FACTORS AFFECTING CONTINUED USAGE INTENTION OF ELECTRONIC GOVERNMENT AMONG PUBLIC SERVANTS IN IRAQ

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ABSTRACT

Electronic government (eG) system has become an important component of Information and Communication Technology provided by governments to facilitate all the transactions. This system has gained the popularity in developed and developing countries alike. Due to the inconsistency of the findings regarding the antecedents and consequences of usage behaviour of eG services, this study attempted to further explain this phenomenon in an unstable environment. Specifically, this study attempted to investigate the mediating role of Usage Behaviour on the relationships between the Unified Theory of Acceptance and Use Technology (UTAUT) antecedents and Continued Usage Intention. Additionally, this study attempted to investigate the moderating effect of Perceived Intensity of Civil Conflict (PICC) on the relationship between Usage Behaviour and Continued Usage Intention. In the relevant past literature, many theories have emphasized the necessity to establish the fit between various factors and Usage issues as the key success factor. However, this study integrated many theories such as the Expectation-Confirmation Theory, Conflict Theory, and UTAUT to examine the effect of various factors on Usage Behaviour and Continued Usage Intention of eG. To examine the hypothesized model, the data for this study were collected from the employees in the public universities. Out of 700 questionnaires distributed, 436 usable questionnaires were returned. This study employed the partial least squares structural equation modelling (PLS-SEM) to confirm the validity and reliability of the measurement model and to examine the structural relationships. The findings of the study confirmed the positive influence of Effort Expectancy, Performance Expectancy and Facilitating Conditions on the Usage Behaviour. In addition, the results supported the strong positive influence of usage behaviour on continued usage intention. While the moderating effect of PICC was not supported, usage behaviour was found to have a significant power to explain the effect of UTAUT variables on continued usage intention.

Keywords: electronic government, continued usage intention, usage behaviour, perceived intensity of civil conflict

ABSTRAK

Sistem kerajaan secara elektronik (eG) telah menjadi satu komponen penting dalam Teknologi Maklumat dan Komunikasi yang disediakan oleh kerajaan untuk memudahkan setiap transaksi. Sistem ini telah mendapat sambutan di negara-negara maju dan membangun. Oleh kerana penemuan yang tidak konsisten mengenai penyebab dan akibat daripada tingkah laku penggunaan perkhidmatan eG, kajian ini bertujuan untuk menjelaskan lebih lanjut lagi fenomena ini dalam persekitaran yang tidak stabil. Secara khusus, kajian ini bertujuan untuk menyelidik peranan perantara (mediator) Kelakuan Penggunaan ke atas hubungan di antara penyebab Teori Penerimaan Bersepadu dan Penggunaan Teknologi (UTAUT) dengan Keinginan Penggunaan yang berterusan. Selain itu, kajian ini mencuba untuk mengkaji kesan sederhana (moderator) terhadap Intensiti Persepsi Konflik Awam (PICC) terhadap hubungan antara Kelakuan Penggunaan dan Keinginan Penggunaan yang berterusan. Berkaitan literatur yang lalu, banyak teori telah menekankan keperluan untuk mewujudkan kesesuaian di antara pelbagai faktor dan isu-isu kepenggunaan sebagai faktor kejayaan utama. Walaubagaimanapun, kajian ini menintegrasikan pelbagai teori seperti Teori Jangkaan- Pengesahan, Teori Konflik, dan UTAUT untuk mengkaji impak daripada pelbagai faktor terhadap Kelakuan Penggunaan dan keinginan Penggunaan yang berterusan perkhidmatan eG. Untuk meneliti model hipotesis, data untuk kajian ini dikutip daripada staf universiti awam. Daripada 700 borang soal selidik yang diedarkan, sebanyak 436 borang soal selidik telah dikembalikan. Kajian ini menggunakan struktur pemodelan persamaan separa dua terkecil (PLS-SEM) untuk mengesahkan kesahihan dan kebolehpercayaan model Penyukatan dan untuk mengkaji hubungan struktur. Hasil kajian ini mengesahkan pengaruh positif Jangka Usaha, Jangka Prestasi dan Syarat Memudahkan Kelakuan Penggunaan. Di samping itu, keputusan ini disokong oleh pengaruh positif yang kukuh terhadap tingkah laku penggunaan untuk keinginan penggunaan yang berterusan. Tambahan pula, sementara kesan yang sederhana daripada PICC tidak disokong, tingkah laku penggunaan telah didapati mempunyai kuasa yang signifikan untuk menerangkan kesan pembolehubah UTAUT terhadap keinginan penggunaan yang berterusan.

Kata kunci: kerajaan secara elektronik, keinginan penggunaan berterusan, tingkah laku penggunaan, intensiti persepsi konflik awam

ACKNOWLEDGMENT

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GLOSSARY OF TERMS

Acceptance of Information Technology	The demonstrable willingness within a user/group to continued usage intention the information technology for the tasks it is designed to support next time.
Adoption of Information Technology	The first time used or/and intention to use of information technology innovation.
Electronic Government	Using ICT in the public sector by offering electronic services via Internet.
Governance	Using ICT to support the controlling of government, in other word, it's allowing citizen (employees) to get benefit from governmental electronic services (Ali & Sunitha, 2007).
Effort Expectancy	A person's perception that a particular system will be easy to use.
Facilitating Conditions	The environmental infrastructure that makes the accomplishment of the activity easier.
Performance Expectancy	A person's beliefs that using a particular system will enhance his/ her work performance.
Social Influence	A user's perception of other people, whether or not he/she has to perform the behaviour.
Voluntariness of Use	The degree to which the use of the innovation is perceived as being voluntary, or of free will.
Citizens of Nation	As the real users (employees in public university) of government services.
User	How have seen the services and know the process.

LIST OF ABBREVIATIONS

e-G	Electronic Government
UTAUT	Unified Theory Acceptance and Use Technology
MOST	Ministry Of Sciences and Technology
ATU	Attitude Toward Using
BI	Behavioural Intention
IDT	Innovation Diffusion Theory
ICT	Information and Communication Technology
IS	Information System
IT	Information Technology
ITD	Innovation Diffusion Theory
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UA	Uncertainty Avoidance
UN	United Nations
ESCWA	Economic and Social Commission for Western Asia
KRG	Kurdistan Regional Government
MTC	Metropolitan Transportation Commission
GSM	Global System for Mobile communication
WLL	Wireless Local Loop
ITPC	Iraq Telephone Postal Company
MOPID	Ministry of Planning and International Development
COSIT	Central Organization for Statistics and Information Technology
MOST	Ministry Of Science and Technology
ICCI	Iraq Commission for Computers and Informatics
MIS	Management Information System
ICDL	International Computer Driving License
MOPAD	Ministry Of Planning And Development
UNDP	United Nations Development Program.
IOM	International Organization for Migration
IRI	Iraq's Rebuilding Iraq project
WBBN	Wireless BroadBand Network
P.C.	Personal Computers
SCIS	State Company for Internet Services
MTCC	Multipurpose Technology Community Centres
UNDP's	United Nations Development Programmes
INA	Iraqi Networking Academies
WWW	World Wide Web
FTTH	Fiber To The Home
WiMAX	Worldwide Interoperability for Microwave Access
ADSL	Asymmetric Digital Subscriber Line
SI	Social Influence
FC	Facilitating Condition
EE	Effort Expectancy
E-SA	E-Service Awareness
UB	Usage Behavioural
CUI	Continued usage intention
AGE	Age

GEN	Gender
EDU	Education
INC	Income
EXP	Experience
PICC	Perceived Intensity of Civil Conflict
PE	Performance Expectancy
CBSEM	Covariance- Based Structural Equation Model
VBSEM	Variance- Based Structural Equation Model

CHAPTER ONE

OVERVIEW OF THE STUDY

1.0 Introduction

This chapter introduces the background of the study, statement of the problem, formulation of the research questions, research objectives, and justifications of the study. It also gives a brief explanation of the significance, benefits and scope of the study. Finally, the chapter concludes with a presentation of the research structure.

1.1 Background of Study

The evolution of Information and Communication Technologies (ICTs) has witnessed the emergence of Electronic Government (eG) in the late 1990s (Alruwaie, 2012; Alsohybe, 2007). eG has become an important application used by government agencies worldwide to facilitate communication and interactions with employees, citizens, between agencies, and with businesses (AlShihi, 2006).

The World Bank Group (2002) defines eG as "the use by government agencies of information technologies (such as wide area networks, the internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government...„. In a simpler term, eG can be defined as using ICT in the public sector to offer electronic services through using the Internet. In the field of Information Systems (IS), researchers following eG development indicated that eG has become a very interesting and evolving research area with high importance

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(Mofleh & Wanous, 2008). Evolving over more than two decades, eG services have continued to expand around the world.

eG has become a very important tool to serve the beneficiaries and received the attention of many IS researchers. Examples of studies in developed nations include the United Kingdom (UK) (Davies & Williams, 2003; Griffin & Halpin, 2005; Hamilton, Pavan, & Mchale, 2011), the United States of America (USA) (Lee, Braynov & Rao, 2003; Yun & Opheim, 2010), Sweden (Ruuska & Teigland, 2009), Singapore (Teo, Srivastava, & Jiang, 2009), and Taiwan (Wang & Shih, 2009). Examples in developing nations include Malaysia (Suki & Ramayah, 2010; Yahya *et al.,* 2011), Indonesia (Rokhman, 2011), and Thailand (Wangpipatwong *et al.,* 2008). In the Middle East, examples include Jordan (Al-Zoubi *et al.,* 2011, 2012; Mofleh & Wanous, 2008), Saudi Arabia (Al-Sobhi *et al.,* 2011), Qatar (Al-Shafi & Weerakkody, 2010, 2009) Kuwait (AlAwadhi & Morris, 2008) and Iraq (Tai, 2008; Al-Dabbagh, 2011).

The eG offers services to those within its jurisdiction to transact electronically with the government. These services differ according to users' needs and ICT capacity, and this diversity has given rise to the development of different types of eG application such as Government to Employees (G-2-E), Government to Government (G-2-G), Government to Business (G-2-B) and Government to Citizen (G-2-C). G-2-E service is an automated government database system that gives the possibility of maintaining and distributing personal information (Malcoci & Hodos, 2009). G-2-G service is a customised electronic cooperation between the government organisations (Tyshchenko & Grosse, 2008). G-2-B service is an electronic

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collaboration between the government and business organisations (Tyshchenko & Grosse, 2008). G-2-C service is a way to use the web and government applications to communicate online with citizens (Al-Sobhi *et al.*, 2011).

In its early stage of implementation (1990s), most government agencies focused on the implementation of G-2-E such as e-leave and e-employment. In the 2000s, as the applications of eG became more sophisticated, the attention shifted from G-2-E applications to G-2-B and G-2-G applications (Holden *et al.*, 2003; Moon & Norris, 2005).

More recently, the G-2-C services have become a high priority service among other eG services (Prima & Ibrahim, 2011; Hujran & Shahateet, 2010). The importance of G-2-C is due to the move of all the governments to put all their services on the web to facilitate all the transactions of the citizens and also to change the interaction way from the traditional services to the electronic services in the public sector in order to support the express development of technological modification (Alsohybe, 2007). Additionally, the democratic system is enhanced by eG system through the simplicity it provides for public as well as officials. Nowadays, the importance of the eG is realized by most developed countries a while back and were fast to implement it (Alsohybe, 2007).

The previous paragraphs explain the evolution of eG applications. Looking from another perspective, the early stage of eG implementation mostly concentrated in the developed countries like Canada (Fraser, 2009), Europe (Graafland & Ettedgui, 2003), Singapore (Chan, Lau & Pan, 2008; Teo, Srivastava & Jiang, 2009), UK

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(Davies & Williams, 2003; Griffin & Halpin, 2005; Hamilton, Pavan, & Mchale, 2011), and USA (Lee *et al.,* 2003; Yun & Opheim, 2010). Similarly, developing countries, such as Malaysia, Indonesia, India and Bangladesh, also realized the importance of eG (Lean *et al.,* 2009; Kumar & Best, 2006; Rokhman, 2011). In early 2000s, Middle Eastern countries, such as the United Arab Emirates (UAE), Saudi Arabia, Yemen, Sudan and Oman, have started implementing the eG applications (Abri, 2009; AlShihi, 2006; Alsohiby, 2007; Al-Sobhi; 2011; Abdalla, 2012).

From the research perspective, like many other technologies, research on eG concentrated on the issue of adoption in its early stage. It then shifted to the sophistication of the adopted eG technologies. Among the common factors found to influence the adoption and sophistication of eG include habits, social factors, facilitating conditions (Ikart, 2005), effort expectancy (Abdul-Rahman, *et al.,* 2011; Al-Shafi & Weerakkody 2009; 2010; Al-Sobhi *et al.,* 2011; Foon & Fah, 2011; Venkatesh *et al.,* 2003; Venkatesh *et al.,* 2011; Yahya *et al.,* 2011), performance expectancy (AlAwadhi & Morris, 2008; Venkatesh *et al.,* 2003; Wang & Shih, 2009; Yahya *et al.,* 2011), usage (Bhattacherjee, 2001; Limayem *et al.,* 2003; Wangpipatwong *et al.,* 2008), and continued usage (Alruwaie, 2012; Bhattacherjee 2001; Limayem *et al.,* 2003; Lawan, 2012; Park, 2008; Wangpipatwong, 2008). However, several researchers found considerable differences among nations in different regions in terms of the adoption of eG due to the different contexts/settings (Kumar *et al.,* 2007; Lau *et al.,* 2008; Rehman & Esichaikul, 2011; Rokhman, 2011; Sanou, 2012; Tan, 2013). Following the issues of eG adoption and sophistication, several researchers have also examined the success of eG implementation. Among the factors found to influence eG success include top management support (Cosgun

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& Dogerlioglu, 2012), trust (Teo *et al.*, 2009) and financial resources (Cosgun & Dogerlioglu, 2012).

Although many researchers have addressed the issues of eG in several different countries, these studies were relatively incomplete. There are other potential variables that need to be considered. Most of these variables, which have been tested in another context and technologies, may also influence the implementation of eG. Among these variables include Electronic Service Awareness (E-SA), Social Influence (SI), Facilitating Conditions (FC), Effort Expectancy (EE), Performance Expectancy (PE), and Usage Behavioural (UB). Another variable that may be considered is Perceived Intensity of Civil Conflict (PICC), which is particularly important in the context of a conflicting country such as Iraq. Another issue that received less attention from researchers is Continued Usage Intention (CUI). Though eG implementation has become widespread, many eG initiatives failed due to lack of continued usage. Therefore, it is also important to consider CUI, especially in countries where eG has been implemented for quite sometimes.

As discussed earlier, despite the popularity of the adoption of eG services in developed and developing countries and the increasing attention that has been given to the sophistication of eG, researchers found a high rate of failure in eG implementation. For example, for eG projects in developing and transitional countries, 35% were total failures, 50% were partial failures and only 15% were successful (Heeks, 2008). These results are presented in Table 1.1.

Table 1.1
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 (2008)

The failure rate of 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 (United Nations, 2004, 2005, 2008, 2012).

Various theories have been developed and applied to understand and explain the phenomena of eG implementation. Among the popular theories used by eG researchers include Technology Acceptance Model (TAM) (Carter & Belanger, 2004; Wang, 2002) Diffusion Of Innovation (DOI) (Carter & Belanger, 2004) Theory of Reasoned Action (TRA) (Hamner & Al-Qahtani, 2009) Unified Theory Acceptances and Use Technology (UTAUT) (Venkatesh *et al.,* 2003) and UTAUT2 (Venkatesh *et al.,* 2012). Among these theories, UTAUT which was developed by Venkatesh *et al.* (2003) based on a combination of several theories is the most comprehensive one. Venkatesh *et al.* (2003) established a new theory to measure the intention and usage behaviour. UTAUT is claimed to be able to predict the adoption of information technology in approximately 70 percent of cases, while other user adoption models (TRA, TAM, TPB, ect.) could do so in only about 40 percent of the cases (Venkatesh *et al.,* 2003). The original theory was further revised in 2012 and called UTAUT2 (Venkatesh *et al.,* 2012).

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As discussed in earlier paragraphs, many variables have been tested to identify factors that may influence user's behaviour towards eG. However, the results are found to be inconsistent due to various reasons. For example, users' behavior in stable countries is different compared to unstable countries (Alvesson, 2007) due to risk avoidance and other psychological factors. Until recently, there has been a lack of study that focuses on predicting the behavior, especially with regard to the technology acceptance in an unstable environment. For example, Khan *et al.* (2010a, 2010b, 2012) argue that very few studies were conducted in conflict and risky environment. The second issue is the lack of studies that investigate the continued usage behaviour as compared to usage behaviour. Furthermore, few studies that examined the continued usage of eG are mostly conducted in the safe and stable time and environment (Bhattacherjee, 2001; Limayem *et al.,* 2003; Wangpipatwong *et al.,* 2008). Due to the complexity of the governance process of different countries (Ebrahim & Irani, 2005), strategies to develop and implement eG system must consider the country's or region's political, economic, cultural, societal, and environmental specific condition (Alsohybe, 2007; Siau & Long, 2005). As explained earlier, various factors are found to influence eG success, among others, E-Service Awareness (E-SA), Effort Expectancy (EE), Performance Expectancy (PE), Facilitating Condition (FC), and Social Influence (SI). By comparing the results of the studies conducted in developed and developing countries, the results show the differences on how the factors may be different in their influence in determining the eG usage behavior. More specifically, while many studies in the developing countries such as Jordan and Afganistan, among others, confirmed the importance of e service awareness in the usage of eG services, this factor was not a big concern in the developed countries such as USA, Canada, and UK (Chan & Pan, 2008; Colesca

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& Liliana, 2009; Graafland & Ettedgui, 2003; Jaeger & Thompson, 2003; Rocheleau & Wu, 2005; Beynon & Williams, 2003). However, performance expectancy was argued to be a very important predictor of the eG service usage in developed countries, but it was not deemed as important in developing countries such as Qatar and Saudi Arabia (Al-Shafi & Weerakkody, 2010; Al-Sobhi *et al.,* 2011). Effort expectancy and social influence have been argued to be very important determinants of the eG usage behavior in both the developing and developed countries alike (Adulwahab & Dahalin, 2011; Al-Sobhi *et* al., 2011).

As discussed in the previous paragraph, the research regarding the adoption of eG applications has shown many discrepancies between developed and developing countries and between safe and conflicting countries (Alvesson, 2007; Khan *et al.,* 2010, 2012). Basu (2004) and Alruwaei (2012) argue that circumstances such as conflicts, corruption and wars may influence the usage and continuous use intention of eG services in involved counties (Alruwaie, 2012; Basu, 2004). Some of the countries with unstable environment are Afghanistan, Burma, Colombia, Congo, Georgia, India, Iran, Iraq, Mexico, Myanmar, Nigeria, Pakistan, Philippines, Somalia, and Sri Lanka (HIIK, 2008; Top 10 Most Dangerous Countries in the World 2013).

As one of unstable countries, Iraq has been suffering from long term internal crisis (conflicts and violence) that led to a big loss of lives and properties, and it is considered as one of the most dangerous and unstable countries (Khan et al., 2010a, 2010b, 2012; Top 10 Most Dangerous Countries in the World 2013). More specifically, Iraq is classified as a developing country under redeveloping stage

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among other countries in the world (Al-Hakim, 2012). Many crises, difficulties and hard conditions have been encountered in Iraq, such as the economic sanction, first and second Gulf war, the occupation by U.S troops from 2003 to 2011 and currently, conflicts and domestic violence situation (Al-Hakim, 2012). These conditions have considerably contributed to public emergency, violence, unstable environment and the collapse of the infrastructures in various sectors, such as oil, electricity, education as well as public services also (Al-Hakim, 2012). In addition, Dr. Abdulkerim Ali Yaseen Alsamarrai, the Minister of Sciences and Technology in Iraq mentioned that Iraq has been facing several problems in eG projects. One of the main reasons behind that is the lack of coordination between ministries (Al-Salam, 2011). Moreover, the National Strategy and Action Plan eG in Iraqi 2012-2015 recommended to increase the awareness of the benefits of eG, calling for a suitable telecommunication infrastructure, and to strengthen coordination and networking in all parts of Iraq. In relation to that, the United Nations in its global reports reported the readiness ranking of the republic of Iraq. As can be seen in Table 1.2, the Iraqi eG readiness ranking has been getting worse throughout the period from 2004 to 2012 (United Nations, 2004, 2005, 2008, 2010, 2012).

Table 1.2 *Iraq's eG Readiness Ranking in the World.*

Year	Iraq eG ranking
2004	103
2005	118
2008	151
2010	136
2012	137

Source: United Nations, (2004, 2005, 2008, 2010, 2012)

Several researchers argue that the success of eG implementation is strongly contingent on the citizens' willingness to continue using these services (Alruwaie,

2012; Bhattacherjee, 2001; Limayem *et al.,* 2003; Lawan, 2012; Park, 2008; Wangpipatwong, 2008). In other words, the eventual success of the implementation of any technology depends on its continued use rather than first-time use (Bhattacherjee, 2001; Limayem *et al.,* 2003; Wangpipatwong *et al.,* 2008).

The difficulty to adopt and to continue using the eG found in many countries around the world is because of the processes and procedures. These governance processes have to be reengineered and aligned with the objectives and design of these applications (Alruwaie, 2012; Alsohybe, 2007; Ebrahim & Irani, 2005; Ma, Chung, & Thorson, 2005). Furthermore, if the system does not meet the user's needs and expectations, regardless of its success in the early phase of adoption, users may discontinue using the innovative system (Wangpipatwong, Chutimaskul, & Papasratorn, 2008).

In addition, studies that examine the continued usage of eG are mostly conducted in the safe and stable environment (Bhattacherjee, 2001; Limayem *et al.,* 2003; Wangpipatwong *et al.,* 2008), but there is a lack of studies examining the usage in risky and unstable environments. In eG implementation, many changes should be considered, including changes related to the transparency, legislative rules and participation of people in that particular country through the use of internet (Alsohybe, 2007; Siau & Long, 2005). Due to these changes, eG finds resistance in many countries around the world, in general, and in countries with risk, conflicts, violence and corruptions, in particular (Alsohybe, 2007; Basu, 2004; Evans & Yen, 2005; Khan *et al.,* 2010, 2012). More importantly, the issue of eG usage and the continued usage intention must be carefully addressed not only from the

technological perspective but also from social, political and environmental perspectives (Alruwaie, 2012; Basu, 2004).

Despite the bulk of literature investigated the significant and important factors influencing citizen's (user's) continued usage intention of eG (Carter & Belanger, 2004; Phang *et al.,* 2005; Wangpipatwong *et al.,* 2008; Wang, 2002), these studies are still absent in the context of unstable environments.

In brief, this study examines the UTAUT theory in an unstable environment by investigating the joint effect of various variables in explaining the eG usage behavior. More specifically, the effects of many variables, such as E-Service Awareness (E-SA), Perceived Intensity of Civil Conflict (PICC), Age (AGE), Effort Expectancy (EE), Performance Expectancy (PE), Facilitating Condition (FC), Social Influence (SI), Education (EDU), Experience (EXP), Income (INC), Gender (GEN), eG Usage Behavioural (UB) and Continued usage intention of (CUI) were examined in unstable environment to test the general applicability of UTAUT.

1.2 Statement of the Problem

Since 2003, eG projects have been initiated in most of the Iraqis government agencies as a step to improve the services provided to the public and reform the administrative system. Specifically, Ministry of Sciences and Technology (MOST) in Iraq has developed eG portal, which provides many services such as e-Passport, e-Scientific Innovation Form, e-License, e-Fines, e-Birth Certificates and e-Death Certificates. This eG portal has saved time and made citizens' life more convenient (Iraq e-Gov Portal, 2012). However, the Iraqi government is still seeking for the right

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eG model that could assist it's eG project and aid the delivery of information and services to public and among government agencies efficiently in a short period of time. eG is hoped to help reduce corruptions among government employees as well (Al-Mutmar, 2013). However, the adoption of eG services by the Iraqi citizens has been less than satisfactory (Al-Shafi & Weerakkody, 2010).

In general, the usage of eG services in Iraq is still low and this can be attributed to many factors, such as civil conflicts, lack of infrastructures, lack of awareness, and the effect of social influence. ALdhmour and Shannak (2009) indicated that the limitation of government support such as media (training programming, advertising, etc.) is another reason that may justify to the low levels of diffusion of the internet technology and its applications, in general, and eG services, in particular.

In practice, the behavioural intention of each person (citizen) towards using eG is different from others (Khan *et al.,* 2010a, 2010b, 2012). Moreover, the eventual success of technology implementation depends on its continued usage rather than the first-time use (Bhattacherjee 2001; Limayem *et al.,* 2003). Although the initial usage of the eG services is an important indicator of eG implementation success (Bhattacherjee, 2001; Limayem *et al.,* 2003), it does not necessarily lead to the desired outcomes unless a significant number of citizens move beyond the initial adoption and uses eG services on a continued basis. Furthermore, discontinuance may occur after the adoption of eG services if the system does not meet the user's needs regardless of its prior successful adoption (Limayem *et al.,* 2003: Wangpipatwong *et al.,* 2008).

In relation to the previous arguments, many researchers in the case of eG services considered and showed interest in citizen's (user's) perceptions towards eG services and investigated the significant factors influencing citizen's continuance intention to use eG in stable environments (Wangpipatwong *et al.*, 2008; Carter & Belanger, 2004; Phang *et al.*, 2005; Treiblmaier *et al.*, 2004; Wang, 2002). However, a thorough review of the literature reveals that there is a paucity of research that has investigated the factors influencing the usage of eG services in unstable or violent environments (Khan *et al.*, 2010a, 2010b, 2012).

From the theoretical point of view, user acceptance and usage of IT is an important and fundamental issue to measure the success and failure rate of implementing and accepting new electronic services (Abdul-Rahman *et al.*, 2011; Abri, 2009). In general, there is a lack of studies conducted in the field of citizen to government services (Al-Shafi & Weerakkody, 2009; Mofleh & Wanous, 2008). Furthermore, there is a lack of studies that identify the most important causes of success and failure of eG projects (Alfaadel & Al-Zyoud, 2012; Shajari & Ismail, 2010; United Nations, 2003).

Additionally, there are inconsistent results in previous studies. For example, for the ones regarding the relationships between PE, EE, SI, and FC with different variables are found to have inconsistent results because of differences in cultures and environments. While most past studies found the relationship between PE and various variables are significant (Abdul-Rahman, Jamaludin *et al.*, 2011; Adulwahab & Dahalin 2011; Al-Shafi & Weerakkody, 2010; Alshehri *et al.*, 2012; Foon & Fah 2011; Tan, 2013; Venkatesh, *et al.*, 2003, 2011). On the other hand, few found it to

be not significant (Al-Shafi & Weerakkody 2010; Al-Sobhi, *et al.,* 2011). The same goes for the relationship with EE. Some studies (Abdul-Rahman *et al.,* 2011, Alshehri, *et al.,* 2012; Al-Shafi & Weerakkody, 2010; Al-Sobhi *et al.,* 2011; Foon & Fah, 2011; Tan, 2013; Venkatesh *et al.,* 2003, 2011) found that EE has a significant effect, while others (Adulwahab & Dahalin, 2011; Huang & Zhu, 2008; Wu *et al.,* 2007) found it to be insignificant. Inconsistent results were also found in the relationship between SI and various variables. Some researchers (Adulwahab & Dahalin 2011; Al-Shafi & Weerakkody 2009, 2010; Maldonado *et al.,* 2011; Tan, 2013; Venkatesh *et al.,* 2011, 2003; Yahya *et al.,* 2011) indicated that the relationship has a significant effect, but others (Alshehri *et al.,* 2012; Al-Sobhi *et al.,* 2011; Chen *et al.,* 2011; Chiu & Wang, 2008) indicated the opposite. Similarly, the same goes for the relationship between FC and other variables. Some researchers (Adulwahab & Dahalin, 2011; AlAwadhi & Morris, 2008; Alshehri *et al.,* 2012; Foon & Fah 2011; Maldonado *et al.,* 2011; Wang & Shih, 2009; Venkatesh *et al.,* 2011; Wu *et al.,* 2007) indicated that the relationship has a significant effect, but others (Al-Shafi & Weerakkody, 2010; Al-Sobhi *et al.,* 2011; Chiu & Wang, 2008; Tan, 2013; Venkatesh *et al.,* 2003) indicated insignificant effect.

Based on the technology acceptance literature, several theories used to investigate IT usage and continued usage intention issues including eG services include Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Motivational Model (MM), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), Technology Acceptance Model and Technology Acceptance Model Two (TAM/TAM2), Combined Technology Acceptance Theory of Planned Behaviour (CTAM/TPB), and Social Cognitive Theory (SCT). Among all the technology

acceptance theories, UTAUT is still the most comprehensive (Venkatesh *et al.,* 2012). UTAUT is an empirical and experimental support which shows that IT (new innovation) usage, such as eG can be explored by UTAUT that was developed in the USA (Venkatesh *et al.,* 2003; Venkatesh, Syker, & Zhang, 2011; Venkatesh *et al.,* 2012). Since the model covers both organizational and individual factors, it becomes appropriate and comprehensive to understand users' adoption of eG services (Venkatesh *et al.,* 2011; Wang & Shih, 2009). Consequently, this research has adapted the UTAUT model as a theoretical framework.

However, there is no single model which can be solely used to explain the eG usage behaviour and continued usage intention. In other words, there is a lack of comprehensive model that examines the antecedents of eG services. Most models of eG services antecedents are fragmented and tested in the developed countries, while only very few studies have been conducted in developing nations (AbuShanab, Pearson & Setterstrom, 2010).

In addition to that, most of the literature regarding the eG projects was conducted mostly in the developed nations like the United States, Canada, Singapore and many European countries that have a low rate of failure. These countries are socially, economically and politically stable. In other words, it is undeniable that most of the studies have focused mainly on examining the determinants of eG services in stable environments. There is a clear lack in the literature regarding the explanation of eG services in unstable environments.

In more details, current framework extended UTAUT by PICC construct as a moderator because Iraq is still facing high levels of conflicts (Cordesman, 2007; Khan *et al.,* 2010a, 2010b, 2012) and continued usage intention of eG services because eG services indicates that its "eventual success depends on eG services continued use rather than first-time use" (Bhattacherjee, 2001; Limayem *et al.,* 2003; Wangpipatwong *et al.,* 2008).

1.3 Research Questions

Based on the background of the study and the problem statement, this study was set up to answer the following research questions:

1. What is the current state of eG services in Iraq?

2. What are the effects of antecedents (such as; E-SA, PE, SI, FC, EE) on the usage behaviour of eG services?

3. What is the effect of usage behaviour on the continued usage intention of eG services?

4. What is the effect of civil conflict on continued usage intention of eG services?

5. How do the demographic variables, such as education, experience, age, gender and income, affect the usage behaviour of eG services?

6. How does UB mediate the relationship between UTAUT antecedents and CUI of eG services?

1.4 Research Objectives

The main objective of this study is to investigate the possible antecedents of eG services usage by developing a new model based on UTAUT as well as to answer the research questions. This study attempted to achieve the following objectives:

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1. To investigate the current state of eG services in Iraq.

2. To examine the effects of the antecedents (such as; E-SA, PE, SI, FC, EE) on the usage behaviour of eG services.

3. To investigate the effect of usage behaviour on the continued usage intention of eG services.

4. To examine the effect of civil conflict on the continued usage intention of the eG services.

5. To examine how the demographic variables, such as education, experience, age, gender and income, affect the usage behaviour of eG services.

6. To examine the mediating effect of the UB on the relationship between UTAUT antecedents and continued usage intention of eG services.

1.5 Significance of the Study

According to Alhujran (2009), few studies have examined E-services in the context of citizens. Al-Zoubi (2011, 2012) also confirmed the need to conduct a new study to investigate the current eG services adopted in countries like Iraq. The significance of this study can be discussed from the theoretical and practical points of views as follows:

Given the importance of eG services in today's era of technology, relatively there is a little prior research that uses a UTAUT model to discuss the eG services antecedents. As an important factor, Electronic-Services Awareness (E-SA) is crucial regarding the availability of eG service. This study has paid a significant attention to that as a fundamental factor for successful eG system implementation (Carter & Bishath,

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2008; Graafland-Essers & Ettedgui, 2003; Jaeger & Thompson, 2003; Khan *et al.,* 2010, 2012; Meer & Winden, 2003).

Therefore, the current study can have a great theoretical value because it adds new information to the literature as it examines the UTAUT, as a comprehensive model, in an unstable environment. Furthermore, the developed model has not applied UTAUT with PICC and CIU in the Middle East region in general and in Iraq, in particular. Additionally, this study helps Iraqi academics who are interested in the eG topic, where there are only very few studies that tackle this particular issue (Al-Dabbagh, 2011; Al-Zoubi, 2011, 2012; Lee *et al.,* 2003; Tai, 2008). It has equally availed the academics with the opportunity of the theoretical linkages that exist between EE, EP dimensions and CUI, with the mediating influence of UB of eG services on Public sector among conflicts and violence regions.

Generally speaking, most of the studies in the literature regarding eG have been conducted in the developed regions. However, there is still a lack in the literature conducted in the developing countries. More specifically, there is a clear gap and lack of research in evaluating the eG services in the Middle East region and in particular countries experiencing conflict and violence (Khan *et al.,* 2010a, 2010b, 2012) such as Iraq.

Furthermore, the behavioural intention of each person (citizen) towards using eG is different from others (Khan *et al.,* 2010a, 2010b, 2012). Although the initial use of services is an important indicator of eG success (Bhattacherjee 2001; Limayem *et al.,* 2003), research in management information system indicates that the information

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system eventual success depends on its continued use rather than first-time use (Bhattacherjee, 2001; Limayem *et al.,* 2003). Likewise, initial use of services is an important indicator of eG success (Bhattacherjee, 2001; Limayem *et al.,* 2003). However, this initial use of services does not necessarily lead to the desired outcome unless a significant number of citizens move beyond the initial adoption and uses eG services on a continued basis. Furthermore, discontinuance may occur after the adoption of innovation if the system does not meet the user's needs regardless of its successful prior adoption (Limayem *et al.,* 2003: Wangpipatwong *et al.,* 2008). A thorough review of the literature reveals that the bulk of studies (such as Carter & Belanger, 2004; Phang *et al.,* 2005; Treiblmaier *et al.,* 2004; Wangpipatwong *et al.,* 2008; Wang, 2002) has investigated the factors influencing the initial intention to use the services. However, the investigation of continuance intention or intention to continue using eG services in unstable environment is seriously lacking in the literature.

Another contribution of this study is that it includes PICC as a moderator and an independent variable towards continued usage intention of eG services in Iraq. The inclusion of the PICC extended UTAUT because UTAUT was previously neglected and ignored the influence of the environment.

Throughout the literature, there are few studies that have included PICC in technology adoption especially eG services (Khan *et al.,* 2010a, 2010b, 2012). Moreover, this study has attempted, among very few studies, to investigate the effects of E-SA, PE, EE, SI, FC, AGE, GEN, EDU, INC, EXP on the UB. In addition, the effect of UB and PICC on the continued usage intention was examined.

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The findings of this study can assist policy, strategic makers and high ranking officials in the development as well as the engineering of the policies and strategies that address the concerns of the citizens where violence and civil conflicts are rampant in the country. Moreover, this research is useful for government in evaluating and recognizing the essential factors that lead to the usage of eG services.

In other word, this study can trigger both the Iraq's central and local governments in developing and implementing better eG services by identifying the factors that can help in providing good eG services and encourage people to deal with their transaction through the eG applications.

1.6 The Scope of the Study

Two streams of eG adoption research have been found in the literature: supply-side and demand-side. The first stream studies eG usage from a supply-side perspective (local and national government) (Holden *et al.,* 2003; Moon & Norris, 2005) which explores variables that affect the intention and the usage of eG services by the government itself. The second stream studies eG usage and the continued use from a demand-side perspective, which examines the factors that influence Iraqis to continue use eG services. Therefore, the main purpose of this study focuses on government to citizen (G-2-C) services and how the citizens (government servants in public universities) as demand-side adopted/accepted eG services.

In more details, the current study only focuses on e-services rather than e-participant. However, while a large portion of the academic literature was conducted upon eG

adoption concentrating only on the supply-side of eG adoption, not much is known about the reasons why, and under what circumstances the citizens adopt and continue using eG services (Mofleh & Wanous, 2008). Moreover, this study is applied in the eG services setting, which involves the citizens (employees of public universities) who are users of eG services.

The majority of studies regarding the eG services have been conducted in the developed countries. Therefore, there has been a call in the literature to examine the behavior towards eG services usage in an unstable environment, like Iraq (Khan *et al.*, 2010a, 2010b, 2012; Lee, 2003). Moreover, Iraq has been ranked as the third worst country in the world in corruption in 2006, 2007, and 2008 and the fourth worst in 2009 (Ali, 2010; CNN, 2011; Kadhim, 2010). This is why Iraq was chosen to be the context of the study to reexamine the UTAUT theory.

Moreover, this study selected the employees in the public universities as the population for the study. Iraqi universities are distributed geographically in all the regions of the Republic of Iraq (MOHE, 2011). All the public universities in Iraq are to be involved in this research because, the Iraq Commission for Computers and Informatics (ICCI) has succeeded in establishing 37 Internet centres in public universities. Moreover, public universities have also been the main beneficiaries of Information Technology equipment by ESCWA's Iraqi Networking Academies (INA) project (UN & ESCWA, 2007). Therefore, this enables public universities' employees to use the Internet technology (as an enabler) from anywhere and at any time. The number of sample in public universities in Iraq is seventy nine thousand

seventy as shown in Table 1.3. The sampling for this study was chosen randomly from three universities (one university in each region).

Table 1.3
Number of University Employees in Each Region

Area	Number of public University	Probability Sampling of university	Number of Employee in each area
North	4	1	18915
Middle	8	1	40068
South	7	1	20087
Total	19	3	79070

Source: (MOHE, 2011)

1.7 Definition of Terms

Electronic Government

Using ICT in the public sector by offering electronic services via Internet.

Acceptance of Information

The demonstrable willingness within a user/group to continued usage intention towards information technology for the tasks is designed to support the user/group next time (Fu, Fam, & Chao, 2006).

Adoption of Information Technology

The first time used or/and intention to use of information technology innovation (zhao *et al.,* 2008).

Governance

Using ICT to support the controlling of government. In other words, it is allowing citizens (employees) to get benefit from governmental electronic services (Ali & Sunitha, 2007).

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Effort Expectancy

A person's perception that a particular system will be easy to use (Venkatesh *et al.*, 2003).

Facilitating Conditions

The environmental infrastructure that makes the accomplishment of the activity easier (Venkatesh *et al.*, 2003).

Performance Expectancy

A person's beliefs that using a particular system will enhance his/ her work performance (Venkatesh *et al.*, 2003).

Social Influence

A user's perception of other people whether or not he/she has to perform the behaviour (Venkatesh *et al.*, 2003).

1.8 Organization of the Thesis

The research structure designed to provide a comprehensive review of appropriate information about adoption and continued usage intention of eG services, and prominent models and theories of technology acceptance. Therefore, this research consists six chapters detailed as follows:

Chapter one introduces the need to examine the adoption and continue usage of eG services in an unstable environment and explains the research issues and background of the problem in details. This chapter also presents the research objectives and questions, study scope, research significance and research structure.

Chapter two introduces an overall background, definitions of eG in general and the types of services that the government has offered. Additionally, it includes the benefits of eG services. Also, it presents general information about Iraq, conflicts in Iraq, information about the ICT, how Internet government works and electronic government pathway in Iraq, the electronic applications and eG project and the main centers of eG in Iraq.

Chapter three discusses information system acceptance models and theories, such as Theory of Reasoned Action (TRA), Planned Behaviour (TPB), Technology Acceptance Model (TAM), Extension of the TAM (TAM2), Innovation Diffusion Theory (IDT), Theory of A Combination of TAM and TPB (C-TAM and TPM), Motivational Model (MM), Model of PC Utilization (MPCU), Social Cognitive Theory (SCT), Unified Theory Acceptances and Use Technology (UTAUT). Last but not least, this chapter reviews the factors influencing the usage behavior and the continued usage intention among various countries.

Chapter four provides the framework of the research, including factors influencing the eG usage behaviour. It also reported the development of the hypotheses and justifies the methods used in this study as well as a discussion and explanation of the study research design including development of the instrument, population, sample, data collection procedures.

Chapter five reports the findings of the statistical analysis of the data collected. Specifically, it presents the demographic distribution of the respondents, sampling profile, testing non-response bias, current situation of eG services in Iraq, descriptive statistics. More importantly, this chapter reports the results of PLS-SEM approach

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started by confirming the validity and reliability of the instrument before examining the hypotheses of the study. It also reports the results regarding the mediating and moderating as detailed in the chapter.

Chapter six is the last chapter of the thesis. It provides a summary of the research in relation to the research questions and research objectives. This chapter discusses in details the findings of the study in conjunction with the hypotheses of the study. In addition, this study discusses the contributions of the study to the existing body of knowledge, limitations and suggestion for future research.

CHAPTER TWO

ELECTRONIC GOVERNMENT IN IRAQ

2.0 Introduction

This chapter presents the background of electronic government, electronic government types services, the benefits of electronic government, general information about Iraq, conflicts in Iraq, Information Communication Technology (ICT) in Iraq, internet government, electronic government pathway, electronic applications in Iraq, E-Employment, E-Business, E-Learning, eG project and the main centres of eG in Iraq. These are diagrammatically represented in Figure 2.1.
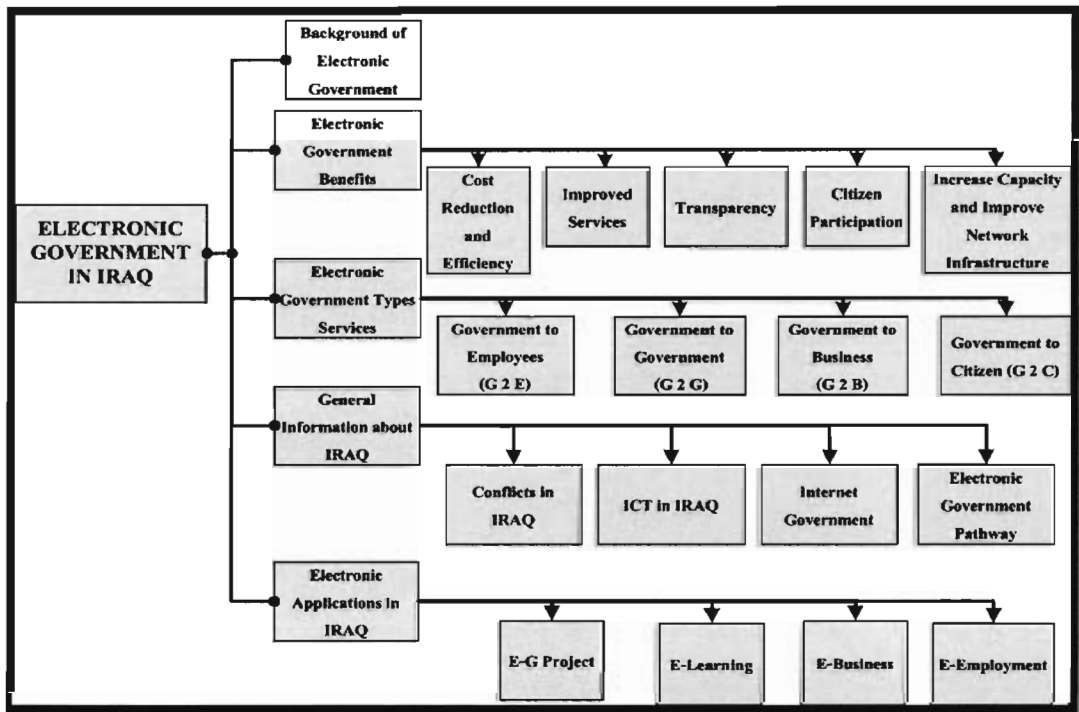
Figure 2.1
The Mapping Review of Chapter Two.

2.1 Background of Electronic Government

The Electronic government (eG) has been identified as an important area of study in IS (Al-Hakim, 2007; Almutairi, 2007; UN, 2007; Wangpipatwong *et al.*, 2008). The

eG projects have been launched in the late 1990s by the eG governments at all levels and spicily high ranking officials who aimed at providing electronic benefits (information and services) to citizens and businesses as well (Torres *et al.*, 2005; Wang & Liao, 2008).

Past studies also showed that there is exerted pressure from very fast emergent Internet applications and technologies on citizens (public sector) and business (private sectors) in the cause of reengineering governments operation in order to satisfy the beneficiaries. In order to accomplish the best Government Reengineering Process (GPR), governments have adopted eG (Wang & Rubin, 2004), and these governments, on a global trend, have started implementing eG strategies in order to renew the public services and encourage the rapid step of informational technological change.

It is also stated that eG enhances democracy as it provides simplicity to public office holders and the generality of the public. The importance of eG has been realized by several developed and western countries which is evidently shown in eG literatures of countries like United Kingdom, United States of America (Jaeger & Thompson, 2003; Rocheleau & Wu, 2005).

In the same vein, citing Thailand as an example in Asian countries, Wangpipatwong et al. (2008) discussed the influencing of fundamental factors that affect the citizen's continuance usage intention of eG by using the Davis Model (TAM) as the basic theoretical model.

Moreover, the outputs revealed that perceived ease of use and perceived usefulness of eG services and the efficacy of citizens' computer usage directly supported citizens' continuous intention to use eG websites. Thus, it has been concluded that there is a direct effect on the continuous use of eG websites by perceived ease of use.

The promising eG initiatives have been established by developing nations with the objective of enhancing the accessibility of information and government services by their citizens (Khan *et al.*, 2010a, 2010b, 2012). It is the government's responsibility to firstly understand the issues that affect their citizens' adoption and acceptance of eG systems so as to be fully incorporated in the delivery of the eG online initiatives.

