The Adoption of the Traffic Violation E-payment System (TVEPS) of Kuwait

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Abstract: E-government (e-gov) has become indispensable for government modernization. Its success, however, is contingent upon its adoption by the intended users. This research used an extended version of the Unified Theory of Acceptance and Use of Technology (UTAUT) model to investigate a number of factors that are believed to affect the Kuwaiti citizens' adoption of the traffic violation e-payment system (TVEPS). Effort expectancy and social influence were found to influence the use intention, and users' Internet experience moderated such a relationship. However, performance expectancy did not influence the intention to use TVEPS. Facilitating condition, trust and use intention were found to influence the actual use of the system. While gender moderated the relationship between facilitating conditions and actual use of the system, awareness moderated the relationship of trust and use intention with the actual use of the system. These findings and their implications are further discussed in the paper.

Keywords: UTAUT, e-government, effort expectancy, performance expectancy, social influence, facilitating conditions, trust, Kuwait

1. Introduction

Governments are embracing e-government (e-gov) initiatives as an essential strategy in the modernization of their processes and services. E-gov not only improves governments' transaction processes but also increases their efficiency (e.g., Moon, 2002; Holliday and Yep, 2005; Boyer-Wright and Kottemann, 2009). However, the dilemma facing e-gov initiatives today is that the adoption rate is rather low (e.g., Kumar et al., 2007; Al-Adawi et al., 2005; AL-Shafi and Weerakkody, 2009,3 Dashti, 2010, p. 1). In particular, 35% of e-gov implementations in developing countries are classified as total failure and 50% as partial failure (Heeks, 2003; Dada, 2006). Most of these failures may be attributed to the mismatch between the design of the systems and the reality of the context where they are implemented.

Governments need to meet the challenge of encouraging greater adoption of their e- gov systems (Aichholzer, 2003). Since e-gov success depends on the citizens' acceptance of such systems, they should be evaluated from the citizens' point of view (Kumar et al., 2007; Sahu and Gupta, 2007). However, the research that has focused on identifying and investigating factors that are believed to affect citizens' adoption of e-gov services in developing countries, such as Kuwait, is rather limited (e.g., ALAwadhi and Morris, 2009).

Kuwait has made a significant stride in improving its e-gov practice. It is ranked 3rd among the Arab countries and 50th worldwide in the United Nations' 2010 ranking of e-gov readiness (UN, 2010). The Ministry of Interior launched the Traffic Violation E-Payment System (TVEPS) in 2007, as an e-service by which citizens could make online payment for their traffic violation fines. TVEPS adoption, however, has been evidently slow (Muntasar, 2010).

Most of the IT applications are culturally biased in favor of the developed countries' social and cultural systems where they have been designed and produced (e.g., Straub et al., 2001; Hill et al., 1998). Arab beliefs are believed to be a strong predictor of resistance to IT applications (Straub et al., 2001). Therefore, e-gov applications (e.g., TVEPS) in Arab countries such as Kuwait may be ineffective. Producing empirical evidence form an Arab/Islamic culture, which is different from Western cultures (House et al., 2004; Hofstede, 1980, 1991), on factors affecting IT adoption should guide decisions and actions designed to improve and sustain e-gov systems such as TVEPS. Such evidence should also contribute to the ongoing efforts aiming at building a general theory of transnational information systems that helps identify the culturally neutral and culturally specific determinants of global systems effectiveness (Khalil et al., 2014; Palvia, 1993).

A revised version of the Unified Theory of the Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003) has been employed in order to explore the citizens' adoption of TVEPS and the factors that may affect such adoption. Since its inception, UTAUL has been broadly applied to the study of the individual's adoption of a variety of IT applications in both organizational and non-organizational settings. It is an influential model, and when it is

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extended with relevant constructs (Venkatesh et al., 2012; Goodhue, 2007; Bagozzi, 2007), it can contribute to the understanding of the adoption of e-gov applications such as TVEPS.

The impetus for this research is to produce findings that may guide decision-making and policy formulation aiming at improving TVEPS adoption in Kuwait, contribute to the growing literature on the determinants of global e-gov adoption, and confirm the validity of UTAUT in understanding IT adoption in an Islamic/Arab culture that is different from UTAUT's original culture and language.

2. Background

The success of e-gov systems is highly dependent on the willingness of the citizens to adopt such systems. Explaining user's adoption of new IT, such as e-gov systems, is an important research area in the Information Systems (IS) literature (Venkatesh et al., 2003; Grant, 2005; Irani et al., 2007; Zhang et al., 2009). Evaluating user's adoption of e-gov systems and identifying the factors that influence such adoption should help in understanding the demands, measuring the benefits and evaluating the systems effectiveness in achieving their assigned objectives.

In order to identify and investigate factors that are believed to influence the adoption of e-gov systems, one may draw on a number of IS adoption models. Most notably, the technology acceptance model (TAM) was developed as an IS theory that explains how users come to accept and use IT (Davis, 1989; Davis et al., 1989; Venkatesh and Davis, 2000). TAM posits that perceived usefulness and ease of use can predict attitudes towards IT, which, in turn, can predict the behavioral intention and use of that IT. Although TAM has been the prevailing IT/IS adoption model in the IS research for more than two decades, new IT models with higher explained variance have been recently introduced.

Venkatesh and Davis (2000) extended the original TAM model to explain perceived usefulness and usage intention in terms of social influence (e.g., subjective norms, voluntariness) and cognitive instrumental processes (e.g., job relevance, output quality). The extended model is referred to as TAM2. Later, Venkatesh et al. (2003) adopted a new model, UTAUT, which incorporates constructs from a number of other IT adoption theories/models. UTAUT was developed as a result of a review and synthesis of eight theories and models of IT adoption (Venkatesh et al., 2012).

Since its original publication, UTAUL has been applied to the study of a variety of IT applications in both organizational and non-organizational settings that have contributed to fortifying its generalizability (Venkatesh et al., 2012). UTAUT has also been validated over a number of culturally diverse countries, and can be used cross-culturally outside of its original country and language of origin (e.g., Venkatesh and Zhang, 2010; Dulle and Minishi-Majanja, 2011; Ima et al., 2011).

Venkatesh et al. (2003) found performance expectancy, effort expectancy and social influence to affect the behavioral intention to use new IT. Behavioral intention and facilitating conditions were found, in turn, to affect usage behavior. In addition, the four moderators of gender, age, IT experience and voluntariness were found to influence the relationships between the exogenous and endogenous variables in the model.

