



Institute of Technology Management and Entrepreneurship

**E-GOVERNMENT TRUST MODEL TO ENHANCE THE USAGE OF
E-GOVERNMENT AMONG END-USERS IN IRAQ**

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GOVERNMENT AMONG END-USERS IN IRAQ**

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**A thesis submitted
in fulfillment of the requirements for the degree of
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2020

DECLARATION

I declare that this thesis entitled “E-government Trust Model to Enhance the Usage of E-government among End-Users in Iraq” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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Date : _____

APPROVAL

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of Doctor of Philosophy.

Signature :

Supervisor Name :

Date :

.....

DEDICATION

First and foremost, Alhamdulillah Almighty for all the blessings of health, wisdom and patience and to overcome all the difficulties that I faced in my PhD journey.

I would like to dedicate these years of hard work and to the spirit of my father, and also to the pulse of tenderness my dear mother. All my family members who supported me psychologically and emotionally Majeed, Amel, Riffat, Zaynab, Safwan, Yasser, Dania, Ruba, Kassim and Rulla for their endless supports, patient and prayers.

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ABSTRACT

Consistent with the development and widespread usage of Information and Communication Technologies, countries around the world, including Iraq has adopted e-government to facilitate government services to its citizens. Consequently, they have been continuously seeking ways to ensure the widespread and sustainable usage of the e-government services among the citizens. However, several challenges have been identified that limit the usage of e-government among its users. Considering trust is one of the most important determiners of the usage of e-government among users, this study aims to develop an e-government trust model (EGOV-TRUST) that enhances the usage of e-government among users. Adopting the integration of UTAUT2 and TOE, specifically the individual, technological, organizational and environmental factors (I-TOE) as the lens for developing this trust model, this study focuses on three objectives, which are firstly, to analyse the constituents of trust that influence the usage of e-government; secondly, to propose the e-government trust model; and thirdly, to validate the model based on the perspectives of the users. Unlike previous studies that use either one of the theories, the integration of the two theories provides a new perspective of understanding the trust factors that influence the use of e-government. This study adopted a survey method, in which questionnaires were analyzed from 631 respondents derived from a stratified random sampling method. Four main hypotheses have been tested and CB-SEM and PLS-SEM have been used for testing and validating the measurement and structure of the EGOV-TRUST model. The study found that there has been a positive relationship between the individual, technological, organizational, environmental dimensions of trust and these factors have positive effects on the use of e-government. It can be concluded that the EGOV-TRUST model has the potential to enhance the usage of e-government among its users. This research contributes to the knowledge of adopting e-government, focusing on deconstructing the element of trust that enhances the usage of e-government. The model can be used as guidelines for governments, especially developing countries for enhancing the usage of e-government among users.

**MODEL KEPERCAYAAN E-KERAJAAN UNTUK MENINGKATKAN
PENGUNAAN E-KERAJAAN DI KALANGAN PENGGUNA AKHIR DI IRAQ**

ABSTRAK

Selaras dengan perkembangan dan penggunaan Teknologi Maklumat dan Komunikasi yang meluas, negara di seluruh dunia, termasuk Iraq telah menerima pakai e-kerajaan untuk memudahkan perkhidmatan kerajaan kepada rakyatnya. Mereka terus mencari jalan untuk memastikan penggunaan perkhidmatan e-kerajaan yang meluas dan lestari di kalangan rakyat. Walau bagaimanapun, beberapa cabaran telah dikenal pasti yang menghadkan penggunaan e-kerajaan di kalangan penggunanya. Memandangkan amanah adalah salah satu penentu yang paling penting dalam penggunaan e-kerajaan di kalangan pengguna, Kajian ini bertujuan untuk membangunkan model amanah e-kerajaan (EGOV-TRUST) yang meningkatkan penggunaan e-kerajaan di kalangan pengguna. Mengguna pakai integrasi UTAUT2 dan TOE, khusus individu, teknologi, organisasi dan faktor persekitaran (I-TOE) sebagai lensa untuk membangunkan model amanah ini, Kajian ini menumpukan pada tiga objektif, yang pertama, untuk menganalisis amanah yang mempengaruhi penggunaan e-kerajaan; kedua, untuk mencadangkan model amanah e-kerajaan; dan ketiga, untuk mengesahkan model berdasarkan perspektif pengguna. Tidak seperti kajian terdahulu yang menggunakan salah satu teori, pengintegrasian dua teori memberikan perspektif baru untuk memahami faktor amanah yang mempengaruhi penggunaan e-government. Kajian ini menggunakan kaedah tinjauan, di mana soal selidik dianalisis dari 631 responden yang diperolehi daripada kaedah pensampelan rawak berstrata. Empat hipotesis utama telah diuji dan CB-SEM dan PLS-SEM telah digunakan untuk menguji dan mengesahkan pengukuran dan struktur model EGOV-TRUST. Kajian mendapati terdapat hubungan positif antara individu, teknologi, dimensi organisasi, dimensi amanah dan faktor-faktor ini mempunyai kesan positif terhadap penggunaan e-kerajaan. Dapat disimpulkan bahawa model EGOV-TRUST berpotensi untuk meningkatkan penggunaan e-government di kalangan penggunanya. Penyelidikan ini menyumbang kepada pengetahuan tentang penggunaan e-kerajaan, memberi tumpuan kepada mendekonstruksi elemen amanah yang meningkatkan penggunaan e-kerajaan. Model ini boleh digunakan sebagai garis panduan untuk kerajaan, terutamanya negara-negara membangun untuk meningkatkan penggunaan e-kerajaan di kalangan pengguna.