In summary, it is highlighted that most developing countries lack trust in the use of the internet services and the government administrative operation due to observed incompatibility and awareness as experienced in previous research model (Mofleh & Wanous, 2008). With the present trend, there are many people who did not understand the concept of eG project. Therefore, in more details, Table 2.1 shows the different meanings of eG as explained by different studies as showed below:

Table 2.1

The meaning of eG Can Differ among Researchers and Studies

Author (s) /year	Meaning
Yahya, Nadzar *et al.* (2011)	In the context of government operations, eG is considered as a tool to encourage and improve the efficiency of the delivery process of services catered to the public.
Wangpipatwong, Chutimaskul *et al.* (2008)	Online services are relatively faster and accurate compared to traditional services.
AlAwadhi and Morris, (2008)	The ICT's employment to enhance information effectiveness, transparency, efficiency, and accountability as well as transactional interactions among governments and their agencies at the level of federal and municipalities and individual levels (businesses and citizens) and to encourage the access and use of information by citizens.
Al-Shafi and Weerakkody, (2009)	As taking advantage of the technology's potential to assist citizens in availing e-services, and this makes citizens the core intention.
Al-Shafi and Weerakkody, (2010)	Promises to emulate the private sector by offering more efficient, transparent and accessible public services to citizens and businesses.
Al-Sobhi *et al.* (2011)	It is a way to use web applications to communicate with citizens online.
Abramson and Means, (2001)	As the electronic communication between the employees and government.
World Bank, (2001); Alsohybe (2007)	As the public sector's utilization of the government owned/operated highly innovative information and communication technologies delivery of enhanced services to the entire citizens (private sector and government agencies) in an attempt to encourage citizen empowerment, strength accountability, transparency and service delivery.
Biasiotti and Nannucci, (2006)	"The use of information technologies in public administration"
Heeks (2003)	"The use of information and communication technologies (ICTs) to improve the activities of public sector organisations – brings with it the promise of greater efficiency and effectiveness of public sector operations,,
Teo *et al.* (2009)	Defined eG services the ICTs utilization along the Internet in an attempt to enhance access and delivery of government services and operations for the benefit of all businesses, employees, citizens and other stakeholders is continuously transforming public service delivery systems.

With reference to the scholars' definitions of eG in Table 3.1, the researcher adopted Heeks's (2003) definition of eG to be suitable with the context of the current study as a usage of information and communication technologies (ICTs) to enhance the government services performance – brings with it the promise of greater efficiency and effectiveness of public sector operations to provide services to the diversity of beneficiaries (such as citizen)".

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The paragraphs underneath point to benefits that are achievable from the diversity of the described phenomenon of eG.

2.2 Electronic Government Types Services

In the delivery of government services, the beneficiaries and chain of interaction are Government to Employees (G-2-E), Government to Government (G-2-G), Government to Business (G-2-B) and Government to Citizen (G-2-C). These are diagrammatically represented in Figure 2.2 as follows:
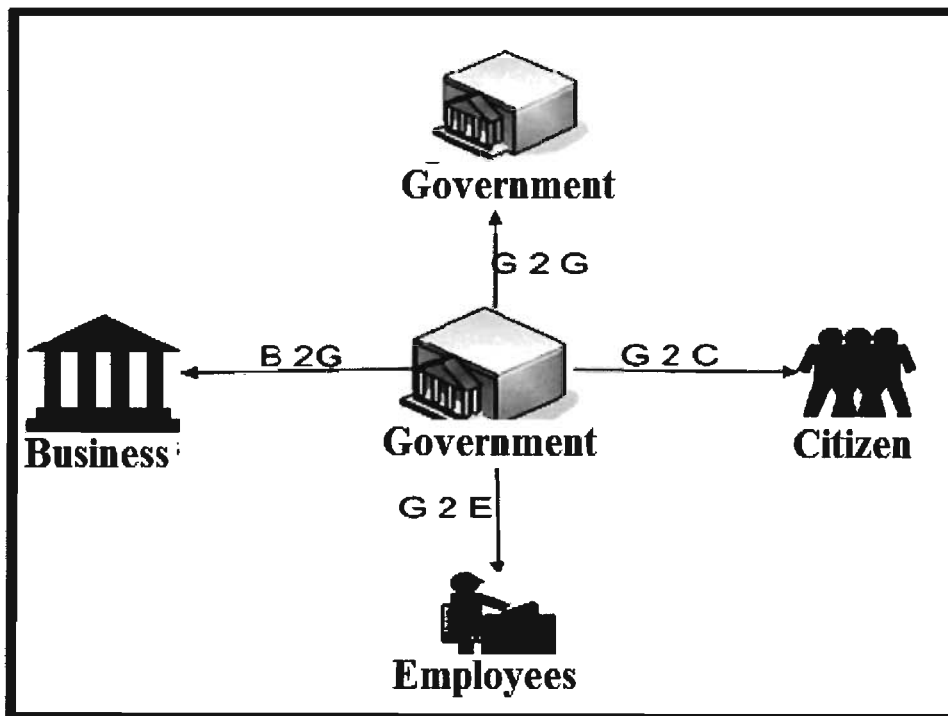
Figure 2.2
E-G Services Types

2.2.1 Government to Employees (G-2-E)

The G-2-E is a form of online management system for the personnel of a public institution. Studies emphasised that one side of the service is situated to facilitate the service of the institution, while the other side is to facilitate the communication on

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the side of the employees (Alhujran & Chatfield, 2008; Carter & Belanger, 2005; Kumar *et al.*, 2007). This stance of G-2-E contains the usage of an agile information database which will eliminate undue time lost through viewing into physical archives. Government to Employee service through an automated database system gives the possibility of maintaining one's personal file, distributing in an equilibrate way, having a centralized database of the employees, and it also enhances the possibility of attributing and verifying the completion of the employees' demands (Malcoci & Hodos, 2009).

2.2.2 Government to Government (G-2-G)

Government to Government (G-2-G) service is a customised electronic collaboration and online non-commercialised business interaction between the government organisations, departments and authorities (Tyshchenko & Grosse, 2008).

2.2.3 Government to Business (G-2-B)

Social contribution for employees, declaration and notification of corporate tax, registration of a new company, and submission of data to statistical offices, customs declarations, environment-related permits, public procurement are cited examples of Government to Business (G-2-B) services (Tyshchenko & Grosse, 2008). Al-Zoubi *et al.* (2011) and Tung and Rieck (2005) also supported the importance of the services rendered from the G-2-B instances.

2.2.4 Government to Citizen (G-2-C)

This study focuses on G-2-C channel (e-services) because there is a need for research on citizen's usage and continued usage intention behaviour of eG services in

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developing countries (Alsohiby, 2007). Regarding the G-2-C discussed in specific in this situation, citizens are defined as a consumer of public goods and services (Kannabiran *et al*. 2004). In the Government to Citizen (G-2-C) services, income tax, declaration and notification of assessment, e-passport, key card, e-license, e-birth/dead certificates, e-scientific innovation form and e-participant are examples of the inherent services in G-2-C. Also, portals are designed by labour offices for drivers' licence, car registration, applying for building permission, documenting police report, requesting for marriage certificates, higher education enrolment, change of residential address announcement, hospital appointment and other related health-related services are examples of services that are operational and attainable (Tyshchenko & Grosse, 2008).

This channel is very import because it is used by more than twenty million citizens. In more details, the G-2-C services are divided into two sections; the first one is electronic participant (e-participant) and the second one is the electronic services (e-services) as shown in Figure 2.3.
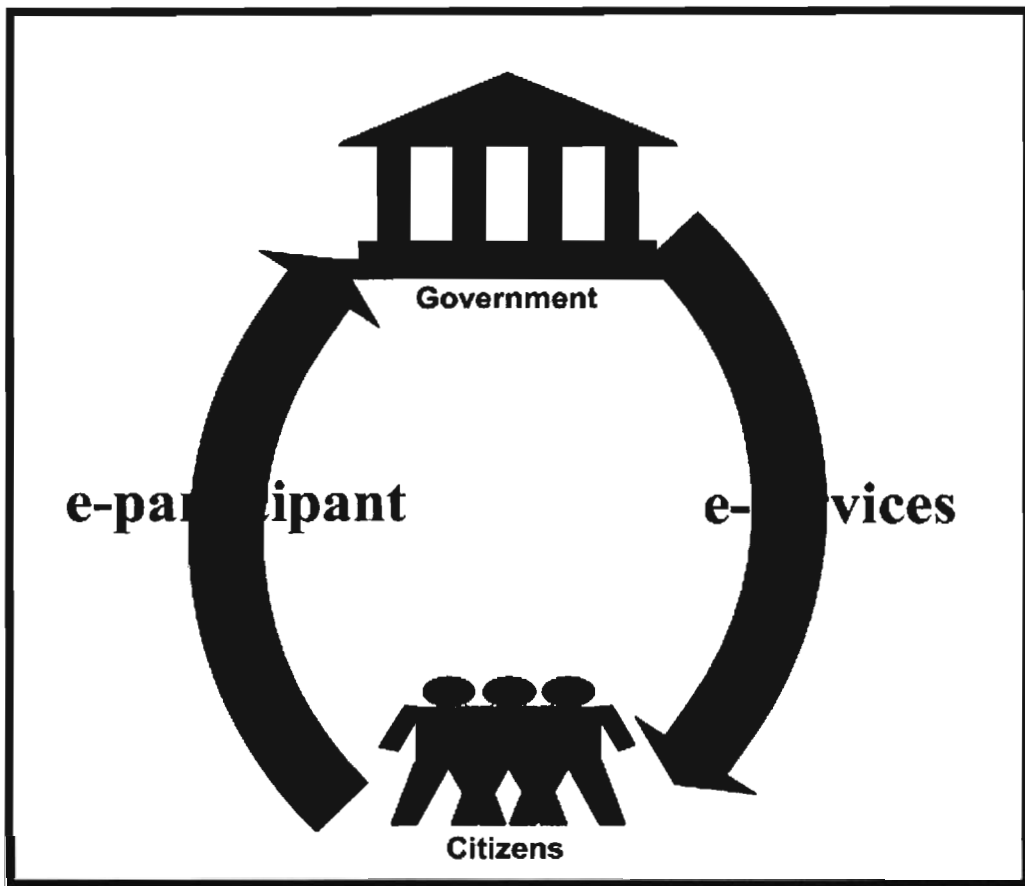
Figure 2.3
Government to Citizen Services Types

Despite its widespread use worldwide, Public confidence and participation in political institutions throughout the world is dwindling as evidenced from the reduced voter turnouts (Komito, 2005). This has become a significant issue for governments and as such, they have been attempting to maximize the total number of people who take part in government activities by extending the people participating in the development of policies (Komito, 2005). This realization has resulted in different policies being proposed, and among them is the use of new technologies which allow citizens' higher participation and information exchange (Komito, 2005). Consistent with this line of action, eG services are already utilizing new technologies to minimize administrative costs and enhance the delivery of service (Komito, 2005). As a result, many projects pertaining to e-participation and e-inclusion have tried to

develop groups that are citizen-based through various platforms including e-juries, e-polls, online forums, virtual discussions, etc. (Komito, 2005).

According to Komito (2005), despite that such projects are supported by the governments, they only have minimal impact and have not yet culminated into clearly defined policy strategies. For instance, in the European Union, a recent commission document concerning e-participation could only propose that all eG strategies should "promote ... online democratic participation,, (Komito, 2005). Currently, the Iraqi eG portal does not have this service due to the unstable environment (conflicts and violence). Moreover, the eG project in Iraq is still at the infant stage, where there is a need for more services to reach Dobie and Jordan eG services level; therefore, many things are required to be there at the Iraq eG portal.

Mofleh and Wanous (2008) posited that there are not enough studies concerning the G-2-C services, but few of the findings from studies available revealed that some countries are now trying to provide government services available online to their citizens in order to bridge the communication gap. Many countries have shown interest in the last few years in the process of allowing their citizens, both in the rural and non rural areas, to use the information systems and technology tools as communication tools and platform for dealing with the government (Adulwahab & Dahalin, 2011; Khan *et al.*, 2010a, 2010b, 2012).

Mofleh and Wanous (2008) and Wang and Shih (2008) have identified problems associated with the G-2-C services and suggested steps of solving the identified problems. It is equally highlighted that Iraq is part of the countries that do not have

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enough literatures from studies that have discussed eG in general and also with specific attention to G-2-C services. The next section discusses the General Information about Iraq in detail.

2.3 Benefits of Electronic Government

Currently, governments around the world have realized numerous advantages that can be derived from eG; therefore, these governments have been trying to achieve a full scale function of eG in order to maximize the embedded benefits. It is, however, observed that these benefits of eG as experienced in both the developed and developing nations are similar (Alhujran, 2009; Ndou, 2004). From the findings, eG has allowed businesses, government employees, and citizen to have access to the portal of the government on the basis of 7 days a week and 24 hours a day. This shows that governments and people are able to simultaneously gain from implementing eG. The following sections discuss the long-term goal and the advantages of implementing eG strategy.

2.3.1 Efficiency and Cost Reduction

Several studies agreed that the employment of information and communication technologies (ICT) will contribute to the increase in efficiency and cost reductions (Amit & Zott, 2001; Malhotra, 2001; Ndou, 2004; Tapscott, 1996). It is also established that employment of eG and usage of ICT tools by the governments anticipate higher efficiency. Thus, automation of the majority of the government's operational tasks improves consistency in their service delivery and also reduces errors. In addition, eG system reduces overhead cost and redundancy of

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organizational processes through proper streamlining and reengineering of the operational procedures (Alsohybe, 2007).

In comparison to the manual way of handling government operations, the usage of online method for transacting government services reduces the processing costs of many activities. An instance is the cost of US Inland Revenue Service of USD 1.60 to process a paper tax form, while the electronic process costs only USD. 40 (Al-Kibsi *et al.*, 2001). Additionally, by using eG system, the benefit is not only for efficiency and cost reduction but also for saving the citizen life spicily in risky environmental (conflicts, explosion, kidnaping) such as Iraq.

2.3.2 Improved Services

According to Wang and Rubin (2004), one of the eG's characteristics is that it gives the government that adopt its methods the opportunity for performance improvement, and this also enables the government to put on the ability required for effective and efficient public service delivery. If the government endeavors to utilize online services, using eG initiative, it will result in a reduction in bureaucracy, but it increase access to these services, and enhances the quality of the services (Ndou, 2004). The masses and business owners have invested their hope on governments in the provision of quick and easy access to basic needs, and also expect the government to be more responsive while attending to their needs.

In order to fully achieve this, the government's information, procedural steps to government services and access to basic needs seen as government responsibility are emphatically stated to be available online (Bezruki *et al.*, 2001). Consequently, the

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evolution of eG helps governments in the creation of new services and also aids the combination of both new and existing services in order to meet the increasing demand of the citizen (Alsohybe, 2007). This benefit is achieved when the citizen in Iraq continues using eG services sequentially.

2.3.3 Transparency

Transparency has been identified as one of the deliverables of the adoption of eG services usage by offering the citizens opportunities to participate directly in decision-making. It also creates the environment for public suggestion and ideas through a web-based system like online communities. These media for public discourse enhance transparent sharing of valuable, especially when designed with such motives and intention (Ndou, 2004). Seoul Metropolitan Government is a good example of electronic enabled government through an adoption of an initiative designed to help the Seoul's citizens in combating corruption via the internet.

The initiative was the development of a system called Online Procedures Enhancement for civil applications (OPEN). It is a web site that allows the citizens of Seoul to submit and monitor applications, permits, services, and in doing this, it aids transparent, and prevents unnecessary delays or procedure mishandling by the civil servants. This is supported by a survey study that showed that 84.3% of the people of Seoul believed that OPEN is contributing to the administrative transparency of the government (Bonham *et al.*, 2001). Moreover, the continued use of eG services will reduce the corruption spicily in the country with a high rank of corruptions such as Iraq (Kadhim, 2010).

2.3.4 Citizen Participation

Citizen participation is believed to be one of the benefits achievable when eG is implemented. This citizen participation manifested through a remote connection of citizens through the internet without being geographically constraint, and then utilizes the platform for reception and easy sending of information. The advocates of eG considered that when more young people become familiar with technology and the Internet, the technological familiarity automatically makes them more participatory of the political activities in their counties (Alsohybe, 2007). A user-friendly and interactive government website will equally increase the participation of the citizens, and most especially if the web site contains useful information (Bezruki *et al.*, 2001). In Iraq, this service is not available yet because the Iraq eG portal is provided only e-services, such as e-passport, e-fine etc. Additionally, there is a limitation and lack of e-participant services in Iraq.

2.3.5 Increase Capacity and Improve Network Infrastructure

Technology aids the increase of governments' capacity through a functional shared database system by allowing customers and clients to have access to the needed information, and thus results in faster transfer of information. Consequently, any target service will be promptly delivered; either goods delivery or decision-making processes thus enhances the network built among the customers with the government service provider (Ndou, 2004).

Alsohybe (2007) indicated that improvement of the national information infrastructure is one of the benefits to be derived if eG is implemented. The manner

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and dimension through which implementing eG is benefited, and the respective benefits attached to different sides are discussed in the next section.

2.4. General Information about Iraq

Iraq land is reported as one of the hosts of the oldest civilizations in the world. It consists of varieties of cultural lineage and racial groups, including Arabs, Kurds, Assyran, Turkmen and many other minorities.

Baghdad is the capital city of Iraq with the total land area of 437,072 sq km and a population of 28, 221,180 (Central Intelligence Agency). Recently, the security level of the country has been on the decrease trend due to the pervading conflict, violence and social-political instability characterised by a high rate of corruption (Ali, 2010; CNN, 2011; Kadhim, 2010; Top 10 Most Dangerous Countries in the World 2013). The sub-sections that follow will discuss the conflict in Iraq.

2.4.1 Conflicts in Iraq

Conflict Barometer Report (2008) defined conflict as the clash of interests or positional differences over national issues between at least two parties, happening within a particular period of time, duration and with varying magnitude. In most circumstances, the two warring parties are determined to pursue their interests and doggedly achieve their goals.

Deutsch (1990) defined conflicts through several paradigms, but with the reflection on the various diverse levels through which conflicts exist in a society. Therefore, it was pointed that our society at the present is characterised with high rate of increase in different forms of civil conflicts and violent happenings on the global scale. No

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doubt, it is more pathetic that the possibility of an increase in the rate as the situation gets worse (Fingar, 2008; Khan *et al.*, 2010a, 2010b, 2012; Top 10 Most Dangerous Countries in the World 2013). Conflicts in Afghanistan, Burma, Phillipine, Mexico, Sri Lanka, Nigeria, Iran, Colombia, Congo, India, Iraq, and Somalia are some of the countries plagued with civil crisis of different dimension across the world (HIIK, 2008; Khan *et al.*, 2010a, 2010b, 2012; Top 10 Most Dangerous Countries in the World 2013).

According to a survey conducted by the Heldeberg Institute for International Conflict Research (HIIK) of the Department of Political Science, University of Heidelberg, it was estimated on a global stage that 345 conflicts were recorded with different circumstances of both intrastate and interstate, while conflicts that are intrastate were said to be accounted for the majority of the civil crisis (HIIK, 2008).

By calculating111 of the conflicts happening in the countries of Asia and Oceania, Africa experienced 79, 65 in Europe, while 47 took place in the Middle East and Magreb, followed by America with 43. Reported reasons and items that justified the occurrence of the conflicts include Territory, Secession, Decolonization, Autonomy, System/ ideology, National power, Regional predominance, International power, and Resource control (HIIK, 2008). The Table 2.1 below highlights the levels of intensity of the conflicts.

Table 2.1

Conflicts Intensities by Heldeberg Institute for International Conflict Research (HIIK) at the Department of Political Science, University of Heidelberg

State of Violence	Intensity Group	Level of Intensity	Name of Intensity	Definition
Nonviolent	Low	1	Latent Conflict	A "positional difference over definable values of national meaning is considered to be a latent conflict if demands are articulated by one of the parties and perceived by the other as such" (Pfetsch, 2008, pp. 1).
		2	Manifest Conflict	A manifest conflict includes the use of measures that are located in the stage preliminary to violent force. This includes for example, verbal pressure, threatening explicitly with violence, or the imposition of economic sanctions (Pfetsch, 2008).
Violent	Medium	3	Crisis	A crisis is a tense situation in which at least one of the parties uses violent force in sporadic incidents (Pfetsch, 2008).
	High	4	Severe Crisis	A conflict is considered to be a severe crisis if violent force is used repeatedly in an organized way.
		5	War	A war is a violent conflict in which violent force is used with a certain continuity in an organized and systematic way. The conflict parties exercise extensive measures, depending on the situation. The extent of destruction is massive and of long duration (Pfetsch, 2008).

Additionally, it is important to evaluate the environmental factors (civil crisis and unstable environment status) that are affecting the usage behavioural of eG services by using conflict theory as a supporting theory.

Nowadays, Iraq suffered from this long period of internal crisis (conflicts and violence) that led to lose of lives and property (Graafland-Essers & Ettedgui 2003; Khan *et al.*, 2010a, 2010b, 2012; Top 10 Most Dangerous Countries in the World 2013; Meer & Winden, 2003). The photograph presented below gives the reality picture of the devastating effect of the period of conflict and violence in Iraq. Also, it gives a broad view of Iraq's situation as a result of the reported crisis and grasps a reality. Additionally, photography 'can illuminate the shadows' (Nikolaev, 2009, p110). This is supported by Nikolaev (2009) and Fahmy and Kim (2008) that visual

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news images affect people's information processing in evaluating social and political environments. The ugly situation is shown in Figure 2.4 below.

Figure 2.4
Conflicts and Violence in Iraq
Sources: The elfagr.org
.*http://www.elfagr.org/Detail.aspx?nwsId=22679&secid=7&vid=0*

Deputy Health Minister "Kames Alsaad" mentioned that "Two bombs exploded in the building of the municipal council in the town of Taji on Tuesday, killing 27 and wounding 50. According to security sources told Reuters that a car bomb and other explosive device exploded in the parking lot of the government building in Taji, about 20 km north of Baghdad".

In the same vein, O'Hanlon and Livingston (2013) gave the statistical report of Iraq showing the data of the fatalities recorded during the period of conflicts and unstable circumstances from the year 2003 to 2013. This is explained in Table 2.2 below.

Table 2.2
Total Estimated Iraqi Civilian Fatalities, by Year

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Fatalities	7,300	16,800	20,200	34,500	23,600	6,400	3,000	2,500	1,578	1.317	1.666

Source: adopted from O'Hanlon and Livingston (2013).

Pedersen (2002) asserted that the consequences of civil conflicts and violence on the host society is numerous, ranging from the environmental, economical to the psychological effect. Despite this intimidating report of civil conflict and violence in Iraq, there are not enough studies of information system research, particularly those which treat eG services with the issue of the psychological consequences of the civil conflicts being a major point to be addressed in the research scope despite the convincing trend of the linkage between the civil conflict and eG services, (Khan *et al.*, 2010a, 2010b, 2012; Yildiz, 2007).

2.3 Information Communication Technology (ICT) in Iraq

United Nations (UN) and Economic and Social Commission for Western Asia (ESCWA) (2007) opined that Iraq has reached the developmental level of using ICT tools in public service as well as the communication sector. However, the level of insecurity is still continuing, but Iraq, despite all odds, has succeeded in developing and advancing its ICT sector, particularly with respect to telecommunications with much more recorded success in the telecommunication sector.

The Internet has become a main weapon used in the process of harnessing knowledge of academic research and cultural curricula, and any situation of the inadequacy of this knowledge domain will undoubtedly affect the rate of the development to be experienced in the educational process in the countries' universities, and consequently have a negative effect on their scientific and cultural efficiency (UN & ESCWA, 2007).

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In Iraq, the internet evolution was experienced in 1998 immediately after the establishment of the first government company, labelled Public Services and International Network of Information. It was a government establishment that came into being to provide internet service to the Iraqis, especially the semi-isolated from the world. The result of the Iraqi media and communication deficiency has made the access to eG services limited to few Iraqi citizens.

Till the end of 1999, the Iraqi government prohibited the use of modern communication tools without being licensed due to security reasons and also experienced the scarcity of computers in general. During this time, the high price of Internet dial up connection reached a price of USD 450 due to an imposed embargo on Iraq; therefore, weak communication networks and degradation of communication infrastructure were experienced.

Then, the Iraqi authorities devised a unique system for the use of the Internet in Iraq, limited to 65 Internet Centres designated as Iraqi Internet cafes. In 2001, the people in Iraq were only able to browse through a few sites with very limited accesses. During this time, accessing the Internet for Iraqis was done through two channels; these were Uruk, which is known as the Communication Company and the Northern Internet Service Provider (UN & ESCWA, 2007).

Some of the embarrassing moments experienced during that time in Iraq are reception of email or sending to clients in Iraq could be accomplished after three days of its execution due to technical reasons of security and conflicts issues resolution. Then, if a person owns a computer and it is used to receive e-mail

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services, such a person is obliged to pay a governmental service annual rate of one hundred thousand (100,000) Iraqi Dinars instead of paying a token of two hundred (200) Iraqi Dinars. This equals fourteen (14) United States cents for every electronic message after being inspected by governmental official for censorship or the interested user pays an equivalence of seven hundred and fifty (USD 750) united states dollars annually on direct communication on each of the service areas.

Iraq started a better optimal usage of the internet in late 2002, with a very good effort invested in re-building and developing the network infrastructure (UN & ESCWA 2007), but the ravaging and devastating effects of conflicts, violence, sectarian crisis, and accidents posed a barrier to the development and also debar the Iraqis from enjoying everyday life safety.

Nikolaev (2009) asserted that Iraq suffered from high levels of violence and corruption. It is observed that Iraq has succeeded in further developing their information communication technology infrastructure with a current trend of profile overview that posited different points of view in assessing information communication technology tools with an averagely standard infrastructure, strategies and connectivity.

The public and private sector of mobile companies, such as Asiacell, Iraqna, Zean and MTC (Metropolitan Transportation Commission) that operated in Iraq during 2003, contributed reasonably to the resolution of conflict in the country through raising the Iraq's information society.

In October 2003, three companies operating in Iraq obtained the Global System for Mobile communication (GSM) licenses to distribute and offer hand phone services, covering all parts of Iraq. Asiacall and Iraqna Companies, that are located in the middle of Iraq, and MTC Atheer in the south of Iraq championed the infrastructural fortification process in Iraq. On February 2006, the Ministry of Communication declared its strategy to offer network services, covering the whole country using the Wireless Local Loop (WLL), and collaborative effort by Iraq Telephone Postal Company (ITPC) was also enjoyed. The step taken was part of the ministries' strategies employed to improve the communication and network infrastructure, and also prepare a seven fibre–optic loops to establish a network control all over the parts in Iraq (UN & ESCWA, 2007).

Ministry of Planning and International Development (MOPID) of the Iraq government in their pursuit of working in the IT services altered the name of the Central Organization for Statistics (COSIT) among other purposes of making it a single entity in MOPID). Therefore, COSIT is still perceived as a national statistical agency with little or no need for replacing any part of its strategy to allow a viable functionality of information communication technology (UN & ESCWA, 2007).

2.3.1 Internet Government

Iraq's Ministry of Communication employed the strategy of setting up a new 280.000 dial-up lines and 500.000 Asymmetric Digital Subscriber Line (ADSL) lines for the citizens' usage in 2007. Also, Fiber To The Home (FTTH) service is utilized for effective planning and implementation.

The financial support for the project was said to be gained from Japan, then a project of 860.00 home infrastructure using FTTH was done to meet the target of the Ministry of Communication Wireless BroadBand (WBB) options, with 20% of it being earmarked for the EVolution of Data Only (EV-DO); an infrastructure that allowed the citizens to download at the speed of 2.4 Mbps.

Additionally, the Worldwide Interoperability is implemented for Microwave Access (WiMAX) technology as a growing new technology and the ICT adoption was said to be prosperous in the Arab region, following the WiMAX technology report launched in 2008. The Ministry of Interior used WiMAX technologies with a large range, with many strategies associated with WiMAX as being employed in the Ministry of Health. Moreover, the Iraqi eG strategy used until 2010 the eG pathway; a technique used in establishing the performance of medical researchers with other strategies to gaining investment for the companies and organizations so as to establish a unit of an e-city in Baghdad (UN & ESCWA, 2007).

2.3.2 Electronic Government Pathway

The eG strategy is believed to be the best adoptable strategy worthy of being implemented and utilized to attain a reasonable level of success if the procedural steps are made with high sophisticated support and sponsorship. Hence, the government sector delivered an integrated service designed for an improved opportunity to achieve better community participation despite some other challenges posed to the development process (Al-Dabbagh, 2011). Further, to achieve the success of eG, it is critical to understand and influence citizens' acceptance of eG services (Fu, Fam, & Chao, 2006) because the success of eG initiative is contingent

upon citizens' willing to continue using these services (Bhattacherjee, 2001; Limayem *et al.*, 2003; Park, 2008). Furthermore, for the success of eG services, many strategies are highlighted, including theories that are applicable to different fields of information system to test its usage. This is further discussed through the explanation of information system models and theories. In general, an information system indicates that its eventual success depends on its continued use rather than first-time use (Bhattacherjee, 2001; Limayem *et al.*, 2003; Wangpipatwong *et al.*, 2008).

United States Agency for International Development (USAID) and Ministry Of Sciences and Technology (MOST) built a strategy during the period of 2003-2010, which aimed at developing the Iraqi eG project as shown in Figure 2.5.
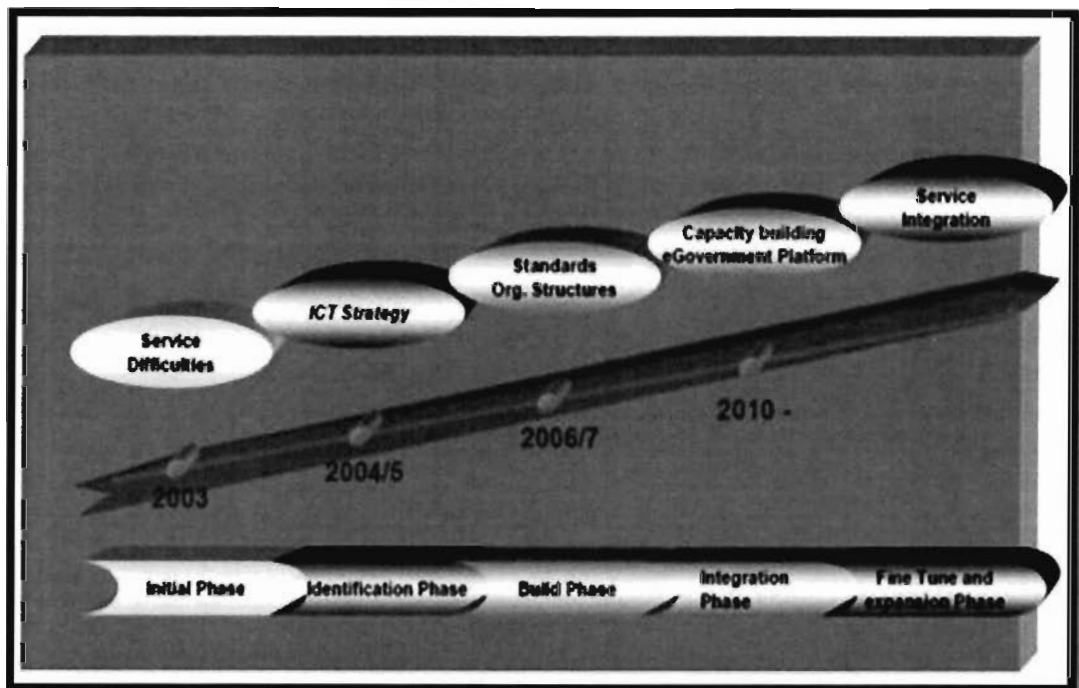
Figure 2.5
Pathway of eG in Iraq 2003-2010
Source: (Al-Dabbagh, 2011) "as cited in (Sharief, Graul & Ian, 2007)"

The pathway of Iraq eG started from 2003, where the services are provided at initial phase, and then, followed by the identification phase, where the government started information communication technology. In 2006/7, the government built a phase and came with standards and structures. Next, there is a new stage called the integration phase, where the government started building the eG platform in 2010. Finally, the current stage involves the integration of the services and expands the phase. The eG strategy has the best possible chance of success if the process moves forward with high level support and sponsorship (Sharief, Graul, & Ian, 2007).

A government sector delivered integrated services and improved opportunities for community participation. Nonetheless, these are several challenges which are exist during the development and implementing process (Al-Dabbagh, 2011).

2.4 Electronic Applications in Iraq

In Iraq, many applications that are related to information technology (IT) have been enumerated, citing E-business, E-education, and E-employment as examples of eG services. E-health application in Iraq is said to be still at the planning stage presently, and also experiences not enough researches and studies as far as the field of health discipline is concerned. In the light of this, the Ministry of Health and Human's Organizations is working together to come with a strategic plan to improve the situation (UN & ESCWA, 2007). Further explanation is given in Figure 2.6 as shown below.
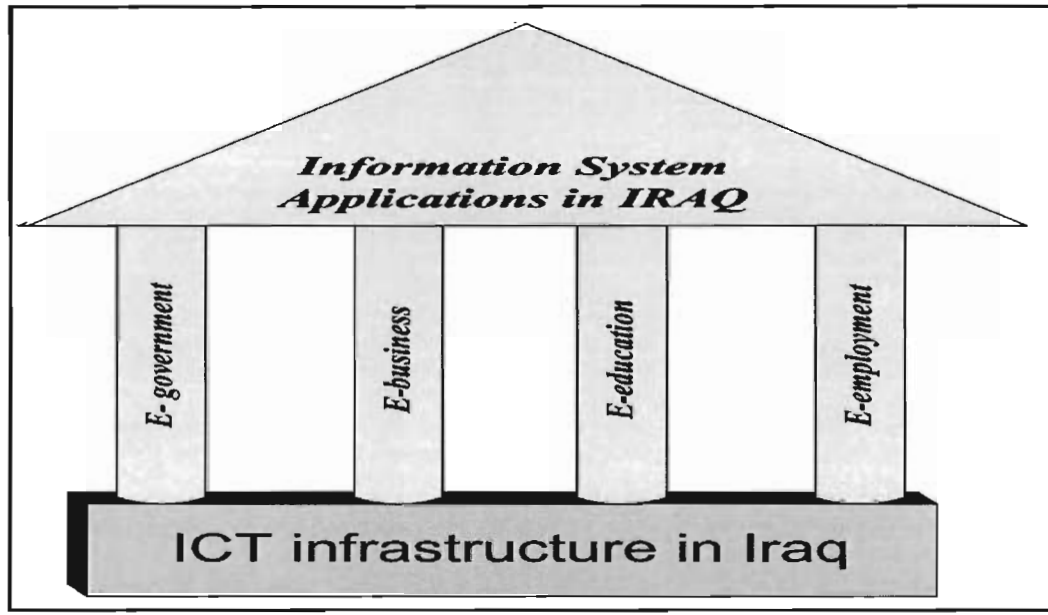
Figure 2.6
Information Systems in Iraq.
Source: UN and ESCWA, (2007).

2.4.1 E-Business

United Nations (2007) noted that the Iraq banking system is obsolete and not up to date; hence, it becomes difficult for such a system to be in line with rapidly-moving development in the world of information systems. On the international note, foreign banks, especially those of the United States of America, had stopped doing business transaction with Iraq, and with the current exchange rate to the dollar (USD), the business situation has been very tough on most of the local banks with some exceptions for private banks that do opening of accounts to exchange dollar and also make some money transfer transactions.

Electronic business (E-business) means the usage of information communication technology in traditional business transaction, but with the present state of Iraq's ICT infrastructure, there is a need for the development of the country's information communication technology (United Nations, 2007). Therefore, after due process of

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attaining a developed ICT status in Iraq, the E-business would be used on a large scale. The current project that is of utmost interest to the United Nations in Iraq is the use of electronic system for procurement; this project is expected to be supported by foreign countries, and would eventually help in the rebuilding of Iraq (UN & ESCWA, 2007).

Historically, one of the significant projects classified under the E-business category in Iraq is better known as "Tejari Iraq,,, which was facilitated to improve relationships within different agencies. This project cost billions of dollars obviously or covertly spent for the needed distribution to airports, hospitals, telecommunications, schools and gas producing companies (UN & ESCWA, 2007).

2.4.2 E-Learning

Ministry of Education (MOE) is working on an e-learning project to increase usage of IT tools and systems in education. One of the projects implemented by the MOE is the usage of an electronic gate for the collection of job-opportunities updates and applications. Also in 2007, some of the arms of the United Nations, Economic and Social Commission for Western Asia (ESCWA) and United Nations Educational, Scientific and Cultural Organization (UNESCO) worked together to implement a strategy to improve the teaching and learning processes in Iraq, especially as it relates to the usage of IT tools. This program is centered on the literacy and skills of the MOE members, lecturers, and scholars under an umbrella program of "Teacher Professional Development,, designed for optimal gaining of benefits.

Multipurpose Technology Community Centers (MTCCs) also worked together with ESCWA in the north and south regions of Iraq to achieve the project. For a well utilized usage, International Computer Driving Licence (ICDL) training course and many conventions have been organised in Iraq to support the acceptance of the technology. Tutors drawn from many organizations are equally obliged to attend the courses, and software was also developed to help the tutors during and after the training (UN & ESCWA, 2007).

2.4.3 E-Employment

Representatives from United Nations Economic and Social Commission for Western Asia (UN-ESCWA) in Iraq have tried to help in the development of online database system to serve as e-employment portal. This database would help to supply any needful employment information to Iraqi citizens either in or outside Iraq. The website will allow Iraqis to easily find employment opportunities, also is Iraqis Rebuild Iraq (IRI) project that is supported by the Ministry of Planning and Development, UNDP, and IOM which is an interesting project developed to review the electronic procurement facility used in supplying information about government tender (UN & ESCWA, 2007) . These are presented in Figure 2.7.
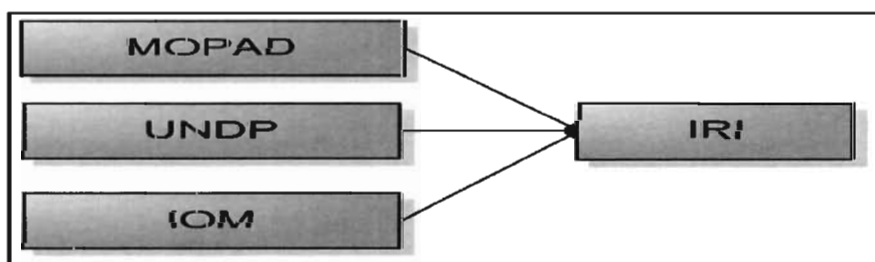
Figure 2.7
Iraq's Rebuild Iraq (IRI) Project.
Note: MOPAD: Ministry Of Planning And Development. UNDP: United Nations
Development Program. IOM: International Organization for Migration. IRI: Iraq's
Rebuilding Iraq project.
Source: UN and ESCWA, 2007

2.4.4 eG Project and the Main Centeres of eG in Iraq

Ministry Of Science and Technology (MOST) and the Iraq Commission for Computers and Informatics (ICCI) were the two main centres that worked together to link with public administration agencies with the aid of Wireless BroadBand Network (WBBN) which was used as the wireless network that serves as the backbone to integrate electronic government and Management Information System (MIS) (UN & ESCWA, 2007).

Although eG service is still seen as being primitive in Iraq, the government agencies are still said to need a major investment to secure the administration, enhance a business reengineering process, achieve a licensed soft copy, and so on. Aside the eG projects, there are other benefits achievable from implementing eG services in Iraq. Examples are enhancement of good governance, transparency and accountability among the agencies, thus they increase the mutual trust between the government and the citizens. The eG reduces running cost of the government administration, thus it makes the government budget more reasonable and masses-friendly. Finally, the G-2-B service will enhance and strengthen the intra-agency communication within all levels of the government and the entire society as well (UN & ESCWA, 2007).

The usage of eG services among its benefits is to aid the citizens' access to their government services on a ubiquitous basis, and more importantly, to help the government in focussing on customers' services and their businesses, co-interaction with other government agencies, visitors and citizen. At the same time, it helps in improving the partnerships and also facilitates knowledge/ learning so as to restrict the endemic upsurge of corruption (UN & ESCWA, 2007).

Iraq eG readiness was ranked 103 in 2004 (United Nations, 2004), and 118 in 2005 (United Nations, 2005). The rank later went to 151 in 2008 (United Nations, 2008). Iraq's eG readiness ranking in the world is presented in Figure 2.8 and Table 1.2.
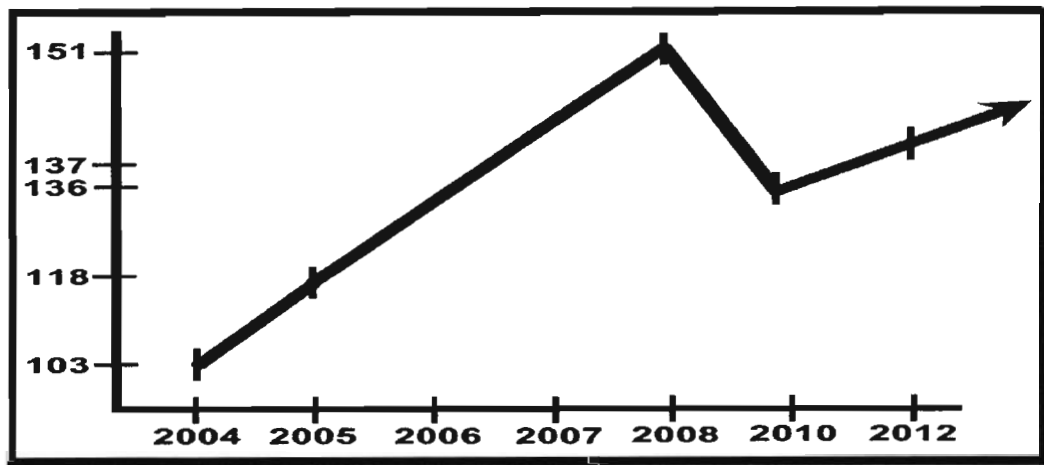
Figure 2.8
Iraq's eG Readiness Ranking in the World.
Source: United Nations, (2004; 2005; 2008; 2010; 2012)

The reduction in the eG project appears in the eG ranking as shown from 2004 till 2012 and revealed that the eG project ranking lost its value, meaning that the Iraq government faced a lot of problems in implementing eG applications. However, Tai (2008) noted that Iraq spent about 20 billion USD to achieve the eG project.

Currently, Iraq is in possession of real electronic portal that addresses issues regarding the eG services and makes it published on the Internet. Moreover, Iraq has different three main electronic centres for the delivery of eG services; Baghdad, Nasrya, and Erbel. Additionally, appendix H1, H2, H3, and H4 explain further the characteristic of each of the locations and the approach of eG services on the basis of the Iraqi government's priorities and strategies.

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The previous applications are very important to help the user achieve the transactions quickly. eG is still the high-priority application that helps citizen deal with the government offices. Moreover, eG makes an opportunity available to the beneficiaries to get the benefit from this service, such as reducing the cost of the transactions, improving the quality of the services, increasing the transparency, and by using the online services the users will be saved from the explosion, killing, kidnapping, etc.

Therefore, it is very important to increase the acceptance of eG by usage and keep the citizens continue using this service, especially in countries suffering from conflicts and violence.

2.5 Summary

This chapter gave an overall background on electronic government, electronic government types services, the benefits of electronic government. Additionally, the government of the Republic of Iraq has been attempting to adopt new technologies that could update services between government and citizen (G-2-C). Therefore, this chapter has extensively reviewed general information related to electronic government in Iraq.

Figure 2.1 shows in brief the mapping of the sections and applications discussed in this chapter. Moreover, this chapter discussed the conflicts and risks and how conflict and violence affect the environment and the citizens in Iraq. The other section explains the eG pathway and the comprehensive reviews of electronic applications in Iraq.

Finally, but most importantly, Figure 2.6 shows in details the degradation of Iraq's eG services among other countries in the world. The next chapter also reveals several variables and theories that can be addressed by eG and MIS researchers, which are issued and related to the problem statement of this study and is reviewed and discussed in details in chapter three.

CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

This study examines previous research and studies. Moreover, this chapter discusses extensively information system acceptance models and theories on IS. Finally, it reviews the factors which could influence the continued usage intention towards new technology as shown in Figure 3.1.
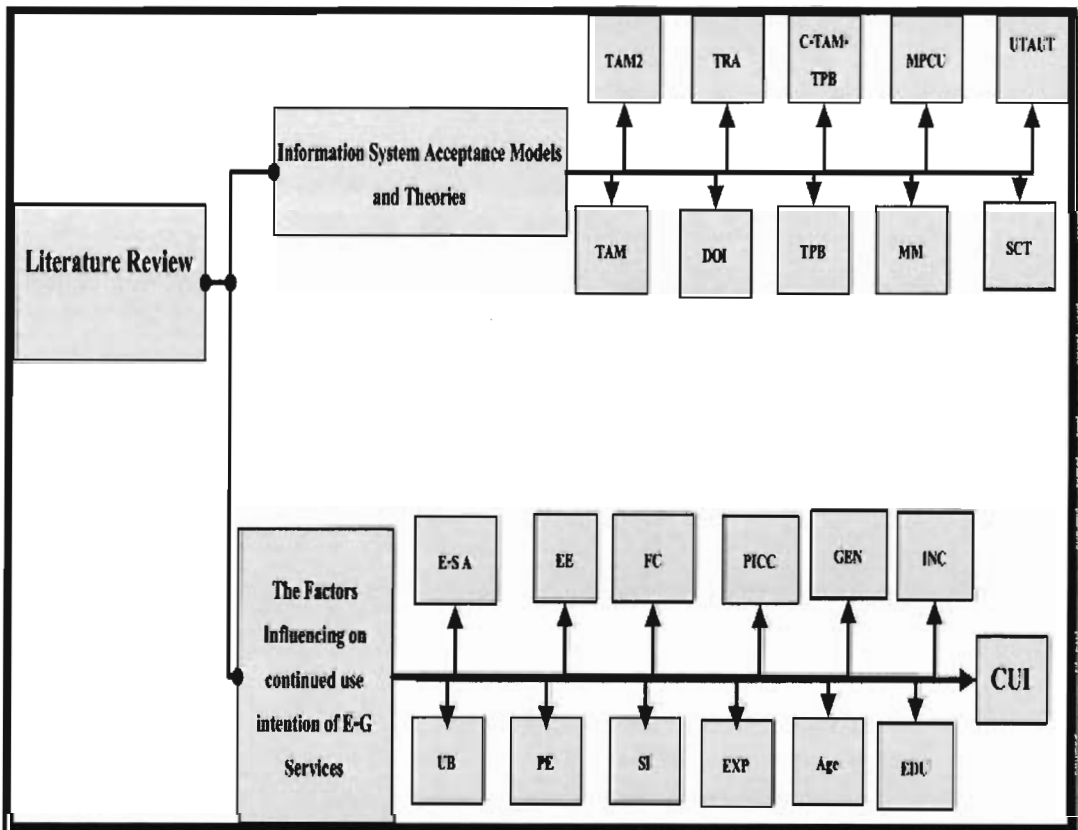
Figure 3.1
Literature Review of Current Research.