Researchers have adopted varied forms of TAM and UTAUT in order to investigate e-gov adoption in different settings. For instance, Schaupp and Carter (2005) investigated the adoption of an e-voting system in the USA, and found only trust (in the internet and in the government) to have a direct effect on the intention to use the system. Sahu and Gupta (2007) investigated the adoption of an e-gov application in the Indian Central Excise. With the exception of self-efficacy, top management support and voluntariness of use, the model factors were found to be significant predictors of the intention to use the investigated system.

AbuShanab and Pearson (2007) investigated the factors affecting the intention to adopt e-banking service in Jordan. Gender was found to moderate the relationship of performance expectancy, effort expectancy and social influence to the intention to use the service. Age was also found to moderate the relationship of performance expectancy and effort expectancy to the intention to use the system. However, IT experience was found to moderate only the relationship between social influence and use intention.

Similarly, Al-Shafi and Weerakkody (2009) explored the factors affecting e-gov adoption in the state of Qatar. They found effort expectancy and social influence to influence the intention to use e-gov services, and use intention to influence actual use of the services. In addition, Suki and Ramayah (2010) investigated the influence of a number of factors on the acceptance of e-gov services in Malaysia. They found that perceived usefulness, ease of use,

compatibility, interpersonal influence, external influence, self efficacy, facilitating conditions, attitude, subjective norms, perceived behavioral control and use intention to be significant determinants of the acceptance of e-gov services.

Furthermore, Mouakket (2010) tested an extended TAM model to identify the factors that encourage citizens to adopt e-gov in the United Arab Emirates (UAE). The results supported their model in predicating citizens' attitudes towards e-gov. In Kuwait, however, ALAwadhi and Morris (2009) used a modified UTAUT model to e-gov service adoption. They found performance expectancy and effort expectancy to influence use intention, and facilitating conditions and use intention to influence actual use of the service. They also found that greater Internet experience increased the effect of performance expectancy on use intention in the short run.

The findings of the previous e-gov research suggest that UTAUT appears to be a robust model for explaining users' adoption of e-gov systems such as TVEPS. UTAUT is a powerful framework (Venkatesh et al., 2012; Goodhue, 2007), and when it is extended with relevant constructs (Venkatesh et al., 2012; Bagozzi, 2007), it can contribute to the understanding of phenomena such as e-gov adoption.

However, context cannot be ignored in the analysis of IT adoption. Factors that are found to influence IT adoption in one context may have little, or an opposite, influence in another context (Zmud, 1982). Culture has a powerful influence on information-related behaviors and interactions with IT (Leidner and Kayworth, 2006; Martinsons and Davison, 2003; Straub et al., 2001; Hill et al., 1998). Subsequently, findings on systems adoption and its determinants in a particular culture cannot be extended to explain systems acceptance and use in other dissimilar cultures before externally validating them across different cultures.

3. Research Model And Hypotheses

Figure 1 depicts the research model, which is a modified UTAUT model. The model incorporates all the original constructs in UTAUL, and extends UTAUL by adding trust as a construct in order to adapt UTAUT to an e-gov context and apply it to a new culture (e.g., the Islamic/Arab culture of Kuwait). Adding new constructs and relationships to UTAUT should contribute to a better understanding of the complexity of the individual's acceptance of TVEPS and help expand UTAUT theoretical horizons (Venkatesh et al., 2012).

Performance expectancy, effort expectancy and social influence are adopted from Venkatesh et al. (2003) and are hypothesized to affect behavioral intention (i.e., intention to use TVEPS). Behavioral intention and facilitating conditions are hypothesized to affect use behavior (i.e., actual use of TVEPS).

Trust is adopted from Carter and Belanger (2005) and is hypothesized to influence the actual use of TVEPS. Although not included in the original UTAUT model, trust is believed to be critical to the adoption of e-gov applications (e.g. Belanger et al., 2002; Pavlou, 2003; Carter and Belanger, 2005; Schaupp and Carter, 2005; AL-Omari and AL-Omari, 2006; Dashti, 2010). The Internet is increasingly cited as a favored point of attack (West, 2002), and losses from computer viruses and lack of security is the leading source of financial losses in businesses (Gordon et al., 2006).

Users will resist e-service if the providers do not ensure its accuracy and reliability. They will be also reluctant to adopt e-gov systems if they do not trust governments and their provided services (Carter and Belanger, 2005; Tang and Chi, 2005). Since TVEPS includes sensitive transactions and involves the disclosure of personal information, trust is believed to be a plausible determinant of its use.

According to UTAUT, gender, age and Internet experience are hypothesized to affect the relationship of performance expectancy, effort expectancy and social influence to the intention to use TVEPS. They are also hypothesized to affect the relationship between facilitating conditions and the actual use of TVEPS. Besides, awareness has been added to the model as a moderator that may influence the relationship of trust and behavioral intention to actual use of TVEPS. Knowledge about a system, its benefits and risks is a key factor in the voluntary use of systems (Dinev and Hu, 2007).

It should be noted, however, that voluntariness has been excluded from the research model because it was found to have no moderating effect on the voluntary use of systems such as TVEPS in a number of earlier studies (e.g., Sahu and Gupta, 2007; ALAwadhi and Morris, 2009; AbuShanab and Pearson, 2007; Al-Shafi and Weerakkody, 2009).