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LIST OF ABBREVIATIONS AND SYMBOLS

Bel	-	Beliefs
CB-SEM	-	Covariance-based SEM
DOI	-	Diffusion of Innovation
DT	-	Disposition to Trust
EDTOT	-	Environmental Dimension
EE	-	Effort expectancy
E-government	-	Electronic Government
E-services	-	Electronic Services
FC	-	Facilitating Conditions
G2B	-	Government to Businesses
G2C	-	Government to Citizens
G2E	-	Government to Employees
G2G	-	Government to Government
Hab	-	Habit
HM	-	Hedonic Motivation
ICT	-	Information Communication Technology
IDTOT	-	Individual Dimension (UTAUT2)
IQ	-	Information Quality
IS	-	Information System
IT	-	Information Technology
I-TOE	-	Individual- Technology-Organization-Environment
ODTOT	-	Organizational Dimension
PE	-	Performance Expectancy
PLS-SEM	-	Partial Least Squares SEM
PV	-	Price Value
Rep	-	Reputation
SEM	-	Structural Equation Modeling
SEQ	-	Service Quality

SI	-	Social Influence
SL	-	Support Legislation
SP	-	Security and Privacy
SYQ	-	System Quality
TAM	-	Technology Acceptance Model
TDTOT	-	Technological Dimension
TG	-	Trust of Government
TIEG	-	Trust in e-Government
TMS	-	Top Management Support
TOE	-	Technology-Organization-Environment
TOI	-	Trust of Internet
TOIM	-	Trust of the Intermediary
TPB	-	Theory of Planned Behaviour
TRA	-	Theory of Reasoned Action
UEG	-	Use of e-Government
UTAUT	-	Unified Theory of Acceptance and use of Technology

DEFINITION OF TERMS

Performance Expectancy: “The degree to which using e-government will provide benefits to consumers in performing certain activities” (Venkatesh, Thong and Xu, 2012).

Effort Expectancy: The degree of ease associated with customers’ use of e-government (Venkatesh, Thong and Xu, 2012).

Social Influence: The extent to which individual perceive that important others believe they should use e-government (Venkatesh, Thong and Xu, 2012).

Facilitating Conditions: The individual perceptions of the resources and support available to use e-government (Venkatesh, Thong and Xu, 2012).

Price value: The extent to which the individual believes that the benefits will gain from e-government services is greater than the monetary cost for using them (Venkatesh, Thong and Xu, 2012).

Hedonic Motivation: The intrinsic motivation of an individual to obtain fun or pleasure from using e-government (Venkatesh, Thong and Xu, 2012).

Habit: The degree to which individual tend to develop automatic behaviors due to learning (Venkatesh, Thong and Xu, 2012).

Disposition to trust: The tendency of public individuals to trust and rely on the opinion of others in the use of e-government or lack of trust in others and rely on personal opinion (Alzahrani, Al-Karaghoul and Weerakkody, 2017; Nulhusna et. al., 2017; Xie et. al., 2017).

Beliefs: Refers to the user's beliefs that his or her self-efficacy, internet experience and knowledge enable them to trust and use e-government services.

Trust of Internet: The degree to which individuals trust the internet environment in terms of quality of communication and reliability of transactions for use in e-government services (Kurfalı et. al., 2017; Lallmahomed, Lallmahomed and Lallmahomed, 2017).

Information Quality: The degree to which individuals trust that the e-government can provide services to individuals with new, accurate, clear, understandable and useful information (Detlor et. al., 2013; Mohajerani et. al., 2015; AL Athmay et. al., 2016; Nulhusna et. al., 2017).

System Quality: The degree to which the functionalities of e-government can best address individual's needs, with system flexibility, system reliability, ease of learning, and response times (AL Athmay et al., 2016; Nulhusna et. al., 2017).

Service Quality: The degree to which individuals trust that the quality of the support that e-government users receive from the information systems organization and IT support personnel (DeLone and McLean, 2016).

Security & privacy: The degree to which individuals trust that interaction with the e-government system is safe as well as the security and protection of personal information and privacy (Alshibly and Chiong, 2015; Mohajerani, Shahrekordi and Azarlo, 2015; Wahsh and Dhillon, 2015; Abu-Shanab, 2017).

Top management support: To what extent do individuals trust that top management supports, promotes and encourages the use of e-government services (Awa, Ukoha and Igwe, 2017).

Reputation: The extent to which citizens believe that government institutions have a good reputation in terms of justice, equality, transparency and fulfilling their obligations.