3.1 Information System Acceptance Models and Theories

This literature presents several adopted and acceptance models and theories used to investigate usage issues of information technology and information system

(Wangpipatwong *et al.*, 2008; Venkatesh *et al.*, 2012). These models and theories are (a) Theory of Reasoned Action (TRA), (b) Theory of Planning Behaviour (TPB), (c) Technology Acceptance Model (TAM), (D) an extension of TAM or what is known as TAM 2, (e) Innovation Diffusion Theory (IDT), (f) Combined TAM and TPB (C-TAM-TPB), (g) Motivational Model (MM), (h) Model of PC Utilization (MPCU), (i) Social Cognitive Theory (SCT), (j) Expectation-Confirmation Theory (ECT) and (m) Unified Theory of Acceptance and Use Technology Model (UTAUT).

3.1.1 Theory of Reasoned Action (TRA)

Fishbein and Ajzsn (1975) as cited by Sheppard *et al.* (1988) developed the Theory of Reasoned Action (TRA) with a model that focuses on the behavioural intention instead of actual usage. According to Sheppard *et al.* (1988), TRA is one of the widely used models to determine behavioural intention, using its four determinants which are (a) attitude, (b) behavioural intention, (c) actual use, and (d) subjective norms. In TRA, the actual use is determined by the behavioural intention instead of attitude towards users' behaviour (Norman & Smith, 1995). The behavioural intention is determined by users' attitude and subjective norms (Ajzen & Fishbein, 1975). Furthermore, the users' attitude is said to be determined by the person's belief about the consequences of the behaviour, and it is also referred to the person's feeling towards performing a behaviour, while the subjective norm is defined as the user's belief about the importance of the opinion of other people as to whether or not he/she performs a behaviour (Ok & Shon, 2006). Figure 3.2 shows the diagram of the model with its components.
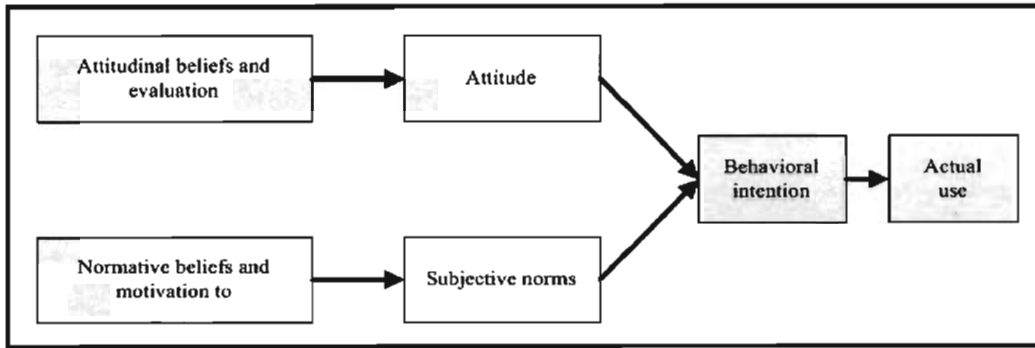
Figure 3.2
Theory of Reasoned Action
Source: Ajzen (1991)

Ok and Shon (2006) in their work used TRA to examine the acceptance of Internet banking in Korea, and this helps the banking enterprise gain a competitive advantage. It can be said that TRA has been used as a framework in several social issues studies; it is found from the study of Ok and Shon (2006) that TRA was a good measure for peoples' intention to use Internet banking. However, a comparison between the TRA and theory of planned behaviour (TPB) showed that TPB is stronger (higher ability) than TRA in testing the individual's intention to use.

Barki and Benbasat (1996) in their study applied TRA to examine the acceptance of information systems, and it was realised that TRA is a strong worthy tool to measure the acceptance of information system in academic organizations. It was also presented as one of the most important user's acceptance models that has been used in examining the acceptance of information technology in business organizations (Silva & Dias, 2007). Furthermore, Ramayah *et al.* (2009) used TRA to study the factors that can affect the investors' intention to use the Internet stock trading in Malaysia.

The literature reviewed for acceptance of information systems has also presented a number of disadvantages of TRA. It is argued that there are many other factors that could influence users' behavioural intention to use information technology, such as E-services awareness and not only subjective norms and attitude. TRA ignored the unstable circumstances and how the unique status could influence the intention and usage of technology (Jaeger & Thompson, 2003; Khan *et al*., 2010a, 2010b, 2012).

3.1.2 Theory of Planned Behaviour (TPB)

Theory of planned behaviour (TPB) came as an extension of TRA, and helps explain prediction of volitional behaviours. This model adds other factors like behavioural control which defines a person's perception of how he/she is able to perform a particular behaviour, while the availability of facilities and resources also help persons to have control over their identified behaviour (Taylor & Todd, 1995). Figure 3.3 displays the components of TPB.
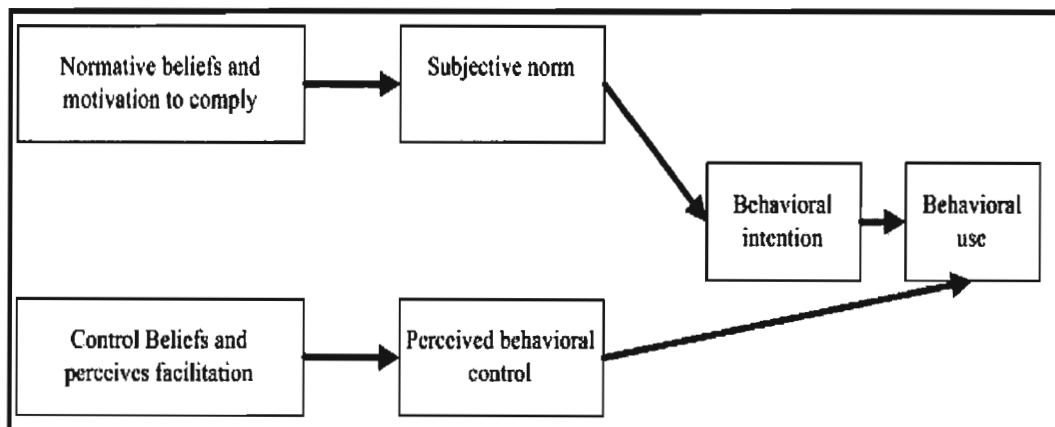
Figure 3.3
Theory of Planned Behaviour
Source: Taylor and Todd (1995).

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According to Ok and Shon (2006), forms of behavioural controls are many, namely (i) context opportunity, (ii) facilitating factors, and (iii) resources. Theory of planned behaviour was widely applied in information and communication technology in the context of evaluating a variety of behaviours. Also, TPB model explains how a person has a complete control over his/her behaviour. Ok and Shon (2006) in their study conducted in Korea, examined the acceptance of Internet banking; it was then found that TPB has the ability to predict such acceptance, illustrating its strength as more than TRA. Song and Zahedi (2001), in examining shoppers' adoption of e-commerce website, applied the theory of planned behaviour and found that TPB is better fit the type of data collected from shoppers about their interaction with e-commerce websites. However, just like TRA, TPB model does not consider all factors like civil conflicts and violence from the possibility of influencing usage behavioural of information technology.

3.1.3 Motivational Model (MM)

Davis *et al.* (1992) adapted the motivational model into information technology context. The purpose of this model is to evaluate the psychological motivations of individuals in perceiving a particular behaviour (Davis *et al.*, 1992). This model determines users' behaviour by perceiving the extrinsic motivation and intrinsic motivation. The extrinsic motivation is the degree to which a user perceives that using a particular information technology will enable him/her to achieve better outcomes (Alrawashdeh, 2011), while the intrinsic motivation is the degree that makes a user to execute a behaviour because he/she does not have a motivation other than carrying out the activity personally (for example a user will use a system if he/she perceives that using that system will be enjoyable or he/she has the

experience in using a system) (Venkatesh *et al.*, 2003). Motivational model (MM) is a popular model which has been used as a research framework for many studies from different contexts and fields.

De Sevin and Thalmann (2004) investigated the factors that influence the design of virtual humans using MM. The research discovered that MM is a strong theory in studying the virtual humans. Ramayah *et al.* (2003) also adapted MM to examine the effect of intrinsic and extrinsic constructs on the usage of the Internet in Malaysia, and then observed that perceived enjoyment has significantly influenced the adoption of the Internet despite that perceived usefulness (extrinsic) are stronger than the perceived intrinsic motivation in influencing the Internet usage.

However, MM as a model that just focuses on characteristics of technology, despite its weaknesses, has been evaluated and adopted by many researchers in specific areas, such as information system and business because extrinsic motivation and intrinsic motivation are not the only factors that determine a user's intention to use information technology. The weakness of this model, such as other models, is in neglecting to measurer conflicts and violence among users.

3.1.4 Technology Acceptance Model (TAM)

TAM is an instrument developed by Fred Davis, and used to predict and measure user's acceptance and use of information technology and other computer applications (Davis, 1989). Additionally, it was presented as one of the most important acceptance and usage of information technology and information system models which have been widely applied by researchers to examine the information

technology acceptance, and proved to be a strong predictor of computer technology use (Lai & Li, 2005; Venkatesh & Davis, 2000). Figure 3.6 illustrates the components of TAM.
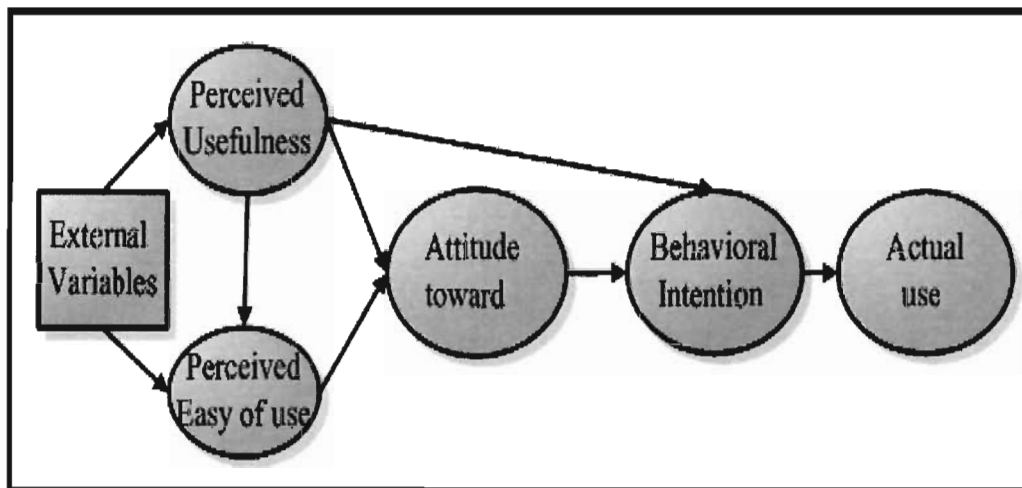
Figure 3.6
Technology Acceptance Model (TAM)
Source: Davis, (1989)

Despite the wide usage of TAM and its popularity, many researchers have indicated its weakness in its non-inclusion of other variables that could be used to determine persons' attitude. It is said that measuring peoples' attitudes cannot only be done by measuring perceived ease of use and perceived usefulness because of some other social influence factors which are also capable of influencing users' attitudes towards the use of an information system (Malhotra & Galetta, 1999; Miller *et al.*, 2003; Venkatesh & Davis, 2000).

Other researchers, based on their observation, stated that TAM only focuses on extrinsic motivation rather than intrinsic motivation (Davis *et al.*, 1989). The TAM model only focuses on what is received from using an information system without

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considering the processes of the usage itself. Many only use the information technology because it is found interesting.

In TAM model, perceived usefulness and perceived ease of use are two constructs of the model argued to be used in determining the behavioural intention through individual attitude. These two constructs have been used in this research indirectly because they are derived from effort expectancy and performance expectancy, which are used in this research to predict the citizens' usage behaviour of eG services.

3.1.5 Extension of the TAM (TAM2)

Davis and Venkatesh (2000) developed an extended TAM or TAM2 to further explain users' intention and the perceived usefulness using the cognitive instrument process and the social influence process. The social influence process is explained to have three interrelated factors that influence individual behaviour to determine if the user rejects or accepts the technology.

The first identified factor is a subjective norm that refers to a user who believes in the importance of the opinion of other people as to whether or not he/she uses a technology (Lee *et al.*, 2003). Then, secondly is an image which refers to the degree to which a person perceives that the particular system's usage will improve his/her image or status, while the last factor is voluntariness (Moor & Benbasat, 1991); a factor that is defined as the degree to which the user believes that the use of a particular system is voluntary. In short, this model was purposefully developed to cover TAM's weakness (i.e. the non-inclusion of social influence factors), by adding the subjective norm to the original TAM constructs as a determinant of users'

attitude and the intention to use an information system. In TAM2, the three constructs, namely perceived usefulness, perceived ease of use and subjective norm have been argued to be determinants of behavioural intention and reflect social influence. These three constructs have also been used in this research indirectly. As previously mentioned, perceived usefulness and perceived ease of use were derived from performance and effort expectancy, while subjective norms were derived from social influence.

3.1.6 Innovation Diffusion Theory (IDT)

Diffusion of innovation is defined as a process that is used to convey an innovation and spread its emergence among members of a social setting through some particular channels over a specific period of time (Rogers, 1995). In addition, an innovation intended for adoption is defined as an art, idea, practice, or an object that is perceived as new by an individual, while it needs not to be new; it may be simply perceived as new by people. Innovation Diffusion Theory (IDT) had been in use to examine the acceptance of innovations in many fields, such as agricultural tools and organizational innovations since 1960 (Rogers, 2003), while Moore and Benbasat (1991) re-defined it with seven constructs for the adaptation of IDT into the information system context.

Regarding that added constructs, relative advantage is the first one, which is defined as the degree to which an individual perceives that an innovation will improve his/her work performance, followed by compatibility which is defined as the degree to which a user perceives that he/she has the knowledge and resources to use an innovation. Thirdly, complexity (ease of use), which is explained as the degree of

ease associated with the usage of an innovation, then fourthly is trialability which is explained as the opportunity of trying a particular system by users before it is used. Fifth, observability (result demonstrability) is explained as the degree to which the results of the experience are clear to the other members of the social setting, followed by an image, which is a construct that explains the degree to which a user perceives that using a technology will enhance his/her image or status in the social setting. The last construct is the voluntariness of use that is referred to as the degree to which an individual believes that using a particular technology will be free (i.e. Not mandatory) (Moore & Benbasat, 1991).

IDT theory is used to examine the users' acceptance of computer programs (such as computer games) and other widely used technologies, because it uses communication and media channels to deliver innovation to society (Alrawashdeh, 2011). However, similar to other theories and models, IDT has its disadvantages, too.

According to Rogers (2003), IDT as an acceptance model only focused on the attributes of the innovations without considering any other psychological factors that influence the acceptance of innovations, such as effect of civil conflicts and violence on the users' perceptions towards the adoption of a technology (Khan *et al.*, 2010a, 2010b, 2012).

3.1.7 A Combination of TAM and TPB (C-TAM-TPB)

Taylor and Todd (1995) combined TPB constructs with some adapted constructs from TAM to produce a combination of TAM and TPB (C-TAM-TPB); it is a strong model to predict users' intention towards the usage of information technology. This

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model includes four behavioural intention determinants, namely (a) users' attitude to use a technology, (b) subjective norms, (c) perceived behavioural control, and (d) perceived usefulness (these constructs have been explained above in the TAM and TPB sections, and the hybrid model has been examined in many contexts).

Al-Gahtani (2006) applied C-TAM-TPB to examine the acceptance of information technology (roadmap) in developing countries, while Yayla and Qing (2007) investigated the acceptance of Internet for purchases in America using the model. In their study, they applied three models, TAM, TPB, and C-TAM-TPB, to identify the power for the purpose, and found out that the original TAM and original TPB are better fit than the combined model (C-TAM-TPB) for this type of data.

In this hybrid model, three constructs exist, including subjective norms, perceived behavioural control, and perceived usefulness. Interestingly, social influence was picked up from subjective norms, performance expectancy from perceived usefulness, and facilitating condition from the perceived behavioural control. However, this hybrid model neglects the influences of unstable circumstances on the users and this is identified as a weak point of the model (Yayla & Qing, 2007).

3.1.8 Model of PC Utilization (MPCU)

The model of PC utilization (MPCU), developed by Thompson *et al.* (1991) from the theory of human behaviour, is being used to predict actual behavioural usage instead of behavioural intention. It presented six factors to determine the actual behavioural usage, having job fit, which is referred to as the degree to which a person believes that utilizing a technology will enhance his/her work performance as the first, then,

complexity is explained as the degree to which the person believes that he/she would not need much effort to use a particular technology. Thirdly, long term consequences is referred to as the degree to which a person believes that he/she would get outcomes by using a particular system in the future.

The fourth factor is affection towards usage, which refers to a persons' negative or positive feeling associated with using a particular system. The fifth factor is social factors, and it explains the user's perception towards the opinion of other people on whether or not he/she should exercise any behaviour. The last factor is facilitating conditions, which means the environmental infrastructure that makes the accomplishment of the activity easier. Like other information technology acceptance models, MPCU has also been applied in many areas, with an example of Igbaria (1992) that employed MPCU to examine the acceptance of microcomputers and personal computers.

Based on previous arguments, this model covers system factors like job fit, complexity, the implementation environment factor by social factor and facilitating conditions, and individual factors by the affection toward system usage. This model is said to be much more suitable in studying users' intention to use an information and communication technology because it covers all the main factors that have been presented in the ICT literature as the critical success factors for the acceptance of ICT. The observed weakness is simply its inability to evaluate or test the perceived intensity of civil conflict items, such as (Latent Conflict, Manifest Conflict, Crises, Severe Crises and War) and determine how it influences the usage issues of technology among the users.

3.1.9 Social Cognitive Theory (SCT)

Bandura's Social Cognitive Theory (1989) asserted that behaviour, personal cognitive and environmental factors are the interactive determinants that influence each other and of a relationship of an unequal strength, but it occurs simultaneously by exploring their influence over time (Bandura, 1989). Figure 3.5 represents the reciprocal model.
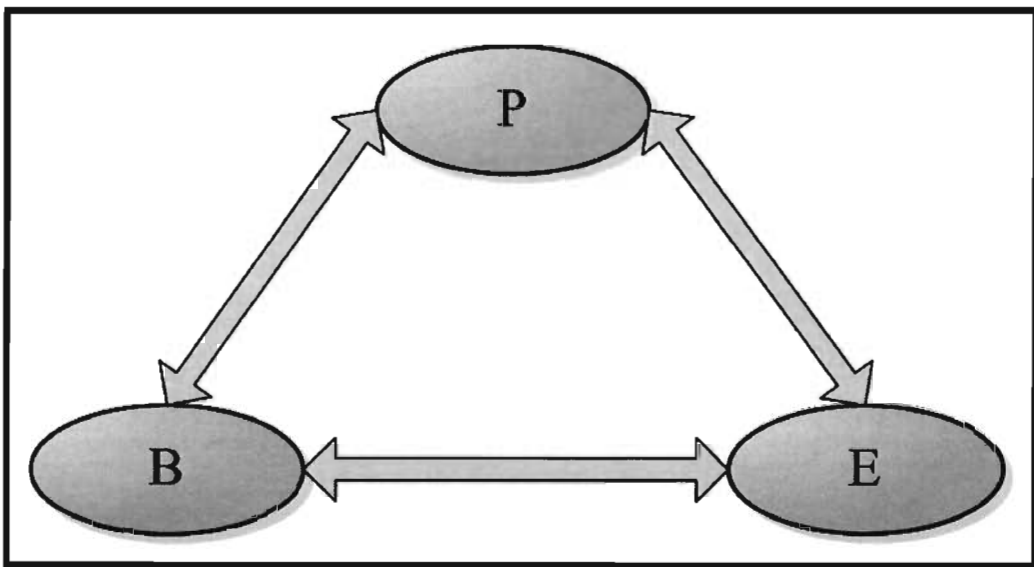
Figure 3.5
Schematization of the relations among behaviour (B), cognitive and other personal factors (P), and the external environment (E), (Bandura, 1989).

For the P ←→B relation in this model, expectations, beliefs, self- perceptions, goals and intentions are from direct behaviour. Similarly, for the relationship between E←→P, the theory states that social influences enhance one's expectations, beliefs, emotional bents and cognitive competencies, where peoples' social status and characteristics can be affected by their social environment.

The B←→E   relationship on the other hand shows that behaviour and environment alters on daily basis, conforming to the adage that people are both products and

producers of their environment, but with the disadvantage that it does not highlight the awareness of the availability and benefit of technology or services that is requested (Bandura, 1989).

3.1.10 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 (Bagozzi & Dabholkar, 2000; Oliver, 1980, 1993; Patterson *et al.,* 1997; Tse & Wilton, 1998).

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 (Oliver, 1993), repurchase of the camcorder (Spreng *et al.,* 1996), and repurchase of photographic products by institution (Bagozzi & Dabholkar, 2000), restaurant service (Swan & Trawick, 1981) and business professional services (Patterson *et al.,* 1997). The ECT main constructs and relationships are depicted in Figure 3.6.
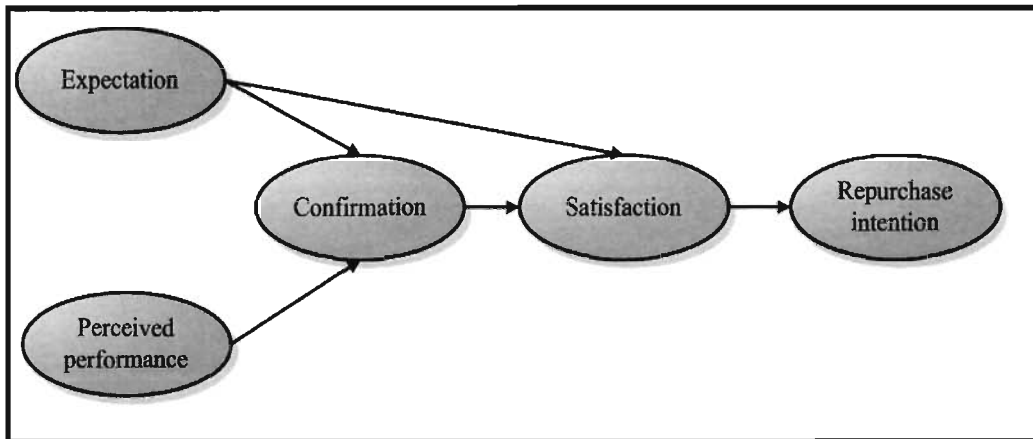
Figure 3.6
Expectation-Confirmation Theory (ECT)

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 (1) follow an initial (acceptance or purchase decision), (2) are influenced by the initial use of (IS or product) experience, and (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 3.7.
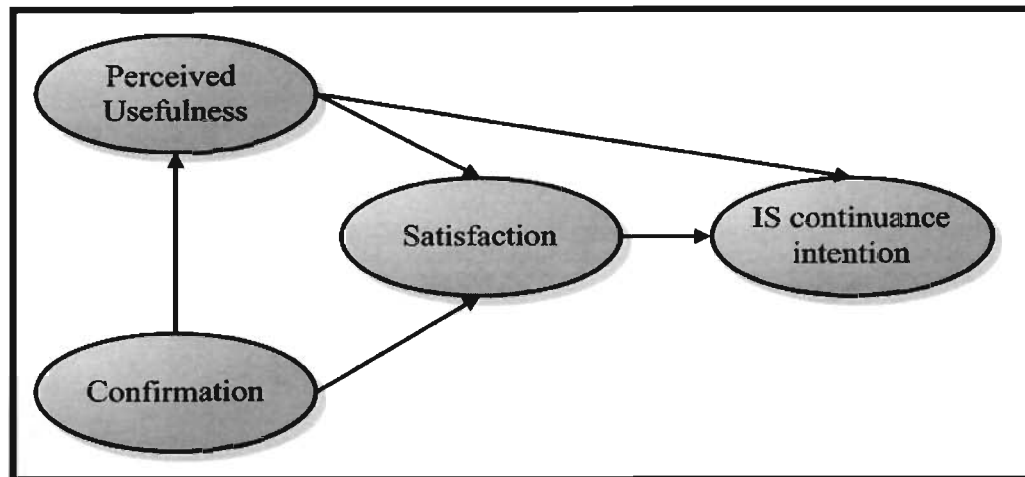
Figure 3.7
A post – Acceptance Model of IS continuance

Also in this theory, there are many weak points, such as many variables that can affect the usage and the continuance towards the online application such as SI, FC, ESA, EE, PE. Moreover, this study neglected the environment affect among the users of e-services.

3.1.11 Unified Theory of Acceptance and Use Technology (UTAUT)

Venkatesh *et al.* (2003) conducted a study to compare the similarities and differences among prior theories and models of user acceptance to formulate Unified Theory of Acceptance and Use Technology (UTAUT). This comparison included the technology acceptance model (TAM) (Davis *et al.*, 1989), theory of planned behaviour (TPB) (Ajzen, 1991), theory of reasoned action (TRA) (Ajzen & Fishbein, 1975), the combination of TAM and TPB (C-TAM-TPB) (Taylor & Todd, 1995), model of PC utilization (MPCU) (Thompson *et al.*, 1991), innovation diffusion theory

(IDT) (Rogers, 2003), social cognitive theory (SCT) (Compeau & Higgins, 1995), and motivational model (MM) (Davis *et al.*, 1992).

This work resulted in the model UTAUT which was made to overcome the difficulties initially faced by information technology researchers in developing their studies' framework in order to understand the usage of technology among users (Venkatesh *et al.*, 2003).

According to Davis *et al.* (1989), prior acceptance models were said to be successful in an approximate estimate of 40 percent in their prediction of the adoption of information technology. On the other hand, Venkatesh *et al.* (2003) indicated that UTAUT prediction of the adoption of information technology is approximately 70 percent in the study of the variance in users' intention, and also suitable to equally predict individual acceptance of information technology for a large range of groups. Scales used in prior technology acceptance models and theories were combined to develop new scales, and tested for further enhanced improvement (Marchewka *et al.*, 2007; Venkatesh *et al.*, 2003).

Unified Theory Acceptance and Use Technology (UTAUT) have four constructs to predict users' behavioural intention and behaviour of use, namely (a) performance expectancy, (b) effort expectancy, (c) social influence, and (d) facilitating conditions (Venkatesh *et al.*, 2003). The relationships between these constructs, behaviour intention and behaviour of use are moderated by four key factors i.e. age, gender, voluntariness, and experience (Venkatesh *et al.*, 2003). The following Figure 3.8 shows the UTAUT diagram.
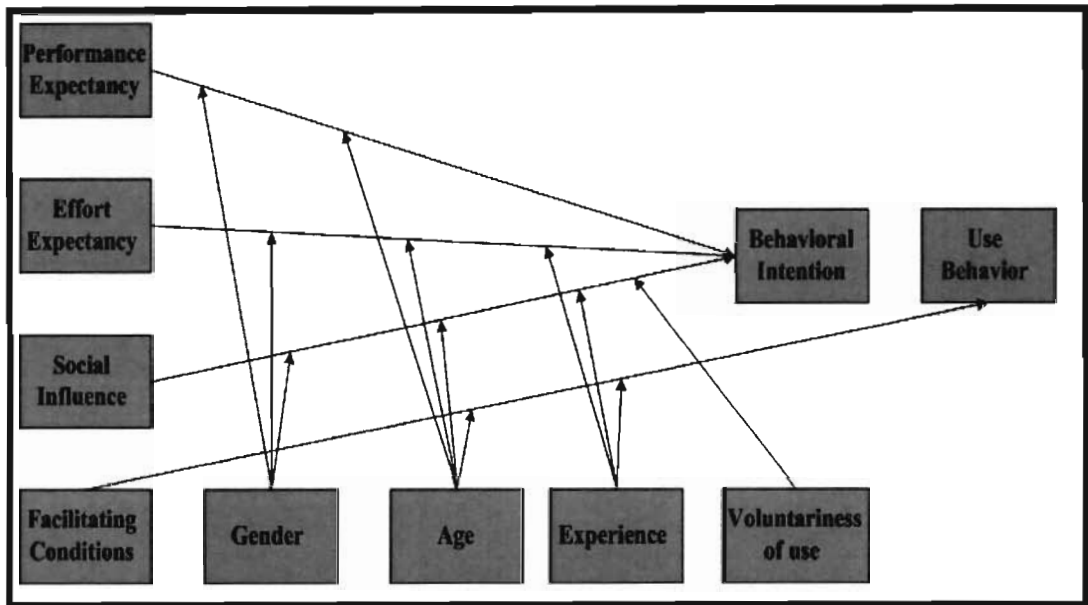
Figure 3.8
UTAUT
Source: Venkatesh *et al.* (2003)

(i) Performance Expectancy: This is referred to as the person's belief that using a particular system will enhance his/her work performance (Payne & Curtis, 2008). Venkatesh (2003), from previous information technology acceptance models derived performance expectance, comprising of five constructs, namely (a) outcome expectations in SCT (b) perceived usefulness in TAM, (c) relative advantage in (IDT), (d) extrinsic motivation in MM, and (e) job fit in MPCU.

According to Venkatesh *et al.* (2003), performance expectancy is a strong predictor of behavioural intention for both voluntary and mandatory settings in the context of information technology, with the addition that the relationship between performance expectance and behaviour intention may be moderated by age and gender.

(ii) Effort Expectancy: This explains when a person perceives that a particular system will be easy to use. The construct is derived from three constructs which were

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taken from previously existing models (Payne & Curtis, 2008). These constructs are perceived ease of use (TAM/TAM2), complexity (MPCU), and ease of use (IDT) (Venkatesh *et al.*, 2003).

Venkatesh *et al.* (2003), and Venkatesh and Davis (2000) indicated that effort expectancy has a significant influence on behavioural intention of a user towards the usage of information technology, and also added that the relationship between behavioural intention and effort expectancy may be moderated by gender, experience and age.

(iii) Social Influence: This refers to the users' perception of the opinion of other people as regards his probability of performing certain behaviour (Payne & Curtis, 2008). This construct consists of (a) subjective norms in TAM2 and TRA, (b) social factors in MPCU, and (c) image in IDT. Venkatesh *et al.*, (2003) observed that the relationship between social influence and behavioural intention is moderated by three factors which are age, gender, and experience.

(iv) Facilitating Conditions refer to a person's perception that the organization and technical infrastructure will help him/her to use the system (Payne & Curtis, 2003). This construct is also captured from three constructs taken from other models, namely (a) perceived behaviour control in TPB, (b) facilitating conditions in MPCU, and (c) compatibility in IDT, thus indicating that the facilitating conditions' construct is a good predictor for use of information technology (Venkatesh *et al.*, 2003).

However, the relationship between facilitating conditions and behavioural usage is moderated by two variables, namely age and experience; therefore, the system will affect older users who have a lot of experience (Venkatesh *et al.*, 2003). Table 3.2 shows the UTAUT constructs and their extensions.

Table 3.2
UTAUT Constructs from Other Combination Models

UTAUT Constructs	Construct	Model
Performance Expectancy	Perceived usefulness	TAM
	Relative advantage	IDT
	Extrinsic motivation	MM
	Job fit	MPCU
	Outcomes expectations	SCT
Effort Expectancy	Ease of use	IDT
	Complexity	MPCU
	Perceived ease of use	TAM
Social Influence	Subjective norms	(TAM2 and TRA)
	Social factors	MPCU
	Image	IDT
Facilitating Conditions	Perceived Behaviour Control	TPB
	Facilitating conditions	MPCU
	Compatibility	IDT

Source: (Alrawashdeh, 2011; Wu *et al.,* 2007)

Unified theory acceptance and use technology (UTAUT) is an accepted theory that has been applied as a framework in many areas. For example, Marchewka *et al.* (2007) adopted UTAUT to test students' acceptance of blackboard technology, and found that UTAUT is not a strong predictor of this technology. Additionally, Dadayan and Ferro (2005) used some constructs of UTAUT to examine the acceptance of technology in the public and private sectors. Anderson and Schwager (2005) also applied UTAUT to examine the acceptance of wireless networks by employees in business organizations.

Moreover, Venkatesh *et al.* (2003) indicated that these constructs have an indirect significant influence on users' intention towards the usage of information and communication technology. After all, there are many observable weak points in UTAUT, such as its ignorance of the unstable environment including conflicts and violence as possible factors that can influence usage behaviour issues, and also its neglect of the users' awareness towards an affordability of new technology; therefore, this study extended UTAUT to include civil conflicts and E-Services awareness, so as to compensate the pitfalls identified in UTAUT as a main theory used in this study.

In brief, all the acceptance models and theories included a). Theory of Reasoned Action (TRA), (b) Theory of Planning Behaviour (TPB), (c) Technology Acceptance Model (TAM), (D) an extension of TAM or what is known as TAM 2, (e) Innovation Diffusion Theory (IDT), (f) Combined TAM and TPB (C-TAM-TPB), (g) Motivational Model (MM), (h) Model of PC Utilization (MPCU), (i) Social Cognitive Theory (SCT), (j) Expectation-Confirmation Theory and (m) Unified Theory of Acceptance and Use Technology Model (UTAUT) used to investigate the usage issues of information system. Nevertheless, there is a lack in the previous models or theories in investigating the antecedent of UTAUT and cotinued usage intention in conflict country. Thereupon, the current study fulfilled literature gape regarding to conflict environment in Iraq as a most dangerous country in the world 2013 (Top 10 Most Dangerous Countries in the World).

In the light of the above arguments, the next section discusses the factors that influence the behavioural usage and Continued Usage Intention towards technology.

3.2. Why UTAUT was used in the current study?

The adoption of Venkatesh and Davis' (2003) UTAUT is for many reasons. First, UTAUT was developed based on eight prior theoretical models (TRA, TAM, TPB, the Motivational Model (MM), the combined TAM and TPB (C-TAM-TPB), the Model of PC Utilization (MPCU), IDT and Social Cognitive Theory (SCT) (Venkatesh et al., 2003). Therefore, it is more appropriate to adopt all eight theories at a time by integrating them under UTAUT as an underpinning theory for the current study.

Secondly, UTAUT model is more flexible in measuring behavioural and acceptance compared to the previous eight theoretical models. Furthermore, UTAUT is claimed to be able to predict the adoption of information technology in approximately 70 percent of cases, while other user's adoption models (TRA, TAM, TPB) could do so in only about 40 percent of the cases (Venkatesh et al., 2003).

Another resounding reason is that UTAUT integrates four key factors that are important to this research, such as Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), including moderating variables (Gender, Age, Experience, Voluntariness of Use) which are considered as major determinants of behavioural intentions and usage behaviour of users towards technology and this is integrated successfully with moderators (Al-Shafi & Weerakkody, 2009; Venkatesh et al., 2003).

The integration of key factors and moderators together form the nucleus of the present research because the current study tries to determine the key factors that

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affect the usage behaviour and continued usage intention of eG services among Iraq's user with PICC as moderator in the same framework.

Along the same line, the theories from which UTAUT is drawn are reviewed to understand the role their constructs play in user's adoption of new technology (Genuardi, 2004). This part is also very important because the current study attempts to measure employee adoption and continued usage intention of new technology (eG services).

Alvesson (2007) further noted that examining theories in new contexts can result opportunities for the creation of new knowledge. Therefore, UTAUT could be applied in new contexts (conflicts and violence environment) and the result in new environment adds and creates new knowledge.

Currently, UTAUT seems to be the latest and most powerful tool to explore when presenting usage. This goes to show that UTAUT has provided the most veritable tool to use in the determination of the Iraq's continue usage intention in a civil conflict's period (Abdul Rahman *et al.*, 2011).

In the same case, Venkatesh *et al.* (2003) created this synthesized model to present a more complete picture of the acceptance process than any previous individual models (AlAwadhi & Morris, 2008). Although the UTAUT model is relatively new, it is suitable and valid (AlAwadhi & Morris, 2008). Finally, reliability of UTAUT in technology adoption studies in different contexts has been proven (Yahya *et al.*, 2011).

To confirm its strength, it has been used by many researchers (for example, in Abdul Rahman *et al.,* 2011; Genuardi, 2004; Shafi & Weerakkody, 2009) as it is proven as a basis for a strong diagnostic tool to evaluate whether specific information is meeting the user's needs.

Moreover, Venkatesh and Davis' (2003) UTAUT tested the model in private sectors in the USA, but the current research tested UTAUT in public sector under the conflict environment. Furthermore, the key variables PE, EE, SI and FC, are measured together under conflicts and violence environment. Therefore, in this study, UTAUT is adapted as a framework to investigate the acceptance of eG services among employees in the public sector. Table 3.3 presents studies that used UTAUT framework.

Table 3.3
Studies Using UTAUT Framework

Reference/ country	Research using	Research Focus
1-(Venkatesh *et al.* (2003) U.S.	User Acceptance Of Information Technology: Toward A Unified View	Performance Expectancy(PE), effort expectancy (EE), Social Influence(SI), Facilitating Conditions(FC), Behaviour Intention (BI), Use Behaviour (UB), Gender, Age, Experience, Voluntarines of use.
2-Yahya *et al.*(2011) (Malaysia)	Determinants of UTAUT in Measuring User Acceptance of E-Syariah Portal in Syariah Courts in Malaysia	PE, EE, SI, BI, Actual Usage(AU)
3-Wang and Shih, (2009) (Taiwan)	Why do people use information kiosks? A validation of the Unified Theory of Acceptance and Use of Technology	PE, EE, SI, FC, UB, Gender, Age, BI.
4-AlAwadhi and Morris (2008) (Kuwait)	The Use of the UTAUT Model in the Adoption of E-Government Services in Kuwait	PE, EE, Peer Influence (PI), FC, Gender, Academic Course, Internet Experience, (BI)
5-Al-Shafi and Weerakkody, (2009) (Qatar)	Understanding Citizens' Behavioural Intention In The Adoption Of E-Government Services In The State Of Qatar	PE, EE, SI, Behavioural Intention to Use eG, Gender, Age, Internet Experience.
6-Al-Shafi and Weerakkody (2010) (Qatar)	Factors Affecting E-Government Adoption In The State Of Qatar	PE, EE, SI, FC, Trust of the Internet, Trust of Intermediary (BI) and Use Behaviour

Table 4.1(Continued)

Reference/ country	Research using	Research Focus
7-Al-Sobhi et al. (2011) (Saudi Arabia)	The Roles Of Intermediaries In E-Government Adoption: The Case Of Saudi Arabia	PE, EE, SI, FC, Trust of the Internet, Trust of Intermediary, (BI) and Use Behaviour
8-Abdul-Rahman et al. (2011) (Malaysia)	Intention to Use Digital Library based on Modified UTAUT Model: Perspectives of Malaysian Postgraduate Students	Information Quality, PE, EE Service Quality, User Characteristics, Intention to Use Digital Library
9-Venkatesh et al. (2011) U.S.	'Just What the Doctor Ordered': A Revised UTAUT for EMR System Adoption and Use by Doctors	PE, EE, SI, FC, BI, Use Behaviour, Gender, Age, Experience, Voluntariness of use.
10- Foon and Fah (2011) (Malaysia)	Internet Banking Adoption in Kuala Lumpur: An Application of UTAUT Model	PE, EE, SI, FC, Trust, Behavioural Intention
11-Maldonado et al. (2011) (South American)	E-learning motivation and educational portal acceptance in developing countries	E-learning motivation (ELM), SI, FC, PU, PEOU,COMP, FM, MM, SELF, GS
12- Carlsson et al. (2006) (Finland)	Adoption of Mobil Device/services – searching for Answers with the UTAUT	PE, EE, SI,FC, Anxiety, Attitude toward using mobile device/service
13- Wu et al. (2007) (Taiwan)	Using UTAUT to explore the behaviour of 3G mobile communication users	PE, EE, SI, FC, Use behaviour, Gender, Age, experience, voluntariness of use, level of education Intention to Use.
14-Adulwahab and Dahalin (2011) (Nigeria)	Effectiveness of Telecentre using a Model of Unified Theory of Acceptance and Use of Technology (UTAUT): Structral Equation Modeling Approach	PE, FE, SI, Management effectiveness Program Effectiveness, FC, intention to use, User acceptance
15-Chiu and Wang, (2008) (Taiwan)	Understanding Web-based learning continuance intention: The role of subjective task value	PE, EE, SI ,FC, computer self-efficacy, attainment value, utility value, intrinsic, anxiety, (CI)
16- Chen et al. (2011) (Taiwan)	Applicability of the UTAUT Model in Playing Online Game through Mobile Phones: Moderating Effects of User Experience	PE, EE, SI, FC, AT
17- Liu et al. (2008) (China)	User acceptance of Internet banking in an uncertain and risky environment	Self-efficacy (SF) perceived risk (PR) Locus of control(C) perceived uncertainty (UC) system quality (SQ) information quality (IQ) service quality(VQ), PE
18-Tan (2013) (Taiwan)	Students' Adoptions and Attitudes towards Electronic Placement Tests: A UTAUT Analysis	EE, SI, PE, EE,SI, FC, BI, UB
19-Alshehri et al. (2012) (Kingdom of Saudi Arabia) (KSA)	The Effects of Website Quality on Adoption of E-Government Service: An Empirical Study Applying UTAUT Model Using SEM	BI, PE, EE,SI, FC, GEN, AGE, EXP.
20-Venkatesh et al. (2012) (Hong Kong)	Consumer Acceptance And Use Of Information Technology: Extending The Unified Theory Of Acceptance And Use Of Technology	PE, EE, SI, FC, Hedonic Motivation (HM), Price Value (PV), Habit (H).

3.3 Factors Influencing on Continued Usage Intention of eG Services

In an attempt to further understand the issue of continued usage intention of users towards technology, previous literature has extensively worked on continued usage intention as applicable to different fields. It is also observed that many studies have adopted the previous IT / IS models to examine the acceptance of the eG system in general. A large amount of research has been carried out to specifically identify the influence of E-SA, PE, EE, SI, FC, PICC, EDU, INC, EXP, GEN and AGE on UB and CUI individually (not in one model or one framework) (Abdalla, S. 2012; Bhattacherjee, 2001; Venkatesh *et al.*, 2012; Adulwahab & Dahalin, 2011; Suki & Ramayah, 2010; Khan *et al.*, 2010a, 2010b, 2012; Wu *et al.*, 2007; Al-Majali, 2011). Therefore, this section focuses on studies that are related to the usage behaviour and continued usage intention of technology in those different domains, and on the variables that have been tested to investigate such acceptance in various countries.

3.3.1 Continued Usage Intention (CUI) of eG Services

The intention of a citizen to keep on using eG services is akin to the intention of the user to repurchase or revisit (Gefen *et al.*, 2003). In contrast, the intention to adopt a particular behaviour reflects the motivation factor that encapsulates the extent of the person's willingness to try performing the behaviour (Teo, 2009). In the post-adoption phase, the intention of the user to keep on employing eG services stem (1) from the previous discussion of using the services which indicates a mechanism of repeating behaviour, and (2) this is impacted by the prior utilization of services evaluation which indicates a mechanism of feedback (Teo, 2009). Moreover, different attributes of eG services IT attributes have different roles to play in the continuance intention of the user (Teo, 2009). In light of the empirically supported

impact of continued usage upon IT success, determining the main factors affecting post-adoption behaviour of the user (continue or discontinue IT usage) becomes significant and critical (Hong *et al.*, 2006).

The majority of previous IT adoption research has failed to examine the difference in user's perceptions between the initial adoption and continued use (e.g. Bhattacherjee, 2001; Hong *et al.*, 2006; Karahanna, 1999). An information system generally reflects that its success hinges upon the continued use as opposed to first-time use (Bhattacherjee, 2001; Limayem *et al.*, 2003; Wangpipatwong *et al.*, 2008). Similarly, the initial use of eG services is a significant indicator of eG success. Nevertheless, this does not always result in the desired outcome unless the majority of citizens' continuously uses eG services. Also, citizens may discontinue use following innovation if the system does not satisfy their needs despite the successful adoption (Roger, 1995; Limayem *et al.*, 2004; Wangpipatwong *et al.*, 2008).

Additionally, discontinuance may occur after the adoption of innovation if the system does not meet the user's needs regardless of its successful prior adoption (Roger, 1995; Limayem *et al.*, 2003; Wangpipatwong *et al.*, 2008). Therefore, the issue of eG usage and continued use must be carefully addressed not only from the technological perspective but also from social, political and environmental perspectives (Alruwaie, 2012: Basu, 2004). For example, eG enables citizens to participate in governance. However, circumstances such as conflicts, corruption and wars may influence the usage and continuous use intention of eG services in those counties (Alruwaie, 2012: Basu, 2004). Although there are many studies of user's adoption or acceptance in the area of IS, comparatively limited research exists in

understanding citizens' usage and continuous use intention in a single model additionally, under unstable environment condition (conflicts and violence) (Alruwaie, 2012; Hung *et al.*, 2006). In this respect, there has been a lack of comprehensive models that take into consideration the personal psychology of the end users (citizens) with respect to their behaviour (Alruwaie, 2012; Hung *et al.*, 2006).

To obtain the benefits of eG services, the initial adoption and subsequent continued usage of eG services by citizens are required. Wangpipatwong (2008) stated in the case of eG services that government should consider citizens' perceptions towards eG services and investigate the significant factors influencing citizen's continuance intention to use eG websites. Whereas, several recent studies (Carter & Belanger, 2004; Phang *et al.*, 2005; Treiblmaier *et al.*, 2004; Wang, 2002) have investigated the factors influencing the initial intention to use eG services, where the investigation of intention to continue using eG is very important (Wangpipatwong, 2008) and of a high priority.