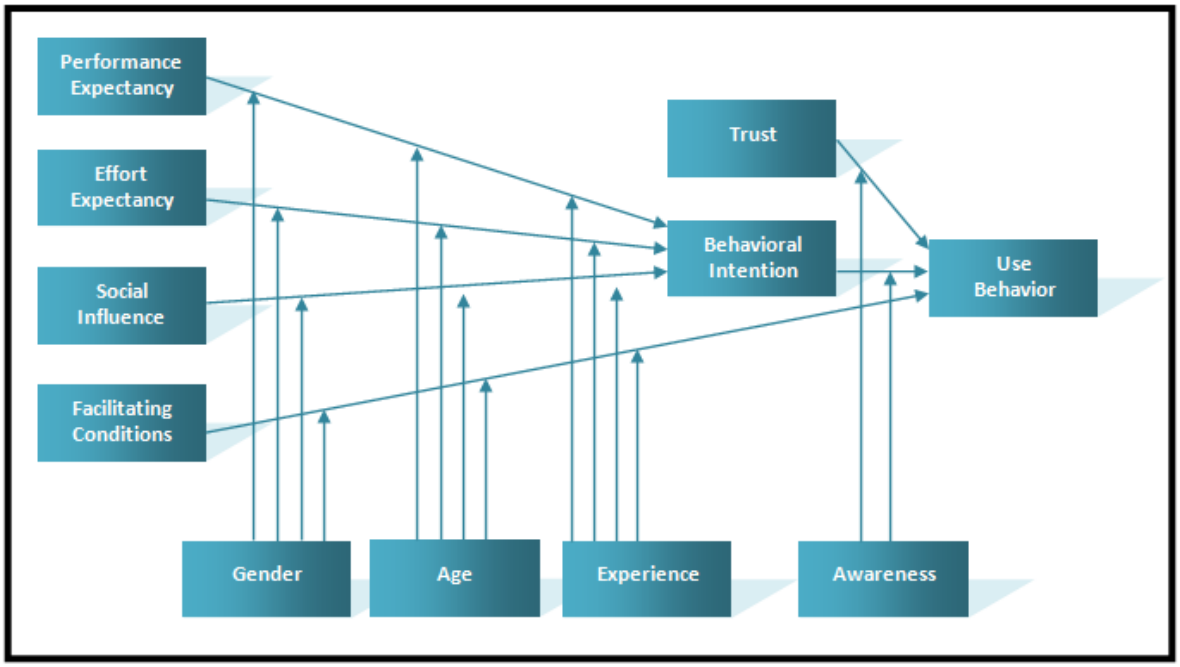

Figure 1: The Research Model

4. Research hypotheses:

4.1 Performance expectancy and use intention

Use intention refers to one's intention to perform a specified behavior such as using a new system (Sahu and Gupta 2007). Performance expectancy refers to the degree to which an individual believes that using a new system will enhance his/her performance (Venkatesh et al., 2003). Performance expectancy is believed to be a strong predictor of the intention to use IT (Venkatesh, 2003; Davis, 1989; Venkatesh and Davis, 2000; Chang et al., 2007). Citizens will adopt e-gov systems when benefits (e.g., saving time, money and effort) can be realized from such an adoption (e.g., Carter and Belanger, 2004b; Schaupp and Carter, 2005). ALAwadhi and Morris (2009) found that performance expectancy had an effect on the intention to use e-gov services in Kuwait, and the users'
Internet experience moderated the relationship between the two variables.

Men tend to be highly task-oriented and, therefore, performance expectancy is likely to be more salient to men than women (Venkatesh et al., 2003). Age is also expected to moderate the influence of performance expectancy, as gender differences can be misleading without accounting for age differences (Venkatesh et al., 2003). Younger individuals place more importance on extrinsic rewards than do older ones and, therefore, performance expectancy is expected to be more salient to younger individuals (Venkatesh et al., 2003).

ALAwadhi and Morris (2009) found that Internet experience positively influenced the effect of performance expectancy on the intention to use e-gov service in Kuwait. Hence, Internet experience (i.e., experience with online payment systems) is proposed to be a moderator of performance expectancy, whereas the increased level of Internet experience will positively affect the influence of performance expectancy on the intention to use TVEPS. These expectations are formulated in the following hypothesis:

H1: The influence of performance expectancy on the intention to use TVEPS will be moderated by gender, age and Internet experience such that the effect will be stronger for younger experienced men.

Effort expectancy and use intention. Effort expectancy refers to the degree of ease that is associated with using a new system (Venkatesh et al., 2003). In the IT acceptance models (e.g., TAM), effort expectancy is referred to as perceived ease of use (Kijsanayotin et al. 2009). Ease of use is hypothesizes to directly affect the intention to use IT. Effort expectancy was also found to affect the intention to use systems in a number of studies (e.g., Davis, 1989; Al-Gahtani et al., 2007; Chang et al., 2007; ALAwadhi and Morris, 2009).

Gender and age moderate the relationship between effort expectancy and the intention to use IT. Effort expectancy is more salient to women than men (e.g., Bern and Allen, 1974; Bozionelos, 1996; Venkatesh et al., 2003; Cameron, 2006). Aging is associated with the difficulty in processing complex stimuli and giving attention to information on the job (Plude and Hoyer 1985, cited in Venkatesh et al., 2003), both of which may be necessary when using systems. Older individuals may have more difficulties in accepting new IT than their younger counterparts (Cameron, 2006); and gender and age were found to moderate the relationship between effort expectancy and intention to use e-banking service (AbuShanab and Pearson, 2007).

Moreover, effort expectancy is likely to be more salient in the early stages of a new IT experience (e.g., Venkatesh et al., 2003; ALAwadhi and Morris, 2009; Al-Gahtani, 2007). However, over a sustained usage of a system, effort expectancy would have less effect on the intention to use that system (e.g., Phang et al., 2005; Schaupp and Carter, 2005; Carter and Belanger, 2004a). Therefore, increased Internet experience is expected to increase believing that the use of TVEPS is effort free, which, in turn, will positively affect use intention. These expectations are formulated in the following hypothesis:

H2: The influence of effort expectancy on the intention to use TVEPS will be moderated by gender, age and Internet experience such that the effect will be stronger for older women with lower levels of experience.

Social influence and use intention. Social influence--the degree to which significant others (e.g., family members, colleagues, and friends) influence one's use behavior (Venkatesh et al., 2003)--is considered an important determinant of use behavior of systems (e.g., Venkatesh et al., 2003). Nowadays, usage of e-gov service is mainly voluntary, and the findings of a number of previous studies reported social influence to have a positive effect on use intention when use was voluntary (e.g., ALAwadhi and Morris, 2009; Al-Gahtani, 2007; AbuShanab and Pearson, 2007).

Gender was found to significantly moderate the relationship between social influence and IT use intention (Venkatesh et al., 2003). Also, the effect of social influence on use intention was more significant among women, as women tend to be more sensitive to others' opinions than men (Venkatesh and Davis, 2000). However, gender was found to have no moderating effect on the relationship between social influence and the intention to use e-gov service in a number of studies (e.g., Al-Gahtani, 2007; ALAwadhi and Morris, 2009). Rhodes (1983) also concluded that affiliation needs increase with age, and therefore social influence is more salient to older people. Furthermore, the effect of social influence declines with experience (Venkatesh et al., 2003), as the more a person has an experience with a system, the less he/she is affected by the beliefs of the others. These expectations are formulated in the following hypothesis:

H3: The influence of social influence on TVEPS will be moderated by gender, age and Internet experience such that the effect will be stronger for older women with lower level of experience.

Facilitating conditions and actual use. Facilitating conditions are defined as one's belief that an organizational and technical infrastructure exists to support the system (Al-Gahtani 2007). Facilitating conditions affect the actual use of a system (Venkatesh et al., 2003). Venkatesh et al. (2003) also found that the influence of facilitating conditions was moderated by IT experience and age. ALAwadhi and Morris (2009) found a significant effect of facilitating conditions on the actual use of e-gov, but the moderators had no interaction with that relationship. However, the previous studies (e.g. Venkatesh et al., 2003; ALAwadhi and Morris 2009; AL-Gahtani, 2007) did not investigate the moderating effect that gender could have on the relationship between facilitating conditions and the actual use of systems.