Trust of Government: The degree of individual's trust in the government providing an online service regarding the integrity and ability of the government providing the service based on prior experience when dealing with government (Kurfalı et. al., 2017; Lallmahomed, Lallmahomed and Lallmahomed, 2017).

Supporting Legislation: The extent of application of electronic laws and regulations so that individuals have trust that they are legally protected when there are any violations in their electronic transactions (Khanyako and Maiga, 2013; Lallmahomed, Lallmahomed and Lallmahomed, 2017).

Trust of the intermediary: The degree to which intermediaries are of great benefit for users of e-government give them the confidence and support to access these services easily (Voutinioti, 2013; Weerakkody et. al., 2013).

Risk: The extent to which risks affect individuals in the use of e-government services (Alzahrani, Al-Karaghoulis and Weerakkody, 2017; Xie et. al., 2017).

Trust in e-government: Refers to individual beliefs and expectations about trust in e-government services (Alzahrani, Al-Karaghoulis and Weerakkody, 2017).

E-government use: The acceptance and use of information and services offered by e-government to citizen (Nam, 2014; Alkhalilani and Sulaiman, 2015), focusing on the e-government services provided by the Ministry of Higher Education in Iraq.

LIST OF PUBLICATIONS

Alnidawy, B. Q., Sidek, S. ,Al-shami, S. A. and Elzamly A., 2019. I-TOE- The New Conceptual Framework that Deconstructing Concept Of Trust In e-government that affects Usage of e-government. *International Journal of Advanced Science and Technology*, 128, pp. 59–74.

Al-nidawy, B. Q. J., Sidek, S. and Al-shami, S. A., 2018. Systematic Review of Critical Factors and Their Dimensions Influencing Trust in E-Government for Usage or Willing to use by Citizens: Taxonomy, Open Challenges, Motivation and Recommendations. *Opción*, 34(85), pp. 2748–2794.

Alnidawy, B. Q., Sidek, S. ,Al-shami, S. A. and Elzamly A., 2020. Developing E-Government Trust Model (EGOV-TRUST) that Enhances the Usage of E-Government Among the Users in Iraq. *Journal of Theoretical and Applied Information Technology*, 98(03).

CHAPTER 1

INTRODUCTION

The rapid development of ICT has witnessed the widespread usage of web-based technology in almost all sectors be it the private or public sectors. One of the prevalent usages of web-based technology is the e-government, in which every government across the world are adopting e-government as the means to disseminate information and perform daily transactions with its stakeholders. Although e-government has become an essential platform of communication globally, many have complained of its restricted usage, especially in the developing countries. This chapter serves as the introduction chapter of a research framework that aims to investigate the plans to enhance the use of e-government among users. Positing that trust is the main factor that determines the usage of e-government, this study focuses on investigating how the construction of trust contributes to the enhancement of the acceptance of usage among users, particularly in Iraq.

As an introductory chapter, this chapter is divided into ten sections. The first section divided into three sub-sections provides the background of the study. In first sub-section, the development and the prevalence of e-government are discussed. The second sub-section explain the trust and the usage of e-government. The third sub-section presents the context of the study: A particular developing country that adopts e-government, namely e-government in Iraq. The second section presents the statement of the problem while the third section presents the objectives of the research. This is followed by the fourth section that states the research questions. In relation to this, the conceptual framework presented in

the next section. Section six presents the scope of the study followed by the subsequent section; section seven that presents the significance of the research. Section eight presents the definitions of terms related to the study. Finally, the organization of the proposal presented in section nine and this chapter ends with summary.

1.1 Background of the study

1.1.1 Issues and challenges of e-government

The concepts and usage of e-government arose with the widespread use of the internet in the mid-1990s. In addition, the spread of ICTs in all life facilities has led to the inevitable evolution of services provided by the government from the traditional way to the emergence of e-government. There are multiple definitions of e-government commonly can agree that e-government is a means of providing information and services by the government to citizens and stakeholders through the use of ICTs (Cumbie and Kar, 2016). E-government means harnessing the power of ICTs, especially Internet and Web technologies, to deliver better quality services to citizens and increase their organizational effectiveness (Verkijika and De Wet, 2018). As we can say, the ability to search and obtain information and government services according to the desire of citizens without the restriction of time and geography using the internet (Dwivedi et. al., 2017a). The benefits provided by e-government were the reason why e-government is the lifeblood of many developed countries and has an impact on many stakeholders including citizens and government employees, IT developers and policy makers as well as business and investment. Many countries in the world (developed or developing countries) are beginning to adopt e-government that enables citizens to access public services 24 hours a day anywhere in a rapid, convenient and transparent manner at a low cost. Presenting information on the internet is now becoming important. Many government and commercial transactions are conducted over the internet, providing users opportunities to communicate

with others, surpassing the boundary of space and time. Although e-government has been adopted in many countries worldwide, its usage in the developing countries is still lagging behind (Alzahrani et al., 2017).