As with any IS usage, the trade off between benefits and costs has an important impact on continuance usage intention (Chiu & Wang, 2008; D E Lone & M C Lean, 2003). Likewise, initial use of eG websites is an important indicator of eG success. However, it does not necessarily lead to the desired outcome unless a significant number of citizens move beyond the initial adoption and use eG services on a continued basis. Furthermore, discontinuance may occur after the adoption of innovation if the system does not meet the user's needs regardless of its successful prior adoption (Roger, 1995; Limayem *et al.*, 2003; Wangpipatwong *et al.*, 2008). In

this respect, there has been a lack of comprehensive models that take into consideration the personal expectations of the end users (citizens) with respect to their behavioural usage (Alruwaie, 2012; Hung *et al.*, 2006). Finally, the summary of the sources, area, status, and measurements of previous studies related to CUI is listed in the Table 3.4.

Table 3.4

The Summary of the (Sources, Area, and Measurements) of Previous Studies Related to (CUI)

Source	Country	Measurement
Chiu and Wang, (2008)	Taiwan	If I could, I would like to continue using Web-based learning in my learning activities in the future. It is likely that I will continue using Web-based learning in the future. I expect to continue using Web-based learning in the future.
Wangpipatwong (2008)	Thailand	In the future, I would not hesitate to use e-Government websites. In the future, I will consider e-Government websites to be my first choice to do business with the government. In the future, I intend to increase my use of e-Government websites.
Bhattacherjee (2001)	United States.	I intend to continue using OBD rather than discontinue its use. My intentions are to continue using OBD than use any alternative means (traditional banking) If I could, I would like to discontinue my use of OBD

3.3.2 Use Behaviour (UB)

Walela (2009) defined Actual or Usage Behaviour as:

"The individual's observable response in a given situation with respect to a given target, behaviour is a function of compatible intentions" (Walela, 2009, pxi).

Behavioural psychology has been identified as a field, where a number of theories have been extracted to study the reasons behind the individual adoption of new information technology. Additionally, the behavioural becomes a very important factor for the services success (Al-Mushasha & Hassan, 2011). Also, it has also been empirically confirmed that some theories account for about 50% variance of individual use or intention towards the usage of IT, and researchers have also tested

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32 of the constructs taken from eight of the theoretical models to identify the constructs that are more influential on the use of IT (Venkatesh *et al.*, 2003). The eight acceptance models included in UTAUT are UTAUT itself and other recent studies that identified intention as the direct determinant of system use (Allen & Kishore, 2006; Wu *et al.*, 2007).

Moreover, the UB mediating effect in the theoretical framework is presented in Figure 5.5., where the present research hypothesizes that the UB mediates the relationship between the antecedent variables (EE, FC, PE, SI) and CUI of eG services. According to Baron and Kenny (1986), a mediator variable is a generative mechanism, wherein the focal independent variable influences the dependent variable of interest. Mediation conveniently takes place where there is a significant relation between predictor and criterion variables. A mediating variable is considered as so if it develops an indirect effect through which the focal independent variable influences the criterion variable under study (Baron & Kenny, 1986). Moreover, Kenny and Little (2011) stated that the mediator variable is capable of transmitting some causal effects of the previous variables on the next ones.

Furthermore, mediating variables have been playing a key role in both psychological theory and research (MacKinnon & Fairchild, 2010). This type of variable enables the transmission of the antecedent variable's effect to the dependent variable, and hence providing a clarification of variable relationships (MacKinnon & Fairchild, 2010). Several methods have been used for the assessment of mediation in various researches in the past twenty years (MacKinnon & Fairchild, 2010). A mediation analysis provides the identification of basic processes that underlie human behavior

and are significant throughout behaviors and contexts (MacKinnon & Fairchild, 2010). Following the identification of an actual mediating process, more efficient and effective interventions can be created since focus can be placed on the variables in the process of mediation (MacKinnon & Fairchild, 2010).

Various methods of mediation-analysis with the inclusion of statistical and experimental methods have been utilized in the field of psychology. In addition, mediation analysis has become a significant area of substantive and methodological studies (MackKinnon & Fairchild, 2010). The extant and potential mediation analysis developments assist in obtaining authentic answers to the question of the manner and the reason behind the relationship between two variables (MacKinnon & Fairchild, 2010). Moreover, in Public Emergency and conflict environments, the researcher intends to establish the mediating relationships between UTAUT antecedents (EE, FC, PE, SI) and CUI by UB of eG services. Finally, the summary of the sources, area, status, and measurements of previous studies related to UB is listed in Table 3.5.

Table 3.5
The Summary of the (Sources, Area, and Measurements) of Previous Studies Related to (UB)

Source	Country	Measurement
Venkatesh, *et al.* (2003)	USA	Individual acceptance of information technology
Yahya, *et al.* (2011)	Malaysia	It measured by system usage has been one of the predominantly proposed measures of system success
Wang and Shih (2009)	Taiwan	The number and frequently of the recurrence that will use information kiosks during a week and at each one time, how many minutes do use it.
AlAwadhi and Morris, (2008)	Kuwait	I intend to use the system in the next <n> months. I predict I will use the system in the next <n> months. I plan to use the system in the next <n> months.
Foon and Fah, (2011)	Malaysia	It measures by intend, predict, plan to use Internet Banking service in the future

Table 3.4 (Continued)

Source	Country	Measurement
Maldonado *et al.* (2011)	South American	USE 1: On an average working day, how much time do you spend using the Peru EDUCA portal? 1) Almost none; 2) less than 30 minutes; 3) from 30 minutes to 1 hour; 4) from one to two hours; 5) from two to three hours; and 6) more than three hours. USE 2: On average, how frequently do you use the Peru EDUCA portal? 1) Less than once a month; 2) once a month; 3) a few times a month; 4) a few times a week; 5) about once a day; and 6) several times a day. USE 3: How many different applications of the Peru EDUCA portal have you worked with or used in your studies? 1) None; 2) one; 3) two; 4) three to five applications; 5) 6 to 10 applications; and 6) more than 10 applications.
Carlsson *et al.* (2006)	Finland	1. Do you use MMS? 2. Do you use search services? 3. Do you use ring tones?
Al-Majali (2011)	Jordan	1- I find Internet banking is useful for managing my financial matters. 2- I believe Internet banking is an easy way to conduct banking activities. 3-1 agrees that Internet banking is encouraging. 4- I feel fast Internet access speed is important in Internet banking.
Al-Zoubi, *et al.* (2011)	Jordan	The firm's uptake and use of the various available functions and services provided by the Jordanian eG which ranges from getting information to conducting transactions with government online.

The problems noted in the present study indicate that all previous studies on eG behavioural usage were done through different ways and have produced inconsistent and conflicting results with respect to the relative importance of the prior studies that explained eG usage behaviour. However, the current research involved and tested UB as a mediating and directly linked to CUI in the violence area.

3.3.3 Electronic Services Awareness

Awareness is one of the important variables related to the developed theory of Innovation Diffusion Theory (IDT) (Rogers, 1962; Amescua, 2007). This explains whether the users are aware of the service itself and its benefits or not (Al-Majali, 2011; Sathye, 1999), and many studies linked the importance of E-Services (E-S)

awareness to eG services (Graafland-Essers & Ettedgui, 2003; Jaeger & Thompson, 2003; Khan *et al.*, 2010a, 2010b, 2012; Meer & Winden, 2003).

This study explored the citizens' awareness towards the UB of eG services that are available in Iraq. A strong relationship between the usage of citizens of eG services with success is established (Park, 2008), with an evidence that the success of eG services depends on the acceptance of its usage by the citizens (Fu, Fam, & Chao, 2006; Park, 2008), while the citizens' awareness of the existing of eG online services on the eG portal is of utmost priority (Jaeger & Thompson, 2003).

Studies have observed that it is the government's responsibility to publish available eG services and the launching of eG portal to the entire public using various channels, and also the usage of training programs to create citizens' awareness on how to benefit from the usage eG service and IT tools generally (Graafland-Essers & Ettedgui, 2003; Khan *et al.*, 2010a, 2010b, 2012; Meer & Winden, 2003).

The development of functional applications relies on the understanding of users' needs and motivations as well as the environment in which the applications are to be used. Graafland-Essers and Ettedgui (2003) conducted a study of citizen's use and acceptance of eG services in different countries (EU Member States, the USA and Switzerland), and realised that eG services' familiarity was highly correlated with attitudes towards the usage of eG services, while most of the citizens were not always aware of the type of government service available online.

A study done in the USA and Switzerland confirmed a high correlation between government services and attention to usage of eG services, but it equally showed that not all citizens were aware of the availability of e-services by eG portal (Graafland-Essers & Ettedgui, 2003; Khan *et al.*, 2010a, 2010b, 2012).

A study, in Bahrain (a Middle East country) expressing the significance of the study, confirmed a high positive correlation between E-SA in government portal and the rate of the usage (Bega, 2007), and Hossan and Habib (2008) centred their study on the awareness of eG initiatives among the Bangladesh government employees. The research used a survey to study the perception towards a newly developed application of eG initiative called electronic citizens (e-citizens) service, and expected to be used among the government officials (Hossan & Habib, 2008). Additionally, this study concludes (E-SA) as a most critical failure and success factors describing the eG system (Hossan & Habib, 2008). From the focus of the study of replicating the model needed to identify the needed factors worthy of being considered for successful use of the eG service, it is shown that awareness, effect of awareness on the value related to the eG initiative of the Bangladesh government employees are crucial (Hossan & Habib, 2008). In this view, it is suggested that a responsible authority needs to identify persons to be saddled with the responsibility of promoting Bangladesh's eG views, especially of its government officials. In Iraq, the government did not care about creating awareness of the eG project through enough communication channels in order to get the Iraqis informed of the availability of eG services except of limited information publication through the internet. Therefore, it is important to test E-SA in Iraq because of its instability

status. The summary of the sources, area, status, and measurements of previous studies related to E-SA is listed in the Table 3.6.

Table 3.6
The summary of the (Sources, Country, Status, and Measurements) of Previous Studies Related to E-SA

Source	Country	Status (significant or Not)	Measurement
Khan *et al.*, 2010	Afghanistan	Significant (+)	It is measured by: Nowadays, government services are available on the Internet. I know the addresses (links) of government websites. The government promotes awareness about government services provided through the Internet.
Khan *et al.*, 2012	Afghanistan	Significant (+)	It is measured by: Nowadays, government services are available on the Internet. I know the addresses (links) of government websites. The government promotes awareness about government services provided through the Internet.
Khan (2010)	Afghanistan	Significant (+)	It is measured by: Nowadays, government services are available on the Internet. I know the addresses (links) of government websites. The government promotes awareness about government services provided through the Internet.
Al-Majali (2011)	Jordan	Significant (+)	1- I receive enough information about Internet banking services. 2 -I receive enough information about the benefits of Internet banking service. 3-I receive enough information about using Internet banking service. 4- I aware about Internet banking service and its benefits
Mofleh and Wanous (2008)	Jordan	Not	People's knowledge of e-Government project, and the availability of electronic services.

The Table 3.6 highlights some previous studies relating E-S Awareness to E-Services in different domains and countries, showing how these items were used to measure the factors considered from the different researches, and show the sources, country, and the results as related to the awareness in the different field of studies, and its respective measurements.

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3.5.4 Performance Expectancy (PE)

Performance Expectancy is defined as the degree to which an individual believes that using a system or a service will help him or her to achieve benefits in job or in life performance. In this regard, Iraqis do not believe that technology and eG services enhance their life; nonetheless, Performance Expectancy (PE) influences behavioural usage of eG services. Constructs extracted from different models to examine performance expectancy are perceived usefulness taken from TAM/TAM2 and C-TAM-TPB, extrinsic motivation MM, job fit MPCU, relative advantage from IDT, and outcome expectations from SCT. From the literature reviewed, the similarities are established between some pairs of the construct, namely usefulness and extrinsic motivation (Davies *et al.*, 1989, 1992), usefulness and job-fit (Thompson *et al.*, 1991), usefulness and relative advantage (Davis *et al.*, 1989), usefulness and outcome expectations (Compeau & Higgins, 1995; Davies *et al.*, 1989), and job-fit and outcome expectation (Compeau & Higgins, 1995; Venkatesh *et al.*, 2003). The summary of the sources, area, status, and measurements of previous studies related to Performance Expectancy is listed in Table 3.7.

Table 3.7
The summary of the (Sources, Country, Status, and Measurements) of Previous Studies Related to PE

Source	Country	Status (significant or Not)	Measurement
Venkatesh, *et al.* (2003)	USA	Significant (+)	It is measured by finding the system usefulness to the job which makes it quicker, productive and I will increase my chances of getting a raise
Yahya, *et al.* (2011)	Malaysia	Significant (+)	It is measured by adopting performance expectancy to an e-Syariah Portal context which implies that users will think e-Syariah Portal beneficial as it enables them to accomplish their purposes faster and with more flexibility, or even helps increase productivity of those purposes.

Table 3.7 (Continued)

Source	Country	Status (significant or Not)	Measurement
Wang and Shih (2009)	Taiwan	Significant (+)	It is measured by finding the information kiosks useful to the job which makes it quicker, productive and I will increase my ability to get timely information.
AlAwadhi and Morris, (2008)	Kuwait	Significant (+)	Find the system useful to the job which makes it quicker, productive and I will increase my chances of getting a raise. Furthermore, The e-government website would enable me and all citizens an equal chance to carry out their business with government and at the same time access government information and services when I need them – 24 hours/day, 7days/week.
Al-Shafi and Weerakkody (2009)	Qatar	Significant (+)	Find that eG enables me to accomplish tasks more quickly. It will develop existing bureaucratic services, at the same time, it is useful by one click furthermore, eG system trusted and allowed Equal chances to all citizens to accessing it 24/7. The Leadership and team are committed and integrated to eG project and agencies at the same time.
Al-Shafi and Weerakkody (2010)	Qatar	Not	Measured by the individuals believe that using eG will help them improve their job performance and contain five variables: performance expectancy, extrinsic motivation, job-fit, relative advantage and outcome expectation.
Al-Sobhi, *et al.* (2011)	Saudi Arabia	Not	Measured by the degree to which an individual believes that using the eG or intermediary's (e-office) system will help him or her to attain gains in personal performance.
Abdul-Rahman *et al.* (2011)	Malaysia	Significant (+)	Measured by the degree to which digital library users believe that using the digital information resources in the digital library will provide them with the advantages in their study or/and research. PE comprises five (5) items.
Venkatesh *et al.* (2011)		Significant (+)	Find the system useful to the job which makes it quicker, productive and I will increase my chances of getting a raise.
Foon and Fah (2011)	Malaysia	Significant (+)	I can manage my money online anytime. I can keep a record of my Finance. I donot need to visit traditional banks regularly. I can save time b paying essential bills at the post office.
Carlsson *et al.* (2006)	Finland	Significant (+)	Using a mobile device is flexible since I may use it anywhere. Using a mobile device is flexible since I may use it anytime. In my opinion, using a mobile device is useful. I am in real time since I carry

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Table 3.7 (Continued)

Source	Country	Status (significant or Not)	Measurement
			a mobile device with me that is always connected to the network. I save time by using a mobile device. Using mobile services is flexible since I may use them anywhere. Using mobile services is flexible since I may use them anytime. In my opinion, using mobile services is useful. I save time by using mobile services. I may personalize the mobile services that interest me. Mobile services make the time fly when there is nothing else to do.
Adulwahab and Dahalin (2011)	Nigeria	Significant(+)	It is measured by finding the ICTs in telecentre are useful to the job which makes it quicker, productive and I will increase my chances of getting a raise.

The Table above showed the relationship between PE and various variables that affect the usage issues of the technology and revealed the inconsistency of results, where some researches illustrate being significantly related (AlAwadhi & Morris, 2008; Venkatesh *et al.*, 2003; Wang & Shih, 2009; Yahya *et al.*, 2011), while others (Al-Shafi & Weerakkody, 2010; Al-Sobhi *et al.*, 2011) show an insignificant relationship.

3.5.5 Effort Expectancy (EE)

Effort Expectancy is defined as the degree of ease associated with the use of the system. EE as a concept was captured by taking three constructs from the existing models, namely perceived ease of use taken from TAM/TAM2, complexity from MPCU, and ease of use from IDT, with substantial similarities among the constructs definitions and the measurement scales. The similarities among these constructs have been noted in prior researches (Davis *et al.,* 1989; Thompson *et al.,* 1991). Considering the constructs of the component models, effort expectancy is said to be

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significant in both context usages of being voluntary and mandatory, with a recorded significance for the period of time only, while extended and sustained usage makes it insignificant (Davis *et al.*, 1989; Thompson *et al.*, 1991, 1994).

Constructs that are effort-oriented are of more importance in the early stage of new behaviour. At this stage, processes involved are the obstacles to be overcome with the effect of some concerned instrumentality (Davis *et al.*, 1989; Venkatesh, 1999; Venkatesh *et al.*, 2003). Effort Expectancy (EE) influencing behavioural usage of eG services and citizens' skills has been identified as one of the major contributors of eG success (Jain & Kesar, 2011). Additionally, Khan *et al.* (2010a, 2010b, 2012) emphasised that for a successful eG service, there must be skilled human resources.

Generally, the majority of the Iraqis are not IT skilled, and do not use Internet widely, and with the statistical evidence, not more than 3% of Iraqis are using the internet (Iraq Portal, 2011). The summary of the sources, area, status, and measurements of previous studies related to EE is listed in Table 3.8.

Table 3.8
The summary of the (Sources, Country, Status, and Measurements) of Previous Studies Related to EE

Source	Country	Status (significant or Not)	Measurement
Venkatesh *et al.* (2003)	USA	Significant (+)	It is measured by interaction with the system and would be clear and understandable, become skillful at using the system, easy to use, Alongside Learning to operate the system is easy for me.
Yahya Nadzar *et al.* (2011)	Malaysia	Significant (+)	It is measured by the individual acceptance of the e-Syariah Portal that will depend on whether or not the accessibility on the e-Syariah Portal is easy and effortless.

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Table 3.8 (Continued)

Source	Country	Status (significant or Not)	Measurement
AlAwadhi and Morris (2008)	Kuwait	Significant (+)	Interaction with the system would be clear and understandable, become skillful at using the system, easy to use, Alongside learning to operate the system is easy for me, and furthermore, I would find it easier to talk face to face with someone rather than use online services.
Al-Shafi and Weerakkody (2009)	Qatar	Significant (+)	Interaction with the eG would be clear and understandable, become skillful at using the system, easy to use. Alongside, learning to operate the system is easy for me.
Al-Shafi and Weerakkody (2010)	Qatar	Significant (+)	Measured by the degree of ease associated with the use of the E-G; effort expectancy is made up of perceived ease of use, complexity and actual ease of use.
Al-Sobhi et al. (2011)	Saudi Arabia	Significant (+)	Measured by degree of ease associated with the use of eG services.
Abdul-Rahman et al. (2011)	Malaysia	Significant (+)	Measured by degree of ease associated with the use of the digital library. EE dimension comprises twelve (9) items.
Venkatesh et al. (2011)		Significant (+)	Interaction with the system would be clear and understandable, become skillful at using the system, easy to use. Alongside, learning to operate the system is easy for me.
Foon and Fah (2011)	Malaysia	Significant (+)	It is easy to use. I find the system flexible to interact with. Using Internet banking saves me a lot of time.
Carlsson et al. (2006)	Finland	Significant (+)	It is ease for me to use a mobile device. In my opinion, using a mobile device is handy. In my opinion, the capacity of a mobile device is generally adequate. In my opinion, the screen size of a mobile device is generally adequate. I have a clear understanding of what mobile services can be used with my mobile device. It is easy for me to download mobile services. It is ease for me to use mobile services. I learn easily to employ new technologies (e.g. GPRS, WAP, Bluetooth).
Adulwahab and Dahalin (2011)	Nigeria	Not	It is measured by interaction with the ICTs in telecentre would be clear and understandable, become skillful at using the system, easy to use. Alongside, learning to operate the system is easy for me.

From the above Table, it can be deduced that EE is an important reference that explains the degree of ease associated with the effort taken towards the usage behaviour of new innovation. In information system, such as information kiosks and mobile setting, EE plays an insignificant role in determining users' intention to adopt a technology (Adulwahab & Dahalin, 2011; Wu *et al.*, 2007).

The EE's influence when examined in other areas shows a relationship in the different areas using different models. Most importantly, past studies showed that EE's influence has a significant effect on BI (Abdul-Rahman *et al.*, 2011; Al-Shafi & Weerakkody 2009; Al-Shafi & Weerakkody, 2010; Al-Sobhi *et al.*, 2011; Foon & Fah 2011; Venkatesh *et al.*, 2003; Venkatesh *et al.*, 2011; Yahya *et al.*, 2011). It is of record that only two studies showed that the EE's influence has an insignificant effect on BI; one of the studies conducted in Taiwan and the second in Nigeria, thus resulting in an inconclusive result showing the relationship between EE's influence and BI (Adulwahab & Dahalin, 2011; Wu *et al.*, 2007). However, in Iraq, there are limited past studies that examined the EE's influence on the individual's behaviour.

3.3.6 Social Influence (SI)

Social influence is defined as the degree to which an individual perceives other persons' belief about the system to determine if he or she should use the new system (Chiu & Wang, 2008). Social influence as a direct determinant of behavioural intention is represented through using three constructs, namely subjective norm TRA, TAM2, TPB/IDTPB, C-TAM-TPB, social factors MPCU, and image IDT (Venkatesh *et al.*, 2003). Each of these constructs contains the explicit or implicit notion, where the individual's behaviour is influenced by the way in which they

believe others as a result of having used the technology. Social Influence (SI) could be one of the main reasons of low usage of E-Services (Al-Majali, 2011) 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. The summary of the sources, area, status, and measurements of previous studies related to SI is listed in the table below in Table 3.9.

Table 3.9
The Summary of the (Sources, Country, Status, and Measurements) of Previous Studies Related to SI

Source	Country	Status (significant or Not)	Measurement
Venkatesh *et al.* (2003)	USA	Significant (+)	It is measured by people who influence my behaviour and who are important to me that I should use the system and the system is helpful and supported.
Yahya *et al.* (2011)	Malaysia	Significant (+)	It is measured by the extent to which a person perceives that important. Others believe he or she should use a new information system.
Wang and Shih (2009)	Taiwan	Significant (+)	It is measured by the people who influence my behaviour and who are important to me that I should use the information kiosks and the information kiosks is helpful and supported.
Al-Shafi and Weerakkody (2009)	Qatar	Significant (+)	People and friends who use and influence my behaviour and who are important and in need to me that I should use online government services and the system is helpful and supported and gave more prestige.
Al-Shafi (2010)	Qatar	Significant (+)	Measured by the degree to which peers influence use of the eG, be it positive or negative.
Al-Sobhi *et al.* (2011)	Saudi Arabia	Not	Measured by the important people pressure (family or friends) that influenc the intentions to use E-G, and the influence that an intermediary has on increasing the awareness and the social marketing to adopt eG services.
Venkatesh *et al.* (2011)		Significant (+)	People who influence my behaviour and who are important to me that I should use the system and the system is helpful and supported.

Table 3.9 (Continued)

Source	Country	Status (significant or Not)	Measurement
Foon and Fah (2011)	Malaysia	Significant (+)	It is measured by people who influence my behaviour and who are important to me that I should use Internet banking service and the service is helpful and supported. My work/study environment supports the internet banking service Using the Internet banking service indicates me to have a higher status than those who do not.
Maldonado *et al.* (2011)	South American	Significant (+)	It is measured by most people who influence my behaviour and whose opinions I value and are important to me that I should use the Peru EDUCA portal. The system is helpful and supported.
Carlsson *et al.* (2006)	Finland	Significant (+)	My friends/family members value my choice of a mobile device. I am trendy while using a mobile device. My friends/family members value the mobile services I use. I am trendy while using mobile services.
Wu *et al.* (2007)	Taiwan	Significant (+)	The questionnaire was initially designed in accordance with the operational definitions referred in "2006 WMIS Global Mobile Internet Investigation,, issued by the Institute for Information Industry in 2006.
Adulwahab and Dahalin (2011)	Nigeria	Significant (+)	It is measured by people who influence my behaviour and who are important to me that I should use the ICTs in Telecentre and the ICTs in Telecentre are helpful, supported and have more prestige than those who do not.
Chiu and Wang (2008)		(-) Not	1- People who influence my behaviour that I should participate in Web-based learning activities. 2-People who are important to me think that I should participate in Web-based learning activities 3-The senior management of the organization has supported my participation in Web-based learning activities.

Results from previous studies are summarily seen to be inconsistent and conflicting, while many emphasised a significant role of the SI (AlAwadhi & Morris, 2008; Al-Shafi & Weerakkody, 2009; Al-Shafi & Weerakkody, 2010; Foon & Fah, 2011; Venkatesh *et al.*, 2003; Venkatesh *et al.*, 2011), few observed an insignificant effect (Al-Sobhi *et al.*, 2011; Chiu & Wang, 2008).

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The discussion of the previous studies summarized above shows the result of the inconsistent relationship between SI with various variables drawn from diverse studies on the effect of SI on various variables (Faaeq, Ismail, Osman, Al–Swidi, Faieq, 2013); however, studying this relationship as highlighted has not been investigated properly in Iraq (Faaeq *et al.,* 2013).

3.3.7 Facilitating Conditions (FC)

Facilitating conditions are defined as the level of the individual's belief with regard to the organisational and technical infrastructure that is put in place to support the usage of a system. It is conceptually defined from three different constructs, namely perceived behavioural control extracted from TPBI, DTPB and C-TAM-TPB, facilitating conditions taken from MPCU, and compatibility from IDT. Then, each of the constructs is conceptualised operationally to include consideration of technological and organisational environments designed to avert barriers to the systems' usage.

The compatible constructs extracted from IDT incorporates items that satisfy the individual's work style and the system usage in the organisation. Venkatesh *et al.,* (2003), and Taylor and Todd (1995) acknowledged the theoretical overlap by modelling facilitating conditions as a core component of perceived behavioural control in TPB/DTPB.

Furthermore, there is a lack of Facilitating Conditions (FC) in terms of Infrastructure in Iraq (Al-Dabbagh, 2011; Portal Iraq, 2011), and the teeming challenges and

barriers faced in Iraq can be summarised as follows (a) Iraq is suffering from low level of infrastructure (Al-Basri 2012; Portal Iraq, 2011; Al-Dabbagh, 2011) (b) Iraq spent USD 20 million as an agreement between Iraq and Italy in 2004 to achieve eG project (Tai, 2008), and (c) The present growing conflicts and wars are affecting communication network negatively in Iraq. In summary the next Table 3.10 presents the sources, area, status, and measurements of previous studies related to FC.

Table 3.10
The Summary of the (Sources, Country, Status, and Measurements) of Previous Studies Related to FC

Source	Country	Status (significant or Not)	Measurement
Venkatesh *et al.* (2003)	USA	Not	It is measured by the resources, knowledge necessary to use the system. At the same time, the system is not compatible with other systems. I use in case of the availability for assistance with system difficulties.
Wang and Shih (2009)	Taiwan	Significant(+)	It is measured by the resources, knowledge necessary to use information kiosks. At the same time, the Information kiosks are compatible with other systems. I use in case of the availability for assistance with system difficulties.
AlAwadhi and Morris (2008)	Kuwait	Significant(+)	The resources, knowledge, necessary to use the system. At same time, the system is not compatible with other systems I use in case of the availability for assistance with system difficulties. Alongside, enough internet experience to use online services. Furthermore, donot like to carry out my business with government online, and at the same time, find it difficult to use online services due to lack of time.
Al-Shafi and Weerakkody (2010)	Qatar	Not	Measured by the degree to which an individual believes that an organizational and technical infrastructure exists to support the E-G. Facilitating conditions are comprised of three root constructs: perceived behavioural control, facilitating conditions and compatibility.
Al-Sobhi, Weerakkody *et al.* (2011)	Saudi Arabia	Not	Measured by the degree to which citizens believe that organisational (Intermediary) and technical infrastructure supports the use of eG services and removes barriers to adoption.

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Table 3.10 (Continued)

Source	Country	Status (significant or Not)	Measurement
Venkatesh *et al.* (2011)		Significant(+)	The resources, knowledge, necessary to use the system. At the same time, the system is not compatible with other systems I use in case of the availability for assistance with system difficulties.
Foon and Fah (2011)	Malaysia	Significant(+)	The resources, knowledge, necessary to use the service, All the contents of internet banking service are easy to read and understand. The language in which the document is written is easily understood.
Maldonado *et al.* (2011)	South American	Significant(+)	It is measured by the resources, knowledge, necessary to use the system. At the same time, the system is not compatible with other systems. I use in case of the availability for assistance with Peru EDUCA portal's difficulties.
Carlsson *et al.* (2006)	Finland	Not	In my opinion, the initial costs do not inhibit the use of a mobile device. In my opinion, the operating costs do not inhibit the use of a mobile device. In my opinion, there are adequately available such mobile devices that suit my purposes. My friends/family members guide me in the use of a mobile device. My work community guides me in the use of a mobile device. I get help from the manufacturer/retailer for the problems relating to the use of a mobile device. In my opinion, the initial costs do not prevent the use of mobile services. In my opinion, the operating costs do not prevent the use of mobile services. My friends/family members guide me in the use of mobile services. My work community guides me in the use of mobile services. I get help from the operator for the problems relating to the use of mobile services. I get help from the service provider for the problems relating to the use of mobile services.
Wu *et al.* (2007)	Taiwan	Significant(+)	The questionnaire was initially designed in accordance with the operational definitions referred in "2006 WMIS Global Mobile Internet Investigation,, issued by the Institute for Information Industry in 2006.
Suki and Ramayah (2010)	Malaysia	Significant(-)	Resources required to use the eG system is available to me. I have access to hardware, software and services needed to use the E-government system. I am constrained by the lack of resources needed to use eG System.

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Table 3.10 (Continued)

Source	Country	Status (significant or Not)	Measurement
Adulwahab and Dahalin (2011)	Nigeria	Significant(+)	It is measured by the resources, knowledge, necessary to use the ICTs, Detailed instruction about Telecentre use is available to me. There is sufficient Electricity and Internet service to use ICTs facilities' in Telecentre. A central support is available to help with technical problems. A specified person (or group) is available in case of difficulty.

3.3.8 Experience (EXP)

User acceptance is defined as a "decision made by the individual to interact with the technology,, (AlAwadhi & Morris, 2008; Venkatesh, Morris, Sykes & Ackerman, 2004). Venkatesh et al. (2003) identify (experience a key moderator variables that have been found to be significant in conjunction with technology acceptance models). The UTAUT model also considers experience, as moderators influencing the four direct determinants (Venkatesh *et al.*, 2003). Experience refers to Internet experience in the context of Venkatesh et al.'s (2003) model and according to various studies, experience of the Internet affects perceived usefulness (Al Awadhi & Morris, 2008) and perceived ease of use (Agarwal & Prasad, 1999) which, as a result, affects the system's actual use. Hence, internet users are more likely to use online services and thus experience of the internet is critical in explaining the users' effort and expectancy of performance (Al Awadhi & Morris, 2008; Yu, Liu & Yao, 2003). System use is also expected to increase as technology users sought help and support in effectively using it.

Al Awadhi and Morris (2008) measured internet experience by the duration of time expended for internet use and the frequency of use. Due to the changes in familiarization of the user in terms of software over time, this could be used as a measure of the influence of 'using experience' in each determinant. Hence, 'using experience' is described as the individual's past using habit (Wu *et al.*, 2007). Although the importance of experience is widely acknowledged, its impact upon the relative significance of the condition to evaluate online services has not often been tested in a formal manner (Broekhuizen & Huizingh, 2009). Some studies dedicated to information systems adopted a behaviour approach only to confine their investigation of the direct effects of prior line experience upon applications used as a control variable (Pavlou, 2003). Technology experience or system experience may modify the relevant criteria as it maximizes perceptions of self-confidence and ability and may be inclined towards rewards recognition which guides future behaviour (Meuter *et al.*, 2005). For example, adopters having a direct system experience may be more focused on the benefits of utilizing the system as compared to non-adopters who lack direct experience (Karahanna *et al.*, 1999; Taylor & Todd, 1995).

Direct experience assists customers in using certain websites (Broekhuizen & Huizingh, 2009) and therefore, maximizing their confidence and comfort level when utilizing the Internet (Meuter *et al.*, 2005). Several studies support the notion that experienced users can strongly depend on their experiences and concentrate on the Internet's practical benefits (Broekhuizen & Huizingh, 2009).

3.3.9 Education (EDU)

In Wu's (2007) study, education is added to the control variable group as it is assumed to be a significant control variable in eG. With regards to education in general and to fill the digital divide, governments could assist citizens by providing them with computer education, particularly the elderly and young people (Reffat, 2003 as cited by Al-Shafi & Weerakkody, 2010). Thomas and Streib (2003) revealed that ethnicity, education, income and age play a role in discriminating Internet users from their non-users counterpart. They stated that among the above factors, ethnicity and education are significant predictors of internet users of government Web sites – with most users being better educated. Educational level refers to the various demographic education levels of the citizens (Al-Shafi & Weekkody, 2010; Venkatesh *et al.*, 2000). Al-Shafi and Weerakkody (2010) added that educated individuals and citizens are more likely to achieve superior professions and employ novel innovations.

A positive relationship between education level, technology ownership and usage exists (Venkatesh *et al.*, 2000) and education is among the most significant drivers in innovation adoption, and hence it may be viewed as an independent variable in explaining the distinction between technology adopters and their non-adopters counterparts (Shafi & Weerkkody, 2010).

The digital divide (DD) has a huge impact on eG adoption, especially in developing countries, but only few studies have been dedicated to exploring the DD factors contributing to eG services adoption in developing countries. Research evidenced education as a significant predictor of access to technology (Belanger & Carter,

2006; Hoffman, Novak & Schlosser, 2000; Nie & Erbring, 2000). Along the same vein, Khan *et al.* (2010a, 2010b, 2012) stated that education is the most significant predictor of government e-services use with the rate of internet use higher in the individuals with higher levels of education. According to the National Telecommunications and Information Administration, a notable gap exists in internet use on the basis of education (Belanger & Carter, 2006; NTIA, 2002).

3.3.10 Income (INC)

According to several researchers (Belanger & Carter, 2006; Hoffman, Novak & Schlosser, 2000; Nie & Erbring, 2000), income significantly predicts access to technology. In addition, approximately 78% of households with income ranging from USD 50,000-75,000 have access to the internet, while a mere 40% of those with income ranging from $20,000-25,000 have Internet access (Belanger & Carter, 2006).

In another study, Thomas and Streib (2003) revealed that ethnicity, education, income and age play a role in discriminating Internet users from their non-users counterpart. They stated that among the above factors, ethnicity and education are significant predictors of Internet users of government Web sites–with most users being white and better educated. They concluded that government websites appear to attract exclusive audience compared to the Internet in general (Thomas & Streib, 2003). According to the National Telecommunications and Information Administration, a notable gap exists in Internet use on the basis of income (Belanger & Carter, 2006; NTIA, 2002).

3.3.11 Gender (GEN)

According to Venkatesh *et al.* (2003), gender is a primary moderating variable that is revealed to be significant in the light of previous technology acceptance models. On the basis of IT literature, gender roles are based on significant psychological aspects and are persistent, but they are susceptible to modifications as time passes (Venkatesh *et al.*, 2003). In addition, the present study measures gender by male and female. Differences in gender have been consistently revealed to exist in the context of technology adoption (Morris & Venkatesh, 2000). On another note, Levy (2005) suggested that gender difference studies may lead to misleading findings when age is overlooked. For instance, based on society's well-acknowledged gender roles, the factors characterizing and relating to jobs may change in a significant manner through the supplanting of family-oriented roles for professional women as they enter the force until the time they have children (Morris & Venkatesh, 2000 as cited in Barnett & Marshall, 1991). As previously mentioned, the gender differences could stem from cognitions linked to gender roles (Motowidlow, 1982). Furthermore, researches dedicated to Management Information Systems (MIS) has often stressed on the critical role of demographic characteristics in the technology adoption behaviour (Thomas & Streib, 2003).

3.3.12 Age (AGE)

Venkatesh *et al.* (2003) identify age as a key moderating factor that has been found to be significant in conjunction with technology acceptance models.

Morris and Venkatesh (2000) and Venkatesh *et al.* (2003) have found evidence that explains the significance, direct and moderating effect of age on the behavioural

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intention, adoption and usage behaviours. Venkatesh (2000) found in his study that

the majority of the age group adopting computers in the USA is within the age of 15-

17 years, followed by the age group of 26-35 years.

The young and middle age groups are expected to be more indifferent to adoption,

while the older age group is expected to be more relevant to the non-adopters. Age is

theorized to play an important role. Therefore, in this research, age is assumed to be

an independent variable towards UB of eG services, while researches on job-related

attitudes like Hall and Mansfield (1975) suggested that younger workers may place

more importance on extrinsic rewards. Morris and Venkatesh (2000) also reported

that age differences play a significant role in the adoption of technology. According

to the National Telecommunications and Information Administration, a notable gap

exists in Internet use on the basis of age (Belanger & Carter, 2006; NTIA, 2002).

Several studies have shown the importance of Age as a moderator between other

variables and BI (Abdul-Rahman *et al.*, 2011; Al-Shafi & Weerakkody, 2009; Khan

et al., 2010a, 2010b, 2012; Venkatesh *et al.*, 2003, 2011; Wang & Shih, 2009; Wu *et*

al., 2007).

3.3.13 Perceived Intensity of Civil Conflict (PICC)

Interestingly, the nature of war and domination and civil conflicts have changed from

being domestic and intra-national; what is previously recognized as "low intensity

wars" (Pedersen, 2002) to civil conflicts that result from class struggle and fight for

political dominance in pursuit of their mismatched targets and interests (Gershenson

& Grossman 2000; HIIK 2008). Although the conflicts and violence have grown

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rapidly over the years, searches of literature on the moderating role of intensity of civil conflicts in their title since the year 2000 provide scarcity and lack of relevant studies. Henseler and Fassott (2010) and Henseler and Chin (2010) strongly recommended for a future research involving a moderator because there is a gap in literature regarding the studies with moderators. Therefore, this study involved and tests PICC as a moderate effect in this research.

Civil conflicts are classified into two forms, namely never-ending conflicts and ending conflicts (Gershenson & Grossman, 2000). 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, (see Table 2.1). 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 (HIIK, 2008).

Some of the information system studies showed that the potential impact of conflict has been mainly studied from the interpersonal perspective and the organizational one (Smith & McKeen, 1992), relationship conflict (Kankanhalli et al., 2007), task conflict (Kenneth et al., 2000), and process conflict (Robey et al., 1989) as areas of focus. The association among behavioural intention, civil conflict and MIS, particularly on UB and CUI of eG service has not been examined (Wall & Callister, 1995). Some literature on eG services related the association with political instability (Basu, 2004) because it is considered among the leading challenges that eG services

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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 the adoption of technology for natural resources management (Sanginga *et al.,* 2007). Another study 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 (Partridge, 2007). It is observed that civil conflicts will reduce 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 study's framework extended UTAUT by PICC and CUI construct because Iraq is suffering from high levels of conflicts (Cordesman, 2007; Khan *et al.,* 2010a, 2010b, 2012) and has become now the most dangerous country in the world in 2013 (Top 10 Most Dangerous Countries in the World 2013). Therefore, this study examines the moderating role of intensity of civil conflicts, which were in the field of UTAUT and continued usage intention of eG services among higher education staff in Iraq.

Moreover, CUI is used as a factor because information system indicates that its eventual success depends on its continued use rather than first-time use (Bhattacherjee, 2001; Limayem *et al.,* 2003; Wangpipatwong *et al.,* 2008).

In view of the identified gaps in the reviewed MIS literatures and the classification according to HIIK (2008) and Hong *et al.* (2006), PICC and CUI construct was developed and utilized in UTAUT being used as the underpinning theory. PICC is

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used to measure the perceived intensity of the civil conflict and violence that affect the citizens (users) in Iraq as a conflict and violence area.

Originally, the conflict theory was coined by Karl Marx, but was later adapted and developed by other theorists such as Max Weber to position that an individual or a group intention is the beginning when explaining conflict theory. Additionally, conflict theory is traced to the role played by one person or a group within the larger social scene. One of the theories in conflict states that the whole point of a society is to create social change, and this change often occurs through a matter of physical strife and struggle which are synonymous to the happenings in Iraq (Gandham, 2012).

Some of the effects of civil conflicts on the society include psychosocial and environmental ones, with a discouraging record of research to have dealt with the effect of civil conflict on the adoption of technology. This research employs the psychological effects of violence and civil conflict on the citizens' perception towards the continued usage intention of eG services in Iraq. Stemming from the UTAUT theory, the researcher developed a model of UTAUT extended with PICC to be used for testing the effects of conflicts and violence in the Middle East. Khan (2010a, 2010b, 2012) tested and developed an integrated model from theories drawn from the literature of digital divide, technology adoption, and conflict to predict the intention to use eG services using a sample size of 360 citizens from Afghanistan by means of a survey approach as the data collection instrument. A recent study (Khan *et al.*, 2012), investigated the moderating role of PICC on the relationship E-service Culturability E-service Access, E-service Access Quality, E-service Usage Skills

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(EUS), E-service Social Support, E-Service Awareness, and eG Use Intention Using Partial Least Squares (PLS) approach. The framework included components of social divide, access divide, intention to use eG service and that conflict (perceived behavioural conflict and perceived intensity of civil conflict) moderates certain predictors of intention to use eG services.The implications could be useful for research, policy, and practice of eG service adoption in conflict zones. Additionally, Khan (2010a, 2010b, 2012) included life satisfaction in his framework. Moreover, Khan's (2010a, 2010b, 2012) findings helped policy makers and practitioners to design policies that address concerns of the citizens under the influence of civil conflicts and violence.

Trimmer *et al.* (2000) enumerated the successful Information Systems Development (ISD) and opined that conflict degree are of perennial attention to both the researchers and the practitioners, while the expansion of the ISD scope provides both the enterprise-wide and the web-based systems and those involved in the ISD are of cross organisational functions, experiences and responsibilities (Trimmer *et al.*, 2000).

It is said that the involvement of the un-uniform set of persons in the ISD project has the possibility of resulting in higher levels of conflict, especially within the development group, with the point that not all conflict is detrimental to the tasks of the organisations. The two general forms of conflicts are the interpersonal conflict which has a negative impact on group tasks and relation with a projection of achieving a turnover, while the second form is task conflict with a positive impact on group tasks. Then, the ISD teams recognised different types of conflict so as to

successfully resolve the presented framework within the context of an integrated model of systems development. Finally, the impact of conflict on ISD as well as the factors contributed to its existence should also be considered in the investigation of the different forms of conflict. Therefore, the current study takes into consideration another form of conflict called civil conflict and its impact on eG services (Trimmer *et al.*, 2000).Pondy (1967) identified three types of conflict among the sub-category of formal organisations, namely a. Bargaining conflicts among the interested bodies to an interest-group relationship, b. Bureaucratic conflict between the interested bodies to a superior-subordinate relationship, and c. Systems conflict among the interested bodies to an integrated working relationship, and for each one of the three instances, conflict is treated as a set of episode having each one of them to include stages of latency, feeling, perception, manifestation, and the aftermath. Barnard-Simon model of the inducement-contribution balance theory is used to analyse the organisation's reaction to conflict with a particular interest of the members of the organisation to resolve the conflict through an outright withdrawal from the organisation or through a change of values and behaviours within the context of the existing relationship.

Pedersen D. (2002) mentioned that ethnic conflicts, wars and even the political violence that have taken over the larger percentage of the world is traceable to some structural causes like environmental and economic decline, asset depletion, and erosion of available subsistence farming land, leading to more pronounced impoverishment and food insecurity for the majority of the population in most of the poor and indebted countries. Rivalry, political violence, and internal war are also observed causes of the growing ethnic and religious tension, and resultantly change

the nature of the armed conflicts, thus leading to the assertion of some analysts that the contemporary wars between the states during the second half of the 20th century are of lesser problems than that within states.

Furthermore, not enough attention has been given to the local patterns of the distress that is experienced and the consequences of psychosocial and long term health-impact in spite of the growing number of armed conflicts and civil wars throughout the globe. Researchers studied, based on the scientific literature, especially the emerged ones that focussed on the experience of the collective suffering and traumatic imbalance, and revealed a short or long term impact assessment on the civilian populations of the poor countries that were affected by wars. Conclusively, it is shown that the collective suffering and trauma reflect a bad understanding of how the important social determinants and the range of possible health implication are related in the face of political violence. Pedersen D.'s (2002) study showed the conflict areas around the world as shown in Figure 3.9 below.

Figure 3.9
The Conflict Areas Around the World.
Note: conflicts on the map had at least 1,000 deaths in any one year in the 1990s.
There is no authoritative count of the dead in the recent campaign by Laurent

kabila in the Democratic Republic of Congo (Zaire).UN authorities suspect that more than 200,000 Rwandan refugees missing in central Africa died in the campaign.
Sources: Pederse (2002).

Additionally, emerging political struggles, armed conflicts and wars have a different impact on present populations than the already known wars (conventional) of the past. These contemporary wars were often translated to continuous violations of ceasing fire and neutrality of health services and relief operations, which makes the health workers and health practitioners generally of useful strategic targets in the political manoeuvre. Medical personnel has been subjected to death threats, mass executions, murder, or arbitrary detention and torture by the military and repressive forces in the Philippines, Iraq, Croatia, Bosnia, the Occupied Territories and Indian Kashmir.

Gershenson and Grossman (2000) highlighted some historical cases with a record of victory from a person challenging the present political dominance due to a retreat of a smaller group which was previously dominated in the ended civil conflict.

However, in other places, a temporary change or cease fire will only be achieved by the surviving leading victor during the political instability. A theoretical model is used in this model to identify the factors during the length of a conflict whether it is long lasting or temporal.

It is from these established relationship that the existence of a civil conflict is determined and its period of existence specifically to know when the initial

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challenger becomes politically dominant. Thus, it is realised that ratio of values attached to political dominance are always intermediary in order to determine the length of a civil conflict, hence it implies that the theory is consistent with the obtainable scenarios of the evolution of the 20th century civil conflicts which are more pronounced in countries like Israel/Palestine (Gershenson & Grossman, 2000) Afghanistan, Mexico, Burma, Colombia, Nigeria, Congo, India, Iran, Somalia, Iraq, Myanmar and Pakistan (HIIK, 2008). The summary of the sources, country, and measurements of previous studies related to IPCC is listed in Table 3.10 below.

