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Research paper

Towards of Smart Cities Based on the Sustainability of Digital Services

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Abstract

Nowadays, the Digital Services (DS) has become an important component of Information Communication Technology (ICT) provided by governments to sustain and facilitate all the transactions. Simuntinuslly, digital services has gained popularity in developed and developing countries alike. Due to the importance of the sustainability of Information System (IS), this paper identifies the emergence of a clear gape to measure the sustainability of DS development for transforming to smart cites. The purpose of this paper is to observe the connections between Digital Services as a tool for economic development to approach the smart city and sustainability as the goal. Variables like infrastructure, social factors, security, users behavior and the more are to be determined majorly effecting the sustainability of DS as a technological and psychological packages. With the perspectives of the Expectation-Confirmation Theory (ECT) and Unified Theory of Acceptance and Use of Technology (UTAUT2). To examine the sustainability model, the data for this study were collected from 350 employees in public universities. This study employed the PLS 3 to the measurement model. Based on the findings, it can be confirmed that this freamwork is reliable to measure the sustainability of DS for transforming to smart cites. In addition, the results supported that these are successful key measurements of transforming to smart cities by countinue usage of DS in general and electronic govemrnt (eG) in spicific.

Keywords: *Electronic Government, Conflict, Sustainability, Questionnaire, Technology and Iraq.*

1. Introduction

The evolution of Information and Communication Technologies (ICTs) has observed the development of Electronic Government (eG) in the late 1990s (1, 2). eG has since become an important application used by government agencies worldwide to facilitate communication and interactions with employees, citizens, between agencies, and with businesses (3). Variables like infrastructure, social factors, security, habit, users behavior and more have all been identified to affect the sustainability of eG as a technological and psychological package. This study is aimed at investigating the related variables that could mitigate the sustainability of eG in the most dangerous country in the world. This study proposes to quantitatively examine the Continued Usage Intention (sustainability) of eG in Iraq, and accordingly, data is gathered from Iraq, a dangerous and violent country in the Middle East and the world. Additionally, the limitations of our study are discussed.

1.1 Sustainability of EG services

Continued usage intention is defined as a function or response more than one times of users (4, 5). Nevertheless, continue usage behavioural of IT services is selected as the criterion variable of this present research because of the importance and unique contributions to the academic literature on user adoption of IT (6). The majority of previous IT adoption research have failed to examine the difference in user's perceptions among the first time use (initial adoption) and continued use (7, 8). An information system generally reflects that its success hinges upon the continued use as opposed to first-time use (7, 9). Similarly, the initial use of eG services is a significant indicator of eG success. Regarding the problem statement of this research, Iraq is suffering from a low level of usage of eG services because of the continued use issue and a little number of users among eG services (10, 11). Regarding the dilemma of sustainability and success, researchers discovered a high rate of failure in eG implementation. For example, successful eG projects in developing and transitional countries constitute only 15% of all projects, 50% were partial failures and 35% were total failures (12). These results are presented in Table 1.

Table 1. Failure and Success Rates for eG Services

Classification	% for developing countries	% for developed countries
Partial failure	50	33-60
Success	15	15-47
Total failure	35	20-50

Source: Heeks (12)

The failure rate of the eG project in developing countries as reported by the United Nations (2003) is estimated between 60%-80%, including most of the Middle Eastern countries. The report also indicates the lack of eG projects in Iraq (13-16). Furthermore, there is a lack of studies that identified the most important causes of sustainability or the success and failure of eG projects (17-19).
This study pays significant attention to the instability as a fundamental factor for sustainability of eG system usage in Iraq. Also, the primary use of eG websites is a vital indicator of eG success and sustainability of using eG services. A strong relationship between the sustainability of usage of citizens of eG services with success is established (20), with an evidence that the success of eG services depends on the acceptance (sustainability) of its usage by the citizens (20), while the citizens' awareness of the existing of eG online services on the eG portal is of utmost priority (21). Furthermore, the initial use of eG services is considered as a crucial indication of its sustainability and success (22) although this does not always lead to the expected outcome unless most of the citizens continue using eG services. In addition, citizens may stop using the DS if it fails to satisfy their needs regardless of successful and sustainable adoption (23, 24).