To reach adequate and secure government services and information to citizens, government agencies assist and deal with citizens in the best and easy way they can. Governments use information and communication technology (ICT) to make natives understand information and urge governments to become extra responsive to the desires of citizens (Fgee and Alkallas, 2013; Alzahrani et al., 2017). Abu-Shanab (2017) argued that in general, these will develop political, economic and social aspects of the country if e-government is seen as an extra way to service delivery.

There are different types of e-government, which can be divided into four main categories which are: i) 'government to citizen' or 'customer' (G2C); ii) 'government to business' (G2B); iii) 'government to government' (G2G) and iv) 'government to employee' (G2E). Government websites supply service for citizens and design projects to facilitate communication between citizens and the government as consumers (Amagoh, 2015). The fundamental goal of e-government is to expedite natives' communication with government by G2C initiatives. Such goal is what certain observers perceive to be e-government's goal (Freire et al., 2014). Although there is an increasing availability of multiple types of e-government services, there has been an increasing concerns as to why only a certain group of citizens use electronic services (Nam, 2014). Many countries have made an effort to adopt e-government due the various advantages facilitated by it, but it has not received much acceptance from the users (Khasawneh and Tarawneh, 2016; Rehman et al., 2016).

Governments all over the world are aware of the facilitation of utilizing the internet to carry out their government operations and it has become increasingly popular around the world. However, there are many issues and challenges have been raised in relation to the

use of e-government among the end users. Specifically, governments are still slow to implement and develop electronic processes (Khanyako and Maiga, 2013; Wang and Lo, 2013; Waller and Genius, 2015; Rehman et al., 2016). An important issue that has been raised in relation to this are the lack of awareness among the community about e-government services, as well as the lack of trust in the internet and the government among citizens (AL Athmay et al., 2016).

Researchers are interested in investigating the factors that influence users to use e-government (Alkhalani and Sulaiman, 2015; Chatzoglou et. al., 2015; Mohajerani et. al., 2015; Roy et. al., 2015; Rodrigues et. al., 2016; Lallmahomed et. al., 2017). Several assertions have been reported by these researchers. Firstly, the lack of trust and confidentiality are identified as the two of the most important challenges in adopting e-government services (Rodrigues et al., 2016). Secondly, the success and failure of the e-government and the continued usage of e-government services depend on the satisfaction of users. Additionally, the potentials of e-government to enable citizens to access public services 24 hours a day anywhere in a rapid, convenient and transparent manner at a low cost are viewed as significant factors that have strong relation to citizens' perceptions of e-government (Susanto and Aljoza, 2015).

1.1.2 Trust and the usage of e-government

This study posits that the critical element for any successful implementation of e-government project is trust. In this case, trust is a significant factor in determining the use of electronic services. Trust is also related to privacy as (Alawneh et al., 2013; Abu-Shanab, 2014) claimed that building user's trust in the services provided by e-government is the basic ingredient of privacy. Gaining trust in a particular technology also depends on who compiles the data and the importance to ensure the provision of data in terms of informed integrity and reliability (Roy et. al., 2015). In this case, trust is viewed a complex

concept as it comprises multiple constructs. Hence, there is a need to investigate the elements of trust that has significant relationship to the usage of e-government.

Providing reliable, valid and protected data will enhance user's trust in technology (Roy et. al., 2015). Trust has become a significant issue with respect to the usage of online information due to the emergence of an abundance of unreliable information. The user's reluctance to use or adopt electronic services is related to security, privacy and transparency issues. Here lies the importance of the trust factor as it increases the intentions and willing to use e-government by citizens if the government strengthens trust (Fakhoury and Aubert, 2015). In addition, trust in government is an important factor in electronic services because it generates a sense of equity in usage, access to information and trust in security and privacy of data (Waller and Genius, 2015). The most important component of the e-government satisfaction and adoption is trust. This is because the feeling of trust has an effect on behavior (Khanyako and Maiga, 2013; Weerakkody et. al., 2016; Kurfalı et. al., 2017). The trust factor becomes increasingly important when the information involves risk considering electronic risk is a barrier for most users (Seo and Bernsen, 2016).

There have been studies highlighting that the adoption of e-government service depends on citizens' trust in governments as well as on the internet (Wang and Lo, 2013; Fakhoury and Aubert, 2015; Rehman et. al., 2016; Kurfalı et. al., 2017). These studies argued that citizens who trust that their government can supply high-quality services will also trust other methods of alternative service provided by their government. In other words, citizens easily exert their trust on the government's ability to provide high-quality services once they have trusted on any of the services provided by the government. Moreover, if citizens trust the technology as a channel to address their needs, they eventually trust the online services provided by the government (Chen et. al., 2015; Gracia and Casaló Ariño, 2015). A certain level of trust in governments is necessary for the e-

government enabled participatory process. Despite the electronic readiness of many countries, it is important to identify the symptoms that stand as barriers to the development and improvement of electronic services, focusing on citizens as users. Rodrigues et. al. (2016a) proposed that finding appropriate solutions on the barriers of citizen's trust is possible to reach the required usage level of e-government services.