Table 3.10
The Summary of the (Sources, Country, and Measurements) of Previous Studies Related to PICC

Source	Country	Measurement
Khan *et al.* (2010)	Afghanistan	It is measured by Latent conflict, Individuals/groups around me articulate the positional difference about national values. Manifest Conflict: Verbal threats and abuse can be heard around me. Crises: Violent force can be seen periodically around me. Severe Crises: Violent force is used repeatedly and in a systematic way around me. War: Organized massive violent force is continuously used around me.
Khan (2010)	Afghanistan	It is measured by: Latent conflict, Individuals/groups around me articulate the positional difference about national values. Manifest Conflict: Verbal threats and abuse can be heard around me. Crises: Violent force can be seen periodically around me. Severe Crises: Violent force is used repeatedly and in a systematic way around me. War: Organized massive violent force is continuously used around me.
Khan *et al.* (2012)	Afghanistan	It is measured by Latent conflict, Individuals/groups around me articulate the positional difference about national values. Manifest Conflict: Verbal threats and abuse can be heard around me. Crises: Violent force can be seen periodically around me. Severe Crises: Violent force is used repeatedly and in a systematic way around me. War: Organized massive violent force is continuously used around me.

The above-mentioned Table showed the three studies that investigated PICC as a moderator and used instruments that are related to unstable environment; therefore, the measurement items were adapted to measure the PICC in the republic of Iraq as a

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conflict area and also to fill up the knowledge gap. In the current study, the PICC was applied as a moderator and independent variable in the study framework.

A key moderator variable that has a significant conjunction with technology acceptance models was found by Venkatesh *et al.* (2003). Specifically, Morris and Venkatesh (2000) and Venkatesh *et al.* (2003) empirically explained the significance, direct and moderating impact of specific variables adoption and usage behaviours. Management, psychology and other disciplines' theories depend on moderating variables, particularly those affecting both strength and relationship between two other variables (Dawson, 2013).

Although the moderating effect is almost ubiquitous, the testing and interpretation methods are still ambiguous (Dawson, 2013). In addition, these variable articles need to be reinforced through the explanation of the many issues concerning the most common type of statistical model in management and organizational literature. Moderating impacts to the environment in the recent times are influenced by conflicts and violence (Dawson, 2013). Future researches are required to examine extant research for other potential moderators like psychographic variables (e.g. PICC), and socio-demographics (Broekhuizen & Huizingh, 2009).

Not unlike other disciplines, management and MIS research is rife with theories that suggest that the linkage between two variables depends upon a third variable (Locke *et al.*, 1981). Owing to the need for further research as highlighted above, the present study examines the PICC impact upon the relationship between UB and CUI of citizens in a conflict environment with UTAUT as the underpinning theory.

Generally speaking, a moderator is a variable affecting the linkage between two or more variables and moderation refers to the moderating effect upon the linkage (Dawson, 2013; Saidon, 2012; Holmbeck, 1997). Examining the moderating effect of online services is significant to both management and researchers alike (Broekhuizen & Huizingh, 2009). The interaction of the moderator variable with the predictor variable in a manner that shows their impact upon the dependent variable as illustrated in Figure 5.7. In the present research, the conflict characterized on the civil level is hypothesized as (Hypotheses No 13 and 9).

Researchers examine the moderating impact of online services to provide a clear overview of the way users may differ in their online services evaluation (Broekhuizen & Huizingh, 2009) on the basis of their level of civil conflicts in the environment. This may also explain the inconsistencies in the findings revealed concerning the relationships of user behaviour with continued online usage behaviour (Broekhuizen & Huizingh, 2009). In brief, all the acceptance models and theories, including a) Theory of Reasoned Action (TRA) (b)Theory of Planning Behaviour (TPB) (c) Technology Acceptance Model (TAM), (D) an extension of TAM or what is known as TAM 2, (e) Innovation Diffusion Theory (IDT), (f) Combined TAM and TPB (C-TAM-TPB), (g) Motivational Model (MM), (h) Model of PC Utilization (MPCU), (i) Social Cognitive Theory (SCT), (j) Expectation-Confirmation Theory and (m) Unified Theory of Acceptance and Use Technology Model (UTAUT) are used to investigate the acceptance of information technology and information system.

Nevertheless, there is no previous models or theories that investigated the antecedent of UTAUT (PE, FC, SI, EE) and demographic variable (AGE, GEN, EDU, INC, EXP) with ESA as an IV and mediated by usage behaviour and moderated by PICC affecting the continued usage intention in the conflict and violence country. Thereupon, the current study filled full literature gap regarding risky and insecure environment such as Iraq. In summary, the following Table 3.12 included the previous studies that investigated the proposed Model Constructs.

Table 3.12

Previous studies that Investigated the proposed Model Constructs

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Current study
E-SA													√			√	√					√									√
PE		√	√	√	√	√	√	√	√	√	√			√	√					√	√		√	√	√			√	√	√	√
EE		√	√	√	√	√	√	√	√	√	√			√	√					√	√		√	√	√			√	√	√	√
SI		√	√	√	√	√	√	√	√	√	√	√		√	√					√	√		√	√	√			√	√	√	√
FC		√	√	√		√	√	√	√		√	√		√	√			√		√	√		√		√			√	√	√	√
CUI					√																√				√	√	√				√
UB	√	√	√			√	√		√			√		√	√				√	√								√	√		√
AGE	√		√		√	√	√		√	√					√	√	√											√		√	√
GEN				√	√	√			√	√					√													√		√	√
IPCC																√	√														√
EDU						√										√	√														√
EXP	√			√	√				√	√					√	√	√													√	√
INCO																√															√

Note. The number 1-30,studies in appendix B; √,the variable is investigated in the study, E-SA, E-service Awareness; PE, Performance expectancy; EE, Effort expectancy; SI, Social Influence; FC, Facilitating Conditions use intention; CUI; UB, Use Behaviour; Edu, Education; Exp, Experience; Inc, Income and IPCC, Perceived Intensity of Civil Conflict.

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3.4 Summary

This chapter elaborates some theories and models related to technology acceptance, especially that of information systems. Examples of the models are Theory of Reasoned Action (TRA) (b) Theory of Planning Behaviour (TPB) (c) Technology Acceptance Model (TAM), (D) an extension of TAM or what is known as TAM 2, (e) Innovation Diffusion Theory (IDT), (f) Combined TAM and TPB (C-TAM-TPB), (g) Motivational Model (MM), (h) Model of PC Utilization (MPCU), (i) Social Cognitive Theory (SCT), (j) Expectation-Confirmation Theory and (m) Unified Theory of Acceptance and Use Technology Model (UTAUT).

Additionally, this chapter gives a detailed summary of CUI and UB and its antecedents, namely E-SA, PE, EE, SI, FC, EDU, EXP, INC, AGE, GEN and PICC. Lastly, after reviewing Chapter two and three pertaining to eG services, six main gaps were identified as illustrated in Figure 3.10. First, it is obvious the lack of studies in IS in the risky and dangerous environment. Second, little is known about the antecedents of continued usage intention. Third, there is shortage of studies in G-2-C services. Fourth, there is scarcity of studies that integrated UTAUT, ECT, TRA and conflict theories in examining new technology. Fifth, there is a lack of studies in non-Western countries. Sixth, there is scarcity of studies in eG services in Iraq.
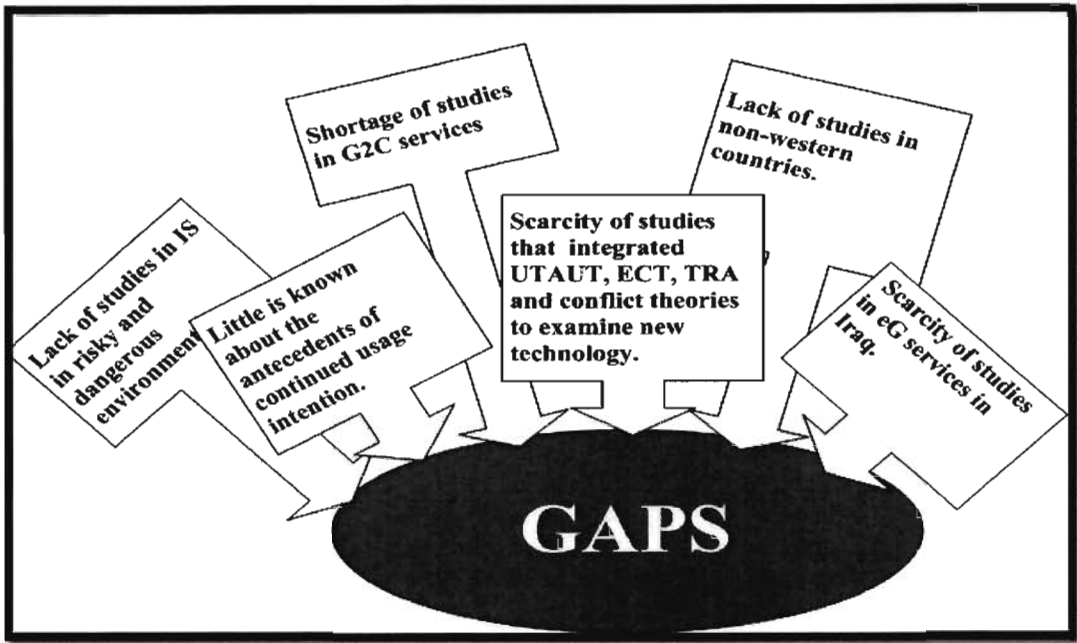
Figure 3.10
Summary of Gaps in the Literature

Finally, all these discussions are conducted by reviewing the literature.

CHAPTER FOUR

METHODOLOGY

4.0 Introduction

This chapter presents the research framework to determine the relationships between research variables of this study. The research framework was developed based on the past literature related to IS filed and innovation usage / continue usage of IS in its general perspective with the aim of drawing inferences and possible adoption or adaption of certain instruments and/or variables for this study. The research framework is based on the theories that are deemed from a solid theoretical background. Then, this chapter discusses the development of the research hypotheses and the measurements of the variables were discussed in detail. Moreover, the chapter also explains the research design and sampling method using the systematic random sample. In the same track, this chapter discusses the questionnaire design. Figure 4.1 illustrates the flow of the chapter.
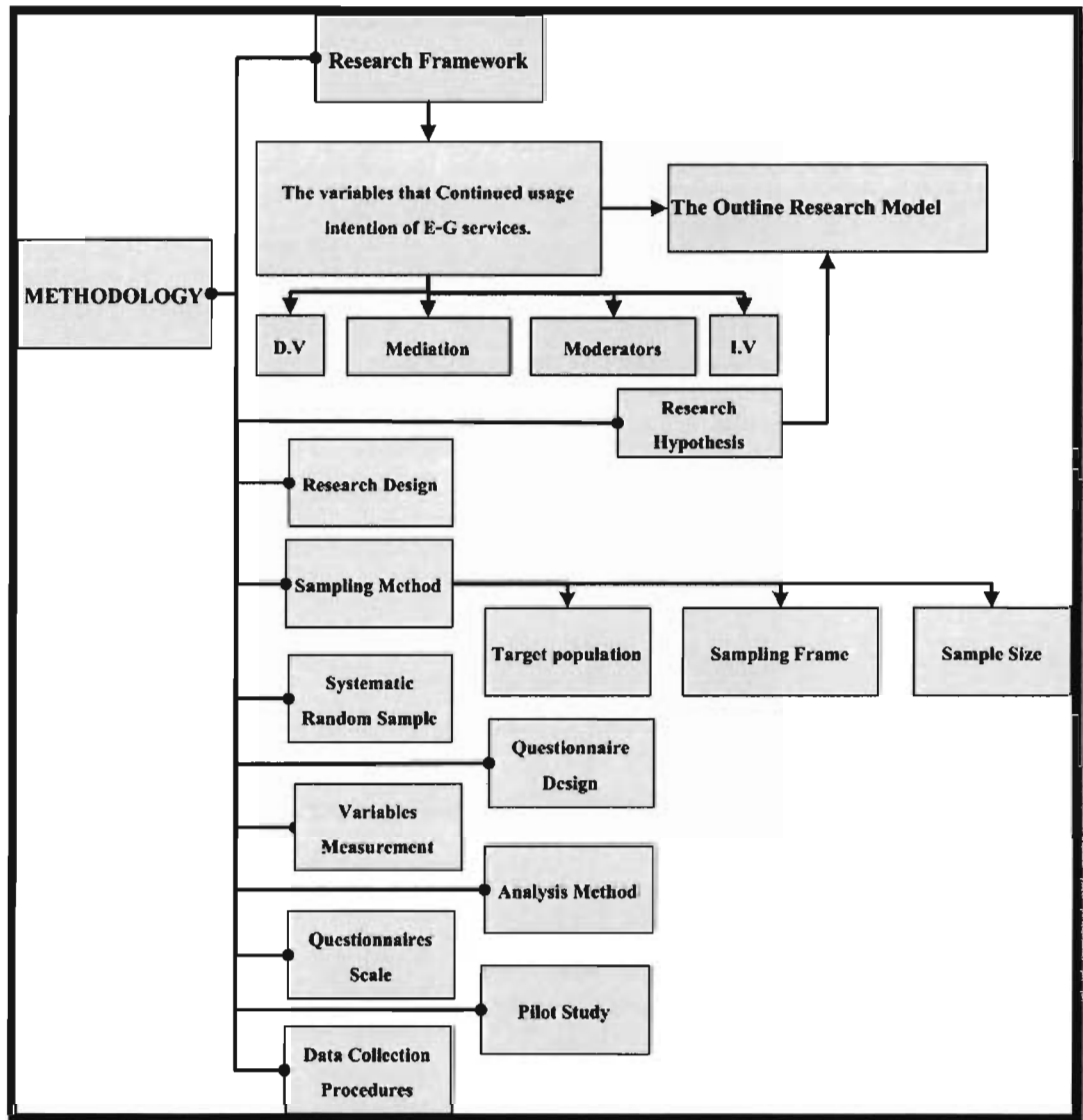
Figure 4.1
Methodology of Current Research

4.1 Research Framework

A theoretical framework is a collection of interrelated concepts that lead to the research, determining what things will be measured and what relationships will be required from the data (Borgatti, 1999). Additionally, a theoretical framework is a representation of reality; it explains in greater details those aspects (variables) of the real world which the scientist considers to be relevant to the problem investigated, and clarifies the significant relationship between them (Frankfort-Nachrnias &

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Nachrnias, 1996). In Chapter one, the issues and background of the problem indicate that there are several potential factors that may influence the eG services in the Republic of Iraq. Eleven variables are also identified which may influence UB and CUI of eG under conflict conditions. Therefore, this study intends to examine these antecedents on CUI employee's in Iraq. Also, the current study intends to establish the mediating relationships between UTAUT antecedent EE, FC, PE, SI and CUI by UB in an unstable environment.

The comprehensive review of literature performed in chapter three found that prior research on acceptance of the IS has either focused on electronic services generally and eG areas in specific as adopted in the developed and/or developing nations. The literature review in the previous chapter, however, failed to find a model, which links UTAUT as an underpinning theory with Perceived Intensity of Civil Conflict (PICC) and Continued Usage Intention in the same framework. In this study, UTAUT is adapted as a framework to investigate the acceptance of eG services among employees in the public sector.

Review of literature revealed that the key problem associated with the high failure rate of eG projects is associated with lack of awareness of the potential factors that help citizens to adopt eG services (Rehman & Esichaikul, 2011). There seems to be a lack of attempts to investigate the effect of Perceived Intensity of Civil Conflict (PICC) with UTAUT theory particularly in a conflict country like Iraq. In other words, there is the near absence of any available study that measures the effect of E-Services Awareness on behavioural intention and the effects of conflicts. The literature also recorded poor data on the usage behaviour and continued usage

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intention of eG services, with Perceived Intensity of Civil Conflict (PICC) as an Independent Variable (IV).

Additionally, this present research attempts to identify the impact of E-Services Awareness (E-SA) on employee Usage Behaviour (UB) of eG services, and Continued Usage Intention with Perceived Intensity of Civil Conflict as a moderator in this relation, with the effect of PE, EE, SI, FC, INC, EXP, EDU, AGE, INC, and GEN on employee Usage Behavioural of eG services as well as on Continue Usage Intention of eG services in the public sector.

The current study considers several variables that influence the continuoued use eG services among Iraqi users. Continued intention to use is considered as the user's responses (Hsueh, 2011; Malhotra & Galleta, 2005). The present research selects continued use behavior of IT services as a criterion variable owing to its importance and distinct contribution to literature dedicated to IT adoption (Venkatesh *et al.,* 2003). Importantly, the IS system's success primarily depends on the latter as opposed to the former (Bhattacherjee, 2001; Limayem *et al.*, 2003; Wangpipatwong *et al.,* 2008). Along the same way, the initial use of eG services was considered as a significant indication of its success. In the context of Iraq, low level of usage of eG services prevail owing to the issue of continued use and the fewest number of eG services users (MOST, 2010; Portal Iraq, 2011). Moreover, the mediating impact of UB in the theoretical framework is displayed in Figure 4.2, where the hypothesis states that UB mediates the relationship between the antecedent variables (EE, FC, PE, SI) and CUI of eG services. In the present study, the researcher aims to establish

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the mediating relationship between UTAUT antecedents, EE, FC, PE and SI, and CUI by UB of eG services in the context of an environment that is rife with conflict.

The distinction between intention and usage has been addressed in some studies. Specifically, Delone and Mclean (2003) integrated behavior intention to use as they considered initial use behavior and intention to use as one and the same. Many prior studies overlooked the examination of the distinction between user perceptions' of initial adoption and continued use (e.g. Bhattacherjee, 2001; Hong *et al.*, 2006; Karahanna, 1999). Additionally, the initial use of eG services is considered as a crucial indication of its success (Wang & Shih, 2009) although this does not always lead to the expected outcome unless the majority of the citizens continue using eG services. Also, citizens may stop using the system if it fails to satisfy their needs regardless of successful adoption (Roger, 1995; Limayem *et al.*, 2004; Wangpipatwong *et al.*, 2008). There are various studies confirming the significance of e-services in the light of citizen's awareness towards eG services (Graafland-Essers & Ettedgui, 2003; Jaeger & Thompson, 2003; Khan *et al.*, 2010a, 2010b, 2012; Meer & Winden, 2003). Moreover, citizen's awareness of eG service ability is a basic factor (Jaeger & Thompson, 2003; Khan *et al.*, 2010a, 2010b, 2012).

However, as of the present day, the Iraq's media channels is still busy handling other pertinent issues, such as disseminating the news of the prevalent civil conflict. Thus, this present research attempts to investigate the impact of E-Services Awareness (E-SA) on the citizen usage behaviour of eG services and Continued Usage Intention.

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More importantly, PE is the most influential among the four predictors of behavioral intention (Venkatesh *et al.,* 2003) and thus, the construct remains significant despite the unstable environment as supported by other studies (Lawan, 2012; Wang & Shih, 2009). Therefore, adopting EE to study intention behaviour of eG services by public sector employees indicates that they will have the tendency to adopt eG services if they are convinced of its ease of use.

Furthermore, Iraqis have a very low income level (Al-Ali, 2010; Al-Basri, 2012; Racine, 2012), which differs from one governorate to another (Al-Basri, 2012), and it even differs in a single region. It is, thus challenging to use the Internet due to the high costs. Added to this, Iraqi citizens in general, suffer from computer illiteracy and low degree of Internet services use (UN & ESCWA, 2007).

In the context of Iraq, FC is characterized by low levels of infrastructure (Al-Basri, 2012; Portal Iraq, 2011) and this includes low Internet service (Hussein, 2009; Portal Iraq, 2011), and the unstable provision of electric power (Portal Iraq, 2011). Based on other studies, experience with the Internet impacts its perceived usefulness (AlAwadhi & Morris, 2008) and perceived ease of use (Agarwal & Prasad, 1999), which in turn, impacts the actual use of the system.

Research has consistently highlighted education as a significant predictor of technology access (e.g. Belanger & Carter, 2006; Hoffman, Novak & Schlosser, 2000; Nie & Erbring, 2000). Similarly, Khan *et al.* (2010a, 2010b, 2012) claimed that education is the most important predictor of eG use.

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A related study by Thomas and Streib (2003) claimed that ethnicity, education, income and age all play a role in separating Internet users from non-users. In related studies (Fahmy & Kim, 2008; Khan *et al.,* 2010a, 2010b, 2012), the authors suggest that their works are applicable to several countries riddled with civil conflicts and that different level and forms of conflict may affect user's intention towards eG service differently. Khan *et al.* (2010a, 2010b, 2012) also called for future research to conduct the same study in different countries facing political conflicts.

On the basis of the report published by the National Telecommunications and Information Administration, a notable gap is present in Internet use according to age, income, education and ethnicity (Belanger & Carter, 2006; NTIA, 2002).

It is notable that some studies only made use of part of UTAUT instead of its entirety as it is more suitable to the organization under study (Maldonado et al., 2011; Wang & Yang, 2005). Concerning the voluntariness of using eG services, it is important to keep in mind that the use of eG services is not compulsory but voluntary (AlAwadhi & Morris, 2008). As such, several studies deleted voluntariness from their researcher to simplify the research framework (e.g. Adulwahab & Dahalin, 2011; Foon & Fah, 2011; Venkatesh et al., 2011; Wang & Yang, 2005). The present study replaces Khan's framework's eG use intention to usage behaviour of eG services as a strong relation between adoption and UB of a citizen exists with regard to using eG services on one hand, and a similar strong relation exists between acceptance and success of eG services on the other hand (Park, 2008).

In fact, the eG project's success hinges on the continued use intention/acceptance of citizens of the services provided by eG (Bhattacherjee, 2001; Limayem et al., 2003; Park, 2008; Wangpipatong et al., 2008). The current study tests the demographic variable with UTAUT as an underpinning theory because of the inconsistent results between countries (Touray, Salminen & Mursu, 2013). One major finding of Nilsson's (2007) study is the existence of substantial demographic (Age, Gender, Education and Income) differences between users of online services in Sweden and Estonia. These are the results of the previous studies in secure countries (Sweden and Estonia), but the influence of demographic variable in unsecure country, such as Iraq is unavailable. Yahya et al (2011) recommended for further work to be carried out if there are differences among users regarding gender, age, education, internet literacy, occupation and income that affect the adoption of eG. The use of the technology by various groups (male and female, older and younger users, low income and high income, educated or nun educated users, expert or nun expert) has also become a subject of research in recent years and various relationships with some demographic variables have been found (Höglund, Macevičiūtė, Wilson, 2004). Demographic variables were used in previous studies in stable environments, such as a study in Sweden (Höglund, Macevičiūtė & Wilson, 2003), Qatar (Al-Shafi & Weekkody, 2010), USA (Belanger, 2006; Hoffman, Novak & Schlosser, 2000), Malaysia (Esman, Embi, Jusoh, 2010) Sweden and Estonia (Nilsson, 2007). However, there is a lack of testing demographic variables in an unstable environment like Iraq. Moreover, other reasons of using demographic variables as IVs to identify the groups mostly affected by the conflict and violence in Iraq with the purpose of highlighting these groups' needs represented mainly by training. Demographic variables are not signified in Qatar (Al-Shafi & Weerakkody 2010; 2011) and Malaysia (Esman,

Embi, Jusoh, 2010). Additionally, demographic variables are not signified in Malaysia as a stable environment (Esman, Embi, Jusoh, 2010). However, there is a lack of studies testing demographic variables in war areas like Iraq. In the present research, the model is developed on the basis of UTAUT and technology adoption. In a related study, Delone and Mclean (2003) incorporated behavior intention to use as an intention to use and initial use behavior of the system is the same in the initial stage. In an attempt to examine the effects of conflicts on eG services UB and CUI of eG services, this study considers civil conflicts as an independent variable as well as a moderator. Another main contribution of this study is the establishment of the mediating relationship between UTAUT antecedents (EE, FC, PE, and SI), and CUI by UB in uncertain and risky environment. Based on the above discussions, the research model for this present research is illustrated in Figure 4.2.
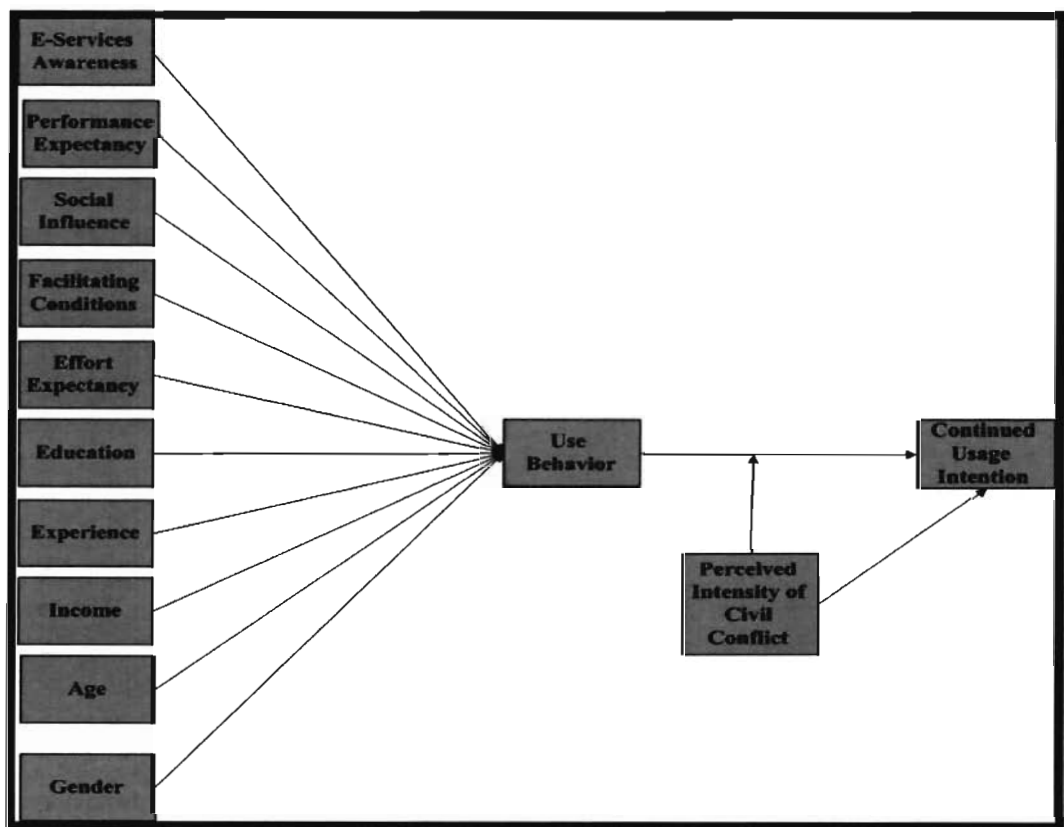
Figure 4.2
The Outline Research Model

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Moreover, perceived intensity of civil conflict is employed as a moderator in this relationship between Usage Behavioural of eG services and continued usage intention of eG services in the public sector.

In this present research, the theoretical model of UTAUT introduced by Venkatesh and Davis (2003) has been used for developing the research framework. Additionally, the current study is different from other studies based on the different angles currently used such as UTAUT with PICC and also using UTAUT as an underpinning theory in unstable circumstances and most dangerous countries in the world (Top 10 Most Dangerous Countries in the World, 2013).

Moreover, very limited studies used UTAUT in Republic of Iraq. The differences between the current study and Khan *et al.'s* (2010a, 2010b, 2012) studies are explained as follows. The current study was conducted in the Middle East countries (Iraq) with Arabic culture, but Khan did his study at Afghanistan. Additionally, the sample of current study is bigger than the previous study. Moreover, the current study measures (E-SA, PE, EE, SI, FC, EDU, INC, EXP, AGE, GEN) on (UB and CUI) of eG services under the effect of PICC in the same model. Furthermore, the current study is applied in Iraq as the most dangerous country in the world (Top 10 Most Dangerous Countries in the World, 2013).

4.2. Research Hypotheses Development

4.2.1 E-Services Awareness and Usage Behaviour

This study included E-S Awareness because first, citizens' awareness about the availability of eG service is crucial (Jaeger & Thompson, 2003). 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 (Graafland-Essers & Ettedgui, 2003). Third, citizens' awareness of the existing of E-S online in eG portal is a high priority (Graafland-Essers & Ettedgui, 2003; Jaeger & Thompson, 2003; Khan *et al.*, 2010a, 2010b, 2012; Meer & Winden, 2003). The current study explores the level of awareness of a citizen towards adoption and 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 (Graafland-Essers, 2003).

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 Khan *et al.*, 2010a, 2010b, 2012).

Carter and Bishath (2008) 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 (Jaeger & Thompson, 2003).

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. Obviously, mass media influence has been shown to have a strong effect on BI towards UB of eG services.

In addition, based on the literature, it can be seen that the mass media influence was discussed in several IT fields in various countries, but in Iraq, the government neglected media to promote eG service's availability, benefit, process etc. among Iraqis. Consequently, the researcher investigated and tested the influence of the mass media factor upon the individuals' behaviour concerning the eG services in Iraq. Moreover, the mass media influence has been investigated in fragmented and diverse ways. Hence, the following hypothesis is proposed:

H_1: *There is a significant positive effect of E-Service Awareness on Usage Behaviour of eG services.*

4.2.2 Performance Expectancy and Usage Behaviour

In this research, performance expectancy is measured by the perceptions of using eG services and how the citizen can access eG services through user's house or office. Additionally, the user can get a benefit, where he/she does not have to go to a government office and request for information or services in conflict environment

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and save their life, particularly in unstable circumstances (violence environment). By means of electronic services, the quality of government services is improved by providing citizens with benefits represented by an equal basis on which to carry out their business with the government (AlAwadhi & Morris, 2008; Al-Shafi *et al.*, 2009). Performance expectancy was found to be a strong predictor of the intention to use IT according to previous acceptance studies (Cooper & Zmud, 1990; Davis, 1989; Taylor & Todd, 1995; Venkatesh & Davis, 2000; Venkatesh *et al.*, 2003). In Iraq, the conflicts had effect on PE because the citizen cannot get usefulness and benefit from eG services because of unstable electric power and high cost of using the internet (Portal Iraq, 2011).

To explain performance expectancy towards using eG system/services, the researcher proposes the following hypothesis:

H₂: Performance Expectancy has a positive influence on Usage Behaviour of eG services.

4.2.3 Social Influences and Usage Behaviour

Social influence is defined in UTAUT as *"the degree to which an individual perceives that important others believe he or she should use the new system"* (Venkatesh *et al.*, 2003. pp451).

Social influences (SI) have been examined as an important factor in predicting technology use behaviour and intention to use (Venkatesh & Davis, 2000). According to the theory of the reasoned action, people's behaviour is affected by the way in which they believe others are important to them and think that a certain behaviour should or should not be followed.

According to Elfagr news in Iraq, there are too many people who are unemployed and if they are employed, they get low income. These people, employees in general and university staff spicily, are often worried to move from their working places to their houses under conflict conditions (kidnapping, killing, crisis, violence and bombs) (elfagr, 2011; O'Hanlon & Livingston, 2013; Top 10 Most Dangerous Countries in the World 2013). When use is mandatory, the role of social influence weakens over time and eventually becomes irrelevant with constant technology usage, but it is important in the early stage of technology usage (Venkatesh & Davis, 2000).

Additionally, Maldonado, Khan, Moon, and Rho (2011) found that social influence had a positive influence on behavioural intention, whereas in this study, the relation between social influence and usage behavioural to use eG service is examined, based on the Iraqis' statement (violence environment and Iraq as a most dangerous country in the world), the following hypotheses are constructed:

H₃: Social influence positively affects the citizen's Usage Behaviour of eG services.

4.2.4 Facilitating Conditions and Usage Behaviour

Facilitating conditions are the degree to which an individual believes that an organisational and technical infrastructure exists to support the system (Venkatesh *et al.*, 2003). Facilitating conditions in the UTAUT comprises perceived behavioural control, facilitating conditions, and compatibility from the TPB, TAM, MPCU, and IDT models (Ajzen, 1991; Taylor & Todd, 1995; Venkatesh *et al.*, 2003). Researchers in the field of technology studies (e.g. Venkatesh *et al.*, 2003; Al-Shafi & Weerakkody 2010; Al-Sobhi *et al.*, 2011; Foon & Fah, 2011; Maldonado *et al.*,

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2011; Wu *et al.*, 2007; Adulwahab & Dahalin, 2011) found that the facilitating conditions construct has a significant effect on innovation user. They also found that it is a significant predictor of the technology use. In contrast, they found that it did not predict intention to use IT when both constructs, performance expectancy and effort expectancy are used in the same model.

Within this study, facilitating conditions were measured by the perception of being able to access required resources as well as to obtain knowledge and the necessary support needed to use eG services. Nowadays, Iraq is suffering from the bad infrastructure (Al-Basri 2012; Portal Iraq, 2011) and such Internet services are very bad (Hussein 2009; Portal Iraq, 2011). Also, the electricity power is not stable since sometimes it is off, whereas other time it is on (Portal Iraq, 2011).

Moreover, the conflict and war affect communication network negatively because some times when the army forces wander around, they disturb the communication network until they go far from that place to avoid attacks from unknown groups (Portal Iraq, 2011). To explain facilitating conditions towards behaviour of eG use under conflict influences, the researcher proposes the following hypothesis:

H₄. Facilitating Conditions have a positive influence on eG usage behaviour.

4.2.5 Effort Expectancy and Usage Behaviour

Obviously, from the literature of IS, the Effort Expectancy (EE) refers to ease associated with the use of the system. The hypothesis of this study is linking between individual's EE and UB of eG services. Additionally, Marchewka *et al.* (2007) claim

that this constructs can be significant in determining user's acceptance of information technology.

According to Kijsanayotin *et al.* (2009), the concept is similar to the perceived ease of use constructed in TAM and the IDT models and the complexity of technology construct in the MPCU model. However, EE can be seen from two angles: perceived ease of use TAM/TAM2 and ease of use IDT. In Iraq, due to conflicts and the unstable environment (e.g lacking in electricity power, Internet connection, and mobile network), all these factors effect perceived ease of use and ease of use of eG services negatively.

Many scholars (Abdul-Rahman, Jamaludin *et al.*, 2011; Al-Shafi & Weerakkody 2009; Al-Shafi & Weerakkody, 2010; Al-Sobhi *et al.*, 2011; Carlsson *et al.*, 2006; Foon & Fah 2011; Venkatesh *et al.*, 2003, 2011) found that effort expectancy has a significant influence on intention to use behaviour. In contrast, Adulwahab & Dahalin (2011) and Wu *et al.* (2007) argue that effort expectancy does not have significant influence to intention to use behaviour, whereas few of them were conducted in eG service setting. However, there are very limited studies in Iraq that examined eG setting and included effort expectancy as an antecedent of UB. The conceptual positive relationship between effort expectancy and BI was examined as shown in previous studies. In this research, effort expectancy is measured by the perceptions of employees towards use behaviour of eG services. Therefore, the researcher proposes the following hypothesis :

H₅: Effort Expectancy has a positive influence on Usage Behavioural of eG services.

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4.2.6 Education and Usage Behaviour

Burgess (1986; cited in Dwivedi & Lal, 2007) argues that persons and citizens who have educational skills are more likely to attain better occupation and are more likely to adopt new innovations. Venkatesh *et al.*, (2000) suggests a positive correlation between the level of education, technology ownership and usage. Scholars Choudrie and Lee (2004) have mentioned that education is one of the most important drivers. Moreover, Dwivedi and Lal (2007) argue that education can be considered as an independent variable to explain the differences between adopters and non-adopters of technology, in this case eG. To explain age towards eG adoption, the researcher proposes the following hypothesis:

H₆. A citizen's Education level has a positive influence on Usage Behaviour of eG services.

4.2.7 Experience and Usage Behaviour

User's acceptance is defined as an "initial decision made by the individual to interact with the technology„ (AlAwadhi & Morris, 2008; Venkatesh, Morris, Sykes & Ackerman, 2004). Venkatesh *et al.* (2003) identify experience as a key moderator variable that has been found to be significant in conjunction with technology acceptance models. The UTAUT model also considers experience, as moderators influencing the four direct determinants (Venkatesh *et al*, 2003).

Experience refers to Internet experience in the context of Venkatesh *et al.*'s (2003) model and according to various studies, experience of the Internet affects perceived usefulness (Al Awadhi & Morris, 2008) and perceived ease of use (Agarwal & Prasad, 1999) which, as a result, affects the system's actual use. Hence, Internet users are more likely to use online services and thus experience of Internet is critical

in explaining the users' effort and expectancy of performance (Al Awadhi & Morris, 2008; Yu, Liu & Yao, 2003). System use is also expected to increase as technology users sought help and support in effectively using it. Al Awadhi and Morris (2008) measured Internet experience by the duration of time expended on Internet use and the frequency of use. To explain age towards eG adoption, the researcher proposes the following hypothesis:

H_7: *A citizen's Experience has a positive influence on Usage Behaviour of eG services.*

4.2.8 Income and Usage Behaviour

According to several researchers (Belanger & Carter, 2006; Hoffman, Novak & Schlosser, 2000; Nie & Erbring, 2000), income significantly predicts access to technology. In addition, approximately 78% of households, with income ranging from USD 50,000 to75,000, have access to the Internet, while a mere 40% of those with income ranging from USD 20,000 to25,000 have Internet access (Belanger& Carter, 2006).

In another study, Thomas and Streib (2003) revealed that ethnicity, education, income and age play a role in discriminating Internet users from their non-users counterparts. They stated that among the above factors, ethnicity and education are significant predictors of Internet users of government Web sites – with most users being white and better educated. They concluded that government websites appear to attract exclusive audience compared to the Internet in general (Thomas & Streib, 2003). According to the National Telecommunications and Information Administration, a notable gap exists in Internet use on the basis of income (Belanger

& Carter, 2006; NTIA, 2002). To explain Income towards eG adoption, the researcher proposes the following hypothesis:

H₈: A citizen's Income has a positive influence on Usage Behaviour of eG services.

4.5.9 Use Behaviour and Continued Usage Intention

Behavioural psychology has been identified as a field where a number of theories have been extracted to study the reasons behind the individual adoption of new information technology. It has also been empirically confirmed that some theories account for about 50% variance of individual use or intention towards the usage of IT, and researchers have also tested 32 of the constructs taken from eight of the theoretical models to identify the constructs that are more influential in the use of IT (Venkatesh *et al.*, 2003). Additionally, UTAUT itself and other recent studies identified intention as the direct determinant of system use (Allen & Kishore, 2006; Wu *et al.*, 2007).

In light of the empirically supported impact of continued usage upon IT success, determining the main factors affecting post-adoption behaviour of the user (continue or discontinue IT usage) becomes significant and critical (Hong *et al.*, 2006). The majority of previous IT adoption researches have failed to examine the difference in user perceptions between the initial adoption and continued use (e.g. Bhattacherjee, 2001; Hong *et al.*, 2006; Karahanna, 1999). An information system generally reflects that its success hinges upon the continued use as opposed to first-time use (Bhattacherjee, 2001; Limayem *et al.*, 2003; Wangpipatwong *et al.*, 2008).

H₉: A citizen's Usage Behaviour of eG services has a positive significant influence on continued usage intention towards eG services.

4.5.10 Perceived Intensity of Civil Conflict and Continued Usage Intention

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" (Pedersen, 2002) to civil conflicts due to class struggle and fight for political dominance in pursuit of their mismatched targets and interests (Gershenson & Grossman, 2000; HIIK, 2008).

Civil conflicts are classified into two forms; namely never-ending conflicts and ending conflicts (Gershenson & Grossman, 2000), 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 (see Table 2.1). 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 (HIIK, 2008).

Some of the information system studies showed that the potential impact of conflict has been mainly studied from interpersonal perspective and organizational perspective (Smith & McKeen, 1992), taking relationship conflict (Kankanhalli & Tan *et al.*, 2007), task conflict (Kenneth J. *et al.*, 2000) and process conflict (Robey *et al.*, 1989) as areas of focus.

The association among behavioural intention, civil conflict and MIS, particularly on UB and CUI of eG service has not been examined (Wall & Callister, 1995). Some literatures on eG services related the association with political instability (Basu, 2004) 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 (Sanginga *et al.*, 2007).

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 (Partridge, 2007). 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 UTAUT by PICC and CUI construct because Iraq is suffering from high levels of conflicts (Cordesman, 2007; Khan *et al.*, 2010a, 2010b, 2012) and it becomes the most dangerous country in the world (Top 10 Most Dangerous Countries in the World 2013). To explain PICC towards CUI of eG, the researcher proposes the following hypothesis:

H_{10}: *PICC has an effect influence on Continued Usage Intention of eG services.*

4.2.11 Age and Usage Behaviour
In terms of demographic keys, and eG context, Al-Sobhi *et al.* (2011) recommended that future research could involve and examine demographic variables such as age in

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the next studies. Many studies involved age in their studies because of the important of demographic variables (Al-Sobhi *et al.*, 2011; Venkatesh *et al.*, 2003; Maldonado *et al.*, 2011). Venkatesh *et al.* (2003) identify age as a key moderating factor that has been found to be significant in conjunction with technology acceptance models.

Morris and Venkatesh (2000) and Venkatesh *et al.* (2003) have found evidence that explains the significance, direct and moderating effect of age on the behavioural intention, adoption and usage behaviours. Venkatesh (2000) found in his study that the majority of the age group adopting computers in the USA is within the age of 15-17 years, then, followed by the group of 26-35 years. The young and middle age groups are expected to be more indifferent to adoption, while the older age group is expected to be more relevant to the non-adopters.

Age is theorized to play a moderating role. Therefore, in this research, age is involved to play an IV effect on the UB of eG services. While researches on job-related attitudes like Hall and Mansfield (1975) suggested that younger workers may place more importance on extrinsic rewards. Morris and Venkatesh (2000) also reported that age differences play a significant role in the adoption of technology. According to the National Telecommunications and Information Administration, a notable gap exists in Internet use on the basis of age, income, education and ethnicity (Belanger & Carter, 2006; NTIA, 2002). To explain Age toward eG adoption, the researcher proposes the following hypothesis:

H_{11}: Age has an influence on Usage Behaviour of eG services.

4.2.12 Gender and Usage Behaviour

According to Venkatesh *et al.* (2003), gender is a primary moderating variable that is revealed to be significant in the light of the previous technology acceptance models. On the basis of IT literature, gender roles are based on significant psychological aspects and are persistent, but they are susceptible to modifications as time passes (Venkatesh *et al.*, 2003). In addition, the present study measures gender by male and female. Differences in gender have been consistently revealed to exist in the context of technology adoption (Morris & Venkatesh, 2000).

On another note, Levy (2005) suggested that gender difference studies may lead to misleading findings when age is overlooked. For instance, based on society's well-acknowledged gender roles, the factors characterizing and related to jobs may change in a significant manner through the supplanting of family-oriented roles for professional women as they enter the force until the time they have children (Morris & Venkatesh, 2000 as cited in Barnett & Marshall, 1991). As previously mentioned, the gender differences could stem from cognitions linked to gender roles (Motowidlow, 1982). Furthermore, researches dedicated to Management Information Systems (MIS) have often stressed on the critical role of demographic characteristics in the technology adoption behaviour (Thomas & Streib, 2003).To explain gender towards eG adoption, the researcher proposes the following hypothesis:

H₁₂: Gender has a positive influence on Usage Behaviour of eG services.

4.2.13 Moderating Effect of Perceived Intensity of Civil Conflict

A key moderator variable that has a significant conjunction with technology acceptance models was found by Venkatesh *et al.* (2003). Specifically, Morris and

Venkatesh (2000) and Venkatesh *et al.* (2003) empirically explained the significance, direct and moderating impact of specific variables towards the intention and usage behaviour. Management, psychology and other disciplines' theories depend on moderating variables, particularly those affecting both strength and relationship between two other variables (Dawson, 2013).

Although the moderating effect is almost ubiquitous, the testing and interpretation methods are still ambiguous (Dawson, 2013). In addition, these variable articles need to be reinforced through the explanation of many issues concerning the most common type of statistical model in management and organizational literature. Moderating impacts to the environment in the recent times are influenced by conflicts and violence (Dawson, 2013). Thus, future researches are required to examine extant research for other potential moderators like psychographic variables (e.g. PICC) and socio-demographics (Broekhuizen & Huizingh, 2009).

Not unlike other disciplines, management and MIS research is rife with theories that suggest the linkage between two variables that depend upon a third variable (Locke *et al.*, 1981). Owing to the need for further research as highlighted above, the present study examines the PICC impact upon the relationship between UB and CUI of citizens in a conflict environment with UTAUT as the underpinning theory.

Generally speaking, a moderator is a variable that affects the linkage between two or more variables and moderation refers to the moderating effect upon the linkage (Dawson, 2013; Saidon, 2012; Holmbeck, 1997). Examining the moderating effect of online services is significant to both management and researchers alike (Broekhuizen

& Huizingh, 2009). The interaction of the moderator variable with the predictor variable in a manner that shows their impact upon the dependent variable is illustrated in Figure 5.7. In the present research, the conflict characterized on the civil level is hypothesized as (Hypothesis No 13).

Researchers examine the moderating impact of online services to provide a clear overview of the way users may differ in their online services evaluation (Broekhuizen & Huizingh, 2009) on the basis of their level of civil conflicts in the environment. This may also explain the inconsistencies in the findings revealed concerning the relationships of user behaviour with continued online usage behaviour (Broekhuizen & Huizingh, 2009). To explain PICC effect between eG UB and CUI of eG services, the researcher proposes the following hypothesis:

H_{13}: *The Civil Conflict in the society moderator the relationship between Usage Behaviour and Continued Usage Intention of eG services.*

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4.2.14 Mediating Effect of Usage Behaviour

The UB mediating effect in the theoretical framework is presented in Figure 4.2, where the present research hypothesizes that the UB mediates the relationship between the antecedents EE, FC, PE, SI and CUI of eG services. According to Baron and Kenny (1986), a mediator variable is a generative mechanism wherein the focal independent variable influences the dependent variable of interest. Mediation conveniently takes place where there is a significant relation between predictor and criterion variables.

A mediating variable is considered as so if it develops an indirect effect through which the focal independent variable influences the criterion variable under study

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(Baron & Kenny, 1986). Moreover, Kenny and Little (2011) stated that the mediator variable is capable of transmitting some causal effects of the previous variables on the next ones.