Culture plays a critical role in IT adoption behaviors (Gallivan and Srite, 2005). Although women in Kuwait surpass men in terms of academic achievement (Taheri, 2005), men still outpace women in using the Internet. In addition, women have less access to resources than men. Therefore, the possible influence of facilitating conditions is expected to be moderated by gender, age and Internet experience. These expectations are formulated in the following hypothesis:

H4: The influence of facilitating conditions on the actual use of TVEPS will be moderated by gender, age and Internet experience such that the effect will be stronger for older men with increasing experience.

Trust and actual use. Trust refers to the extent to which an individual believes in the e-service provider's reliability and integrity (Carter and Belanger, 2005). Lee and Rao (2005) showed a significant effect of trust on use intention, combined with perceived usefulness and ease of use. Tang and Chi (2005) found trust to be a consequence of perceived ease of use and an antecedent of attitude towards IT. Jarvenpaa and Noam (2000) found trust to be an antecedent of attitudes toward using systems. Also, attitude was empirically proven to be an antecedent of use intention, which is an antecedent of actual use behavior. A number of studies showed that trust directly affected the intention to use systems (e.g., Schaupp and Carter, 2005; Carter and Belanger, 2005).

Since trust is an antecedent of use intention, and since use intention is an antecedent of actual use, trust could directly affect usage. Higher levels of trust are expected to positively relate to higher levels of actual use of e-gov systems. On the other hand, user awareness of a system is a strong determinant of the intention to use that system (Dinev and Hu, 2007). In countries like Kuwait, where the Internet penetration rate is relatively low, awareness is expected to moderate the relationship between trust and the actual use of new e-gov systems. These expectations are formulated in the following hypothesis:

H5: The influence of trust on the actual use of TVEPS will be moderated by awareness such that the effect will be stronger with higher level of awareness.

Use intention and actual use. Based on the IT adoption models (e.g., TAM), use intention is highly correlated with the actual use of a system (Davis, 1989). It is also believed that higher levels of awareness would influence the relationship between use intention and the actual use of a system. In this study, awareness is added as a moderator in order to test whether the influence of use intention on the actual use of TVEPS will be moderated by previous knowledge of the system availability and benefits.

H6: The influence of the intention to use TVEPS on its actual use will be moderated by awareness such that the effect will be stronger with higher levels of awareness.

5. Methodology

5.1 Measurements:

Table 1 presents the research constructs, their operational definitions and measurements. The measures of performance expectancy, effort expectancy, facilitating conditions, social influence and trust use a 5-point Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree). The measures of use intention (behavioral intention) and actual use (use behavior) use a 5-point Likert scale (ranging from 1 = never used to 5 = used all the time). Appendix (A) includes the items that were used to measure the research constructs.

The survey method was employed for data collection because of its efficiency (Cornford and Smithson, 1996). The items included in the survey were carefully selected through the review of the relevant literature. The selected items were revised and new items were added to the survey instrument in order to make it more appropriate to the purpose and the context of this study.

The instrument includes three parts. The first part provides background information on TVEPS. The second part is designed to collect demographic and situational data (e.g., gender, age, education, place of employment, and awareness of TVEPS). The last part consists of the items that are used to measure the variables in the research model.

Since Arabic is the native language in Kuwait, the survey is presented in both English and Arabic. Every potential informant is given the option to select the preferred language. The English version was translated into Arabic and then back-translated to English and verified by three IT experts from Kuwait University. The survey was pilot tested by ten professionals and two Kuwait University IS professors. The survey was then revised and finalized in light of the received feedback.

5.2 Sampling and data collection:

Whilst a probability sampling technique would have been preferred, a convenience sampling technique was the only affordable and appropriate way to have access to the data needed for this research. The researchers resorted to drawing a convenience sample in order to gather useful data that would not have been possible to gather using probability sampling techniques, and to avoid any misunderstanding of the survey items that could have been occurred using randomized respondents.

The adopted sampling method targeted individuals (e.g., engineers) who would provide useful insight into the acceptance and use of TVEPS. The targeted individuals were believed to be potential users of online payment systems such as TVEPS, as they were more likely to be knowledgeable with Internet services similar to those provided by TVEPS than were many other groups in the Kuwaiti population.

A mailing list including the e-mail addresses of approximately 2000 engineers was initially targeted for drawing a convenience sample. Other online groups were later contacted in order to increase sample size. An online survey was used for data collection. Requests for participation were e-mailed to the targeted informants (e.g., engineers). Since

only 79 surveys were initially collected, other methods were pursued in order to increase the sample size. The survey was posted on two blogging web sites and a mobile network was used to send the URLs of the surveys and ask the potential participants to respond to it.

A total of 327 responses were received, of which 116 in English and 211 Arabic. However, the number of complete responses that were used in the analysis is 306, with 26% overall response rate.

Table 1: The Research Constructs and Measurements

Construct	Operational Definition	Measurement
Performance expectancy	The degree to which an individual perceives using TVEPS will be advantageous.	Five items: one from Venkatesh et al. (2003); one from ALAwadhi and Morris (2009); one from Phang et al. (2005); and two added by the researchers.
Effort expectancy	The degree of ease associated with an individual's use of TVEPS.	Five items: two from Venkatesh et al. (2003); one from Pang (2008); and two added by the researchers.
Social influence	The extent to which an individual perceives that significant others (e.g., family and friends) believe they should use TVEPS.	Three items, adopted from Venkatesh et al. (2003).
Facilitating conditions	An individual's perception of the resources and support available to use TVEPS.	Four items: three from Venkatesh et al. (2003); and one added by the researchers.
Trust	The extent to which an individual believes in TVEPS security and integrity.	Five items (adopted from Park, 2008).
Use Intention	The behavioral intention of an individual to use TVEPS.	Four items (have been developed based on one item adopted from Venkatesh et al., 2003).
Use behavior	The breadth and extent of an individual's use of TVEPS.	Four items (developed by the researchers).
Awareness	Whether or not an individual is aware of TVEPS.	One item.
Internet Experience	The extent to which an individual is familiar with online payment systems.	One item.

5.3 Sample profile:

Table 2 depicts the sample profile. Approximately, 56% of respondents are female. Nearly 90% of the respondents are 45 years old or younger. In addition, slightly over half of the respondents are employed by the government, and the majority of them are considered well-educated.