1.1.3 E-government in Iraq

The government of Iraq, similar to governments of other countries such as Jordan, Egypt, Saudi Arabia, and Philippines are at the initial phase of adopting ICT to develop their financial information system and accurate reporting, simplify government services provided and enhance interaction with the natives. Mahmoud (2010) claimed that e-government serves as an incentive for enabling natives to communicate with the government. Like all countries around the globe, Iraq embarked upon implementing e-government in 2004 with the assistance from the Italian government (Wahsh and Dhillon, 2015). Recognising the benefits offered by e-government like keeping time, effort and money, in addition to justice and equality among citizens, the Iraqi government aims to adopt e-government for the provision of electronic services that were provided in a traditional way. In other words, the e-government in Iraq serves as dissemination of information used to be provided conventionally. At present, Iraq is in the second stage of e-government, referred to as interactive information (Abdulwahida et. al., 2014).

When e-government was first implemented in Iraq, it was not done through a single portal, but rather it was developed in the form of websites for each of the services provided electronically. Although there have been many attempts to combine all electronic services through a single portal, the e-Government Citizen Program was created (<http://www.ca.iq/>) in 2017. This portal was used to eliminate bribery and favoritism in government offices. It was also the first version that links all the ministries of Iraq. In addition, through this portal,

citizens are no longer afraid to go to complain, since it can be conducted online and with complete anonymity of the complainant's identity. Apart from saving time, the provision of online services (e-portal) should unite all required documents. In this case, more efforts are needed to enhance the portal, which subsequently increase the rate of using the portal (Al-Shaher, 2017). This can be achieved through the development of “e-government citizens” because the existing portal has some weaknesses, such as slow loading and lack of information needed by users (Al-Shaher, 2017).

The e-government in Iraq is still in its early stage as the number of services is limited to issuing identity cards, admitting students to universities, driving licenses and passports, apply for government vacancies online, as well as information provided by all ministries through their websites. The government is constantly developing its e-government services to include additional services for its citizens such as education, health, laws and others (Al-Shaher, 2017). Figure 1.1 shows the portal “e-government citizens” in Iraq.



Figure 1.1: The e-government citizen portal (<http://www.ca.iq/>)

Iraq faces many challenges and obstacles that impede the successful implementation of e-government. Among the challenges documented in the literature are such as the lack of infrastructure, law and public policy, digital divide, illiteracy, trust, privacy and security, corruption and poor resource management, lack of information and communication and the legal framework, and resistance to change by employees of government agencies. (Hassan, 2016; Qader and Kheder, 2016) argued that there are many challenges facing Iraq in the adoption of e-government. These challenges mainly relate to technical, organizational and community challenges. Al-Taie and Kadry (2013) argued that the challenges of implementing e-government in Iraq can be categorized as political, technological and socio-economic factors. On the other hand, (Qader and Kheder, 2016; Thabit and Jasim, 2019) argued that the challenges can be categorized into technical, organizational, political, social and economical. Another study also confirmed that Iraq faces technological challenges identified by six themes hindering the development of e-government in Iraq (Al-yawer and Ahmad, 2019). According to Faieq (2016), besides the technical (infrastructure) and financial needs to determine the success of such project, there are still some social impediments that hinder the practicability of e-government in Iraq. Accordingly, Faieq (2016) argued that many Iraqi citizens do not trust the new digital services provided by government, especially those directly related to financial issues such as transfer of fund. Citizens also have reservations about using online applications for fear of fraud and other risks. Qader and Kheder (2016) also asserted that trust is one of the most important challenges in the adoption of the e-government in Iraq. Another study explains that the citizens in Iraq do not trust e-government unless the government ensures citizens with the safety of data and information. So there is an urgent need for e-government development represented by building trust which can help in bringing citizens into e-government in Iraq (Ahmad, 2019).

As mentioned above, Iraq is experiencing a lack and weak acceptance to use e-government among citizens in Iraq. The challenges in using the e-government cited by many researchers are technical, organizational, social and financial. Trust has also been highlighted as one of the significant factors that influence the use of e-government. Although there have been studies investigating the adoption of e-government in Iraq, the relationship between trust and the use of e-government is still very limited. Therefore, this study aims to investigate the factors of trust in e-government and its relationship to the use of e-government services in Iraq.

1.2 Statements of the problem

The success of e-government is important in order to realise the advantages provided by this service to citizens, such as integrity, equity, save time, effort and money. Countries, including Iraq, have allocated a huge budget and time to implement the e-government. The success of the e-government reflected by the high usage of these electronic services by citizens. A study that assessed the e-government portal explained that the reason for the failure to address usability is the weak acceptance of e-government services by citizens (Al-Shaher, 2017). According to Hassan (2016), who examined the global index of the readiness of e-government, Iraq is experiencing challenges for successful adoption of e-government. He explained that trust is one of the important challenges facing Iraq. This means that an investigation of the issues and challenges is needed to address the problems of restrictive usage of e-government services among users in Iraq.