Additionally, mediating variables have been playing a key role in both psychological theory and research (MacKinnon & Fairchild, 2010). This type of variables enables the transmission of the antecedent variable's effect to the dependent variable and hence providing a clarification of the variables relationships (MacKinnon & Fairchild, 2010). Several methods have used the assessment of mediation in various researches in the past years (MacKinnon & Fairchild, 2010). A mediation analysis provides the identification of basic processes that underlie human behavior and are significant throughout behaviors and contexts (MacKinnon & Fairchild, 2010).

Following the identification of an actual mediating process, more efficient and effective interventions can be created as focus can be placed on the variables in the process of mediation (MacKinnon & Fairchild, 2010). Various methods of mediation-analysis with the inclusion of statistical and experimental methods have been utilized in the field of psychology. In addition, mediation analysis has become a significant area of substantive and methodological studies (MackKinnon & Fairchild, 2010).

The extant and potential mediation analysis developments assist in obtaining authentic answers to the question as to the manner and the reason behind the relationship between two variables (MacKinnon & Fairchild, 2010). Moreover, in Public Emergency and conflict environment, the researcher intends to establish the

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mediating relationships between UTAUT antecedents EE, FC, PE, SI and CUI by UB of eG services. To explain the mediating effect, the researcher proposes the following hypothesis:

H_{14}: The citizen Usage Behaviour positively mediates the effect of Effort Expectancy on Continued usage intention of eG services.

H_{15}: The citizen Usage Behaviour positively mediates the effect of Facilitating Conditions on Continued usage intention of eG services.

H_{16}: The citizen Usage Behaviour positively mediates the effect of Performance Expectancy on Continued usage intention of eG services.

H_{17}: The citizen Usage Behaviour positively mediates the effect of Social Influence on Continued usage intention of eG services

Moreover, the direct hypotheses of the study are restated as illustrated in the Figure 4.3
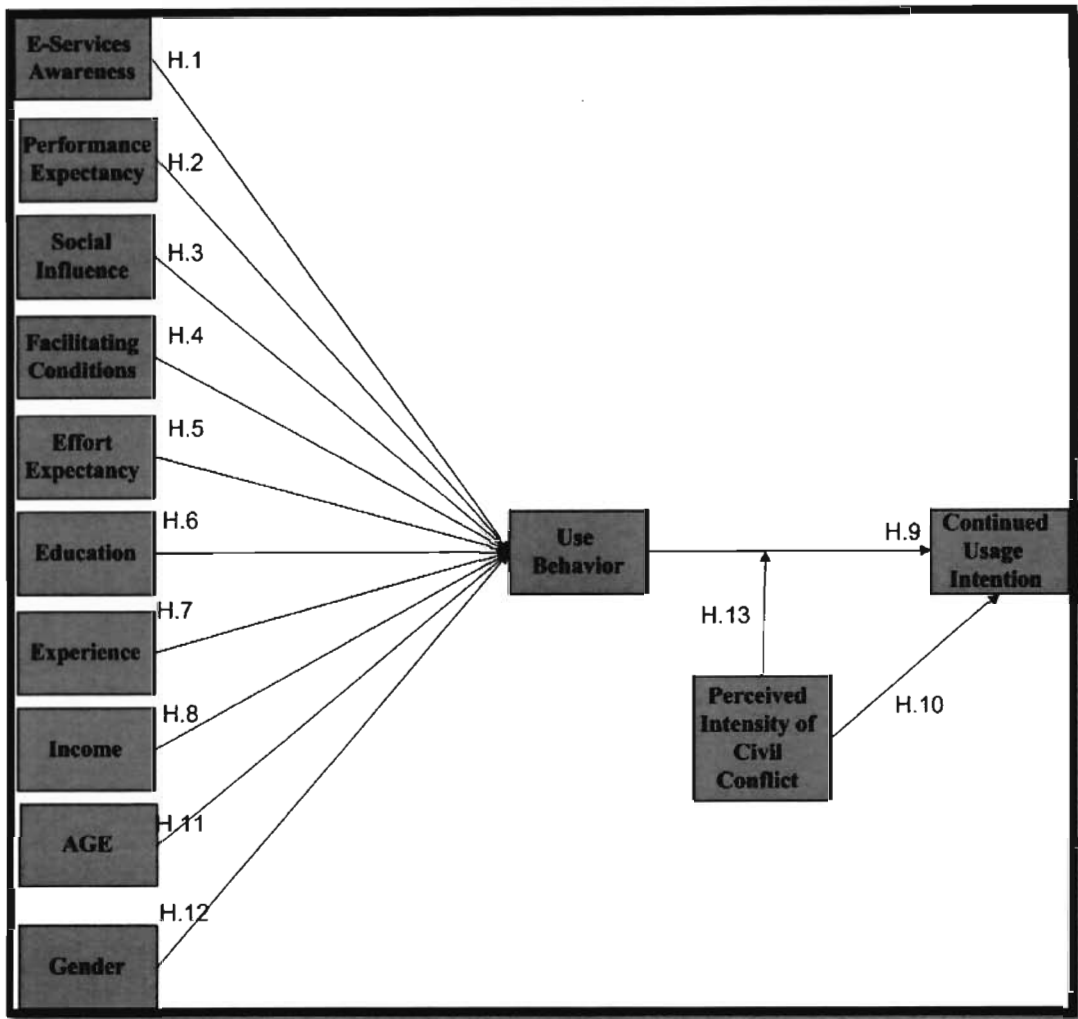
Figure 4.3
The Direct Research Hypotheses

4.3 Research Design

The research design is largely dependent on the strategic plan that comprises methods and procedures of data collection and analysis about a certain population in an attempt to find a solution to the problem statement (Sekaran & Bougie, 2011; Zikmund *et al.*, 2010). The present study aims to examine the causal relationships among the antecedents E-SA, PE, EE, SI, FC, AGE, GEN, EDU, EXP, INC, UB, PICC, and CUI of eG services in proposing a solution to the issues being faced by Iraqi eG services. According to this objective, the following sections explain the purpose of the research, study approach and the unit of analysis.

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4.3.1 Purpose of Research

The purpose of the research comprises a list of steps to be achieved by carrying out the research and how the results can be useful (Yin, 2003). Several scholars have highlighted three main research purposes, namely exploratory research, descriptive research and hypothesis testing (Sekaran & Bougie, 2011). Specifically, an exploratory research is carried out when the issue under study has not been sufficiently and clearly explained. This type of research assists in determining what is going on, seeking new viewpoints, ask questions and tackle a set of phenomena in a new way. This is often used in qualitative studies. On the other hand, the descriptive research is carried out to accurately explain a phenomenon through narrative-type descriptions, classifications or measured relationships to paint an accurate picture of events and situations (Sekaran & Bougie, 2011).

The final type, namely the hypothesis testing enables to determine and infer causal relationships among the study variables (Sekaran & Bougie, 2011). The research purpose may also stem from a combination of the above types for the purpose of answering research questions. Hence, the present study seems to be consistent with a combination of both hypotheses testing and a descriptive research.

4.3.2 Study Approach

A quantitative approach is considered suitable in meeting the research objectives like the ones discussed in the present research. A quantitative research is one that is formal, objective, and systematic and is used to define and examine the expected

causal relationships and calculate interaction impacts among the study variables (Burns & Grove, 2005).

Hence, the quantitative method of analysis can be invaluable to the researcher who is attempting to look for significant results from the data collected. Additionally, the method enables the summary of analysis results in the form of numeric statistical values with a high level of confidence (Zikmund *et al.*, 2010). On this basis, the researcher has sufficient justification to adopt the quantitative approach in this study. Therefore, a quantitative research design is appropriate for this study.

4.3.3 Unit of Analysis

It was regarded by Sekaran and Bougie (2010) and Zikmund *et al.* (2010) that in order to determine the solution to the problem statement, it is important that the unit of analysis from which the response is planned to be obtained must be first identified. The unit of analysis is the level of aggregation of the data to be collected in the data analysis step. It may comprise an individual or an organization. In the context of the present study, individual (university employees) is considered the unit of analysis as it is the individual user that makes use of eG services in terms of G-2-C services. More importantly, employees in public universities are requested their opinion concerning eG services in an unstable environment. Consequently, considering the employee as the unit of analysis in the present study is consistent with its objectives.

4.4 Population and Sampling procedures

4.4.1 Sampling Method

This section provides a discussion of the population, sampling frame, sample size and distribution of the questionnaire to the respondents.

4.4.2 The Target Population of the Study

This study is applied on the eG services setting, which involves the employees of the public universities, who are users of eG services. In general, the employees of the public universities are taken from the public sector in Iraq. Additionally, the main respondents in this study are the public universities' employees (AL-Majali, 2011) who have been using the eG services in Iraq. Moreover, university employees were selected due to the following reasons:

a- According to the Ministry of Higher Education and Scientific Research (MOHE, 2011), the public universities are distributed geographically in all regions of the Republic of Iraq, and this study used three main regions of Iraq (South, Middle and North).

b- According to the domain of study in Iraq that is related to the Internet in the public universities, the ICCI has succeeded in establishing a total of 110 computer centres and 37 Internet centres in Iraq universities (UN & ESCWA 2007). University's staff have also been beneficiaries of IT equipment through ESCWA's Iraqi Networking Academies (INA) project. Therefore, this offering makes the public universities' employees able to use the Internet technology from anywhere and at any time.

c- Currently, the Iraqi government has been trying to support the society to use the technology and ICT. Therefore, the Central Internet Service Station (CISS) has been

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located in the universities to allow the users (student and university staff) to use internet services widely (CISS, 2009).

d- By using the universities as the sampling frame, the population list of the staff is readily available. Thus, this ensured the right sampling selection.

e- There is an enhancement in employment (university staff) income (Al-Basri 2012) and the augmentation in income gives an opportunity for a buying personal computer (PC) and can pay the cost of the internet services used.

f- Almost all employees have cars and can pay their car fine, other traffic violations and fine's inquiry services through eG services (Iraq eG Portal, 2012).

g- Employees are travelling around all over the world for training, dispatch and so on. Furthermore, they are in need of a passport, and they wonder about what are the requirements and processes of renewing those passports. Therefore, it is important for employees to "Obtaining a Passport" services (Iraq eG Portal, 2012). Thus, they use eG services.

h- Iraq eG portal offers much important information to educate employees, such as Education Sector Challenges, Education Sector Objectives and Iraqi universities information (Iraq eG Portal, 2012), and services, such as E-Library and E-Scientific Innovations form (Iraq eG Portal, 2012). Consequently, they use eG services.

i- Employees have a salary, and they have a big opportunity to purchase computer and Internet access point, invest eG services and save time as well as cost. Thus, they use eG services.

j- The majority of university employees have a basic knowledge about computer and programs and e-application. Thus, they use eG services.

k- The employees at university face real challenges and conflicts (killed-kidnapping) and non-security statement (violence environment) (Mukhlif, 2004). Thus, they are

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in need and use eG services. Therefore, this sample (university employees) presented the population of the current study.

4.4.3 Sampling Frame

After the type of respondents was decided, the task of getting the number of public universities in Iraq was based on statistics from the Ministry of Higher Education in Iraq (MOHE, 2011). These statistics indicate that Iraq has nineteen public universities distributed in all regions of the Republic of Iraq as shown in Table 3.1 (MOHE, 2011). To determine the number of employees in the public universities, a database used from Ministry of Higher Education-Department of Statistics and Informatics as shown in Table 4.1.

Table 4.1
Distribution of Public Universities in Iraq.

Region	Name of University	Numbers of Universities
North	Kirkuk Univ, Mosul Univ, Tikrit Univ , Diyala Univ	4
Middle	Baghdad Univ, Islamia Univ, Mustansiriyah Univ, Nahrain Univ, Technology Univ, Qadissuni Univ, Anbar Univ, Babylon Univ,	8
South	Thiqaruni Univ, Wasit Univ, Misan Univ, Al-muthanna Univ, Kerbala Univ, Kufa Univ, Basrah Univ	7
Total		19

Source: (MOHE, 2011)

The researcher had called the Department of Statistics and Informatics to confirm the total number of public university employees to be around seventy nine thousand and seventy employees (79,070), distributed through nineteen universities as shown in Table 4.2.

Table 4.2
Number and Percentages of Employees in Public Universities in Iraq

University name	Academic staff	% Academic staff	Administrative staff	% Administrative staff	All University employees	% of all University employees
Kirkuk University	427	28.12	1091	71.87	1518	1.91
Mosul University	4343	46.31	5035	53.68	9378	11.86
Diyala University	936	32.72	1924	67.27	2860	3.61
University Tikrit	1699	32.93	3460	67.06	5159	6.52
Baghdad University	6563	46.79	7463	53.20	14026	17.73
Islamia University	527	32.31	1104	67.68	1631	2.06
Mustansiriyah University	3299	50.69	3208	49.30	6507	8.22
Nahrain University	924	37.45	1543	62.54	2467	3.12
University Technology	1380	37.79	2276	62.33	3651	4.61
Qadissuni University	888	24.32	2763	75.67	3651	4.61
Anbar University	1475	47.765	1614	52.26	3088	3.90
Babylon University	1651	32.74	3391	67.25	5042	6.37
Thiqaruni University	638	32.15	1346	67.84	1984	2.50
Wasit University	475	25.37	1397	74.62	1872	2.36
Misan University	316	18.08	1431	81.91	1747	2.20
Al-muthanna University	318	23.62	1028	76.37	1346	1.70
Kerbala University	758	34.47	1441	65.52	2199	2.78
Kufa University	1396	35.94	2488	64.05	3884	4.91
Basrah University	2527	35.81	4528	64.18	7055	8.92
Total Universities	30540	38.62	48530	61.37	79070	100

Source: (MOHE, 2011)

Next, the number of public universities and the number of employees for each university (population of the sample) was divided into three clusters based on the geographic regions (South, Middle, and North) as shown in Table 4.4. This study used proportionate stratified sampling, which is the most probable sampling design because the stratification provides the researchers more information with a given sample size (Sekaran, 2003; Sekaran & Bougie, 2011.pp 272).

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Table 4.3
Number of University Employees in Each Region

Region	No. of University	No. of University's employees
North (Kirkuk University, Mosul University, Diyala University, Tikrit University)	4	18915
Middle (Baghdad University, Islamia University, Mustansiriyah University, Nahrain University, Technology University, Qadissuni University, Anbar University, Babylon University)	8	40068
South (Thiqaruni University, Wasit University, Misan University, Al-muthanna University, Kerbala University, Kufa University, Basrah University)	7	20087
Total	19	79070

Then, proportionate stratified sampling was applied to determine the number of sample employees that entered into the sample scope for the present study (Table 4.4 and 4.5). The number of universities in the Middle region is the highest and the number of employees 40068 of the total employees in all the universities, followed by the Southern region with 20087, and then lastly, the Northern region with 18915.

Table 4.4
Proportions of the Sampling Universities and the Percentage Sampling

Area	Number of public university	Probability Sampling of university	Number of employee
North	4	1	18915
Middle	8	1	40068
South	7	1	20087
Total	19	3	79070

According to the above Table 4.4, the probability sampling in the Middle region is one university out of eight and one university out of four for the Northern region and one university out of seven for the Southern. Simple random sampling has been conducted by picking out the names of the universities written on pieces of paper from a cup randomly. This type of sampling was also applied on the probability for South and North region. The results of the random sampling for the Middle region

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were University of Baghdad. Tikrit University was the result for the Northern region, while Kufa University was for the South region.

4.4.3.1 The Profile of the Targeted Universities

This section explains the background of the universities in Iraq, Tikrit University, University of Baghdad and Kufa University.

4.4.3.1.1 Baghdad University

Baghdad is the capital of Iraq and is the biggest city and also considered one of the major cities in the Middle East as well as an ancient city (Razak, 2008). Additionally, Bagdad is located in the centre of Iraq (National Investment Commission, 2013). The area size is approximately (1000) square kilometres (Razak, 2008). Thus, Baghdad University is also located in Baghdad (University of Baghdad, 2013). Baghdad University is not only the largest scientific organization but also the first of its angle started teaching, technical and administrative high-level trained to spread over an area of other Iraqi universities that were established later and also benefited from those cadres of other governmental institutions.

In 1943, the first committee was formed to study the possibility of establishing an Iraqi university. The first law to establish a university in Iraq as "the University of Baghdad" (University of Baghdad, 2013) was launched in September 1956. The University of Baghdad has been since its inception till now provided quickly with all requirements of national development plans by increasing the number of students admitted to the different fields, along with the development of new faculties which have reached now twenty-four colleges as well as four institutes of higher studies

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(Urban and Regional Planning, laser, plasma, genetic Engineering, Institute of accounting and financial Studies). These were supported by increasing graduate disciplines, followed by an increase in the number of students admitted (University of Baghdad, 2013). Finally, the number of employee is 14026 in Baghdad University (MOHE, 2011).

4.4.3.1.2 Tikrit University

Salah ad Din or Salahuddin is a governorate in Iraq in the north of Baghdad. The province has an area of 24,363 square kilometers (9,406.6 sq mi) (Salah Ad Din, 2013). Tikrit is the provincial capital of Salah ad Din that is located on the right bank of the Tigris River, 180 miles north of the capital city of Baghdad (Al-Ali, 2013). In Salahuddin, there is one university called Tikrit University having 5159 employees in this university (MOHE, 2011).

University of Tikrit was founded under resolution No. 951 on 12/23/1987, where the university started with just three colleges, then at currently, there has become many colleges, such as College of Education for Girls, Faculty of Medicine, College of Engineering, College of Education, Faculty of Agriculture, Faculty of Science, College of Business and Economics, Faculty of Law, College of Pharmacy, Faculty of Dentistry, Faculty of Arts, Faculty of Islamic Sciences, College of Veterinary Medicine, School of Computer Science and Mathematics, Faculty of Physical Education, Faculty of Political Science, Faculty of Engineering of Oil and Minerals, Faculty of Basic Education / Sharqat and Faculty of Applied Engineering / Sharqat (Tikrit University, 2013).

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4.4.3.1.3 Kufa University

Kufa is a medieval city of Iraq that was the centre of Arab culture and learning from the 8_{th} to the 10_{th} century. It was founded in 638 by 'Umar I, the Second Caliph. It is located on the banks of the Euphrates River.

Kufa University is located in the governorate of Al-Najaf (Kufa University, 2013) with 3884 employees (MOHE, 2011) and includes many colleges, such as Faculty of Jurisprudence, Faculty of medicine, Faculty of Dentistry, College of Pharmacy, College of Nursing, College of Engineering, etc (Kufa University, 2013).

4.4.4 Sample Size

As mentioned earlier, MOHE (2011) indicates in Table 4.3 that there are around seventy nine thousand and seventy (79,070) employees in all the public universities of Iraq. Therefore, for the population between 75,000 and 1000,000, Table 4.5 shows that 382-384 employees are suitable. This study selected 384 employees as the sampling size (Cohen, 1969).

Table 4.5
Determining Sample Size of a Given Population

N	S
20,000	377
30,000	379
40,000	380
50,000	381
750,000	383
1000,000	384

N= is population size   S= is sample size
Source: Sekaran (2011,pp 295-296)

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Based on the above discussion, 384 samples are targeted to be technically acceptable, completed, and returned. However, the recorded response rate for the universities' employees in past studies is between 40-60% (Al-Majali, 2011).

Additionally, the results that are derived from a large sample could be generalized to the whole population (Hair *et al.*, 2006). Based on this evidence, the researcher used seven hundred (700) as the amount of the sample size.

According to the most rigid rule, i.e. Rule-of-10, the minimum sample size for this study is supposedly 380 (38 items x 10 respondents per item = 380 respondents) (Bartlett *et al.*, 2001). Then, 700 questionnaires were distributed to three public universities employees in three regions in Iraq. Before that, the determination of the probability sampling of employees for each university is needed. The probability sampling was calculated using the following formula:

Probability sampling of an employee = NP * NS / T

(NP= Number of employees in each university, NS= Number of sample to be distributed, T= the total of the employees at all universities).

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Table 4.7
The Probability Sampling of Employees for Each University

Area	Number of employees	% of sampling	Probability sampling of employee
North (Tikrit University)	5 159	22%	156
Middle (Baghdad University)	14 026	61%	426
South (Kufa University)	3 884	17%	118
Total	23 069	100%	700

From Table 4.6, the number of questionnaires distributed for each region is displayed. In the North region, 156 questionnaires were distributed in Tikrit University.

Baghdad University has (14026) employees; therefore, the number of questionnaires distributed in Baghdad University was 426 questionnaires since this university has a large number of employees. In the South region, Kufa University represents this region. Therefore, 118 questionnaires were distributed.

4.5 Systematic Random Sampling

The researcher chose a random sample in which 700 employee respondents were systematically identified from three universities in the three regions of Iraq as shown in Table 3.6. The list attendance of the name was used to ensure randomness. Every seventh employee of Tikrit University and every thirteenth employee of Baghdad University and every fourth employee at Kufa University were selected as respondents in this study.

$$(n) \times (N) / 100 = R$$

n= number of the group, N= Number of mean group, R=the result of the number that the researcher used to distribute the questionnaire to each group (Squidoo, 2012)

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33 X 156/100= 51.48 =51 number of lecturers from Tikrit University

67X156/100=104.52 =105 number of employees from Tikrit University

47X426/100= 200.22 number of lecturers from Baghdad University

53x426/100= 225.78 number of employees from Baghdad University

36X118/100= 42.48 = 42 number of lecturers from Kufa University

64x118/100= 75.52= 76 number of employees from Kufa University

4.6 Operational Definitions of Measurements

Cavana *et al.* (2001) said that the operational definition is a concept to render what each question is trying to measure by looking at the behavioural variables, facets or properties denoted by the concept. This refers to the elements or observed measurable elements in order to form an index of measurement of the concept. In other words, operational definition goes on the details of how the researcher measured the variable in a deeper way.

On the other hand, Zikmund, Babin, Carr, and Griffin (2010) defined the operationalization as the process of identifying scales that correspond to variance in concept to be involved in a research process. Therefore, the researcher discusses the operational definitions that are utilized in this research as shown in Table 4.7.

Table 4.7
Operational Definitions

Virable	Operational Definition
1-Social Influence (SI)	Normal and important people in my community who have higher prestige, think and support me for the use eG services to enhance my knowledge about the environment (Adulwahab, Md Dahalin, 2011; Venkatesh *et al.*, 2003).
2-Perceived Intensity of Civil Conflict (PICC)	Violent force can be seen periodically around me where individuals/groups articulated a positional difference about national values. This violence is used repeatedly and in a systematic way, but verbal threats and abuse can be heard and that led to organized massive violent force continuously used to fuel civil conflict (Conflict Barometer 2008; Khan *et al.*, 2010a, 2010b, 2012).
3-E-Service Awareness (E-SA)	The respondents receive enough information and awarenss about the benefit and usage of eG services. At the same time nowadays, the government services are available. Moreover, the government promotes awareness and availability about eG services provided through the Internet (Al-Majali, 2011; Khan *et al.*, 2010a, 2010b, 2012).
4-Performance Expectancy (PE)	E-G services would give all citizens an equal chance to carry out their transactions with the government. Furthermore, I would find the eG services useful and enhances my life efficiency. Using the eG services enables me to accomplish the transaction quicker and decreases the transaction cost and time. Also, eG services will increase my chances of getting an elevation. In parallel, using eG services would enable me access government services when I need them – 24 hours/day, 7days/week (Adulwahab, Md Dahalin, 2011; Venkatesh *et al.*, 2003).
5-Effort Expectancy (EE)	My interaction with the eG services would be clear, easy to learn, understandable, easy to use, and flexible. Moreover, Using eG services frequently make one skillful (Adulwahab, Md Dahalin, 2011; Venkatesh *et al.*, 2003).
6-Facilitating Condition (FC)	It is necessary that I have the resources, knowledge, and Internet experience to use eG services facilities in eG portal. Moreover, a specific information and support are available in case of difficulties in accessing eG services. And I think that using eG services matched with the way I like to live and my lifestyle (AlAwadhi& Morris, 2008).
Education (EDU)	Different demographic education level between citizens (Dwivedi and Lal, (2007); Choudrie and Lee, (2004); Venkatesh *et al.*, (2000); Burgess, (1986) (Al-Shafi & Weerakkody, 2010)
Income(INC)	The amount of money that the citizen got monthly.
Experience(EXP)	The times that the user uses the internet.
Age (AGE)	The number of the years that the user currently reached
Gender (GEN)	The gender of the citizen if the user is male or female.
7-Use behaviour to use eG services (UB)	eG services are found useful and an easy way for managing my life matters. Moreover, I agree that eG services are encouraged. Moreover, fast Internet access speed is important in the use of eG services (Al-Majali, 2011; Raman *et al.*, 2008).
8-Continued usage intention to eG services (CUI)	The intend, predict, and plan of mine to use eG services if I need it next time. Furthermore, I strongly recommend my colleagues to use eG services (Adulwahab, Md Dahalin, 2011) briefly and in other words, it mean Users' intention to continue using eG services (Bhattacherjee, 2001) .

4.7 Questionnaire Design

The format of a questionnaire is its physical planning of questions on the few pages.

It concerns its general manifestation and is crucial to a successful study (Taylor &

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Summerhill, 1992). Therefore, the questionnaire consists of four parts before that the cover letter, including the title of the study, a logo, college, name of the University of Utara Malaysia, four squares for questionnaire number, purpose of the questionnaire and a statement guaranteeing confidentiality of the respondents as well as this part includes the researcher's email address, date, and question to the respondent if he/she is interestes in the research result. Finally, an important question in the rectangle as a filtering question, which is (are you an eG service's user?) If your answer is "no" go to the comments' space (last page) and write why you have not used eG services yet (Taylor & Summerhill,1992).

If your answer is "yes", please proceed to the second question. The questionnaire consists of three parts. Part one consists of eight questions about the respondent's demographic profile; the instrument in this part uses nominal and ordinal scales, such as gender, age, marital status, occupation, resident place, education level, monthly income depending on the Iraqi payroll (see Appendix I) and period of using Internet technology. Additionally, the answer of these questions is by ticking in the answer (Taylor & Summerhill, 1992). Part two consists of Information of eG status in the Republic of Iraq. It included eight statements that explain the availability of services, satisfaction, benefit, routine, cost, time, flexibility, and internet speed. Alongside, the answer was by ticking in the "yes" or "no" parentheses. Part three includes the measurement of the factors that influence eG services in Iraq. Moreover, all the factors and the items listed in Table 4.7. In part three, a black background was used for the explanation of table, and at the same time, the rows were coloured to confirm the right answer by line. In part four there are two questions; one question is related to the barriers and challenges facing eG and in the second question, the researcher

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asks the respondents for comments he/she wishes to make. Then, on the very last page of the questionnaire, the researcher thanks the respondents for their contribution (see appendix A). Part three of the questionnaire was designed to measure (13) variables. These are (1) CUI, (2) UB, (3) PICC, (4) E-S A, (5) FC, (6) PE, (7) EE, (8) SI, (9) AGE, (10) GEN, (11) INC, (12) EDU, and (13) EXP. The respondents were asked to circle the appropriate response (Taylor & Summerhill, 1992).

The questionnaire was designed using a booklet type questionnaire (Sudman & Bradburn, 1982; Taylor & Summerhill, 1992). Sudman and Bradburn (1982) argue that using the booklet type questionnaire (1) makes it easier for the respondent to turn the pages, (2) looks more professional and is easier to follow, and (3) makes it possible to use a double page format for questions about multiple events or persons.

Seven point scales was used for all of the aforementioned constructs' measurements, with "1" Strongly Disagree and "7" Strongly Agree among the statement (Al-Majali, 2011; Li & Kishore, 2006). This study applied 7 points because 7 point scales are a little better than 5-points, but not too much. The psychometric literature suggests that having more scale points is better but there is a diminishing return after around 11 points (Nunnally, 1978). Having seven points tends to be a good balance between having enough points of discrimination without having to maintain too many response options (Sauro, 2010). Due to the large number of variables in the model and in order to have a strong instrument to ensure a high quality of the date, the researcher tried to take care of the following points:

1-The measures were chosen based on a solid empirical literatures.

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2-The questionnaire was self-administrated to the respondents to increase the response.

3-To have a high response rate, the respondents were frequently reminded and presented with small symbolic gifts. In addition, some participation certificates were given to some respondents upon their request.

4.8 Variables Measurement

The survey measures thirteen variables, which are E-SA, PE, EE, SI, FC, AGE, GEN, INC, EXP, EDU, PICC, UB, and CUI. All these variables are adapted from previous studies. Table 4.8 summarizes the instrument used for all variables. Additionally, by choosing the current items, it was useful from the summary of the measurements of previous studies related to each variable in Chapter three. CUI was measured by four items adapted from previous studies (Adulwahab & Dahalin, 2011; Chao-Min & Eric T. G, 2008; Bhattacherjee, 2001). Usage Behaviour of eG services was measured by four items adapted from Raman *et al.*, (2008) and Al-Majali, (2011). E-SA was measured by five items adapted from Khan *et al.*, (2010a, 2010b, 2012) and Al-Majali (2011). PE was measured by five items adapted from Adulwahab and Dahalin, (2011) and Venkatesh *et al.* (2003). EE was measured by five items adapted from Adulwahab and Dahalin (2011) and Venkatesh *et al.* (2003). SI was measured by five items adapted from (Adulwahab & Dahalin, 2011) (Venkatesh *et al.*, 2003). FC was measured by five items adapted from (AlAwadhi & Morris, 2008). PICC was measured by five items adapted from "Conflict Barometer,, (2008) and Khan (2010a, 2010b, 2012). Age was measured by demographic items (Alrawashdeh, 2011). Finally, experts confirm the face-validity of the questionnaire.

Table 4.8

Codes, Descriptions, and Measurement of variables

Variable & sources	Codes	Variables Description
E-Service Awareness (Al-Majali, 2011) ,(Khan *et al.*, 2010a, 2010b, 2012)	E-SA1	- I receive enough information about eG services.
	E-SA2	- I receive enough information about the benefits of eG services.
	E-SA3	- I receive enough information about how to use eG services.
	E-SA4	- The government promotes awareness about eG services provided through the Internet.
	E-SA5	- Nowadays, government services are available on the Internet.
Performance Expectancy (Adulwahab, Md Dahalin, 2011) (Venkatesh *et al.*, 2003)	PE1	- I find the eG services useful in my life.
	PE2	- Using the eG services enables me to accomplish a transaction more quickly.
	PE3	- Using eG services enhances my life efficiency.
	PE4	- The eG services would enable me to access government services when I need them – 24hours/day, 7days/week.
	PE5	- The eG services would give all citizens an equal chance to carry out their transactions with the government.
Effort Expectancy (Adulwahab, Md Dahalin, 2011) (Venkatesh *et al.*, 2003)	EE1	- My interactions with the eG services are clear and understandable.
	EE2	- I find the eG services easy to use.
	EE3	- I find using eG services flexible.
	EE4	- Using eG services frequently makes one skillful.
	EE5	- Learning to operate the eG services is easy for me.
Social Influence (Adulwahab, Md Dahalin, 2011) (Venkatesh *et al.*, 2003)	SI1	-People in my community think I should use eG services.
	SI2	- Important people around me think I should use eG services.
	SI3	- Using eG services has enhanced my knowledge about the environment.
	SI4	-Using eG services has enhanced my knowledge about the environment.
	SI5	-People around me who use the eG services have more prestige.
Facilitating Condition (AlAwadhi& Morris, 2008)	FC1	- I have the necessary resources to use eG services facilities.
	FC2	- I have the necessary knowledge to use eG services facilities.
	FC3	- A specified information and support is available in case of difficulty to access eG services.
	FC4	- Using the eG services fits into my work style.
	FC5	- I have enough Internet experience to use eG services.
Continued usage Intention of eG services (Adulwahab & Dahalin, 2011; Chao-Min & Eric T. G, 2008; Bhattacherjee, 2001)	CUI1	- I intend to use eG services if I need it in the future.
	CUI 2	- I predict I would use eG services that I need it in the future.
	CUI 3	- I plan to use eG services in the future.
	CUI 4	- I would strongly recommend my colleagues to use eG services.
Use Behaviour to use eG services (Al-Majali, 2011) (Raman et al., 2008)	UB1	- I find eG services useful for managing my life matters.
	UB2	- I believe eG services create an easy way to achieve my transaction.
	UB3	- I agree that eG services are encouraging.
	UB4	- I believe fast Internet access speed is important in using eG services
Perceived Intensity of Civil Conflict) (Conflict Barometer 2008; Khan *et al.*, 2010a, 2010b, 2012)	PICC1	- Latent conflict: There are clear differences in the positions regarding objectives between individuals and groups around me.
	PICC2	-There are continuous conflicts (unmanifested) around me.
	PICC3	-Crises: There are manifest conflicts between Individuals/groups around me.
	PICC4	- Severe Crises: There are severe conflicts around me.
	PICC5	- Strong conflicts: Strong conflicts generate crises around me.

4.9 Analysis Method

Structural Equation Modelling is a combination of statistical modelling that examines the relationships of several latent constructs (Hair *et al.*, 2010). The current study uses SEM as the key analysis method because of the complexity of the model. Additionally, there is a need for analysis of mediating effects. SEM is also utilized to analyze causal relationships between the latent variables. These relationships explain changes in the variables (exogenous constructs) that affect other variables (endogenous constructs). According to Baumgartner and Homburg (1996), SEM has become one of the criteria to be considered during the selection of research methodologies, particularly in the study of issues that are connected to social and behavioural sciences. SEM consists of two major functions 1) the measurement (i.e. what are the things that need to be measured, how to measure them, and how the reliability and validity of conditions are met), 2) causal relationships among variables and the explanation because the variable is complex and unobserved (Hair *et al.*, 2010).

4.10 Questionnaire Scale

For the current study, Likert scales were used to measure the responses since this scale is widely used in IS research and has been extensively tested in both MIS and social science (Garland, 1991). The present study used a seven-point Likert scales for measuring all variables in this study (Al-Majali, 2011), from 1-7: (1) Strongly disagree, (2) Disagree, (3) Slightly Disagree, (4) Undecided, (5) Slightly Agree, (6) Agree, (7) Strongly Agree.

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4.11 Questionnaire Pre-Test

The following sections provide a detailed discussion about the pre-test and pilot study of measurement instrument of the present study. Pre-test is a preliminary assessment of the measurement instrument in order to look at some possible difficulties that may encounter the potential respondents when filling it out. In other words, pretesting entails validating the content of the measurement instrument (Tojib & sugianto, 2006). Content validity refers to the appropriateness degree of all items to the purpose of the measurement instrument (Zikmund *et al.*, 2010). To ensure this, the expertise of 8 lecturers and high ranking officials in eG project, MOST are (professors and assistant professors) from Malaysia and Iraq was solicited. Based on their feedback, improvement was made on the items asked, the sentence structure, appropriate choice of words and arrangement.

All of their comments and suggestions regarding the clarity, relevance (content face validity) and consistencies of the questions were incorporated into the survey instrument. Then, the questionnaire was sent back to the translator for a second correction. A final (second) pre-test was conducted on the final translation copy of the questionnaire by (translation office). The improvements are necessary to ensure a high response rate.

4.12 Pilot Study

According to Van Teijlingen, Rennie, Hundley and Graham (2001), researchers usually conduct a pilot study for several reasons, including (1) developing and testing adequacy of research instruments, (2) identifying logistical problems that might occur during the data collection stage, (3) estimating variability in outcomes to help

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determine sample size, (4) establishing whether the sampling frame and technique are effective and (5) collecting preliminary data. Questionnaires were distributed at UUM. The researcher analysed sixty nine questionnaires. The reason for the pilot study is to test the reliability, validity and viability of the research instrument as well as to determine the time needed for conducting the main study. The reliability test for each construct was calculated by using the pilot study data. One of the criteria for selection of past instruments was internal consistency of the scales using Cronbach's alpha reliability coefficients. Besides that, the results from the pilot test, the comments and suggestion from the feedback were benefited from by using them to improve the questions for the final questionnaire. Table 4.10 below shows the reliability coefficient (Cronbach's alpha) for all main constructs used in the pilot study, compared to the reliability of constructs from past studies. The results of the Cronbach's alpha, conducted through the Statistical Package for Social Science (SPSS) program as it is showed in Table 4.9.

Table 4.9
Factor Analysis and Reliability of the Final Instrument (Pilot Study)

Constructs	No of Items	Factor loading for items in first factor	KMO	Eigen-value	% of Variance
a-Social Influence	5	.722 .752 .817 .799 .874	.792	3.157	63.145
b-Perceived Intensity Civil Conflict	5	.851 .889 .877 .904 .887	.858	3.887	77.742
c-E-Services Awareness	5	.851 .823 .940 .814 .843	.793	3.659	73.183
d-Effort Expectancy	5	.916 .892 .895 .835 .765	.839	3,746	62,434
e-Performance Expectancy	5	.834 .906 .862 .833 .836	.806	3.653	73.055
f-Facilitating Conditions	5	.837 .883 .693 .804 .740	.730	3.155	63.091
h-Use Behavior	4	.910 .954 .937 .907	.846	3.437	85.933
g-Continued Use Intention	4	.945 .953 .952 .891	.869	3.503	87.564

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Summary of measurement and reliability of Cronbach's alpha from pilot test is presented in Table 4.10.

Table 4.10

Summary of Measure and Reliability of Cronbach's Alpha from Pilot Test

Constructs	No. of original items	Cronbach's Alpha	Items Deleted	Cronbach's Alpha if item deleted
a-Social Influence	5	.853	Nil	.853
b-Perceived Intensity Civil Conflict	5	.926	Nil	.926
c-E-Services Awareness	5	.905	Nil	.905
d-Effort Expectancy	5	.846	Nil	.846
e-Performance Expectancy	5	.906	Nil	.906
f-Facilitating Conditions	5	.849	Nil	.849
h-Use Behavior	4	.945	Nil	.945
g-Continued Use Intention	4	.952	Nil	.952

As shown in Table 4.10 above, all the constructs show Cronbach's alpha readings of acceptable values of above .60 (Hair *et al.*, 2006). The reliability value for all constructs ranged from 0.846 to 0.952. Thus, the final actual distribution was conducted without any modification as explained in the distribution method.

4.13 Data Collection Procedures

After the questionnaire was piloted and pre-tested, data was collected from the three universities Tikrit University in the North region, Baghdad University in the Middle region and Kufa University in the South region. The survey was conducted (updated corrected and distrusted) during the period from November, 2012 to February 2013. This study used face-to-face survey. The data was collected from all three public universities' employees during the same period of time. Furthermore, the study anticipated a number of problems and hindrances prior to data collection. The weather was very cold in Iraq during the data collection period and this was

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frustrating but unavoidable. The data collection method was costly since a survey in Iraq is expensive.

The cost of questionnaire distribution in Iraq is very high. Additionally, in some sensitive places and departments, the security and police have not allowed the researcher to enter and meet the employees personally unless the researcher got assistance from some employees. Additionally, the researcher asked the assistants to explain and remind the respondents about the eG services before starting to answer if there are eG users or not to ensure that the entire questionnaire respondents are eG users. The transportation cost is very high. In Iraq there are many checkpoints from Iraqi army and police and it is not easy to transport from place to others. Also, Iraq is suffering from general choking Traffic jams. Moreover, at time of data collection, Iraq suffers from running problematic disasters.

The researcher asked for a permission to collect the data because some employees were afraid to fill in the questionnaire since the researcher came without any Iraqi university support. Additionally, some of these colleges and employees asked for a participant's letter from the researcher.

In data collection period time, there is news about Iraq as the worst country in the world to live in (Westall, 2011) and that affect the life because there is a wave from government to enhance the living conditions.

4.14 Summary

This chapter proposed a theoretical framework (a research model) based on UTAUT. Seventeen (17) research hypotheses were developed from the model; these hypotheses were developed from previous studies with the goal of examining the relationship between E-Service Awareness, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Education, Experience, Income, Age, Gender, and Usage Behavioural of eG as well as Usage Behavioural and Perceived Intensity of Civil Conflict on Continued usage intention of eG services. In addition, the present chapter discusses the research design, which is based on the quantitative approach. Moreover, the systematic random sampling technique has been utilized. Furthermore, the chapter also dealt with the validity issues through the use of pre-tests, a pilot study and data collection procedures.

CHAPTER FIVE

RESULTS AND DATA ANALYSIS

5.0 Introduction

This chapter presents the results of the data analysis procedures. First, this chapter examined how the respondents were distributed according to the demographic variables. In addition, the chapter describes the main variables of the study using the descriptive statistics. After that, this chapter justifies the use of the Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess the outer measurement model as a prerequisite for the inner structural model assessment and hypotheses testing. Specifically, this chapter proves the goodness of the outer model related to the constructs of this study. Once the construct validity was established, the process was to examine the quality of the structural model. Finally, the hypotheses testing procedures were reported.

5.1. Demographic Distribution of the Respondents

In total, 700 questionnaires were distributed to the three universities representing all Iraq, and 565 questionnaires were returned back. The questionnaires have a filter question to classify the respondents to user who tick on "YES", and who tick on "NO". The number of the non-user is 96 responders (17.2%), whereas (463) representing (82.8%) of responding are users of eG services in Iraq.

The reason of the current number of non-users of eG services in Iraq is due to the low level of eG services awareness, low level of technology awareness, political

issues, low level of infrastructure, internet cost, low level of skills and experience as it is informed by the questionnaire, as shown in Table 5.1.

Table 5.1
The Respondents According to Filter Question

Respondents' Categories	Frequencies	Percentage (%)
No	96	17.2
Yes	463	82.8
Total	565	100

The survey was carried out over the period extending from (November 2012 to February 2013). Additionally, some questionnaires were not totally answered in the questionnaire survey, and this issue is called missing data. The issue of missing data is a familiar issue in surveys processes (Hair *et al.*, 2010). Table 5.2 shows the procedures regarding missing data issue.

Table 5.2
Procedures of Missing Data Status

Missing Data Status	Procedures
≤10%	Ignored
<15%	Candidates for deletion
20% to 30%	Replacing missing values with mean or median by SPSS
≥ 50%	Delete

Source: Hair *et al.* (2010)

The final data includes (436) questionnaires that were used in the research. Only these were receivable as explained in Table 5.3.

Table 5.3
Returned questionnaires

Respond Categories	Frequencies	Percentage (%)
Incomplete questionnaires	27	5.84
Complete questionnaires	436	94.16
Total	463	100%

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The final data sample included the staff (lecturers and administrative) in public universities. The sampling profile showed that the sample is a representative of the population under study.

The following discusses the distribution of the respondents according to the demographic variables, such as AGE, GEN, EDU, INC and EXP. Additionally, differences and uneven results are attributed to differences of the variables' categories in this study. Though some results were not of a big difference, such as between females and males, other variables' categories have led to great differences in the results, such as between people living in urban and rural areas.

Based on 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).

Table 5.4

Participant's Demographic Information

Demographic Variable	Category	(*N* = 436) Frequency	Percentage %
Gender	Male	222	50.9
	Female	214	49.1
Age	≤ 22	15	3.4
	23 -35	182	41.7
	36- 45	156	35.8
	46-55	67	15.4
	56 or above	16	3.7
Marital status	Single	114	26.1
	Married	297	68.1
	Divorced	15	3.4
	Widowed	10	2.3
Current Occupation	Lecturer	158	36.2
	Manager	56	12.8
	Officer	178	40.8
	Clerks	23	5.3
	Others	21	4.8
Residential Area	City/Urban	307	70.4
	Rural	129	29.6
Education level	PhD	74	17.0
	Master	104	23.9
	Bachelor	172	39.4
	Diploma	58	13.3
	Secondary School	21	4.8
	Read and Write	6	1.4
	Other	1	2
Monthly Income in ID (Iraqi Dinars)	≤ 250 (Thousand)	17	3.9
	251 -500(Thousand)	61	14.0
	501- 750(Thousand)	130	29.8
	≥751 (Thousand)	228	52.3
Duration of Internet usage	Less than a year	94	21.6
	1-3 years	148	33.9
	More than 3 to 5 years	87	20.0
	More than 5 years	107	24.5

(1 Dollar = 1200 Iraqi Dinars)

Table 5.4 shows the respondents who responded to this study. Additionally, the average age of the sample in this study is divided into five categories. The first category was equal or less than 22 and made up only 3.4%.

Moreover, the top category comprises respondents aged 23-35, which also took the highest proportion with 182 respondents and 41.7% of the total respondents. Further, 36 to 45 made up 35.8% only. Furthermore, 46 to 55 made up 15.4 %, and those who are 56 or above made up 3.7% only.

The majority of the respondents (297) were married, which made up 68.1%, followed by unmarried respondents who were 114 in number and made up 26.1 %. The divorced ones made up only 3.4 %, followed by the widowed who made up 2.3 %. Obviously, the uneven of the respondent's answers to the study questionnaire confirm and approve that the current study sampling includes all population kinds (families and individual status).

Clearly, this is evidence that the current study's population and samplings are representatives of public universities in Iraq. This can be seen with the differences of the results among the current occupation of study sampling as follows: the lecturers made up 36.2% and the managers made up 12.8%.

Additionally, the majority of the respondents (178 respondents or 40.8%) have administrative works in managerial positions. Also 23 or 5.3% are clerks, whereas others are workers and chemicals etc. who made up 4.8 %.

Also, the results show that the majority (307) of the respondents were living in cities/Urban areas, from a total of 436 samples, making up 70.4 %, whereas other respondents were living in rural areas (129), making up 29.6% of the total sample.

Moreover, he results indicate that 172 (39.4%) of the respondents had Bachelor degree, while 104 (23.9 %) of them had Master Degree and 17.0% had PhD degree. Regarding the income of the respondents, the majority have an income higher than 751,000 ID (Iraqi Dinar per month).

Regarding the difference of experiences among society layers, the duration (experience) level of the respondents, it was noticed that the majority 148 (33.9%) had from 1-3 years of experience. It is the highest percentage that contributed in the research, whereas the lowest category was less than one year, comprising 21.6 %.

5.2 Current Situation of eG Services in Iraq

One of the objectives of this study was to understand the current state of eG services in Iraq. By using eight items, the researcher used the dichotomous scale to obtain "yes,, or "no,, (Lallo, 2012) as illustrated in Table 5.5.