Table 2: Sample Characteristics (N=306)

Gender	Percentages
Male	43.5
Female	55.9
Unknown	0.7
Age	**Percentage**
Less than 20 years old	-
Between 21-25	22.2
Between 26-30	28.8
Between 31-35	20.6
Between 41-45	14.4
Between 46-50	5.9

51 years and older	4.6
Unknown	3.6
Educational Level	**Percentage**
Diploma/High School	11.1
Bachelor Degree	66.3
Master Degree	19.6
Doctoral Degree	2.9
Place of Employment	**Percentage**
Government Sector	53.3
Non-Government Sector	32.0
Unemployed	14.4
Unknown	0.3
Internet Experience	**Percentages**
No Experience	17.6
Have Experience	80.7
Unknown	1.6

Moreover, roughly 81% of the respondents are familiar with online payment systems. Since the main service that TVEPS offers is the payment of traffic violations fines, approximately 77% of the respondents indicated that they are aware of the existence of such an online service.

6. Analysis and Results

Since two versions of the survey were used (English and Arabic), MANOVA was first used to test whether significant differences exist in the demographic characteristics of the two samples and their perceptions of the research constructs. No significant demographic characteristics differences were found between the two groups. In addition, no significant differences were found in their perceptions of the research constructs collectively (Wilks' Lambda $p = 0.246$). Also, the results of the between subject effect ($p > 0.05$) further supported the findings of no differences between the two groups. Therefore, the two data sets were pooled together for further analysis.

The reliability of the data collection instrument and its items were evaluated using Cronbach's α. The results reported in Table 3 demonstrate acceptable reliabilities coefficients (α), since all are above the threshold of 0.70 (Nunnally, 1978).

Factor analysis with varimax rotation was then applied in order to evaluate the constructs validity, reduce the data set and remove redundancy, and reveal any patterns that might exist between the constructs. Items with communalities < 0.5 are excluded and the analysis is recalculated. The excluded items include *item 4* from facilitating conditions, *item 14* from performance expectancy, *item 17* from effort expectancy, and *item 23* from actual use (Table 3).

The remaining items were reduced into seven latent constructs that are used in the subsequent analysis. These constructs were generated as new variables, each of which is expressed as a linear combination of the original items scores weighted by their factor loadings.

Table 4 depicts the means, maximum, minimum, and standard deviations values for the calculated seven constructs. The means of the constructs indicate that the respondents agreed that the knowledge and support (i.e. facilitating conditions) needed to access TVEPS would be available, using

Table 3: Factors Loadings, Explained Variance and Cronbach Reliability Coefficients for each Construct

Construct	Factor Loading	Explained Variance	Cronbach Alpha Coefficient
Facilitating Condition		**75.7%**	**0.835**
Item 1	0.808		
Item 2	0.908		
Item 3	0.891		
Trust		**76.1%**	**0.921**
Item 5	0.865		
Item 6	0.887		
Item 7	0.902		
Item 8	0.850		
Item 9	0.858		
Performance Expectancy		**70.5%**	**0.856**
Item 10	0.814		
Item 11	0.823		
Item 12	0.893		
Item 13	0.826		
Effort Expectancy		**75.7%**	**0.891**
Item 15	0.869		
Item 16	0.824		
Item 18	0.882		
Item 19	0.905		
Social Influence		**81.9%**	**0.889**
Item 20	0.900		
Item 21	0.945		
Item 22	0.870		
Actual Use		**75.5%**	**0.837**
Item 24	0.800		
Item 25	0.931		
Item 26	0.870		
Use Intention		**72.3%**	**0.863**
Item 27	0.824		
Item 28	0.753		
Item 29	0.915		
Item 30	0.899		

TVEPS enhance their performance (i.e., performance expectancy), and learning and developing skills to use TVEPS was easy and effortless (i.e., effort expectancy). However, the respondents neither agreed nor disagreed on having pressure from significant others (social influence) to use TVEPS as well as having concerns regarding the reliability and integrity of system (i.e., trust). On the other hand, although the respondents characterized their actual use of TVEPS to be only occasional, they intended to use it most of the time in the near future.

Table 4: Means, Maximum, Minimum and Standard Deviation for the Constructs

Constructs	N	Minimum	Maximum	Mean*	Std. Deviation
Facilitating Conditions	300	1.00	5.00	4.3929	0.84067
Trust	297	1.00	5.00	3.1556	1.17214
Performance Expectancy	300	1.00	5.00	4.3634	0.73090
Effort Expectancy	300	1.00	5.00	4.3293	0.73603
Social Influence	299	1.00	5.00	3.3168	0.91579
Actual Use	296	1.00	5.00	2.9701	1.42793
Use Intention	295	1.00	5.00	3.9330	1.03305

* The items are rated on a 5-point scale.

6.1 Testing the hypotheses:

Before building the regression models to test the research hypotheses, a correlation matrix for the seven latent constructs was established in order to check the possible presence of multicolinearity among the independent variables (Table 5). Although the correlations among the independent variables are significant, they are not too high (e.g., the highest correlation coefficient is .742) to cause multicolinearity. Further tests for the possible existence of multicolinearity will be generated when building the regression models for the independent and dependent variables.

In addition, it should be noted that trust has negative correlation coefficients with the other constructs (Table 5). These results are due to the type of statements used in the asked questions. The respondents were asked to agree/disagree on whether they were concerned about the TVEPS trust related issues. Therefore, the lower the scores, the less concerned the users are about the trust issues.

Table 5: Person Correlations among the Research Constructs

	Trust	Performance Expectancy	Effort Expectancy	Social Influence	Actual Use	Use Intention
Facilitating Conditions	-.266**	.482**	.451**	.156**	.150*	.269**
Trust		-.115	-.191**	-.121*	-.215**	-.251**
Performance Expectancy			.742**	.214**	.175**	.340**
Effort Expectancy				.274**	.166**	.374**
Social Influence					.143*	.308**
Actual Use						.500**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed)

Sequences of stepwise regression models were constructed to test the research hypotheses. The analysis was performed in three stages. In the first stage, use intention was regressed on the main predictors (performance expectancy, effort expectancy and social influence). In addition, the three moderators (gender, age and Internet experience) were entered to the regression model as dummy variables (0, 1). It should be noted that the responses to the question on experience with online payment systems were recoded into two groups: experienced and non-experienced. Also, the responses to the age question were recoded into two groups: younger (less than 30 years old) and older (30 years or older).

The first stepwise regression model (Table 6) is used to test the first three hypotheses (*H1, H2, and H3*). The results indicate that the only significant predictors remained in the model are effort expectancy, social influence, and the moderator Internet experience. The model explains approximately 21% of the variance in use intention (adjusted R^2 = .212).