Based on the previous studies, there have been various studies investigating the issues and challenges of the adoption of e-government in Iraq. These studies reported various findings related to the issues of implementing e-government, including the i) lack of infrastructure, ii) the lack of knowledge and skills of ICT, iii) lack of information and

communication, iv) issues related to law and public policy, v) digital divide, vi) trust, viii) privacy and security, ix) corruption and poor resource management and x) resistance to change among employees of government agencies. Among these challenges, several researchers argued that trust is one of the most important determiners of the usage of e-government among users. However, according to a review of the literature, it was found that an investigation of trust in relation to the use of e-government among users is still lacking in Iraq.

Studies involving the relationship between trust and usage of e-government tend to focus on two relationships: i) trust in the internet and ii) trust in government (Detlor et. al., 2013; Shajari and Ismail, 2013; Wang and Lo, 2013; Ahmed et. al., 2015; Alkhalani and Sulaiman, 2015; Amagoh, 2015; Chen et. al., 2015; Fakhoury and Aubert, 2015; Mpinganjira, 2015; Rehman et. al., 2016; Aljarrah et. al., 2016; Alomari, 2016; Lallmahomed et. al., 2017; Kurfali et. al., 2017). As far as the researcher is aware, with reference to the systematic review conducted for this research, there has been no study that investigates the effect of the five aspects (technology, government agency, intermediary, risk and citizen) on trust in e-government simultaneously. It was found that only one study has investigated trust of citizens on e-government based on four aspects, namely technology, government agency, risk and citizen. However, the study has not been supported in practical terms (Alzahrani et. al., 2017). Although there have been studies that focus on factors of trust with other factors that affect the intention and use of e-government services, these studies tend to have limited perspectives in understanding the relationship between trust and the use of e-government. They tend to focus on investigating the technological aspects ignoring the individual, organizational and environmental. In this case, this study aims to provide a holistic perspective of the meaning of trust by

deconstructing the concept of trust into four dimensions which are the individual, technology, organisation and environment aspects.

There are many theories and models that have been used as a lens to understand the use of technology among users. However, researchers tend to use these theories individually for different context and purposes. There have been very few efforts to integrate the theories for a more comprehensive understanding on the use of technology. An investigation that adopts an investigation that combines UTAUT2 and TOE theories to comprehend the use of technology, specifically e-government is still lacking. This study advocates that the adoption of a combination of more than one theory provides a nuanced understanding of the use of technology in comparison to the adoption of a single theory. Therefore, for this purpose, this study intends to adopt a combination of two theories, namely the Technology-Organization-Environment (TOE) theory and the unified theory of acceptance and use of technology (UTAUT2), an extension of UTAUT, which has an explanatory power of up to 74% (Venkatesh, Thong and Xu, 2012). It is anticipated that the integration of UTAUT2 with TOE, named as I-TOE (Awa et. al., 2017) provided a comprehensive framework to investigate the use of e-government by citizens. This framework explained the trust factor from multiple aspects of individuals and organization (technology, organization, environment), providing a more holistic perspective for understanding the determinants of trust on the use of e-government among users.

With respect to the context of investigation, studies related to trust factors and other factors that impact the intention or acceptance or adoption e-government have been mainly conducted in countries such as Jordan, Saudi Arabia, South Korea, U.S.A, Canada, Australia and United Arab Emirates. As shown in Figure 1.2, there has been limited studies on e-government conducted in Iraq in comparison to countries such as Jordan (7 studies), Saudi Arabia (5 studies), South Korea (4 studies) and the USA (3 studies) respectively.

Based on this condition, it is essential to conduct an investigation of trust and the use of e-government in Iraq.