Table 5.5
The Current State of eG services in Iraq

Current eG Status in Iraq	Answer	(N = 436) Frequency	Percentage %
1- Availability of services: I am aware about the availability of eG services in Iraq.	Yes	351	80.5
	No	81	19.5
Total		436	100.0
2- Satisfaction: In general I am satisfied with the current eG services in Iraq.	Yes	226	51.8
	No	210	48.2
Total		436	100.0
3- Benefit: I am aware of the benefits of the current eG services in Iraq.	Yes	317	72.7
	No	119	27.3
Total		436	100.0
4- Routine: eG services reduce the normal administrative routine in Iraq.	Yes	327	75.0
	No	109	25.0
Total		436	100.0
5- Cost: Usage of current eG services decrease the cost of citizen transaction.	Yes	334	73.7
	No	102	22.5
Total		436	100.0
6- Time: Use of current eG services enable me to complete transactions more quickly.	Yes	318	72.9
	No	118	27.1
Total		436	100.0
7- Flexibility: The current eG services are flexible	Yes	254	58.3
	No	182	41.7
Total		436	100.0
8- Internet speed: eG services are affected by Internet speed.	Yes	327	75.0
	No	109	25.0
Total		436	100.0

The information about the current eG status was gathered in the study survey under section (B). Respondents were asked to provide information related to eG services in conflicts and unstable environment. Eight questions, related to Availability of eG services, Satisfaction, Benefit, Routine, Cost, Time, Flexibility and Internet speed, were asked. The first Item discussed the availability of eG services in Iraq. The obtained results from 436 respondents are presented in Table 5.6. Most of the respondents who participated in the availability of eG services in Iraq answered "yes" (351). These results showed that more than 80% of the respondents confirm their knowledge about the availability of the services in Iraq. Additionally, the importance of awareness a bout eG services was confirmed by the recommendation of users in section four in the current study questionnaire.

Moreover, the second question is related to the satisfaction towards the eG services, where 226 respondents (51.8%) answered "yes"; this means that about the half are satisfied by eG services, whereas the other half are not satisfed. Further, regarding question number three related to the benefit of eG, 317 of the respondents indicated "yes,,, while 119 gave a "no,, response. This means that the respondents were satisfied and got benefit with the current services compared to the past because in the past there were no services at all.

For the fourth question, the researcher examined how eG services reduce the normal administrative routine in Iraq. Table 5.6 shows that 75.0 % agreed, while 25% disagreed with the statement in this question.

Question number five is about the cost and how usage of current eG services reduce the cost of citizen's transactions in Iraq. 73.7% of the citizens answered "yes", whereas 22.5 answered "no". This means that the eG services currently available are reducing the cost of citizen's transactions in Iraq. Regarding the current eG services statement in Iraq, the sixth question investigated and tested the time of the services achieved. 72.9 % of the respondents answered "yes", but 27.1% answered "no". This means that eG services are faster than the traditional way or the old way (by going to the office and meet the employee, get appointment, etc.), based the users' (citizen) perspective. Question seven investigated the flexibility of the current eG services, where 58.3 users answered "yes", while 41.7% answered "no". Finally, for the eighth question related to the Internet speed, this item tested how the eG services are affected by Internet speed among users, where 75.0% of the users answered "yes", but 25.0% users answered "no". Again, in spite of supporting the infrastructure

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(Internet) by government, the use of eG services among Iraqis is nevertheless affected by violence and conflicts environment. This means that the three quarters of Iraqis knows how internet speed affects the online services.

5.3 Testing Non-Response Bias

As previously mentioned, the present study made use of the survey questionnaire designed for data collection. The questionnaires were distributed to certain locations at University Utara Malaysia (UUM). It is, however, imperative to carry out a non-response bias for two reasons, first, some respondents responded after several reminders and visits, and second, the collection of data was conducted during of four months from November 2012 to February 2013. The T-test was used for the assessment of the non-response bias to compare the responses of the early responders to that of their late counterparts in terms of study variables. Consistent with the recommendations provided by Armstrong and Overton (1977), if the differences between the two groups of respondents were significant, this may reveal considerable differences between them. The T-test was conducted between the early respondents 316 and the late ones 120 with the entire study variables considered. The T-test results presented in Table 5.6 revealed no significant differences between the two respondent groups throughout the study variables as the equality of their mean responses are reinforced at the level of significance of 0.01. To examine the difference of the respondents' perception on the variable of the study, the respondents were defined based on their early and late responses. Out of 436, 316 were considered early respondents, whereas 120 were deemed late respondents because they responded after many reminders. T-test was employed to examine the non-response bias and the results were presented in Table Table 5.6.

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Table 5.6
The Non- Response Bias Test

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Social Influence	Equal variances assumed	1.711	.191	-.702	434	.483
	Equal variances not assumed			-.728	231.073	.468
Perceived Intensity of Civil Conflict	Equal variances assumed	6.468	.011	-.281	434	.779
	Equal variances not assumed			-.302	250.701	.763
E-Service Awareness	Equal variances assumed	7.858	.005	.749	434	.454
	Equal variances not assumed			.805	250.635	.421
Performance Expectancy	Equal variances assumed	.150	.699	2.685	434	.008
	Equal variances not assumed			2.685	214.798	.008
Effort Expectancy	Equal variances assumed	.758	.384	2.000	434	.046
	Equal variances not assumed			2.048	225.500	.042
Facilitating Condition	Equal variances assumed	12.279	.001	2.575	434	.010
	Equal variances not assumed			2.890	276.910	.004
Use Behaviour	Equal variances assumed	.000	.998	3.462	434	.001
	Equal variances not assumed			3.411	208.688	.001
Continued Usage Intention	Equal variances assumed	.074	.786	2.695	434	.007
	Equal variances not assumed			2.693	214.592	.008
Education	Equal variances assumed	.455	.500	-.726	434	.468
	Equal variances not assumed			-.734	219.648	.464
Experience	Equal variances assumed	1.107	.293	-.547	433	.585
	Equal variances not assumed			-.558	221.232	.577
Income	Equal variances assumed	1.807	.180	4.631	434	.000
	Equal variances not assumed			4.298	187.345	.000

Independent Samples Test

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Table 5.6 (Continued)

		Independent Samples Test				
		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Age	Equal variances assumed	1.86 6	.173	1.924	434	.055
	Equal variances not assumed			1.856	200.646	.065
Gender	Equal variances assumed	1.27 8	.259	-1.665	434	.097
	Equal variances not assumed			-1.676	217.717	.095

Referring to Table 5.6, the results showed that the variances of the early and late response are assumed to be equal at the 0.001 level of significance. In addition, the T test of equality of means among the early and late respondents for most of the variable was found to be significant at the 0,001 level of significance. These results indicate that the early and late respondents have almost the same perception regarding the variables of the study. This is the reason for merging the two groups of respondents into one set of data that was used in the data analysis.

5.4 Descriptive Statistics

To get a summary of the data, a descriptive analysis was conducted to describe the general situation of E-Service Awareness (E-SA), Social Influence (SI), Perceived Intensity of Civil Conflict (PICC), Performance Expectancy (PE), Effort Expectancy (EE), Facilitating Condition (FC), Education (EDU), Experience (EXP), Income (INC), Age (AGE), Gender (GEN), Use Behaviour of eG services (UB) and Continued usage intention to eG services (CUI) based on the respondents'

perspective. As it can be seen in Table 5.6, the mean, standard deviation, maximum and minimum of the constructs were reported. These results reflected the level of all the constructs investigated.

All the constructs have the mean just above the average ranged from 4.339 to 5.236 and the standard deviation ranged from 1.633 to 2.110. The minimum and maximum responses on the constructs are also reported in Table 5.7. Additionally, the mean of Social Influence is 4.372 and the Std. Deviation is 1.783. Also, for the Perceived Intensity of Civil Conflict, the mean is 4.860, but the Std. Deviation is 1.799. Moreover, 4.665 and 1.922 are the mean and the Std. Deviation of E-Service Awareness, respectively. Further, Performance Expectancy's mean is 4.339 and 2.110 is the Std. Deviation. Furthermore, the Effort Expectancy's mean and Std. Deviation are 4.399 and 1.658, respectively. For Facilitating Condition, the mean is 4.484 and Std. Deviation is 1.848. Regarding, Continued Usage Intention's mean is 5.236, which is the highest mean among other viables and the SD is 1.662. Finally, 5.202 and 1.633 are the mean and the Std. Deviation of Use Behaviour, respectively, in the risky and unstable environments.

Table 5.7
Descriptive Statistics of the Constructs

Variables	Mean	Std. Deviation	Minimum	Maximum
Social Influence	4.372	1.783	1.00	7.00
Perceived Intensity of Civil Conflict	4.860	1.799	1.00	7.00
E-Service Awareness	4.665	1.922	1.00	7.00
Performance Expectancy	4.339	2.110	1.00	7.00
Effort Expectancy	4.399	1.658	1.00	7.00
Facilitating Condition	4.484	1.848	1.00	7.00
Continued Usage Intention	5.236	1.662	1.00	7.00
Use Behaviour	5.202	1.633	1.00	7.00

5.5 P LS Structural Equation Modeling Approach

The Partial Least Squares or PLS modeling was brought forward by Herman Wold (1982, 1985) (as cited by Lohm Loller, 1987, 1989) in the LVPLS software computational aspects. The theoretical developments of the software were also attributed to Wold, while the new graphical interface (PLS-Graph) and the improved methods of validation were attributed to Chin (1998, 2001) and Chin and Newsted (1999). Meanwhile, the LohmsLoller's program PLSX for units x variables data presents the core of the PLS-Graph software and it allows similar options.

5.5.1 PLS Path Model

The PLS path modeling approach is generally utilized to estimate causal relationships in the field of path models that entails latent constructs indirect measurement by various indicators. Prior studies conducted by Wold (1982), Lohmoller (1989), Tenenhaus, Vinzi, Chatelin and Lauro (2005) were dedicated to explain the methodological basis and approaches for outcome evaluation and they offered some methodological examples.

Two models provide the description of the PLS path model; first, a measurement model that relates the manifest variables (MVs) to the latent variables (LVs), and second, a structural model that links endogenous LVs to others of its kind. The measurement model is known as the outer model, whereas the structural one is known as the inner model.

The latter provides a description of the association between unobserved/latent variables, while the former provides a description of latent variable-manifest variable

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association. The usual design of a PLS indicates a recursive inner model that is vulnerable to predictor specifications. The inner model consists of a system of a causal chain which has two types of outer models, namely the reflective and the formative measurement models. Theoretical rationale underlies the selection of a specific outer mode (Diamantopoulos & Winklhofer, 2001).

5.5.2 PLS Path Modeling Algorithm

The PLS algorithm is generally a regression sequence that is based on weight vectors. These weight vectors are reached at convergence fixed point equations. According to Lohmoller (1989), basic PLS algorithm has the following stages:

Stage 1: A repetitive estimation of the scores of latent variables consists of a four-phase repetitive process that is carried on until convergence which includes the following steps:

1. The external estimation of the scores of latent variables.

2. Estimation of inner weights.

3. The internal approximation of latent variable scores, and

4. The estimation of outer weights.

Stage 2: The estimation of outer weights and path coefficients.

Stage 3: The estimation of location parameters.

5.5.3 Methodological Characteristics

Literature dedicated to PLS path modeling along with other works concerning causal modeling applications with the use of PLS path modeling approach frequently stressed on the method's advantageous features (e.g. Fornell & Bookstein, 1982;

Joreskog & Wold, 1982; Lohmoller, 1989; Falk & Miller, 1992). The proliferation of the use of PLS path modeling among scientists and practitioners originated from four primary features; first, in contrast to singularly stressing on the common reflective mode, the method allows unlimited calculation of cause-and-effect relationship models that use both reflective and formative measurement (Diamantopoulos & Winklhofer, 2001). Second, PLS is suitable to be used in estimating path models in smaller sample sizes (Chin & Newsted, 1999). Third, PLS path models can transform into very complex models as they consist of differing latent and manifest variables without leading to estimation issues (Wold, 1985).

In addition, PLS path modeling is viewed as methodologically advantageous in comparison to Covariance- Based Structural Equation Model (CBSEM) in instances when non-convergent results arise (e.g. Heywood cases, see Krijnen, Dijkstra & Gill, 1998). On top of this, with complex models, the number of latent and manifest variables may be greatly related to observation numbers. On a final note, PLS path modeling can be used even in distributions that are highly skewed (Bagozzi, 1994) or when the independence of the observations is not ensured because Fornell (1982, pp.443) stated that there are no distributional necessities stipulated by it.

5.5.4 Reflective and Formative Measurement Models

The reflective measurement model stems from the pioneering test theory and psychometrics (Nunnaly & Bernstein, 1994). Modifications on constructs are revealed by the changes in the indicators. The latent variable is consequently described as a weighted score across representative indicator variables where every variable independently represents a single dimension.

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The formative measurement model, on the other hand, makes use of the overall index domain where in the indicators reflect the complete dimensions or the latent variables' independent source. This indicates that the deletion of a single indicator could result in the deletion of a particular portion of the formative measurement model and change the meaning of the variable (Diamantopoulos & Winklhofer, 2001).

5.5.5 Sample Size

In PLS path modeling, the sample size may even be significantly smaller as illustrated by Wold (1989) in his analysis of the path model based on data consisting of 13 variables. According to the rule of thumb, for an effective estimation of PLS path modeling, the sample size has to be equivalent to the larger size of the following (Barclay, Higgins, & Thompson, 1995); ten times the number of scale's indicator with the greatest number formative indicators or ten times the greatest number of structural paths confined on a particular construct in the inner path model. Along the same line, Chin and Newsted (1999) demonstrated a Monte Carlo's sample study regarding PLS comprising of small samples.

The choice of a suitable sample sizes depends on the level of association or the necessary level of power. The researcher should keep some factors into consideration, including the distributional data characteristics, potential missing data, the psychometric properties of the variables under study, and the magnitude of relationships before choosing a suitable sample size to use or to ensure proper sample

selection that is available for the phenomenon under study (Marcoulides & Saunders, 2006, p.vi).

5.5.6 Model Complexity

Increasing model complexity leads to some CBSEM discrepancy functions like GFI and AGFI decline, and they may become useless for models of high complexity (Anderson & Gerbing, 1984). This is exemplified by Boomsma and Hoogland's (2001) experimental study of the variation of model complexity, where they modified the estimated parameters and the number of freedom degrees. They revealed that the more parameters to be estimated, the higher will be the occurrence of non-convergence and ineffective solutions indicating that larger number of estimation requirements necessitates more information.

Therefore, PLS is commonly utilized for its handling of complex associations (Fornell, 1982; Fornell, Lorange & Roos, 1990). This is consistent to Wold's (1985, p.589-590) statement that PLS stands out among larger models when the significance shifts from individual variables and parameters to groups of variables and total parameters. In other words, in complex models with latent variables, PLS is the most ideal choice. Additionally, the PLS algorithm allows a considerable increase in model complexity and a considerable decrease between the subject matter analysis and statistical methods in fields reflecting continuous access to reliable data.

5.5.7 Evaluation of the PLS Path Model

The PLS path modeling does not consider the condition of global goodness-of-fit. Accordingly, Chin (1998) provided a list of criteria to use when assessing partial

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model structures. The criteria include a two-staged process which encompass the assessment of the outer model and the assessment of the inner model.

At the onset of the two-staged process, the assessment concentrates on the measurement models. The systematic evaluation of the estimates of PLS then shows the measurement reliability and validity based on specific criteria related to formative and reflective outer model. It is logical to evaluate the inner path model estimates when the latent variables calculated revealed sufficient reliability and validity.

5.5.8 CBSEM and VBSEM Approaches

The relation between CBSEM and VBSEM among PLS is very critical and there is a strong relation between them as discussed in the following points:

- The CBSEM or the covariance structural equation modeling was brought forward as a confirmatory model that is different from the PLS path modeling since the PLS is prediction oriented.

- CBSM has been the most widely used approach in estimating SEMs. It was only recently that the PLS path modeling came into the limelight, especially in the field of consumer and service research.

- The PLS path modeling should be viewed as not only a versatile alternative to CBSEM but also a method that complements it (Lohmoller, 1989).

- Covariance-based SEM, Components-based SEM and PLS path modeling have to be viewed as complementary methods. The objective behind the covariance-based SEM is to reduce the fit-function between the sample

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covariance matrix and the implied covariance matrix, while the PLS path modeling aims to decrease the residual variance of dependent variables (manifest and latent) through the acquisition of estimated parameters. There may be instances when PLS path modeling outperforms the covariance-based SEM in assessing hierarchical construct models.

- The use of covariance-based SEM in identifying reflective hierarchical models is not an easy task. Even in situations where the theoretical identification of the model is carried out, the results may be adversely affected by the under-identification which in turn, could result in non-convergence and/or ineffective outcome. With regards to formative hierarchical construct models or models having combined formative and reflective constructs, the challenges are significantly increased. The PLS path modeling is not susceptible to identification issues and ineffective solutions as the covariance-based SEM.

- Through the Monte Carlo simulation, Cassel *et al.* (1999) presented a considerable deviation from normality in a PLS path modeling with the exception of significantly skewed distributions.

- The PLS path modeling is more suitable to be used in complex models like those having hierarchical constructs (with an overall disaggregation method), having mediating and moderating effects (Chin *et al.*, 1996).

- The analysis of formative constructs in the covariance-based SEM is a difficult task and it calls for the identification of rules. This makes its applications challenging, especially in the context of multidimensional or hierarchical models. The PLS path modeling generally allows convenient handling of this type of constructs. Regardless of the well-documented

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biasing effect of erroneously specified formative constructs in Jarvis *et al.* (2003), a literature review of IS by Petter *et al.* (2007) revealed that 30% of the constructs were presented in an erroneous manner.

- The main advantage of covariance based SEM that makes it better than PLS path modeling is its formal testing procedures which allow the assessment of the validity of global-model-fit (Chin, 1998; Tenenhaus *et al.*, 2005). With regard to the hierarchical construct models, the model fit along with different alternative nested models are assessed (Edwards, 2001; Marsh & Hocevar, 1985). However, this is impossible to be carried out in the PLS path modeling and as such, the global model fit validity is impossible to assess.

- In the field of social sciences, there is prominence of unobserved heterogeneity and errors of measurement. On the other hand, PLS path modeling applications are primarily based on the notion that the data analysed comes from a single population. This homogenous notion is often unrealistic because the perceptions of individuals and the evaluations of latent constructs are often heterogeneous and this may affect the measurement portion (varying latent variables indicating a single segment) and the structural part (different relations between latent variables in one segment) of a causal model (Temme, Williams & Hildebrandt, 2002).

- There is a notable lack of a suitably developed statistical instrument for the extension and support of the PLS path modeling method.

- Monte Carlo simulations should be complementary to the use of actual data sets (refer to Paxton *et al.*, 2001). This type of simulation may be an effective mechanism to explore the impact of improper solutions in the context of

covariance-based SEM for hierarchical models, and it may lead to PLS path modeling's solution of problems.

- 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 stands out is its prediction-oriented research in which the methodology is invaluable for researchers to concentrate on the endogenous constructs explanation.

- PLS is also vulnerable to multicollinearity. It determines measurement models and structural models by using multiple regressions and thus its estimates may be susceptible to multicollinearity issues.

- PLS generates scores of latent variables which are constructs proxies gauged by one or more indicators (manifest variables).

- PLS path modeling can handle small sample sizes and is thus suitable to be used in situations where other methods are useless.

- PLS path modeling has the capability of estimating highly complex models with different latent and manifest variables.

- The PLS path modeling has a more versatile assumption concerning distribution of variables and erroneous terms.

- The PLS path modeling is useful in both reflective and formative measurement models.

5.6 Testing the Goodness of the Measurements

Partial Least Squares Structural Equation Modeling, specifically, Smart PLS 2.0 was used to confirm the measures construct validity. The results are provided in the next sections.

5.6.1 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 and Gerbing (1988). The study model is presented in Figure 5.1 with its structural dimensions.
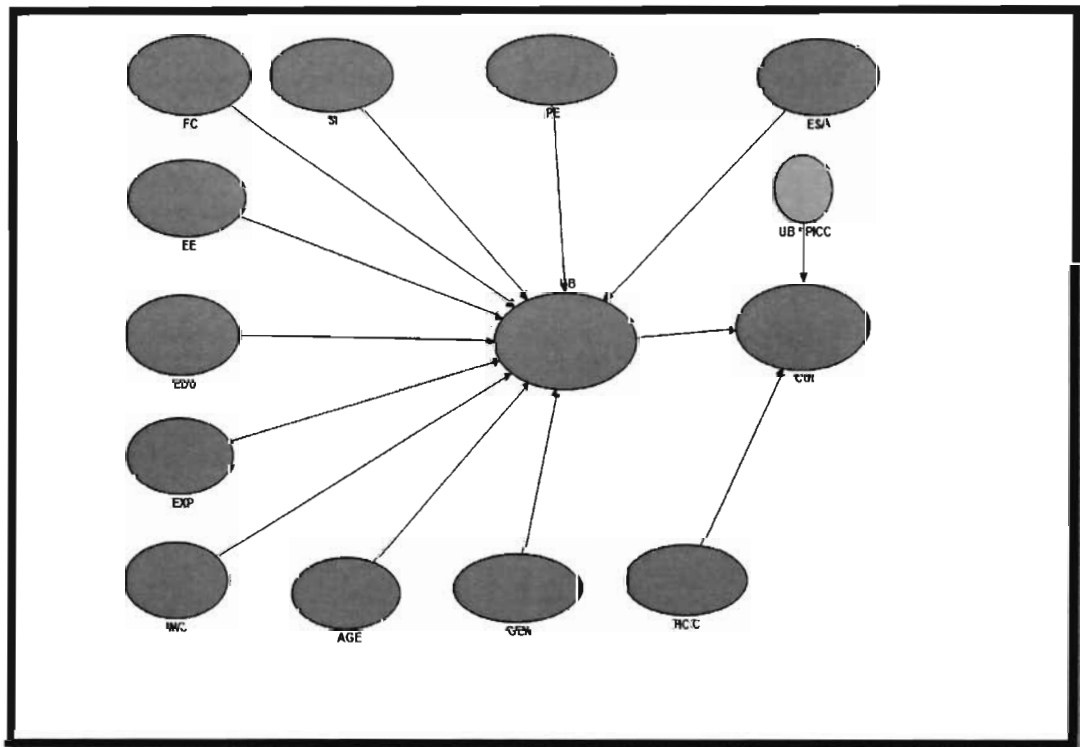
Figure 5.1
The Research Model

5.6.1.1 The Construct Validity

The construct validity can be established by the content validity, convergent validity and discriminant validity (Hair *et al.*, 2010).

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5.6.1.1.1 The Content Validity

The measurement of 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 (Hair *et al.*, 2010). 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 the results are presented in Table 5.8 and Table 5.9. In these tables, the content validity of items and their measures are listed in two ways. First, the items present high loading on their respective constructs in comparison to other constructs and second, the items loadings significantly loaded on their constructs and this confirms the content validity of the measures as displayed in Table 5.8 (Chow & Chan, 2008).

Table 5.8
The Cross Loadings Factors.

Items	Social Influence	Perceived Intensity of Civil Conflict	E-Service Awareness	Performance Expectancy	Effort Expectancy	Facilitating Condition	Continued Usage Intention	Use Behavior
SI1	**0.683**	0.224	0.371	0.266	0.350	0.346	0.167	0.228
SI2	**0.808**	0.313	0.428	0.386	0.385	0.451	0.303	0.320
SI3	**0.709**	0.341	0.459	0.257	0.330	0.274	0.198	0.182
SI4	**0.781**	0.422	0.360	0.587	0.447	0.390	0.416	0.408
SI5	**0.755**	0.336	0.460	0.363	0.318	0.316	0.239	0.244
Picc1	0.388	**0.847**	0.347	0.352	0.332	0.253	0.244	0.279
Picc2	0.377	**0.884**	0.373	0.353	0.346	0.271	0.211	0.263
Picc3	0.335	**0.840**	0.402	0.309	0.260	0.196	0.148	0.173
Picc4	0.395	**0.806**	0.433	0.312	0.317	0.295	0.132	0.176
Picc5	0.388	**0.837**	0.371	0.366	0.324	0.258	0.202	0.246
ESA1	0.462	0.378	**0.830**	0.404	0.384	0.467	0.279	0.243
ESA2	0.504	0.431	**0.848**	0.487	0.398	0.496	0.384	0.343
ESA3	0.485	0.378	**0.908**	0.465	0.426	0.479	0.297	0.288
ESA4	0.327	0.311	**0.736**	0.344	0.290	0.275	0.203	0.212
ESA5	0.372	0.287	**0.722**	0.376	0.302	0.315	0.220	0.192
PE1	0.493	0.384	0.476	**0.862**	0.520	0.487	0.548	0.588
PE2	0.469	0.361	0.455	**0.916**	0.527	0.425	0.513	0.588
PE3	0.483	0.306	0.434	**0.883**	0.548	0.456	0.553	0.616
PE4	0.427	0.371	0.478	**0.803**	0.485	0.419	0.413	0.481
PE5	0.428	0.332	0.401	**0.844**	0.511	0.469	0.492	0.542
EE1	0.412	0.288	0.426	0.470	**0.773**	0.533	0.462	0.495
EE2	0.423	0.294	0.390	0.453	**0.836**	0.548	0.455	0.518
EE3	0.407	0.307	0.392	0.470	**0.846**	0.551	0.438	0.520
EE4	0.419	0.355	0.295	0.574	**0.815**	0.584	0.606	0.663
EE5	0.386	0.291	0.363	0.474	**0.823**	0.697	0.572	0.586
FC1	0.424	0.218	0.444	0.419	0.556	**0.791**	0.522	0.491
FC2	0.433	0.241	0.480	0.378	0.612	**0.842**	0.488	0.470

Table 5.8 (Continued)

Items	Social Influence	Perceived Intensity of Civil Conflict	E-Service Awareness	Performance Expectancy	Effort Expectancy	Facilitating Condition	Continued Usage Intention	Use Behavior
FC3	0.306	0.191	0.470	0.239	0.461	**0.651**	0.335	0.289
FC4	0.395	0.275	0.359	0.538	0.619	**0.848**	0.658	0.653
FC5	0.381	0.261	0.383	0.430	0.588	**0.837**	0.625	0.574
CU1	0.315	0.220	0.297	0.491	0.545	0.615	**0.875**	0.683
CU2	0.365	0.214	0.277	0.520	0.587	0.591	**0.893**	0.716
CU3	0.327	0.194	0.320	0.512	0.534	0.607	**0.914**	0.701
CU4	0.348	0.197	0.359	0.560	0.563	0.612	**0.870**	0.731
UB1	0.350	0.205	0.266	0.585	0.593	0.603	0.762	**0.875**
UB2	0.376	0.256	0.311	0.606	0.631	0.591	0.717	**0.923**
UB3	0.336	0.244	0.304	0.582	0.649	0.571	0.622	**0.865**
UB4	0.314	0.278	0.255	0.510	0.524	0.490	0.674	**0.821**

Social Influence (SI)   E-Service Awareness (E-SA)   Performance Expectancy (PE)   Perceived Intensity of Civil Conflict (PICC)   Effort Expectancy (EE)

Facilitating Condition (FC)   Use Behaviour to use eG services (UB)   Continued Usage Intention to eG services (CUI)

Table 5.9
Significance of the factor loading

Construct	Item	Factor Loadings	Standard Error	T Value	P Value
Social Influence	SI1	0.683	0.041	16.475	0.000
	SI2	0.808	0.029	27.605	0.000
	SI3	0.709	0.046	15.484	0.000
	SI4	0.781	0.030	26.421	0.000
	SI5	0.755	0.036	20.857	0.000
Perceived Intensity of Civil Conflict	Picc1	0.847	0.022	38.980	0.000
	Picc2	0.884	0.019	45.529	0.000
	Picc3	0.840	0.033	25.719	0.000
	Picc4	0.806	0.039	20.843	0.000
	Picc5	0.837	0.024	34.495	0.000
E-Service Awareness	ESA1	0.830	0.020	40.617	0.000
	ESA2	0.848	0.020	42.804	0.000
	ESA3	0.908	0.010	86.966	0.000
	ESA4	0.736	0.040	18.607	0.000
	ESA5	0.722	0.039	18.617	0.000
Performance Expectancy	PE1	0.862	0.020	43.502	0.000
	PE2	0.916	0.012	79.120	0.000
	PE3	0.883	0.018	48.876	0.000
	PE4	0.803	0.030	26.518	0.000
	PE5	0.844	0.022	38.116	0.000
Effort Expectancy	EE1	0.773	0.029	26.515	0.000
	EE2	0.836	0.022	37.504	0.000
	EE3	0.846	0.022	37.623	0.000
	EE4	0.815	0.019	42.607	0.000
	EE5	0.823	0.022	38.130	0.000
Facilitating Condition	FC1	0.791	0.027	29.838	0.000
	FC2	0.842	0.022	38.611	0.000
	FC3	0.651	0.042	15.517	0.000
	FC4	0.848	0.016	53.808	0.000
	FC5	0.837	0.015	55.118	0.000
Continued Usage Intention to eG services (CUI)	CU1	0.875	0.016	55.578	0.000
	CU2	0.893	0.018	50.752	0.000
	CU3	0.914	0.013	71.162	0.000
	CU4	0.870	0.016	55.842	0.000
Use Behaviour to use eG services (UB)	UB 1	0.875	0.013	69.125	0.000
	UB2	0.923	0.010	93.388	0.000
	UB3	0.865	0.022	39.920	0.000
	UB4	0.821	0.027	30.239	0.000

5.6.1.1.2 The Convergent Validity of the Measures

The convergent validity is referred to as the level to which a set of variables converge in their measurement of a specific concept (Hair *et al.*, 2010). In order to confirm convergent validity, several criteria are tested and these include, factor loadings, composite reliability (CR), and average variance extracted (AVE) as recommended by Hair *et al.* (2010). In this process, the loadings of the items were examined only to reveal that all of them have loadings over 0.50 which is an acceptable level of loading as suggested in the literature concerning multivariate analysis (i.e. Hair *et al.*, 2010). Additionally, Table 5.2 lists all the factor loadings and it shows that factors loadings are significant at the level of 0.01.

The composite reliability is another aspect of the convergent validity and it shows the level to which a set of items consistently show the latent construct (Hair *et al.*, 2010). The composite reliability of the items was examined and their values are listed in Table 5.10. It is notable that the values of composite reliability ranged from 0.864-0.936 which is over the recommended value of 0.70 (Fornell & Larcker, 1981; Hair *et al.*, 2010).

The convergent validity of the outer model was further confirmed by examining the AVE which reflects the average of the variance extracted from the set of items relative to the variance shared with the measurement errors. In cases where the AVE values are at least 0.50, it shows that the set of items are characterized by adequate convergence in measuring the construct (Bagozzi & Yi, 1988; Barclay, Thompson *et al.*, 1995). The present study's AVE values ranged from 0.561-0.785 which reveal a suitable level of the measures construct validity (Barclay *et al.*, 1995).

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Table 5.10
The Convergent Validity Analysis

Construct	Items	Cronbach's Alpha	Convergent Validity		
			Factor Loadings	Composite Reliability	Average Variance Extracted
Social Influence	SI1	0.810	0.683	0.864	0.560
	SI2		0.808		
	SI3		0.709		
	SI4		0.781		
	SI5		0.755		
Perceived Intensity of Civil Conflict	Picc1	0.900	0.847	0.925	0.711
	Picc2		0.884		
	Picc3		0.840		
	Picc4		0.806		
	Picc5		0.837		
E-Service Awareness	ESA1	0.871	0.830	0.906	0.659
	ESA2		0.848		
	ESA3		0.908		
	ESA4		0.736		
	ESA5		0.722		
Performance Expectancy	PE1	0.914	0.862	0.936	0.744
	PE2		0.916		
	PE3		0.883		
	PE4		0.803		
	PE5		0.844		
Effort Expectancy	EE1	0.878	0.773	0.910	0.671
	EE2		0.836		
	EE3		0.846		
	EE4		0.815		
	EE5		0.823		
Facilitating Condition	FC1	0.858	0.791	0.896	0.636
	FC2		0.842		
	FC3		0.651		
	FC4		0.848		
	FC5		0.837		
Continued Usage Intention to eG services (CUI)	CU1	0.911	0.875	0.937	0.789
	CU2		0.893		
	CU3		0.914		
	CU4		0.870		
Use Behaviour to use eG services (UB)	UB1	0.894	0.875	0.927	0.760
	UB 2		0.923		
	UB 3		0.865		
	UB 4		0.821		

a: $CR = (\Sigma \text{ factor loading})^2 / \{(\Sigma \text{ factor loading})^2) + \Sigma (\text{variance of error})\}$

b: $AVE = \Sigma (\text{factor loading})^2 / (\Sigma (\text{factor loading})^2 + \Sigma (\text{variance of error})\}$

5.6.1.1.3 The Discriminant Validity of the Measures

The confirmation of the construct validity of the outer model necessitated the establishment of discriminant validity. This is a mandatory step before hypothesis testing and is carried out through path analysis. The measures discriminant validity reveals the level to which the items differentiate among the constructs. In other words, it presents that the items use different constructs that are not overlapping. Hence, even though the constructs correlate, they are measured using distinct concepts as clarified by Compeau *et al.* (1999). They concluded that if the discriminant validity of the measures is confirmed, the shared variance between every construct and its measures have to be higher than the variance shared among the constructs. In the present study, the measures discriminant validity was confirmed through Fornell and Larcker's (1981) method. Table 5.11 contains the square root of average variance extracted (AVE) of all constructs placed at the correlation matrix diagonal elements. Due to the higher value of the diagonal elements compared to other elements of the row and column wherein they are located, discriminant validity of the outer model is confirmed. After establishing the construct validity of the outer model, it is expected that the results for hypotheses testing are valid and reliable.

Table 5.11
The Discriminant Validity Analysis

Construct	CUI	EE	E-SA	FC	PE	PICC	SI	UB
Continued Usage Intention	0.888							
Effort Expectancy	0.628	0.819						
E-Service Awareness	0.353	0.450	0.812					
Facilitating Condition	0.683	0.716	0.515	0.797				
Performance Expectancy	0.587	0.601	0.519	0.523	0.863			
Perceived Intensity of Civil Conflict	0.232	0.378	0.448	0.301	0.405	0.843		
Social Influence	0.382	0.500	0.539	0.487	0.534	0.447	0.749	
Usage Behavior	0.798	0.688	0.326	0.649	0.656	0.280	0.396	0.872

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5.6.2 The Assessment of the Inner Model and Hypotheses Testing Procedures

Following the establishment of the goodness of the outer model, hypothesis testing was conducted. Accordingly, the hypothesized model was tested using SmartPLS2.0 through the PLS Algorithm. This is followed by the generation of the path coefficients as presented in Figure 5.2.
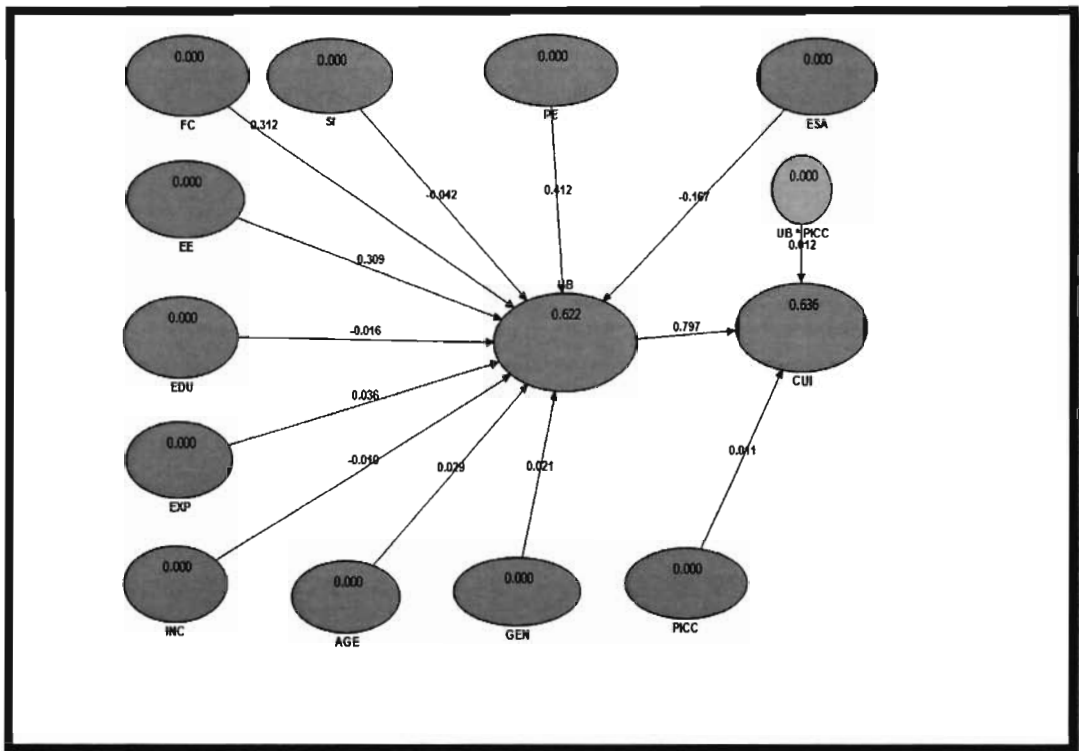

Figure 5.2
Path Analysis Result

In order to confirm whether or not the path coefficients are statistically significant, the present study made use of bootstrapping method in the SmartPLS 2.0, where the T values of every path coefficient were produced and subsequently along with the P values as depicted in Table 5.12. The findings of the present empirical study provided interesting results for discussion which has been extended in the prior research dedicated to E-Services.

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Table 5.12
The Results of the Inner Structural Model

Hyp. No.	Hypothesis Statement	Path Coefficient	Standard Error	T Value	P Value	Decision
H_1	ESA→UB	-0.167***	0.045	3.747	0.000	NotSupported
H_2	PE → UB	0.412***	0.049	8.406	0.000	Supported
H_3	SI → UB	-0.042	0.042	1.006	0.157	Not Supported
H_4	FC→UB	0.312***	0.051	6.068	0.000	Supported
H_5	EE→UB	0.309***	0.056	5.573	0.000	Supported
H_6	UB → CUI	0.797***	0.028	28.305	0.000	Supported
H_7	PICC → CUI	0.011	0.034	0.313	0.377	Not Supported
H_8	EDU → UB	-0.016	0.034	0.483	0.315	Not Supported
H_9	EXP → UB	0.036	0.035	1.029	0.152	Not Supported
H_{10}	INC → UB	-0.010	0.034	0.304	0.381	Not Supported
H_{11}	AGE →UB	0.029	0.033	0.856	0.196	Not Supported
H_{12}	GEN →UB	0.021	0.030	0.679	0.249	Not Supported

*:$p<0.1$; **:$p<0.05$; ***:$p<0.01$

As shown in table 5.12, twelve direct hypotheses related to the aims of this study were tested. The results showed that the E-SA has a negative significant impact on the UB at the 0.01 level of significance (β= -0.167, t= 3.747, $p<0.01$). This result, however, did not support the hypothesized relationship as postulated in H_1. On the other hand, the effect of PE on the UB was of a significant impact at the 0.01 level of significance (β= 0.412, t= 8.406, $p<0.01$). This result, however, supported the hypothesized relationship as postulated in H_2.

More specifically, it was found that the SI has no effect on UB (β= -0.042, t=1.006, $p>0.1$), so this hypotheses did not support H_3. Hence, the results show that FC has a significant and positive influence on UB (β= 0.312, t=6.068, $p>0.1$). Thus, H_4 is supported.

This study indicates that EE has a significant and positive influence on UB (β= 0.309, t=5.573, $p>0.1$). Thus, H_5 is supported.

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UB in this study has a significant effect on Iraqi users on CUI of eG services Iraq (β= 0.797, t=28.305, p>0.1) so, H_6 is supported.

PICC in this study has a significant effect on CUI of eG users' (β= 0.011, t= 0.313, p>0.1) so, H_7 is not supported.

Education, on the other hand, has not significant effect on the UB to use eG in Iraq (β= -0.016, t=0.483, p>0.1) so, H_8 is not supported.

Experience or the duration of using the internet has an insignificant effect on UB among Iraqis (β= 0.036, t= 1.029, p>0.1) so, H_9 is also not supported. Income in this study does not have a significant effect on users' UB of eG in Iraq (β= -0.010, t=0.304, p>0.1) so, H_{10} is not supported.

Age in this study does not have a significant effect on users' UB of eG in Iraq (β= -0.029, t= 0.856, p>0.5) so, H_{11} is not supported.

Gender in this study does not have a significant effect on users' UB of eG in Iraq (β= 0.021, t= 0.601, p>0.1) so, H_{12} is supported.

Therefore, the results of the study did not support the hypotheses as postulated in H_1, H_3, H_7, H_8, H_9, H_{10}, H_{11} and H_{12}. However, these results revealed that the users have still been continually using eG services even with a different level of income, education, experience and an unstable social environment.

An examination of the effects of E-SA, PE, FC, EE on UB, and UB on CUI were significant with parameters (β= -0.167, t= 3.747, p<0.01), (β= 0.412, t= 8.406, p<0.01), (β= 0.312, t=6.068, p>0.1), (β= 0.309, t=5.573, p>0.1) and (β= 0.797, t=28.305, p>0.1) respectively. Further, a discussion of these findings is provided in the discussion chapter.

5.7 Moderating Effect

A key moderator variable that has a significant conjunction with technology acceptance models was found by Venkatesh *et al.* (2003). Specifically, Morris and Venkatesh (2000) and Venkatesh *et al.* (2003) empirically explained the significance, direct and moderating impact of specific variables upon BI, adoption and usage behaviours. Management, psychology and other disciplines' theories depend on moderating variables, particularly those affecting both strength and relationship between two other variables (Dawson, 2013).

Although the moderating effect is almost ubiquitous, the testing and interpretation methods are still ambiguous (Dawson, 2013). In addition, these variable articles need to be reinforced through the explanation of the many issues concerning the most common type of statistical model in management and organizational literature. Moderating impacts with the environment in the recent times are influenced by conflicts and violence (Dawson, 2013). Thus, future researches are required to examine extant research for other potential moderators like psychographic variables (e.g. PICC), and socio-demographics ones (Broekhuizen & Huizingh, 2009).

Not unlike other disciplines, management and MIS research is rife with theories that suggest that the linkage between two variables depends upon a third variable (Locke *et al.*, 1981). Owing to the need for further research as highlighted above, the present study examines the Perceived Intensity of Civil Conflict impact upon the relationship between Usage Behavioural and Continued usage intention of citizens in conflict environment with UTAUT as the underpinning theory.

Generally speaking, a moderator is a variable affecting the linkage between two or more variables and moderation refers to the moderator effect upon the linkage (Dawson, 2013; Saidon, 2012; Holmbeck, 1997). Examining the moderating effect of online services is significant to both management and researchers alike (Broekhuizen & Huizingh, 2009).

The interaction of the moderator variable with the predictor variable in a manner that shows their impact upon the dependent variable is illustrated in Figure 5.1.and 5.3. In the present research, the conflict characterized on the civil level is hypothesized as (Hypothesis No 13).

Researchers examine the moderating impact of online services to provide a clear overview of the way users may differ in their online services evaluation (Broekhuizen & Huizingh, 2009) on the basis of their level of civil conflicts in the environment. This may also explain the inconsistencies in the findings revealed concerning the relationships of user's behaviour with continued online usage behaviour (Broekhuizen & Huizingh, 2009).
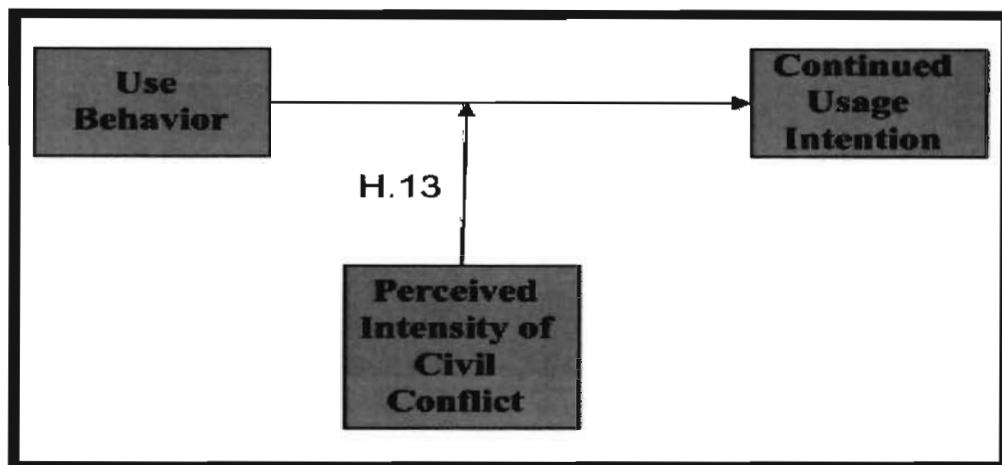
Figure 5.3
The Role of Perceived Intensity of Civil Conflict as a Moderator Variable.

Previous empirical relation found that PICC does not affect as a moderating role between the relation towards ESA, ESS and e-service use intention (β= -0.034, β= -0.232 respectively) (Khan, 2010a, 2010b, 2012). Khan *et al.* (2010a, 2010b, 2012) argue that there are few studies that have included PICC in technology adoption, especially eG services.

In more details, the current framework extended UTAUT by PICC construct as a moderator because Iraq is still facing high level of conflicts (Cordesman, 2007; Khan *et al.*, 2010a, 2010b, 2012; Top 10 Most Dangerous Countries in the World 2013), and continued usage intention of eG services because eG services indicates that its eventual success depends on eG services continued use rather than first-time use (Bhattacherjee, 2001; Limayem *et al.*, 2003 Wangpipatwong *et al.*, 2008).

Another contribution of this study is that it includes PICC as a moderator and independent variables towards continued usage intention of eG services in Iraq. The inclusion of PICC extend UTAUT because UTAUT was previously neglected and

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ignored the influence of environment.

The integration of factors and moderator together form the nucleus of the present research is unique because the current study tries to determine the factors that affect the usage behaviour and continued usage intention of eG services among Iraq's user with PICC as a moderator in the same framework.

Table 5.13 explain the moderation effect among the current framework of the present study. The level of civil conflicts in the society has not a significant effect among the relationship between UB and CUI (β= 0.012, t= 0.201, p>0.1) so, H_{13} was not supported, as illustrated in Table 5.13.