2. Theoretical Background and Hypotheses

2.1 Expectation-Confirmation Theory (ECT)

Expectation-Confirmatory Theory (ECT) is commonly adopted among studies of consumer behaviour in their examination of service marketing, consumer satisfaction along with post-purchase behaviour comprising of repurchase/complaining and finally, service marketing (28-32).
This theory‟s predictive strength has been evidenced overtime and over an extensive variety of repurchase of products and continuance of service such as repurchase of automobile (30), repurchase of the camcorder (33), and repurchase of photographic products by institution (34), restaurant service (35) and business professional services (31). Furthermore, IS users continuance decision is consistent with that of consumers‟ repurchase decision as both stem from the initial decision (purchase), both are impacted by the first product experience, and finally, they can both result in the initial decision's expost reversal (postulated by the Expectation-Confirmation Model of IS Continuance). Furthermore, an Expectation-Confirmation Model of IS Continuance means that IS users' continuance decision is similar to consumers' repurchase decision because both decisions Mubarak (1) follow an initial (acceptance or purchase decision), Alsohybe (2) are influenced by the initial use of (IS or product) experience, and AlShihi (3) can potentially lead to expost reversal of the initial decision. In addition, it is frequently stipulated by the IS continuance that monetary and non-monetary costs should be borne by IS users and hence wise users frequently undergo a simple decision process in ECT prior to making their decisions. Nevertheless, ECT adaption in the context of IS continuance requires various theoretical extensions for theory enhancement. They have the potential to explain IS continuance decisions in a superior manner compared to that of ECT on its own shown in Figure 1.

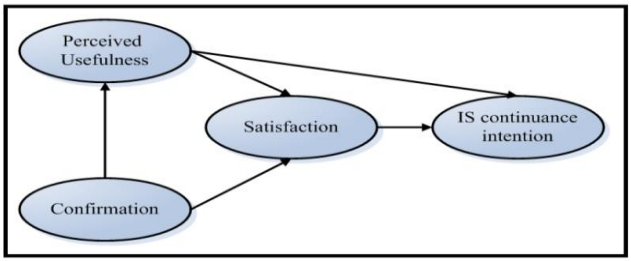

Figure 1. A post – Acceptance Model of IS continuance

2.2 Research Hypotheses Development

The current research model was examined in this study was shown in Fig. 2.

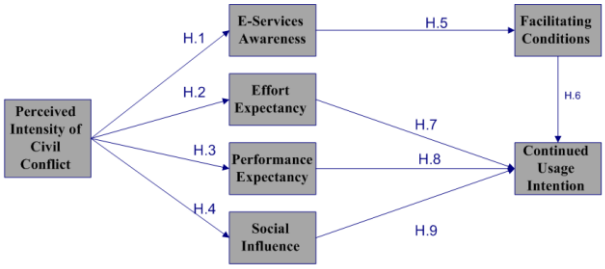

Figure 2. Research Model

According to the UTAUT2, performance expectancy, effort expectancy, social influence, facilitating conditions and Habit are hypothesized to be the determinants of usage behavioural in the context of EG services in risky environment. The current research hypotheses are shown below. Moreover, all of the variables and hypotheses in the current model are proposed based on the A post – Acceptance Model, UTAUT2 conflict theory.

H1. Perceived Intensity of Civil Conflict has positive effect Electronic Services Awareness.
H2. Perceived Intensity of Civil Conflict has positive effect Effort expectancy.
H3. Perceived Intensity of Civil Conflict has positive effect on Performance expectancy.
H4. Perceived Intensity of Civil Conflict has positive effect on Social influence
H5. Electronic Services Awareness has positive effect on Facilitating conditions
H6. Facilitating conditions has positive effect on Continued Usage Intention of eG services
H7. Effort expectancy has a positive effect on Continued Usage Intention of eG services.
H8. Facilitating conditions have a positive influence on Continued Usage Intention of eG services.
H9. Social influence has a positive effect on Continued Usage Intention of eG services.