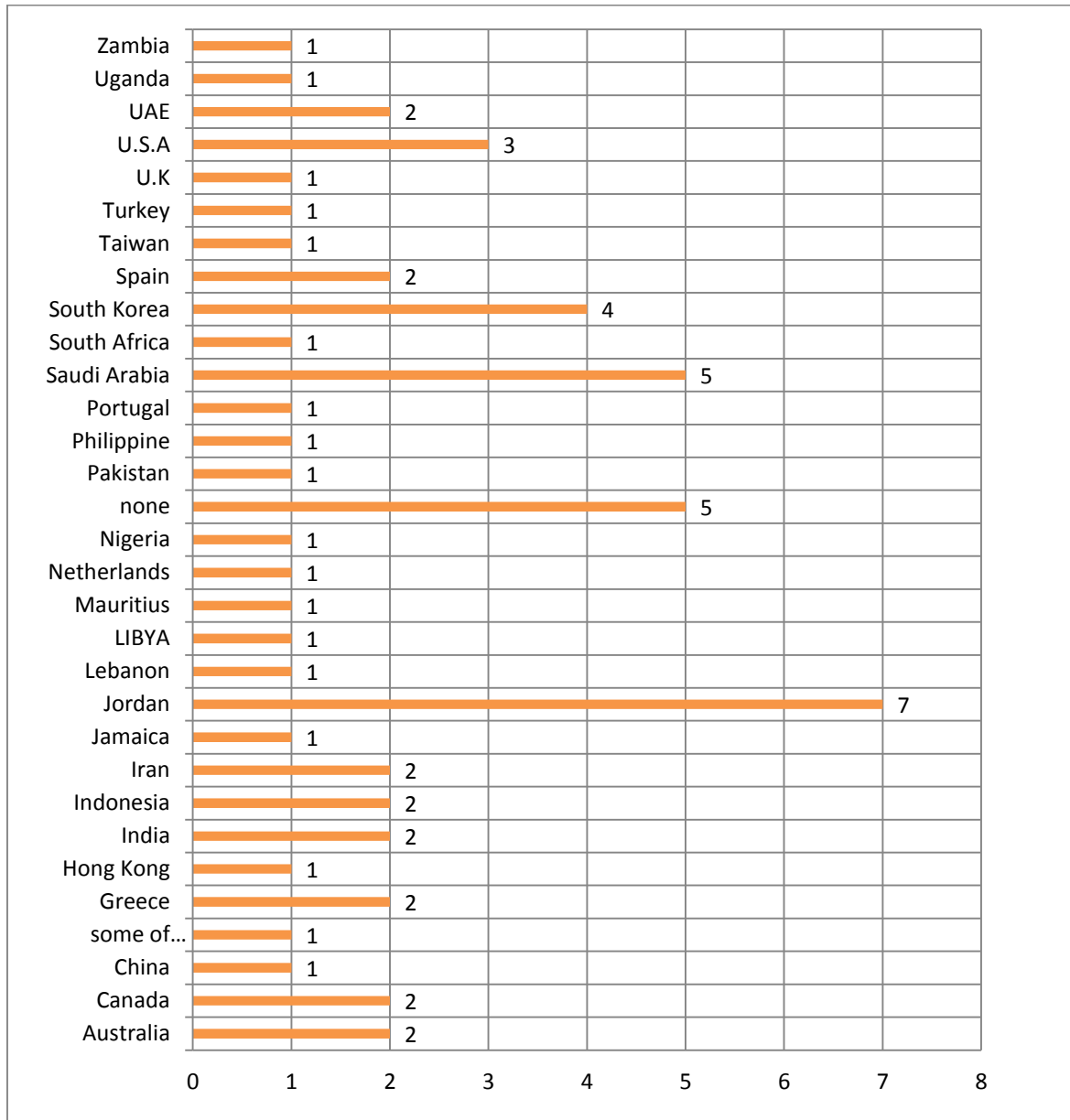


Figure 1.2: Distribution by the country in which the study was conducted

Iraq is experiencing challenges for successful adoption of e-government, the citizens in Iraq do not trust e-government (Hassan, 2016; Ahmad, 2019). Specifically, the use of e-government is restrictive among citizens in Iraq. However, according to a review of the literature, it was found that an investigation of trust in relation to the use of e-government

among users is still lacking in Iraq. As far as the researcher is aware, with reference to the systematic review conducted for this research, there has been no study that investigates the effect of the five aspects (technology, government agency, intermediary, risk and citizen) on trust in e-government simultaneously. This study aims to provide a holistic perspective of the meaning of trust by deconstructing the concept of trust into four dimensions which are the individual, technological, organisational and environmental aspects. This study intends to adopt a combination of two theories, UTAUT2 and TOE that provided a comprehensive framework to investigate the use of e-government by users. This framework explained the trust factor from multiple aspects individual, technological, organizational and environmental.

1.3 Objectives of the study

The purpose of this research is to develop an e-government trust model (EGOV-TRUST). This model is expected to enhance the usage of e-government among end-users or citizens. For this purpose, the constituents of the e-government trust model (EGOV-TRUST) were first determined based on the comprehensive review of literature related to trust and adoption/usage of e-government. The development of the model was also based on the combination of two theories, namely the UTAUT2 and TOE. These theories are among the common and well-established theories that guide the comprehension of the adoption and usage of technology. Taken into consideration the micro, meso and the macro factors that relate to trust, the integration of the two theories provides a full understanding of factors of trust that influence the use of e-government. Recognising that the usage of e-government is contextualized within a particular socio-cultural environment, this model was verified based on empirical data drawn from a particular context, namely in Iraq.

Specifically, the objectives of this research are to:

- i) Analyse the factors that make up the construction of e-government trust model based on the perspective of the users.
- ii) Develop the e-government trust model (EGOV-TRUST) that enhances the usage of e-government among the users in Iraq; and
- iii) Validate the e-government trust model (EGOV-TRUST) that enhances the usage of e-government among the users in Iraq.

1.4 Research questions

The research questions addressed in this research are:

- 1) What are the determinants of e-government trust model? based on the perspectives of the users?
- 2) How to develop the e-government trust model that enhances the usage of e-government services among users in Iraq?
 - i. To what extent do the constituents of trust model have a positive relationship with trust on e-government?
 - ii. To what extent do the individual, technological, organizational and environmental have a positive relationship with trust in e-government?
- 3) Does the proposed e-government trust model (EGOV-TRUST) have a positive effects on the usage of e-government among users in Iraq?
 - i. To what extent do the individual, technological, organizational and environmental factors have a positive effects on the usage of e-government among users in Iraq?