Performance expectancy did not influence use intention, a result that suggests the rejection of *H1*. However, effort expectancy (β = .315, p = 0.000) and social influence (β = .175, p = 0.002) were found to influence use intention. In addition, among the three moderating variables, only Internet experience was found to have a significant effect on the relationship that performance expectancy and effort expectancy had with use intention (β = .146, p = 0.010). These results, therefore, provide a partial support for the acceptance of *H2 and H3*.

Table 6: Regression Model for Effort Expectancy, Social Influence, Internet Experience, and the Moderating Variables against Use Intention

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Model	.469	.212	.212	.91510
	Standard Coefficients		**t-value**	**Sig. p-value**
	Beta			
Effort Expectancy	.315		5.506	.000
Social Influence	.175		3.147	.002
Internet Experience	.146		2.592	.010

The second stepwise regression model (Table 7) was constructed in order to test hypothesis *H4*. Actual use was regressed on facilitating conditions along with gender, age and Internet experience as moderators. The consequent regression model explains approximately 11% of the variance in the actual use of TVEPS (adjusted R^2 = .108).

The only significant variables in the regression model are facilitating conditions (β = .118, p = 0.037) and gender (β = .289, p = 0.000). These results provide partial support for hypothesis H4, which indicates that facilitating conditions has a significant positive effect on the actual use of TVEPS and that effect is stronger for male users.

The third regression model (Table 8) was constructed in order to test hypotheses H5 and H6. Actual use was regressed on the un-standardized residuals of use intention and trust as well as awareness as a moderating variable. The results show that all the variables in the model are significant, and the explained variance in the actual use of TVEPS is approximately 26% (adjusted R2 = .257).

Table 7: The Regression Model for Facilitating Conditions and the Moderating Variables against Actual Use

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Model	.328	.108	.101	1.35396
	Standard Coefficients		**t-value**	**Sig. p-value**
	Beta			
Gender	.289		5.127	.000
Facilitating Conditions	.118		2.092	.037

There is a significant effect of use intention (β = .398, p = 0.000) and trust (β = -.127, p = 0.018) on actual use. Also, awareness has a significant moderating effect on the relationship that use intention and trust had with the actual use of TVEPS (β = .146, p = 0.010). These results, therefore, suggest the acceptance of *H5* and *H6*.

Table 8: The Regression Model for Use Intention, Trust, and Awareness against Actual Use

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Model	.515	.266	.257	1.24119
	Standard Coefficients		**t-value**	**Sig. p-value**
	Beta			
Use Intention	.398		7.458	.000
Awareness	.232		4.406	.000
Trust	-.127		-2.383	.018

7. Discussion

Six hypotheses were formulated and tested. The research findings provide evidence to reject *H1*; partially support *H2, H3*, and *H4*; and fully support *H5* and *H6*. Firstly, effort expectancy and social influence have significant effects on the intention to use TVEPS, and these effects increase as Internet experience (i.e., experience with online payment systems) increases. Secondly, facilitating conditions has a significant effect on the actual use of TVEPS, and that effect increases as men use the system. Thirdly, use intention and trust have a significant effect on the actual use of TVEPS, and that effect increases as awareness of the system increases. Nevertheless, the relatively moderate explained variance in use intention and the actual use of TVEPS produced by the regression models were expected, given the exploratory nature of this research, the type of the used data set, and the lack of control over the demographic characteristics of the respondents.

Performance expectancy has consistently been shown to be a strong predictor of IT use intention in the earlier relevant research (e.g., Venkatesh et al. 2003, 20012). Performance expectancy, however, was found to have no significant effect on the intention to use TVEPS. One interpretation for this finding could be found in the cultural fabric of Kuwait and the belief that transacting with the government agencies and systems is generally time-consuming, inconvenient and tedious. Therefore, the belief that transacting with TVEPS would positively affect their perceived performance was not strong enough to reinforce their intention to use the system.

This finding is inconsistent with those of ALAwadhi and Morris (2009). This inconsistency may be attributed to the differences between the two studies in terms of scope and respondents' characteristics. While ALAwadhi and Morris used a sample of younger Kuwaiti university students and investigated e-gov systems in general, this study used a sample of older Kuwaiti professionals and investigated a specific e-gov system (i.e., TVEPS). Individuals with dissimilar characteristics and backgrounds are expected to have unique ways of interacting with IT and, subsequently, have different attitudes and behaviors towards such IT (Khalil and Alkordy, 1997).

The individuals' perceptions of the benefits of TVEPS appear to vary depending on their demographic and situational characteristics as well as the characteristics of the systems themselves. In addition, compared to younger drivers (e.g., students), the respondents in our sample may be more vigilant drivers with relatively lower numbers of traffic citations. Therefore, they may not be as attentive as the younger drivers to the benefits (e.g., time and effort savings) of and paying for their traffic citations via TVEPS.

Effort expectancy, however, was found to be a significant predictor of the intention to use TVEPS. The less the effort expected to learn the system, the higher the intention to use it. This finding is consistent with those of Venkatesh et al. (2003), Phang et al. (2005), ALAwadhi and Morris (2009), and AbuShanab and Pearson (2007).

In addition, Internet experience was found to positively moderate the relationship between effort expectancy and the intention to use TVEPS. With increased experience with online payment systems, effort expectancy becomes more significant as a predictor of use intention. In other words, the more experience that an individual gains in using online payment systems (e.g., via e-shopping), the more he/she will believe that learning and using TVEPS would require less effort.

This finding, however, is inconsistent with those of a number of previous studies (e.g., Davis et al., 1989; Szaijna, 1996; Schaupp and Carter, 2005; and Al-Gahtani, 2007), as IT experience was found to have a negative effect on the relationship between effort expectancy and use intention. This inconsistency may be attributed to the varied methods used in measuring experience. Venkatesh et al. (2003), for instance, measured experience in terms of the number of years using the particular systems that were under investigation. Therefore, effort expectancy is expected to become less significant with the extended use of the same system (e.g., Venkatesh et al., 2003; Malhotra, 2005). In this study, however, experience was measured in terms of the usage of other online payment systems, and not of the TVEPS itself.

Social influence was found to have a significant effect on use intention. The higher the pressure from significant others (e.g., family members and/or friends) to use TVEPS, the stronger is an individual's intention to use it. This finding confirms the findings of a number of previous studies (e.g., ALAwadhi and Morris, 2009; AbuShanab and Pearson, 2007; Sahu and Gupta, 2007) that social influence has a significant effect on the use intention of voluntary systems.