3. Research Methodology

3.1 Sampling and Procedure:

The study focusing on the (G2C) services mainly, covering the range of all government services, such as social, economic, and the rest in the specific context of dangerous zone. Iraq citizenry from different levels of demographical features would therefore be surveyed for the purpose of this study. Additionally, this study included 350 valid questionnaires from responds from three regions in Iraq.

3.2 Sampling Profile

The final data sample included the staff (lecturers and administers) in public universities. The sampling profile showed that the sample is a representative of the studied population. Following discussion the distribution of the respondents according to the demographic variable (such as: AGE, GEN, EDU, INC and EXP). Moreover, differences and uneven of results among differences between male and female in daily life, several levels of age, families and individual states, occupation, residential area, education level, monthly income and duration of internet usage. From the analysis, the study has categorized the respondents into eight demographic variables in the sample, according to their age, gender, marital status, current occupation, residential area,

education, income and duration of Internet usage (experience) as illustrated in Table 2.

Table 2. Participant's Demographic Information

Demographic Variable	Category	(*N* = 350) Frequency	Percentage %
Gender	Male	187	53.4
	Female	163	46.6
Age	≤ 22	10	2.9
	23 -35	145	33.3
	36- 45	129	29.7
	46-55	54	12.4
	56 or above	12	2.8
Marital status	Single	114	26.1
	Married	297	68.1
	Divorced	15	3.4
	Widowed	10	2.3
Current Occupa-tion	Lecturer	125	35.7
	Manager	44	12.6
	Officer	148	42.3
	Clerks	14	4.0
	Others	19	5.4
Education level	PhD	62	17.7
	Master	80	22.9
	Bachelor	140	40.0
	Diploma	46	13.1
	Secondary School	17	4.9
	Read and Write	4	1.1
	Other	1	.3
Monthly Income in ID (Iraqi Dinars)	≤ 250 (Thousand)	13	3.0
	251 -500 (Thousand)	37	10.6
	501- 750 (Thousand)	102	29.1
	≥751 (Thousand)	198	56.6
Duration of Internet usage	Less than a year	82	23.4
	1-3 years	109	31.1
	More than 3 to 5 years	71	20.3
	More than 5 years	88	25.1

4. Data Analysis

The Partial Least Squares or PLS modeling was brought forward by Herman Wold (1982, 1985) (cited by 36, 37), in the LVPLS software computational aspects. The theoretical developments of the software were also attributed to world while the new graphical interface (PLS-Graph), and the improved methods of validation, were attributed to Tenenhaus et al.(38). Meanwhile, the LohmsLoller's program PLSX for units x variables data presents the core of the PLS-Graph software and it allows similar options. The PLS modeling has to be used in the first stage of theoretical development in order to assess and validate exploratory models. Additionally, one of the features that stand out is its prediction-oriented research in which the methodology is invaluable for researchers to concentrate on the endogenous constructs explanation. Moreover, all items are measured using a seven-point scale.

The PLS path modeling approach is generally utilized to estimate causal relationships in the field of path models that entail latent constructs indirect measurement by various indicators. Prior studies were conducted by Lohmoller (37) and Tenenhaus et al.(39) were dedicated to explaining the methodological basis and approaches for outcome evaluation and they offered some methodological examples.

5. Testing the Measurement Model, Outer Model, Using PLS Approach

Prior to hypotheses testing, the measurement model, the outer model was assessed with the help of the Partial Least Squares Structural Equation Modeling (PLS-SEM) methods. As such, the present study employed the two-stage approach recommended by Anderson & Gerbing, (40). The study model is presented with its structural dimensions in Figure 3 and Path analysis result after deleting the items bellow 0.7 as shown in Figure 4.