Table 5.13
The Results of the Moderating Effect

Hyp. No.	Hypothesis Statement	Path Coefficient	Standard Error	T Value	P Value	Decision
H_{13}	UB * PICC → CUI	0.012	0.058	0.201	0.420	Not Supported

*:p<0.1; **:p<0.05; ***:p<0.01

5.8 Mediation Effect Analysis

The UB mediating effect in the theoretical framework is presented in Figure 5.1 and 5.5, where the present research hypothesizes that UB may mediate the relationship between EE, FC, PE, SI and CUI.
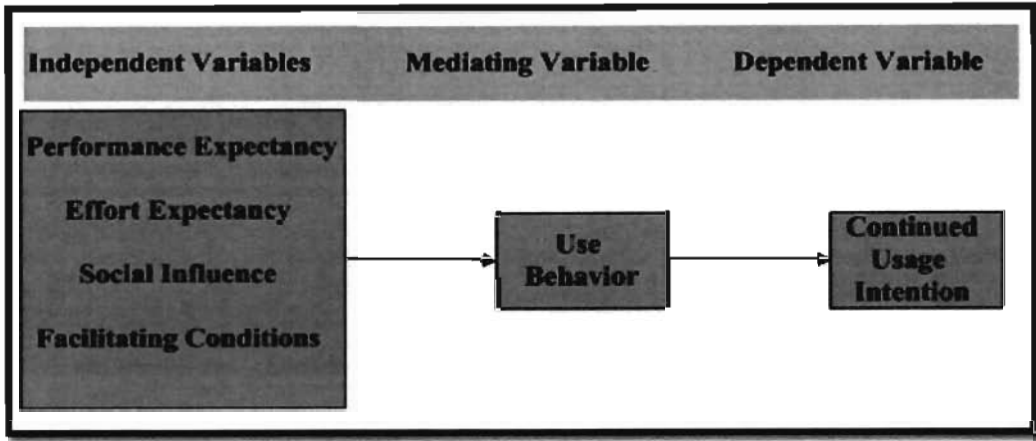
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Figure 5.5
The Impact of EE, FC, PE, and SI on CUI

According to Baron and Kenny (1986), a mediator variable is a generative mechanism wherein the focal independent variable influences the dependent variable of interest. Mediation conveniently takes place where there is a significant relation between predictor and criterion variables. A mediating variable is considered as so if it develops an indirect effect through which the focal independent variable influences the criterion variable under study (Baron & Kenny, 1986). Additionally, Kenny and Little (2011) stated that the mediator variable is capable of transmitting some causal effects of the previous variables on to the next ones.

Also, mediating variables have been playing a key role in both psychological theory and research (MacKinnon & Fairchild, 2010). This type of variable enables the transmission of the antecedent variable's effect to the dependent variable and hence providing a clarification of variables relationships (MacKinnon & Fairchild, 2010). Several methods have been used for the assessment of mediation in various researches in the past twenty years (MacKinnon & Fairchild, 2010). A mediation analysis provides the identification of basic processes that underlie human behaviour

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and that are significant throughout behaviours and contexts (MacKinnon & Fairchild, 2010).

Following the identification of an actual mediating process, more efficient and effective interventions can be created as focus can be placed on the variables in the process of mediation (MacKinnon & Fairchild, 2010). Various methods of mediation-analysis with the inclusion of statistical and experimental methods have been utilized in the field of psychology. In addition, mediation analysis has become a significant area of substantive and methodological studies (MackKinnon & Fairchild, 2010). The extant and potential mediation analysis developments assist in obtaining authentic answers to the question as to the manner and the reason behind the relationship between two variables (MacKinnon & Fairchild, 2010).
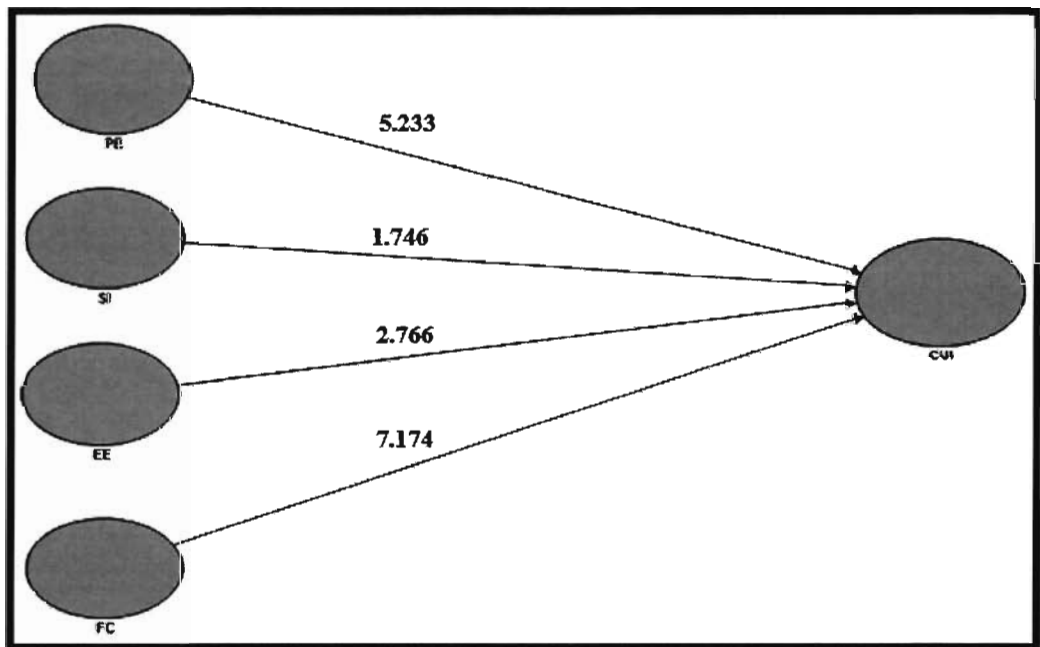

Figure 5.6
The Direct Paths Model (c)

Table 5.14
The Direct Paths Model (c) Result

Hypothesized Path	Path Coefficient (Direct)	T Value	P Value
EE → CUI	0.176***	2.766	0.003
FC → CUI	0.436***	7.174	0.000
PE → CUI	0.293***	5.233	0.000
SI → CUI	-0.070*	1.746	0.040

*:p<0.1; **:p<0.05; ***:p<0.01

The above direct paths model and table express the direct relation between EE, FC, PE, SI and CUI in a direct way, but neglecting UB. This is part one of the technique to measure the effects of the mediation regarding to bootstropping technique. The first relationship between EE and CUI is direct. The result of this relation is as the following: (β= 0.176, t= 2.766, p>0.01). The second relationship is between FC and CUI is direct. The result of this relation is as follows: (β= 0.436, t= 7.174, p>0.01). The third relationship is between PE and CUI is direct.

The result of this relation is as the following: (β= 0.293, t= 5.233, p>0.01). Finally, but most importantly, the relationship between SI and CUI is direct. The result of this relation is as the following: (β= -0.070, t= 1.746, p>0.1). That means that this relation SI→CUI is significant (p<0.01).

Table 5.15
The Paths from the Exogenous to the UB (a) Model result

Hypothesized Path	Path Coefficient	T Value	P Value
EE → UB	0.317***	5.449	0.000
FC → UB	0.270***	4.952	0.000
PE → UB	0.376***	7.340	0.000
SI → UB	-0.095**	2.315	0.010

*:p<0.1; **:p<0.05; ***:p<0.01

The above Table 5.15 shows the relationship between EE, FC, PE, SI and UB in order to measure the paths from the exogenous. In direct relationship between EE and UB (β=0.317, t=5.449, p<0.01), it means that this relationship is significant at the 0.01 level of significance. Likely, in direct relationship, between FC and UB (β= 0.270, t=4.952, p<0.01), it means that this relationship is significant at the 0.01 level of significance. Similarly, the result regarding the direct relationship between PE and UB is found to be (β= 0.376, t=7.340, p<0.01). This means that this relation is significant at the 0.01 level of significance (p<0.01). The final relationship is between SI and UB directly. The result of this relation is as the following: (β=-0.095, t=2.315, p<0.05), which means that this relationship is significant at the 0.05 level of significance (p<0.05).

It can be seen from Table 5.16 that UB has a significant influnce on CUI at the 0.01 level of significance (β= 0.567, t= 9.585, p>0.01).

Table 5.16
The Paths from the Usage Behaviour to the Continued Usage Intention (b) Result

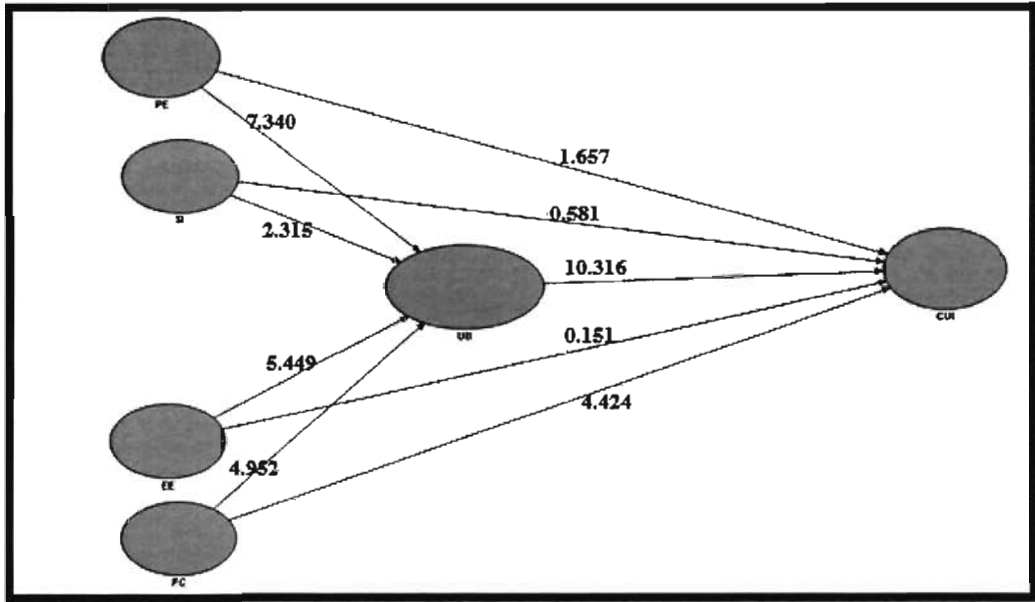| Hypothesized Path	Path Coefficient	T Value	P Value
Usage Behaviour → Continued Usage Intention	0.576***	10.316	0.000

*:p<0.1; **:p<0.05; ***:p<0.01

Figure 5.7
The Mediated Model

Table 5.17
Direct Paths when the Usage Behavior is Absent (c')

Hypothesized Path	Path Coefficient (Direct)	T Value	P Value
EE → CUI	-0.009	0.151	0.440
FC → CUI	0.285***	4.424	0.000
PE → CUI	0.076	1.657	0.049
SI → CUI	-0.019	0.581	0.280

*:p<0.1; **:p<0.05; ***:p<0.01

Again in order to get (c'), the above Table 5.17 expresses the results of EE, FC, PE, and SI by Direct Paths when the Usage Behavior is present. First, it can be seen from Table 5.17 that EE has no significant influnce on CUI at the 0.01 level of significant (β= -0.009, t= 0.151, p>0.01).

Second, It can be seen from Table 5.17 that FC has a significant influnce on CUI at the 0.01 level of significant (β= 0.285, t= 4.424, p>0.01).

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Third, it can be seen from Table 5.17 that PE has a significant influnce on CUI at the 0.01 level of significant ($\beta= 0.076$, $t= 1.657$, $p>0.01$).

Lastly, in the fourth relationship, it can be seen from Table 5.17 tha SI has a significant influnce on CUI at the 0.01 level of significant ($\beta= -0.019$, $t= 0.581$, $p>0.01$).

Table 5.18
Direct Paths When the Usage Behavior is Present (a*b)

H No	Hypothesized Path	Path Coefficient (Indirect a*b)	T Value	P Value	Decision
H_{14}	EE→ UB→CUI	0.183***	4.927	0.000	support
H_{15}	FC→ UB→CUI	0.156**	4.505	0.000	support
H_{16}	PE→ UB→CUI	0.217***	5.981	0.000	support
H_{17}	SI→ UB→CUI	-0.055**	-2.343	0.990	Not support

*:p<0.1; **:p<0.05; ***:p<0.01

To examine the significance of the indirect effects of EE, FC, PE and SI on CUI through UB, the bootstropping method was used. Bootstropping method is a non-parametric method which is based on resampling techniques. This method is used to estimate the indirect path and indicate its significance. This method is incorporated in Smart PLS and used for the purpose of testing the mediation and related hypotheses in this study. The results of bootstropping technique are shown in Table 5.16 which presents the Indirect Paths regarding to EE, FC, PE and SI towards CUI, and at the same time the decision of each relationship has been mentioned in Table 5.18, too.

First, the relationship between EE and CUI is indirect. The result of this relation is as follows ($\beta= 0.183$, $t= 4.927$, $p>0.01$). Accordingly this means that this relation

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EE→CUI is significant at (p<0.01). Thus, the decision among this relation of UB is supported.

Second, the relationship between FC and CUI is indirect. The result of this relation is as follows (β=0.156, t=4.505 p>0.01). Therefore, the relation FC→CUI is significant (p<0.01). So, the decision among this relation of UB is supported.

Third, relationship between PE and CUI is indirect. The result of this relation is as follows: (β=0.217, t=5.981, p>0.01). Accordingly, this means that this relation PE→CUI is significant (p>0.01), thus the decision among this relation of UB is supported.

At last, the fourth relationship is between SI and CUI indirectly. The result of this relation is as the following: (β=-0.055, t=-2.343, p>0.01), implying that the relationship is significant at the 0.01 level of significance (p<0.01). Therefore, it can be said that UB is not supported because of its negative significance.

5.9 The Prediction Quality of the Model

The prediction quality of the model section explained by R square about effect size and predictive relevance is discussed in the following paragraphs.

5.9.1 R Square and Effect Size

Contrary to the CBSEM approach, the PLS Structural Equation Modeling only has one measure of goodness of fit. Tenenhaus *et al.* (2005) stated that a global fit measure (GoF) of PLS path modeling is described as the geometric mean of the

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average communality and the endogenous constructs average R^2. Hence, the goodness of fit measure explains the variance extracted by the outer as well as the inner models.

The effect of size estimates defines the practical significance of an effect, and is independent of the size of sample. The measures of effect size are significant in the interpretation of results as they can relay non-significant findings and improve the understanding of the practical use of statistically significant impacts (Fairchild & McQuillin, 2010).

$$Effect\ size(f) = \frac{R^2_{incl} - R^2_{excl}}{1 - R^2_{incl}}$$

Table 5.19
The Endogenous Construct

Endogenous Construct	R Squared Inc.	R Squared Excl.	Effect Size
UB	0.636	0.054	1.601
EE	0.622	0.583	0.103
ESA	0.622	0.606	0.042
FC	0.622	0.580	0.111
PE	0.622	0.535	0.230
Picc	0.636	0.636	0.001
SI	0.622	0.621	0.003
Exp	0.622	0.621	0.003
Income	0.622	0.622	0.001
Edu	0.622	0.622	0.001
Age	0.622	0.621	0.003
Gen	0.622	0.621	0.002

5.9.2 Cross-Validated Redundancy

The following paragraph explains the Predictive Relevance of the Endogenous Construct and Study Framework. The (R Squared) of UB of eG services was found to be 0.621 with the Cross-Validated Communality at 0.756 and the Cross-Validated Redundancy of UB at 0.465.

Additionally, with regard to Continued Usage Intention, the R Squared is found to be 0.630 with the Cross-Validated Redundancy at 0.492 as depicted in Table 5.20.

Table 5.20
The Predictive Relevance of the Endogenous Construct

Endogenous Construct	R Squared	Cross- Validated Communality	Cross- Validated Redundancy
Usage Behavior	0.622	0.789	0.468
Continued Usage Intention	0.636	0.760	0.497

5.10 Summary of the Findings

Based on the analysis of the data reported previously in this study and the results reported in this Chapter, Table (5.21) summarizes the results regarding the hypotheses testing.

Table 5.21
Summary of the results regarding the hypotheses testing.

Hypothesis	Statement	Dissection
H_1	There would be a significant positive relationship between E-Service Awareness and Usage Behaviour of eG services.	Not Supported Sig (-)
H_2	Performance Expectancy will have a positive influence on Usage Behaviour of eG services.	Supported Sig (+)
H_3	Social influence will positively affect a citizen's Usage behaviour of eG services	Not Supported Not Sig
H_4	Facilitating Conditions will have a positive influence on Usage Behaviour of eG services.	Supported Sig (+)
H_5	Effort Expectancy will have a positive influence on Usage behaviour of eG services.	Supported Sig (+)
H_6	A citizen's Usage Behaviour of eG services will have a positive influence on Continued usage intention towards eG services.	Supported Sig (+)
H_7	PICC will have a negative influence on Continued usage intention to eG services.	Not Supported Not Sig
H_8	A citizen's Education will have a positive influence on Usage Behaviour of eG services	Not Supported Not Sig
H_9	Experience will have a positive influence on Usage Behaviour of eG services.	Not Supported Not Sig
H_{10}	Income will have a positive influence on Usage Behaviour of eG services	Not Supported
H_{11}	Age will have a positive influence on Usage Behaviour of eG services.	Not Supported Not Sig
H_{12}	Gender will have a positive influence on Usage Behaviour of eG services	Not Supported Not Sig
H_{13}	The civil conflict in the society will moderate and affect the relation between Usage Behaviour and Continued usage intention of eG services among citizens in Iraq.	Not Supported Not Sig
H_{14}	The citizen's Usage Behaviour positively mediates Effort Expectancy and Continued usage intention of eG services.	Supported Sig (+)
H_{15}	The citizen's usage behaviour positively mediates Facilitating conditions and Continued usage intention of eG services.	Supported Sig (+)
H_{16}	The citizen's Usage Behaviour positively mediates Performance Expectancy and Continued usage intention of eG services.	Supported Sig (+)
H_{17}	The citizen's Usage Behaviour positively mediates Social Influence and Continued usage intention of eG services.	Not Supported Sig (-)

According to the previous table, there are seven hypotheses supported in terms of direct relationships and indirect relationships. Figure (5.8) shows the significant results regarding the hypotheses testing among usage and continued usage behaviour of eG services in Iraq as a conflict country.
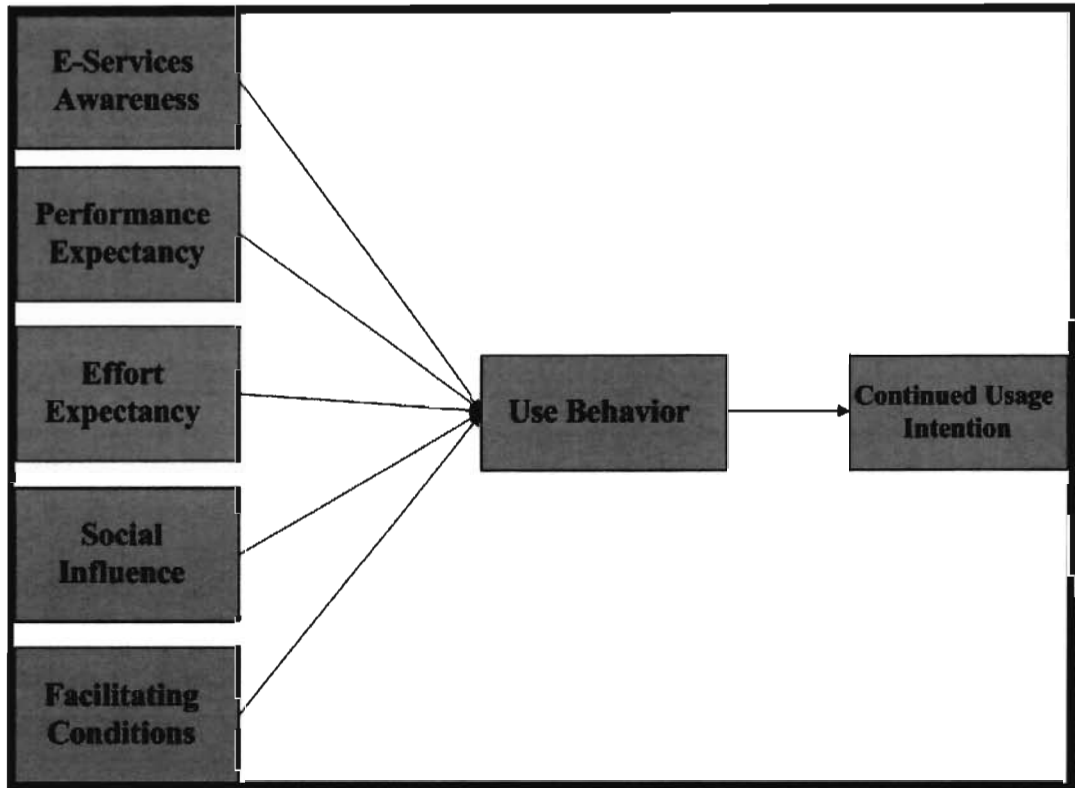

Figure 5.8
The Significant Results Regarding the Hypotheses Testing

5.11 Summary

The analysis technique employed in this study is the Partial Least Squares Structural Equation Modeling (PLS SEM). The PLS SEM is comparatively a new method in development and this chapter provides an elaborate treatment of its mechanics.

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Before the hypotheses were tested, it was necessary to establish a robust validity and reliability of the outer model as this is the standard of SEM data analysis. After the measurement model was confirmed to be valid and reliable, the hypothesized relationships were tested. However, prior to this step, the model's predictive power was examined and its goodness was confirmed. The structural model was then examined and the detailed results are presented. Table 5.22 illustrates that the Hypotheses H_2, H_4, H_5, H_6, H_{14}, H_{15} and H_{16} are statistically supported by the study findings to the exclusion of the other hypotheses. In the next chapter, further discussions and explanations of the findings are provided in the light of the underpinning theories and the context of the study.

CHAPTER SIX

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This chapter is devoted to discuss the hypotheses testing and highlight the contributions of the study to the existing literature. It also highlights the academic contributions and contribution to the methodology. This Chapter, however, presents details of the research implications, limitations of the study and suggests future research avenues based on the faced limitations. Finally, this chapter summarizes and concludes the study.

6.1 Discussion of Hypotheses Testing

To discuss the findings of the study, the following sub-sections reported these findings based on 17 hypotheses. Additionally, the findings are discussed as follows:

6.1.1 E-Service Awareness and Usage Behaviour

H_1: *There is a significant positive effect of E-Service Awareness on Usage Behaviour of eG services.*

Several studies have revealed that E-SA is very important to enhance and increase the success of innovation. More broadly, in information system, the E-Services Awareness is not enough developed and explained for people to know about E-Services availability. The citizens' awareness regarding the availability of eG service is crucial, of a high priority and a fundamental factor for successful eG system (Carter & Bishath, 2008; Khan *et al.*, 2012). Therefore, this study linked the importance of E-Services Awareness (E-SA) to eG services. Additionally, it is very important to measure the

awareness of citizen in a conflict and dangerous environment, and the public media has the responsibility to advertise the availability of E-Services by different channels. From the results of the SEM/PLS analysis, the present study empirically tested the relationship between E-SA and direct usage of eG services in unstable environment.

Suprisingly, the results showed that the E-SA has a significant negative impact on the UB at the 0.01 level of significance (β= -0.167, t= 3.747, p<0.01). This result, however, did not support the hypothesized relationship as postulated in H_1, which appears to recommend that E-SA has a negative and statistically significant effect on eG services usage in a risky environment. Additionally, in Iraq, the media are busy covering car bombing and terrorist attacks. In such a dangerous environment, one can understand that eG services promotion is not a priority for national media. By discussing the case in Iraq, even through the people know about the eG services, they are not using it due to the unstable environment. Thus, hypothesis H_1 was not supported (please refer to Figure 5.3 of Path Model Results).

More deeply, several studies have provided evidence that E-SA have an effect on other variables (Al-Majali, 2011, Khan *et al.*, 2010a, 2010b, 2012). For example, in Jordan, Al-Majali (2011) examined E-SA under DTPB using underpinning theory and the result was also significant among the user of online bank services, but the environment of Jordan is different from Iraq because Iraq is suffering from a civil war.

6.2.2 Performance Expectancy and Usage Behaviour

H₂: Performance Expectancy (PE) has a positive influence on Usage Behaviour of eG services.

Many previous empirical studies have investigated the effect of PE in various countries (Al-Shafi & Weerakkody 2010; Al-Sobhi *et al.*, 2011; Venkatesh, *et al.*, 2003; Venkatesh *et al.*, 2011; Venkatesh *et al.*, 2012; Wu *et al.*, 2007; Yahya *et al.*, 2011).

In examining the hypotheses related to the relationship between PE and UB, the results imply that the effect of PE on the UB is of a significant impact on the UB at the 0.01 level of significance (β= 0.412, t= 8.406, p<0.01). However, this result supported the hypothesized relationship as postulated in H2. The finding suggests that the individual performances can be improved when the individual uses the eG services. As anticipated, both usage behavior and performance expectancy were observed to have a significant positive effect on the use of eG services. Thus, in order for eG services to be widely used and accepted by citizens, eG services authorities should address citizens' usage behavioral and performance expectancy.

The implication of this is the more the usage of eG services, the higher expected performances of the users. This finding justified the usage of eG services as an effective mean of bridging the digital divide in different regions of Iraq. This result is in line with previous empirical studies. More specifically, many previous empirical studies have shown that there is a positive relationship between PE and other variables (Wu *et al.*, 2007; Al-Shafi & Weerakkody 2010; Al-Sobhi *et al.*, 2011). Similarly, Wu *et al.* (2007) have provided empirical evidence of the significant positive relationship between PE and UB. Wu (2007) found that PE has a significant affect on user of UB

concerning 3G telecommunication services in Taiwan with UTAUT as an underpinning theory.

6.2.3 Social Influence and Usage behaviour

H₃: Social influence positively affects the citizen's Usage Behaviour of eG services.

Generally, SI has been examined as an influential factor in several studies conducted in various countries all over the world (Abdul-Rahman *et al.*, 2011; Al-Shafi & Weerakkody, 2010; Al-Sobhi *et al.*, 2011; Foon & Fah 2011; Venkatesh *et al.*, 2003; Venkatesh *et al.*, 2011; Venkatesh *et al.*, 2013). Additionally, very few studies in Iraq have been conducted and they have neglected the examination of the effect of social influence. Moreover, most of the studies were conceptual lacking the empirical examination.

In examining the hypothesis related to the effect SI on UB results, it was found that SI has no effect on UB (β = -0.042, t=1.006, p>0.1).

Unexpectedly, this finding did not support H₃ at the positive significant effect hypothesised. Previous empirical studies recommended that SI should play a critical role with regard to the adoption or usage of new technology. On the other hand, SI may be a necessary condition, but it is not the sufficient criterion to lift users to adopt eG services in conflicts and risky environment.

However, the current study is in line with social influence result in other studies because it is not making any significant contribution to the prediction of the behavior in Saudi Arabia eG context (Al-Sobhi *et al.*, 2011; Alshehri *et al.*, 2012) as well as in

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Web-based learning area in Taiwan (Chiu & Wang, 2008). Thus, the implication of social influence in Iraq does not have any effect on usage behaviour in the context of conflict and violence environment. In risky and electronic services context, the user of eG services does not have any influence from their pair group influencing their usage of eG services. The finding further validates the non-significance of maintaining social influence in assessing technology.

Finally, the current study finding is inconsistent with most prior studies in technology field (Al-Shafi & Weerakkody, 2010; Foon & Fah 2011; Maldonado *et al.*, 2011; Yahya *et al.*, 2011; Wu *et al.*, 2007; Venkatesh *et al.*, 2003, 2011; Wang & Shih, 2009).

6.2.4 Facilitating Conditions and Usage Behaviour

H_4: Facilitating Conditions have a positive influence on Usage Behaviour towards eG services.

Several prior empirical studies shed light on Facilitating Conditions (FC) as an important key for their studies in different countries (Venkatesh *et al.*, 2003, 2011, 2012; Al-Sobhi et al., 2011; Foon & Fah, 2011; Suki & Ramayah, 2010; Adulwahab & Dahalin, 2011).

Regarding the effect of FC on UB, the results show that FC has a significant and positive influence on UB (β= 0.312, t=6.068, p>0.1). That is to say FC has a positive and statistically significant effect on UB which support H_4. The research finding is encouraging from a practical perspective for the Iraqi government, from a theoretical perspective since these results reconfirm that technology acceptance is influenced by key construct such as facilitating conditions (electricity, internet services) of the

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eG services success in violence area.

This finding is in line with previous studies that have provided an empirical evidence of the significant positive effect of FC on UB (Adulwahab & Dahalin, 2011; AlAwadhi & Morris, 2008; Foon & Fah, 2011; Maldonado *et al.*, 2011; Venkatesh *et al.*, 2011; Wang & Shih, 2009; Wu *et al.*, 2007).

6.2.5 Effort Expectancy and Usage Behaviour

H₅: Effort Expectancy (EE) has a positive influence on Usage Behaviour of eG services.

The past literature confirms that EE is an important factor in the IT adoption in different countries (Abdul-Rahman *et al.*, 2011; AlAwadhi & Morris, 2008; Al-Shafi & Weerakkody, 2009; Al-Shafi & Weerakkody, 2010; Al-Sobhi *et al.*, 2011; Foon & Fah 2011; Venkatesh *et al.*, 2003; Venkatesh *et al.*, 2011). Importantly, there is a "need for skilled human resources for e-government success" (Khan *et al.*, 2012 p451).

In examining the hypotheses regarding the effect of EE on UB, the result indicates that EE has a significant and positive influence on UB (β= 0.309, t=5.573, p>0.1), and thus H₅ is supported. Additionally, the current results of EE are justified through:

1-Perceived Ease of Use of the eG system and the citizen have a high degree of belief that using eG services would be free of effort and spare user's life by protecting them from dangerous and explosion through accessing to eG services while they are in their offices.

2-The degree of eG services is perceived as relatively easy to understand and use.

This finding is consistent with previous studies that have provided empirical evidence confirming the significant positive effect of EE on UB (Wu *et al.*, 2007). More specifically, Wu et al. (2007) found that there is a positive effect of EE on UB in the context of mobile technology in Taiwan.

6.2.6 Use Behaviour and Continued Usage Intention

H₆: A citizen's Use Behaviour of eG services has a positive influence on the Continued Usage Intention of eG services.

A careful review and analysis of the existing literature showed the importance of CUI in IS in general and eG in specific (Alruwaie, 2012; Bhattacherjee, 2001; Limayem *et al.*, 2003; Hong *et al.*, 2006; Wangpipatwong *et al.*, 2008; Chiu *et al.*, 2008). Obviously, in the literature of eG, there is a lack in examining the effect of UB on the continuing usage intention in unstable environment. That is, a scarcity exists among the prior studies that examined the effect of continued usage intention among online services usage behavior (Alruwaie, 2012).

Based on the statistical results, UB has been found to have a significant effect on CUI of eG services (β= 0.797, t=28.305, p>0.1). Thus, hypothesis H₆ was supported as indicated in the report. These results support that the initial usage behaviour of eG services encourage the users to generate the intention to continue usage of eG services in most dangerous countries in the world. The outcome of this study is in line with the study that has a significant relationship among various variables and the continued usage intention towards technology (Chiu *et al.*, 2008; Hong *et al.*, 2006).

6.2.7 Perceived Intensity of Civil Conflict and Continue Usage Intention

H₇: PICC has a negative influence on the Continue Usage Intention of eG services.

The statistical results indicated that PICC dose not have a significant effect on CUI (β= 0.011, t= 0.313, p>0.1) and indicates that there is not a significant relationship; therefore, H₇ is not supported.

The centralisation of the PICC was hypothesised to be a significant positive effect on CUI of the eG services in Iraq as posted; it was not statistically significant within the selected 0.1 significant level. Additionally, β is positive (0.011). Thereupon, hypothesis H₇ was not supported. These results are expected since the Iraqi citizens got used to have this kind of life and they used to live normally even though the environment is considered unstable.

Importantly, this result is because the employees used to use and continued use the eG services (key card and e-fine) in the case of stable or unstable environment. In other words, Iraqis are facing daily conflicts and violence. Additionally, due to the very long period of conflicts from 2003 until now (2014) and may last longer, the issue of explosions, kidnapping and killing is not affecting the Iraqi people's life and they practice their life as usual and the risky conditions and low level of security are not affecting the Iraqis' life any more.

6.2.8 Education and Usage Behaviour

H$_8$: Education has a positive influence on Usage Behaviour of eG services.

In this study, education was hypothesised to be an independent factor that is positively affecting the usage behaviour of eG services as postulated in hypothesis no H$_8$. The result of the study showed that education has no significant effect on the UB of eG services in Iraq (β= -0.016, t=0.483, p>0.1) since all the people regardless of their educational level can use and achieve their transaction through eG services. That is to say, almost all of the Iraqis in different levels of education, even primary and secondary school holders have a PC, a Laptop, a Tablet, or a 3-4G mobile phone. Morover, the government is encouraging the agencies by trying to transfer the income of the university employees (electronically) using key card services.

Furthermore, the government used e-library as one of eG services, and this increased the usage of eG service. In other words, the academic qualification is not a determinant eG usage behaviour. In addition, the ICCI established 37 Internet centres in public universities and wireless internet is made available to all the universites staff (Lecturer, Managerial, Worker, Security, Guards). So, they can have access to the internet and eG services freely regardless of their education levels (UN & ESCWA 2007). The finding of this study is consistent with the findings of Khan *et al.*, 2010a, 2010b, 2012) which were conducted in Afghanistan. In those studies, they found that education had no significant effect.

6.2.9 Experience and Usage Behaviour

H$_9$: Experience has a positive influence on Usage Behaviour of eG services.

Venkatesh *et al.* (2003) emphasized the importance of experience as an integral feature

of UTAUT.

The results of this study showed that experience or the duration of using the internet has an insignificant effect on UB among Iraqis (β= 0.036, t= 1.029, p>0.1). Many studies have involved the examination of the effect of experience (Al-Shafi & Weerakkody 2009; Khan, 2010a, 2010b 2012; Middleton & Chambers, 2010; Venkatesh *et al.*, 2003, 2011; Wu *et al.*, 2007). The finding of this study is in line with a study conducted by Middleton and Chambers (2010).

The insignificant effect of experience on UB can be plausibly explained by the following reality. Most of the eG services have been made so easy through user friendly websites that allow user, regardless of their level of experience to perform the requerd task efficiently.

In Iraq, the beneficiaries can get the eG services through other friends and/or colleges and how to use the services (eG services). Additionally, the Iraqi user can get the benefit of eG services by some internet offices (internet cafe) that help people to access the services by paying a little amount of money to the persons who assist the citizen in getting the services.

6.2.10 Income and Usage Behaviour

H₁₀: Income has a positive influence on Usage Behaviour of eG services.

In the literature, few studies examined the effect of income on UB (Khan, 2010a, 2010b, 2012).

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The statistical results empirically tested the effect of income (INC) on Usage Behavioural (UB) and howed that income is not a significant determinant of the UB of eG in Iraq (β= -0.010, t=0.304, p>0.1). These results were in contrary to the hypothesized effect. Additionally, the Iraqi user can get the benefit of eG services, such as e-fine, e-passport which donot not require high income, and at the same time, that extra money will not affect the monthly income of the Iraqis citizens. Therefore, the income dose not have a significant effect on predicting the eG usage behaviour in Iraq as a very risky country.

6.2.11 Age and Usage Behaviour

H_{11}: *Age has a negative influence on Usage Behaviour of eG services.*

According to the National Telecommunications and Information Administration, a notable gap exists in Internet use on the basis of age, (Belanger & Carter, 2006; NTIA, 2002). Addtionally, Thomas and Streib (2003 have often stressed on the critical role of demographic characteristics in the field Management Information Systems (MIS) in general and in the eG field, in particular. Moreover, some researchers examined the influence of age in their studies (Al-Sobhi *et al.,* 2011; Venkatesh *et al.,* 2003; Maldonado *et al.,* 2011). Venkatesh et al. (2003) identifies age as a key moderating factor that has been found to be significant in conjunction with technology acceptance models. The findings of this study show that age is not a significant determinant of the UB of eG services (β= -0.029, t= 0.856, p>0.5) so, H_{11} is not supported. This finding is in line with previous studies (Khan et al., 2010a, 2010b, 2012). In the new era, this result is expected since all the people have an access to technologies, and they use it to

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perform different type of transaction, regardless of their age. This can explain why age has no significant effect on UB.

6.2.12 Gender and Usage Behaviour

H_{12}: *Gender has an influence on Usage Behaviour of eG services.*

In the present study, it was hypothesized that the UB in the Iraqi HEIs is influenced by differences in gender. The results of this study showed that gender has no significant effect on UB of eG services in Iraq (β= 0.021, t= 0.601, p>0.1) and thus, H_{12} is not supported. The demographic virables (Gender) have a critical role among different MIS fildes, spically eG services (Thomas & Streib, 2003).

This finding is in line with those studies that used UTAUT model and did not reveal any significant gender influence on the relationship on eG services usage (Abdul-Rahman *et al.*, 2011; AlAwadhi & Morris, 2008; Foon & Fah, 2011). Like the case of income and age, the eG services are avilable and easy to be used by both males and females at minimel cost. In Iraq, males and females are equally treated in using the eG servicers and Internet (LeClaire, 2012). This can justify the insignificant influnce of gender on the UB.

6.2.13 Hypothesis about the Moderating Effect of PICC

H_{13}: *The conflict in the society moderates the relationship between usage behaviour and continued usage intention of eG services.*

The statistical results of this study showed that PICC has no significant moderating effect on the relationship between UB and CUI of eG services. Thus, the hypothesis H_{13} is not supported. In brief, regarding the research question number five, the results

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express that the PICC in the society does not have any effect between UB and CUI of eG services because the users used to use and continued use the eG services under different environmental conditions. Additionally, one plausible explanation of this finding is that the Iraqi people, due to the long unstable period, are used to this life. Therefore, most of them live normal life and exercise their activities despite the violence.

6.2.14 Hypothesis Regarding the Mediating Effect of Usage Behaviour

This study aimed at testing the usage behaviour as a mediating variable between the UTAUT antecedents and Continuous Usage Intention (CUI). For research question six, the hypotheses are as in the following:

H_{14}. *The citizen usage behaviour mediates the effect of Effort Expectancy on the Continued Usage Intention of eG services.*

H_{15}. *The citizen usage behaviour mediates the effect of Facilitating Conditions on the Continued Usage Intention of eG services.*

H_{16}. *The citizen usage behaviour mediates the effect of Performance Expectancy on the Continued Usage Intention of eG services.*

H_{17}. *The citizen usage behaviour mediates the effect of Social Influence on the Continued Usage Intention of eG services.*

With regard to the mediating effect of usage behavior between the relationship between effort expectancy and continued usage intention, the results supported the mediation role of usage behavior on hypothesis in H_{14}.

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These results are expected since the experience in using the eG services can explain the intention to continue using the services. More importantly, the mediation role of usage behavior showed how important is the real experience of usage to have the determination to continue using the eG services.

Regarding the mediation effect of UB between facilitating condition and continued usage intention, the results confirmed the mediating effect. These results are expected since the Facilitating Conditions can directly and indirectly through usage behavior influence continued usage intention. This implies that facilitating condition can drive the people to use eG services and also create their willing to become continue users of eG sevices.

Similarly, the statistcal results of the study confirm the mediating role of UB between EE and CUI. This result showed that usage behavior fully explains the effect of EE on CUI. This means that EE can drive the usage behavior which, in its turn can drive the intention to continue using the eG services.

With regard to PE and CUI relationship, usage behavior was found to be a mediator. The full mediation implies that the performance expectation can drive the individual to continue using the eG services provided that they use it. This also signifies the importance of eG servies and how efficient they use eG services to permenantly use these services (eG services).

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Lastly, regarding the mediating effect of usage behavior on the relationship between SI and CUI, the results not supported of mediation effect. This result implies that the Social Influence on individuals by their acquaintance to have the intention to use the eG services can be through the experience of using these services but negatively.

6.3 Contributions of the Study

This study has many valuable theoretical and practical contributions. This study attempted to examine the influence of UTAUT antecedents on eG usage behavior and continued usage intention. The uniqueness of this study comes from the examination of the mediation effect of the usage behavior. More importantly, this study attempted to examine the hypothesized relationships in unstable environment. Thus, this study has various contributions to the theory as well as the practice as detailed in the following:

6.3.1 Contributions to the Literature (Academic Contributions)

This study has many contributions to the body of knowledge in the area of eG services in an unstable environment. Some of these contributions are detailed as follows:

First, this study provides a theoretical understanding of how the variables (E-SA, PE, EE, SI, FC, EDU, EXP, INC, AGE, GEN, UB, and PICC) are important in explaining the continued usage intention in the Iraqi context. More specifically, this study explored that the joint effect of the aforementioned variables can affect the continued usage intention.

Second, most of the past literature that examined UTAUT has conducted their studies in the developed countries and very few studies have considered the context of the

developing countries. However, this study attempted to examine the UTAUT theory in an unstable country, namely Iraq, in the Middle East region. Additionally, this study demonstrated that the UTAUT model can be valid and can be utilized to examine continued usage behaviour towards eG services in diverse cultures.

In general, this study is considered as one of the very few studies conducted in the Arab world to validate the UTAUT theory as the framework to explain the eG usage behavior and the continued usage intention by integrating the effect of the service awareness and the civil conflict factors.

Third, this study has contributed to the literature by examining the mediating effect of usage behaviour in explaining the influence of independent variables (EE, FC, PE, SI) on the continued usage intention of eG services.

Finally, the stability of the environment might significantly affect the adoption and acceptance of new technologies. Moreover, Hair *et al.*, (2012), Yau *et al.*, (2007), Henseler and Fassott (2010), Henseler and Chin (2010) strongly recommended for a future research that moderators should be involved because there is a gap in literature regarding the studies with moderators.

6.3.2 Contribution to the Practice

This study has many useful insights that can benefit practitioners and professionals. The findings produced by this study is of a great value for practitioners and government agents who are concerned with offering successfully the eG services. By examining the influence of many factors on eG government usage behavior and continued usage intention, it can be noticed which factors have the strongest influence

and how their interaction can cause the success.

More importantly, the findings of this study can be of a great value for the governments or their agents which are promoting the eG services among the citizens. As the study revealed that even though the IT infrastructure is important to promote the eG services, the awareness of the individual of the services and the social influence can play a major role. This means that the usage of eG services should be developed as a culture among the citizens by holding an awareness and advertisement campaigns.

Last but not least, the governments should make the eG services available for the citizens to try to exercise a good experience that may lead them to choose to have usage of eG services as their lifestyle.

6.3.3 Contribution to the Methodology

In examining the developed model, this study employed the partial least squares structural equation modeling (PLS-SEM) technique that permits a concurrent assessment of the adequacy of the measurement model and the conceptual model used to assess the target behaviour. However, PLS-SEM has been gaining the popularity in the management information system (MIS), but few studies have used that to examine the UTAUT model to explain the eG services. Thus, the findings of this study imply that PLS-SEM can be used to predict that the whole UTAUT can be used to demonstrate eG among public universitys employees in Iraq.

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6.4 Limitations

Although this study has produced interesting findings, it does, however, have certain limitations; first, this study reports a limitation with respect to sample size and number of universities in the present study, which is relatively small. Additionally, this study targeted only the public universities employees in Iraq. Therefore, the findings of this study do not reflect the behaviour of other fields such as private universities, students, school teachers, agriculture sector, military sector and industrial sector. Also, this study focused on the investigations of the antecedents of usage and continued usage intention in Iraq. Moreover, this study included other aspects such as the effects of infrastructure on public universities employees in a violent environment. Finally, this study discussed a few antecedents of eG and neglected a lot of them, such as the motivations, trust, service quality, website features and others.

6.5 Directions for Future Research

Limitations of this study could create opportunities for future research by increasing the sample size to be more comprehensive, and targeting other sectors, such as retired and private sector employees in Iraq. Future research could examine also more antecedents or factors influencing eG in Iraq since the variables are still recommended to be investigated on a larger scale by future research with specific attention being given to eG services. These variables could include trust, safety, readiness, enjoy, cost, time, security, motivations, service quality, resistance to change, website features and others.

Additionally, future research could conduct more related studies in eG settings in Iraq since there are only a few past studies investigating the eG in Iraq or a comparative

study could be conducted to compare between Iraq and other countries using eG services. Since this study was based on UTAUT theory, future research could extend this theory and apply it in a new version in eG or other technology acceptance theories could be applied in the Iraqian context, such as TAM3, UTAUT2 and DeLone and McLean's model and others. In this study, the researcher used only one instrument, a questionnaire survey. Thus, the researcher suggested that the qualitative method in-depth interview could be a suitable way to find more factors that could influence eG services users towards eG in Iraq. This can be better achieved when the researcher builds a trusted relationship with them and speaks their language. The current study has targeted actual and continued usage intention of users towards eG and reported the important features motivating their engagement in eG options in the Iraqi context. The same approach may also be applied to non-users in a quest for pointing out areas of design quality that needs improvement or increases interactivity to overcome non-users' apprehension.

6.7 Conclusion

In conclusion, the study presents how the current research objectives have been reached in light of the previous elaborated discussion of results. This study examines the antecedents of eG in Iraq using SEM. There are five direct significant relationships and seven insignificant relationships in this study.

The direct significant antecedents are E-SA, PE, FC, EE, UB, whereas the direct insignificant antecedents are SI, EDU, INC, EXP, AGE, GEN, and PICC. The research proposed an extension to the UTAUT model that accounts for the utilization of the united model within the online behaviour usage contexts. The proposed extension, E-

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SA, PE, FC, EE, and UB was successfully integrated with UTAUT in the risky environment context model.

As mentioned earlier, this study focuses to address the applicability of the UTAUT, which was established in developed countries, to other non-Western cultures or developing countries. The major perception is that most technologies adoption and acceptance theories are designed and produced in developed countries and are culturally-biased in the context of those developed countries' social and cultural systems. This bias might arrest the applicability of these technologies theories when moving to other cultures and other environments. Conversely, IT advancements in the past sixteen years since the internet technology and its benefits made it basically not possible for governments globally to ignore these advantages or avoid the internet technology.

Moreover, this work has added to the understanding of acceptance of the technologies within technology acceptance theories research and in optionally online behaviour contexts. As well, this study indicates that UTAUT was a successful model in studying the antecedents of eG in Iraq.

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