Internet experience was also found to moderate the relationship between social influence and use intention. The effect of social influence on use intention is more significant with experienced users. Having more experience with similar e-payment systems appears to put more pressure from significant others on the individual to leverage that experience in strengthening his/her intention to use TVEPS. That social pressure is particularly important in the Kuwaiti culture, as the experienced individuals are expected to not only directly utilize the TVEPS service for their own interest, but to also help their inexperienced family members and friends to indirectly utilize the available online service.

This finding, however, disagrees with those of Venkatesh et al. (2003), who found the effect of social influence to increase with limited experience. Again, the different measures of experience that were adopted in Venkatesh et al.'s (2003) study and in this study could be a reason for that contradiction.

The actual use of TVEPS was found to be only occasional. This low IT adoption can be culturally interpreted. Kuwait has a high uncertainty avoidance culture (House et al., 2004; Kabasakal and Dastmalchian, 2001). Individuals in a high uncertainty avoidance culture are more likely to avoid learning and adopting new technologies (e.g. TVEPS) because of the uncertainty and ambiguity involved (Veiga et al., 2001; Danowitz et al., 1995).

In addition, Arabs generally have a polychronic understanding of time have a preference for face-to-face interaction (Hill et al., 1998; Rose et al., 2003). As such, Kuwaitis may not perceive time to be significant and therefore prefer transacting directly with the employees in a government office, rather than transacting via a web site, because that could give them an opportunity to socialize with relatives and/or friends who happen to work in that office.

Facilitating conditions was found to have a significant effect on the actual use of TVEPS. Having the resources and knowledge required for e-payment as well as access to the needed technical support to transact online should increase the actual use of TVEPS. This finding confirms the findings of Venkatesh et al. (2003) and ALAwadhi and Morris (2009).

In addition, gender was found to influence the relationship between facilitating conditions and the actual use of TVEPS, whereas the effect is stronger for men. This finding is not a surprise in the Kuwaiti context. Kuwait has masculine practices (i.e., low gender egalitarianism) (Kabasakal and Dastmalchian, 2001). Compared to men, women in such a culture generally play a lower role in community decision-making, present a lower percentage of the labor force, have lower literacy rates, and have dissimilar education (Emrich et al., 2004). Although women in Kuwait have been recently granted more rights, including the right to vote and run for the Parliament, they still have access to fewer resources than do men. Women, therefore, may not have access to the technical and knowledge resources they need to adopt IT applications such as TVEPS.

Nevertheless, this finding is inconsistent with ALAwadhi and Morris' (2009) finding of no gender influence on the relationship between any of their research constructs and the intention to use e-gov services in Kuwait. This inconsistency may be attributed to the fact that, unlike the sample of this study, ALAwadhi and Morris' sample included students where males and females are likely to have access to the same facilities that are typically available in a university setting.

Use intention and trust were also found to be significant determinants of the actual use of TVEPS. The actual use of the system should increase with higher levels of use intention and trust; and that effect is moderated by the extent of awareness of the system benefits. The higher the potential users' awareness of TVEPS is, the higher the influence that use intention and trust will have on the actual use of the system.

In the prior studies (e.g., Carter and Belanger, 2005; Schaupp and Carter, 2005), trust was found to affect the intention to use IS/IT systems. These studies, however, did not investigate the effect that awareness could have had on the relationship between use intention and the actual use of that system. This study found that awareness of TVEPS to be an important factor in changing use intention into actual use of the system.

Lastly, it should be noted that the consequent research model explains relatively low percentages of the variance in the behavioral intention to use and actual use of TVEPS. This finding may be attributed to the fact that UTAUT has been used in this study to predict the intention to use and actual use of a non-organizational system. UTAUT, however, was originally developed to identify factors and contingencies to predict the intention to use and use systems primarily in organizational contexts. In addition, compared to its performance reported in the originating article (Venkatesh et al., 2003), UTAUT underperformed in the subsequent studies (Dwivedi et al., 2011), especially in explaining individuals' voluntary use of non-organizational systems such as TVEPS.

Furthermore, the findings of this research have been produced from a data set that was collected from a convenience sample, and therefore, the research findings should be carefully interpreted and generalized. Convenience samples are susceptible to systematic bias and skewed results because of the under-representation or over-representation of particular groups within the selected convenience sample.

The respondents in this research sample are likely to be more educated and younger than the general population of Kuwait. Subsequently, the findings may not apply to less educated and older Kuwaitis. This limitation undermines the ability to make generalizations from the sample to the target population and the other e-gov systems in Kuwait. Certainly, further research is needed to verify the findings of this research and attest their generalizability.

8. Implications

The findings of this study can be of interest to both researchers and practitioners. As to researchers, this research provides empirical evidence on the influence of a number of determinants (e.g., effort expectancy, facilitating conditions, social influence, trust, and use intention) and moderating variables (e.g., Internet experience, gender, and awareness) on the adoption of an e-gov system (e.g., TVEPS) in a developing country.

This study, along with the other similar previous studies, extends the growing body of knowledge on citizens' adoption of e-gov applications in developing countries, in general, and in the Gulf countries, in particular. The Gulf countries are characterized by a culture that is primarily Arab/Islamic culture, and the findings of this research lend support to the validity of the UTAUT model in explaining e-gov adoption in cultures that differ from the Western culture.

The findings of this research also corroborate the usefulness of UTAUL in providing insight into cross-cultural IT adoption differences (Oshlyansky et al., (2007; Venkatesh and Zhang, 2010). Although hypothesized in UTAUT to be a strong predictor of IT use intention, it was found in this research to be insignificant in predicting the intention to use an e-system in an Arab/Islamic culture. This finding suggests that the perceived utility of a particular system is likely to be culturally dependent. Future research can build on this study by testing UTAUT in various contexts, including different cultures, users with diverse characteristics, and different types of systems.

More specifically, future research designs should extend UTAUT to incorporate national culture related constructs when investigating IT adoption across different countries. Explicit investigation of the influence of national cultures on IT adoption should produce findings that help explaining higher percentages of the variance in the individual's adoption of IT and facilitate a better understanding of such a complex phenomenon.

As to practitioners, TVEPS is only one of a number of e-gov systems that have been recently implemented in Kuwait as part of the Government initiative to modernize and improve its service. The findings of this research may serve as a foundation for decision-making and policy formulation aiming at enhancing the adoption and utilization of TVEPS as well as the other e-gov systems in Kuwait.

The Kuwaiti Government should capitalize on effort expectancy, social influence, facilitating conditions and trust in order to stimulate the adoption of TVEPS. Efforts to enhance the citizens' intention to adopt TVEPS should focus not only on making the system usage effort-free but also on promoting the benefits of using the system in the society.