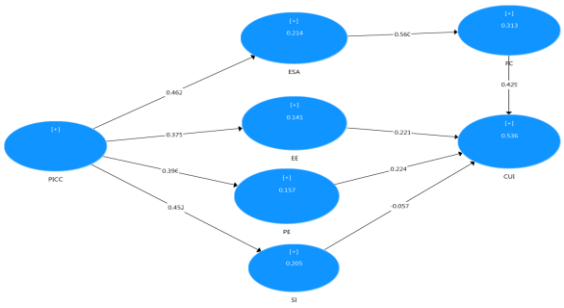

Figure 3. Structural Dimensions.

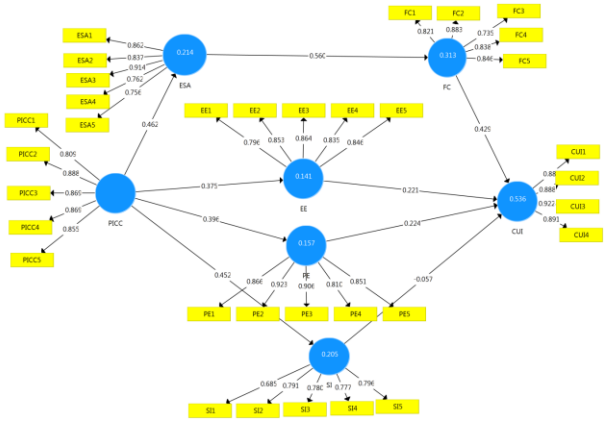

Figure 4. Path analysis result after deleting the items bellow 0.7

5.1 The Content Validity

The measure's content validity is the degree to which the items produced to measure a construct is capable of measuring the concept they are designed to measure (41). Specifically stating, the items that were designed to measure a construct should present a higher loading on their construct compared to other constructs. The researcher made sure of this by conducting a comprehensive literature review to produce items whose validity is already tested and established by other studies. On the basis of factor analysis, constructs items and Cross Loadings, Average Variance Extracted (AVE) and Composite Reliability are presented in Table 3 and the results of discriminant validity analysis presented in Table 4. Also, the final structural model illustrated in Table 5.

Table 3. The results of measurement model.

Items	Cross Loadings	Average Variance Extracted (AVE)	Composite Reliability
CUI1	0.275	0.802	0.917
CUI2	0.275		
CUI3	0.278		
CUI4	0.288		
EE1	0.226	0.704	0.895
EE2	0.219		
EE3	0.219		
EE4	0.271		
EE5	0.258		
ESA1	0.262	0.687	0.886
ESA2	0.279		
ESA3	0.266		

ESA4	0.193		
ESA5	0.198		
FC1	0.246	0.682	0.883
FC2	0.244		
FC3	0.211		
FC4	0.256		
FC5	0.252		
PE1	0.249	0.761	0.921
PE2	0.233		
PE3	0.239		
PE4	0.208		
PE5	0.216		
PICC1	0.234	0.737	0.910
PICC2	0.230		
PICC3	0.224		
PICC4	0.244		
PICC5	0.235		
SI1	0.180	0.588	0.827
SI2	0.264		
SI3	0.255		
SI4	0.339		
SI5	0.259		

Note: SIM = single item measures, AVE = average variance extracted, CR = composite reliability.

Table 4: The results of discriminant validity analysis.

	CUI	EE	ESA	FC	PE	PICC	SI
CUI	0.895						
EE	0.643	0.839					
ESA	0.361	0.473	0.829				
FC	0.678	0.719	0.560	0.826			
PE	0.563	0.644	0.544	0.533	0.872		
PICC	0.233	0.375	0.462	0.321	0.396	0.858	
SI	0.410	0.540	0.560	0.511	0.574	0.452	0.767

Table 5. The results of structural model.

