narrow ideas into small and distinct sets of ideas for further testing.

Data Instrument

As previously mentioned, a survey questionnaire was developed as an instrument of data collection. Accordingly, the questionnaire items were formulated carefully to avoid duplicity in view of the represented dimensions used in measuring constructs contained in the research model. The questionnaire items were included on the basis of the conceptual findings and explanation reviewed in the literature that were adopted and adapted to suit the objectives of the study, as suggested by Zikmund, Carr, and Griffin (2013) (Table 1).

Table 1: Measuring Instruments

No.	Variable	Adapted
1	Citizens' Satisfaction	Al Hujran, Aloudat, and Altarawneh (2013)
2	Citizens' Behaviour	P. Pavlou (2003)
3	Perceived Risks	Verkijika and De Wet (2018)
4	Intention of Citizens' Interaction	Mouakket and Al-hawari (2012)
5	Usage of e-Government Services	Tan, Lee, and Hsu (2015)

Pilot Study

The pilot study is a primary test to assess the goodness of measure, which is the reliability, before administering the final questionnaire (Sekaran&Bougie, 2016). Reliability refers to the stability and consistency of the measurement instrument. The common statistical test of reliability estimates is Cronbach's alpha (Sekaran&Bougie, 2016). It is considered as good when the alpha coefficient is .80, acceptable when it is .70, and poor when it is .60 (Sekaran&Bougie, 2016). According to Blumberg, Cooper, and Schindler (2014), the appropriate sample size of the pilot study is more than 30 respondents. In this study, 100 questionnaires were distributed among lecturer and administration staffs who are working in the Jordanian universities. The responses were collected from 86 participants, and this represented an 86% response rate. The statistical analysis of the pilot study was carried out using SPSS v24. The factor analysis test, Cronbach's alpha, and the correlation coefficient test was used to examine the pilot study for measuring the reliability of the questionnaire. The table below shows the findings of Cronbach's alpha and the Item-total correlation for the factors shaping citizens' satisfaction, citizens' behaviour, perceived risks, intention of citizens' interaction, and usage of e-government services.

Table 2: Cronbach's Alpha Results

Variable	Items	Item-total correlation Value $\geq .45$	No of Items	Cronbach's alpha Value $\geq .70$
Citizens' Satisfaction	SAT1	0.701	5	0.883
	SAT2	0.805		
	SAT3	0.659		
	SAT4	0.638		
	SAT5	0.807		
Citizens' Behaviour	CB1	0.774	3	0.903
	CB2	0.742		
	CB5	0.898		
Perceived Risks	PR1	0.751	5	0.796
	PR2	0.506		
	PR3	0.479		
	PR4	0.518		
	PR5	0.641		
Intention of Citizens'	CI1	0.699	4	0.833
	CI2	0.767		

Interaction	CI3	0.661		
	CI4	0.536		
Usage of e-Government Services	EGS1	0.770	4	0.879
	EGS2	0.739		
	EGS3	0.755		
	EGS4	0.699		

The results of the analysis of the pilot study indicate that 5 items of factor shaping citizens' satisfaction, 3 items of factor shaping citizens' behaviour, 5 items of factor shaping perceived risks, 4 items of the intention of citizens' interaction, and 4 items of the usage of e-government services showed good reliability. The result of the reliability test of each subscale of all measurement scales using the Cronbach's alpha showed high values greater than 0.7. Therefore, these results justified using the questionnaire and the measurement scale to collect the data.

Conclusion

This work concentrated mainly on conducting a pilot study to examine the reliability of the developed instrument in preparation for the actual large-scale study. The significant contribution of this paper is represented by providing a better understanding of citizens' satisfaction and citizens' behaviour about quality e-government service in a developing country. The study also showed how the issue around the quality of e-government services and citizen' perceived risk are different in developing countries. By adding new variables to e-government research, it also provides insights into how citizens' expectations on the quality of e-government are formed by examining their use of other online services. Moreover, the study conducted an inter-item reliability test, which indicated the reliability of all the items based on Cronbach's alpha coefficient test (they all exceeded 0.70 benchmarks); accordingly, all the items were kept. Finally, the present study conducted a normality test with the help of skewness and kurtosis values, which showed that data had a reasonable level of normality, with no significant deviation of skewness values from zero.

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