Users may have experience with other online payment systems, and therefore they expect TVEPS to be user friendly and easy to use. However, TVEPS users have encountered a number of problems using the system, including delays, downtimes, and lack of transactions confirmation. The Government should improve the system quality and ensure that it is problem-free and capable of providing users with desirable options--e.g., printed official payment receipts and hot telephone lines for assistance and troubleshooting--to help them develop a sense of comfort when using the system. Improving the system functionalities and providing citizens with information on privacy and security policies should increase their trust in the system and their willingness to use it.

One's use of new systems, such as TVEPS, is likely to be affected by the significant others' beliefs and values. Embedding the idea of using the system into the Kuwaiti society can be an effective way to increase the citizens' intention to use the system. The Government should utilize the media (e.g. TV and radio campaigns, street posters, SMS, etc.) to promote and emphasize the benefits of using TVEPS and other e-services. Efforts also must be made to develop positive attitudes towards the Government and its initiatives to provide its citizens with quality service through its online systems.

Campaigns to promote e-service in Kuwait should also leverage the social characteristics of the society. Kuwait is a small and connected society where social capital plays an important role in modeling people's behaviors. Social gatherings are confined not only to men but also to women, and women gatherings are even more frequent. These gatherings could play an important role in molding people's beliefs and decisions regarding the adoption of the new e-gov systems, including TVEPS.

The Government should also focus on providing the needed resources and support, especially for women, to facilitate the use of TVEPS. Providing an effective online support (e.g. e-mail, online chat rooms, 24/7 hotline) is important to give the citizens the confidence and trust they need in order to use the system. Efforts should also be made to bridge the digital divide among citizens by providing free wireless access to the Internet.

Lastly, a high uncertainty avoidance and low gender egalitarian culture appears to negatively influence IT (e.g., TVEPS) adoption in Kuwait. In order to enhance the adoption of TVEPS and other e-gov systems in Kuwait, it is essential to view national cultures as malleable (Li and Karakowsky, 2002) and acknowledge that they can be partially changed in a relatively short time (Gelfand et al., 2004; Li and Karakowsky, 2002; Ralston et al., 1993). Government policies should be formulated in order to achieve cultural shifts towards low uncertainty avoidance and more gender egalitarian values that will positively influence the individuals' efficacy to adopt IT applications such as TVEPS (Khalil, 2011).

9. Conclusions

This research employed a revised UTAUT model to investigate the influence that performance expectancy, effort expectancy, social influence, facilitating conditions, and trust as well as the moderating variables of age, gender, Internet experience and awareness that could possibly have on use intention and the actual use of the traffic violation e-payment (TVEPS) system of the Ministry of Interior (MOI) in Kuwait. Six research hypotheses were formulated and tested.

Effort expectancy, social influence, and Internet experience were found to be significant predictors of the intention to use TVEPS. In addition, facilitating condition, use intention, trust, awareness, and gender are significant predictors of the actual use of TVEPS. These findings contribute to the growing empirical evidence on e-gov adoption and its determinants in the developing countries.

The empirical evidence of this research should guide the Kuwaiti Government's efforts to enhance the adoption of TVEPS. The full potential of the Kuwaiti Government's e-service initiatives won't be realized without citizens' adoption of such services. Efforts should be made to enhance the functionalities and features of TVEPS, make it conveniently accessible, promote its benefits, and provide citizens with effective online support. Having more people using TVEPS should increase trust in the provided Government's e-services. In line with the typical consumer psychology, the early adopters of the system will give way to majority users and innovators.

The reported findings, however, should be carefully interpreted in light of the research limitations. Irrespective of the limitations, convenience sampling was the only affordable technique to access the needed data. Future studies should adopt similar research models and measuring instruments in order to validate these findings and further validate the UTAUT model in explaining e-gov adoption in different settings. In addition, societies with different cultural characteristics exhibit different levels of e-gov readiness (Khalil, 2011) and, therefore, may experience variable adoption rates of e-service. Future research designs should incorporate and investigate culturally-based constructs in an attempt to better explain e-gov adoption as a global phenomenon.

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Appendix (A)

Items Used for Measuring the Research Constructs

Facilitating Conditions:
1. I have the resources necessary to pay for online services (e.g., internet access credit card, internet Visa). 2. I have the knowledge (e.g. internet and computer experience) necessary to pay for online services. 3. I'm familiar with online payment systems. 4. *****I can get assistance with online payment systems difficulties from people around me (e.g., family members, coworkers, and computer specialists).
Trust:
5. I'm concerned about the security of online transactions. 6. I'm concerned about misuse of my personal information when transacting online. 7. I'm concerned about misuse of my credit card when paying online. 8. I'm concerned about wrong charges when paying online. 9. I'm concerned about identity theft when transacting online.
Performance Expectancy:
10. Using the Traffic Violation E-payment service is more convenient than using the face-to-face government service. 11. Interaction with the Traffic Violation E-payment service is preferable to face-to-face interaction for service. 12. Using the Traffic Violation E-payment service enables me to make a better use of my time. 13. Using the online Traffic Violation E-payment service is suitable for a working person. 14. ***** Using the Traffic Violation E-payment service enhances my effectiveness.
Effort Expectancy:
15. It is easy to use the Traffic Violation E-payment service. 16. It is easy for me to become skillful at using the Traffic Violation E-payment service. 17. *****It is easier to use the Traffic Violation E-payment service than using the face-to-face government service. 18. It does not take too much time to use the online Traffic Violation E-payment service. 19. It is faster to use the Traffic Violation E-payment service than using face-to-face government service.
Social Influence:
20. Individuals who influence my behavior think that I should pay my traffic violation citations online. 21. Individuals who are important to me think that I should pay my traffic violations citations online. 22. Individuals who I work with think that I should pay my traffic violation online.
Use Behavior:
23. *****I have used the Traffic Violation E-payment website to inquire about my traffic violation citations. 24. I have used the Traffic Violation E-payment website to pay my traffic violation citations. 25. I have used the Traffic Violation E-payment website to inquire about my driving license. 26. I have used the Traffic Violation E-payment website to inquire about my car insurance.
Behavioral Intention:
27. I intend to use the Traffic Violation E-payment website to inquire about my traffic violation citations 28. I intend to use the Traffic Violation E-payment website to pay my traffic violation citations. 29. I intent to use the Traffic Violation E-payment website to inquire about my driving license. 30. I intent to use the Traffic Violation E-payment website to inquire about my car insurance.

*Item was later excluded as a result of factor analysis.