	Hypothe-sis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Value	P-Values
H1	PICC -> ESA	0.462	0.464	0.048	9.693	0.000
H2	PICC -> EE	0.375	0.376	0.056	6.688	0.000
H3	PICC -> PE	0.396	0.398	0.057	6.960	0.000
H4	PICC -> SI	0.452	0.457	0.053	8.615	0.000
H5	ESA -> FC	0.560	0.562	0.045	12.32	0.000
H6	FC -> CUI	0.429	0.429	0.069	6.199	0.000
H7	EE -> CUI	0.221	0.220	0.074	3.003	0.003
H8	PE -> CUI	0.224	0.224	0.070	3.202	0.001
H9	SI -> CUI	-0.057	-0.052	0.053	1.080	0.280

6. Contributions of the Study

This study has many valuable theoretical and practical contributions. This study attempted to examine the influence of EE, SI, FC, PE, ESA and PICC on the sustainability (CUI) of eG usage. The uniqueness of this study comes from the examination of different variables and testing of its effect on the sustainability and Continued Usage Intention in the unstable environment. Thus, this study contributed by proposing a new model to test and examine the sustainability of electronic services in general and electronic public services in specific, via eG services. Also, this study has many contributions to the body of knowledge in the area of eG services in an unstable environment. First, this study provides a model to measure the sustainability by understanding how the variables (EE, SI, FC, PE, ESA and PICC) are important in explaining the sustainability of eG in the Iraqi context. More specifically, this study explored how the joint effect of the aforementioned variables can affect the sustainability of electronic services in general. Second, most of the past studies that examined the sustainability of eG were conducted in the developed countries and very few studies have considered the context of the developing countries. However, this study attempted to examine the sustainability of electronic services via eG in an unstable country, namely Iraq, a country located in the Middle East region. Additionally, this study demonstrated that the sustainability model can be valid and can be utilized to examine sustainability towards electronic projects in diverse cultures. In general, this study is one of the few studies derived in the Arab world to validate the sustainability of the electronic project. Finally, the stability of the environment might significantly affect the sustainability of new technologies.

7. Findings

The findings of the study would practically and encouragingly contribute to the government decisions in Iraq especially over the course of sustainable EG services. Additionally, would also provide empirical lay down for the decision makers of Iraq, IT practitioners, and posterity on the sustainable of EG in Iraq specifically and technological adoption and acceptance in Iraq in general. Lastly, there are more than 28 million Iraqis have been waiting for enhancement in EG services.

Additionally, this research demonstrated UTAUT2 in the dangerous environment and sustainable context. The more of finding in details will discuss in the following paragraphs;

H1, H2, H3 and H4. Perceived Intensity of Civil Conflict have Positive Effect on Electronic Services Awareness, Effort Expectancy, Performance Expectancy and Social Influence.

Interestingly, the nature of war and dimension and civil conflicts have changed from being domestic and intra-national; what is previously recognized as "low intensity wars" (42) to civil conflicts (43,44).

Civil conflicts are classified into two forms; namely never-ending conflicts and ending conflicts (43), where ending conflicts are explained as the ones that are resolved immediately when there is a change in the political dominance, while never-ending conflicts may continue perpetually like the experience of Palestine and Kashmir. Classifying conflict based on perceived intensities gives latent conflict, manifest conflict, crises, severe crises and war. Additionally, it must be noted that manifest conflicts and latent conflicts are non-violent in nature, whereas severe crises, crises, and war are violent in nature (44).

Some of the information system studies showed that the potential impact of conflict has been mainly studied from interpersonal perspective and organizational perspective (45), taking relationship conflict (46) as areas of focus.

The association among behavioural intention, civil conflict and Management Information System (MIS), particularly on UB and CUI of eG service has not been examined (47). Some literatures on eG services related the association with political instability (48) because it is considered among the leading challenges that eG services are facing, especially as it affects eG initiative in the developing countries. Civil conflict is said to have a positive relationship with the technology adoption, and emphasised its effects on adoption of technology for natural resources management (49).

Other studies asserted that the rate of the civil conflict in a country explains the behavioural intention of the citizens of the country towards the adoption of a new technology (50). It is observed that civil conflicts will affect the level of the technology adoption because the country's resources are solely concentrated on winning the war instead of citizens' adoption of new technologies.

The framework of this study extended UTAUT2 and ECT by PICC and ESA construct because Iraq is suffering from high levels of conflicts (51-54) and it becomes the most dangerous country in the world (55).

H5. Electronic Services Awareness has Positive Effect on Facilitating Conditions.

This study included E-S Awareness because first, citizens' awareness about the availability of eG service is crucial (21). Second, a report from Europe identified that eG services familiarity was highly correlated with the attitude towards eG service use, and most of the citizens were not always aware of the type of government service available online in different countries around the world (56). Third, citizens' awareness of the existing of E-S online in eG portal is a high priority (21, 52-56). The current study explores the level of awareness of a citizen towards the sustainable usage of eG services that are available in Iraq.

A study conducted in USA and Switzerland confirm that there is a highly correlation between government services and intention to use eG services. At the same time, not all citizens are awareness of the availability of E-Services by eG portal to public (56).

In the Middle East countries where a study was conducted in Bahrain, the finding of the study confirms that a high positive correlation between the e-services awareness variables in a government portal on one side, and usage rates on the other sides (Bega, 2007 as cited from (52-54).

Carter & Bishath (57) Noted that making eG portal well-known will increase the awareness of the eG Internet. Also, the government has a responsibility to promote awareness and attract the citizens in order to use eG services available on the government portal.

Studies noted that the government had a responsibility to publish the information about the availability of E-S and lunching of eG portal to public by various media and information channels, as training programs for example, to educate the citizens how to get the benefit from the IT tools such as eG and others (21). However, this study indicates ESA has a significant and positive influence on FC (β= 0.000, t=12.320, p>0.1), or H_5 is supported. Therefore, Nowadays, the government of Iraq ignored to promote and announce the information and awareness among citizens to access and use ICT by utilizing different channels, including communicating directly with the citizens to explain the benefits of using ICT and offer public training and technical support since the media is still busy by the civil conflict news.

H6. Facilitating Conditions has a Positive Influence on Sustainable (CUI) of eG Services.

Facilitating conditions is the degree to which an individual believes that an organizational and technical infrastructure exists to support the system (6, 58). Several prior empirical studies shed light on Facilitating Conditions (FC) as an important key for their studies, in different countries (6, 58). Furthermore, there is a lack of Facilitating Conditions (FC) in terms of Infrastructure (60, 11), and of teeming challenges and barriers faced in Iraq. To overcome that challenges, the government of Iraq spent 20 million USD in an agreement between Iraq and Italy in 2004 to achieve eG project (26).

The SEM is also capable of performing analysis of the investigation of the relationship among FC and CUI. The results show that FC has a significant and positive influence on CUI (β= 0.000, t=6.199, p>0.1) this appears to recommend that FC has a positive and statistically significant effect on CUI. Thus hypothesis H_3 is supported. FC was observed to have significant influence on user adoption of eG services in Iraq.

With these finding, previous studies have provided empirical evidence of the significant positive relationship between FC and CUI (22, 58).

H7. Effort Expectancy (EE) has a positive influence on sustainable (CUI) of eG services.

Effort Expectancy (EE) is defined as the degree of ease associated with the use of the system (6, 58). Based on previous works, it appears that EE is important among different innovations in the Middle East and non-Middle East countries (58-62).

However, there is a lack of empirical studies that examined EE in violence and dangerous situations. Therefore, further research is required to investigate the relationship between EE and CUI in Iraq as a conflicted and risky region.

The finding proved that EE influences CUI of eG services in Iraq, because of the degree of eG services is perceived as relatively easy to understand and use.

In examining the hypothesis of the relationship between EE and CUI, the result of SEM analysis implies that the present study practically tested the relation between EE and CUI. However, this study indicates EE has a significant and positive influence on CUI (β= 0.003, t=3.003, p>0.1), or H_7 is supported.

H8. Performance Expectancy (PE) has a Positive Influence on Sustainable (CUI) of eG Services.

The Performance Expectancy is defined as the degree to which an individual believes that using the system will help to attain gains in job/ life performance (6, 58). Many previous empirical studies have investigated PE in different fields and it was used in many softwares in analysis such as (SPSS, AMOS, PLS) in various countries (6, 58, 62, 63) who belong to developing and developed nations.

Accordingly, the researcher is particularly interested in investigating how PE contributes to effecting CUI of eG services among end users in Iraq. Indeed, the present study attempts to examine the relationship between PE and CUI in a risky area.

In examining the hypothesis related to the relationship between PE and CUI the result of the SEM analysis implies that the effect of PE on the UB has a significant impact on the CUI at the 0.01 level of significance (β= 0.001, t= 3.202, p<0.01). Therefore, hypothesis H_8 was supported. The finding suggests that individual performances in terms of life performances and accomplishments of transaction/task can be improved when the individual use the eG services the unstable and risky environment. This result is in line with previous empirical study (63).

H9. Social influence has a positive effect on sustainable and Continued Usage Intention of eG services.

Social Influence (SI) could be one of the main reasons of low usage of E-Services (27) in general and specifically in Iraq. Moreover, the few past studies in Iraq have neglected the examination of the effects of social influence especially from family and peers, and empirical test have not been previously carried out in Iraq.

In examining the hypothesis related to SI the result of the SEM analysis implies that the present study practically tested this variable. More specifically, it was found that the SI has no effect on CUI (β= 0.280, t=1.080, p>0.1). SI was hypothesized to be a significant positive effect on CUI and the path was positive, as posted, it was not statistically significant within the selected (p>0.1) significant level. Thus this hypothesis did not support H_9.

Previous empirical studies recommended that SI should play a critical role regarding to a new innovation. In the current study, the relationship was negative and not statistically significant, thus it was not supported H_9.

This study suggests that the eG services users do not have any influence from their pair group or anybody influencing their usage of eG services. The finding further validates the non-significance of maintaining social influence in assessing technology. More so, in technologies that are prone to the public as revealed by (63, 64).

Additionally, the current study is in line with social influence result in other studies, because it is not making any significant contribution to the prediction in the Saudi Arabia eG context (63, 65).

8. Conclusion

The findings of the study confirm that same theories and same variables have different results in different countries among different culture, sample size, nations, economic, environment and political circumstances. In specific there is a contribution by investigating a theory in new environment such as wars area, disaster region, risky environment, and so on. Additionally, there is a lack in testing UTAUT2 and usage issues in dangerous and unstable environment.

The finding also clarified that there is a clear gap to measure the usage issue (adoption an acceptance). Regarding to usage issue and by examine the literature there is a lack in applying UTAUT2 in conflict and dangerous environment.

In parallel, the findings of the study would practically and encouragingly contribute to the government decisions in Middle-East nations especially over the course of adopting an eG technology .

9. Suggestion of Future Research

It is a high priority and important significance to measure the sustainable by use behavior of technology (DS) among the users in such as this environment specially the Middle-East in different parts facing different challenges and misfortunes such as wars in Yemen spicily civil war in north of Yemen, conflicts in Egypt and Libya, violence in republic of Iraq. Moreover, to include UTAUT2 as an underpinning theory to a determinant the effects of unstable circumstances on the environment affect citizen (users) among (DS). Therefore, there is a need to involve various theories to measure the sustainability of eG services and unstable circumstance effects on users in Middle-East area. Moreover, this study carries out E-G spicily Government to Citizen services in risky environment, the next research could be concern on Government to Government, Government to Employee and Government to Business. At the same time, there is a lack of testing the variables that affect usage behavior and satisfaction of users as well. Additionally, there is a need to measure the adoption and acceptance in different context. Furthermore, there is a necessity to measure the electronic banking, electronic commerce, electronic learning, electronic system, electronic health record, electronic ticket, key card, Q card, smart card, visa card, master card, computer/ iPad adoption, mobile government (M-G), Telecenter services adoption and acceptance, under different forms of environments in developing and developed countries among different cultures and sample size.

10. Limitations

Although this study has generated exciting findings, it does, however, have certain limitations; first, this study reports a limitation relating to sample size and amount of universities in the present study, which is relatively small. Additionally, this study tests only specific employees working at the public universities in Iraq. Consequently, the results of this study do not reflect the behavior of other departments such as school teachers, private universities, students, agriculture sector, industrial sector and military sector. Also, this study focused on the examination of the factors that affect the sustainability of eG only.

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