1.5 Scope of the research

Firstly, this study has been specifically conducted in Iraq, Baghdad based on several reasons. The first reason is that the usage of e-government is found to be very restrictive in this country. The failure of e-government has resulted in the loss of money, time and effort that has been spent into implementation since 2004. Additionally, the success implementation of e-government in Iraq is important to eliminate corruption, favoritism, and administrative and financial corruption.

Further, this study adopted stratified random sampling method involving two types of respondent, which are the i) employees in the Ministry of Higher Education in Iraq, and ii) the Iraqi students who study abroad. We intend to study the perception of employees and student in order to generalize the results. The first category consists of employees in the Ministry of Higher Education and Scientific Research (<http://mohe.sr.gov.iq/en/>). They are identified as the respondents who have a high level of knowledge and awareness in e-government because the Ministry of Higher Education and Scientific Research is one of the first institutions that adopted e-government services and is now in the second stage of e-government (the interactive information); hence they have sufficient knowledge to provide a reliable response to the questionnaire. The second category includes Iraqi students studying abroad. Considering that there are quite a number of students from Iraq who are studying in Malaysia, the focus of this research concentrated in Malaysia. The total number of Iraqi students studying abroad in 2018 was 13,430 and the number of students studying in Malaysia was the highest among the other countries with 1230 students. Most students have sufficient awareness about e-government because they are from the generation of informatics in all life facilities, the study sample includes those who use e-government, so the sample should be those who have awareness about e-government, so we chose students and employees because they have sufficient awareness.

Thirdly, the investigation of the determinants of trust was framed within the integration of two theories that provides an understanding of the use of e-government. For this purpose, I-TOE framework that focuses on the relationship of Individuals factors, e-government Technology, Organization characteristics, and Environment factors, towards e-government usage adopted. This framework integrates both the Unified Theory of Acceptance and Use of Technology 2 and Technology-Organization-Environment framework. The adoption of the I-TOE as the frame of the study will provide a comprehensive model that helps e-government implementers, e-government workers and policymakers to develop strategies and policies to increase the adoption of e-government by the citizen.

1.6 Significance of the research

The significance of this study is based on its contributions in theory and practice which are stated below:

1.6.1 Theoretical contributions

This study is an extension of existing researches that investigate trust and the use of e-government. This study investigated the taken for granted concept of trust that influences the use of e-government, especially in the developing countries. This study was done by deconstructing the concept of trust into 20 elements or determinants of trust. Therefore, it provides a nuanced understanding of the relationship between trust and the use of e-government.

The interpretation of the data for the development of the multi-dimensional trust model is framed by the I-TOE framework, which is drawn from a combination of two theories, UTAUT2 and TOE. Hence, it provides a new methodological approach on the understanding of the use of e-government. Additionally, the inclusion of the four aspects of determinants of trust, the individual, technological, organizational and environmental

provide a holistic perspective of the theoretical knowledge on the trust and usage of e-government. This study provided a multi-dimensional framework for e-government adoption that includes individual, technological, organizational and environmental dimensions. The adoption of the I-TOE framework, which is the integration of UTAUT2 and TOE, contributes to the existing field of knowledge on the use of technology, specifically on the use of e-government.

Unlike the existing studies that draw their findings from developed or stable environment countries, the development of the multi-dimensional model drawn from unstable environment, where Iraq suffers from political, economic and social instability due to the circumstances that it passed after the war, so we see the manifestations of corruption and bribery in all government institutions, which generates a feeling of mistrust among citizens. This namely Iraq will add a different perspective of the theoretical knowledge in relation to trust and the use of e-government.

1.6.2 Practical contributions

The study provides empirical evidence on the use of e-government in Iraq that is an unstable country, despite the adoption of e-government services in many government service institutions, it is still faltering in use by users. Through previous studies, there is a lack of studies in the field of e-government, especially studies on trust in e-government, although there have been a number of studies conducted in Arab countries, studies in Iraq are still lacking. The model developed in this study provides valuable guidelines for the government to improve the usage of e-government which is claimed to be restrictive at present.

The deconstruction of e-government trust into four dimensions and the investigation of the 20 factors of trust provide the government with useful information on how to address issues related to trust in e-government. This information is crucial especially for a country

that is having a volatile environment like Iraq. The findings of this study could also be used as generalization and guidance for other countries in the Middle East that have similar environment and culture like Iraq.

1.7 Organization of the thesis

This section summarises the chapters of the thesis and presents the brief content of each chapter. Chapter 1 presents the research problem, the importance of the research, objectives and questions. Moreover, it highlights the scope and area of this research and the structure of the thesis.

While in Chapter 2 the literature review was displayed. Previous studies on the trust factor in e-government and its impact on the intention to use, adoption and use were showing. It also discusses the gap of this study. In addition, develops a theoretical framework to guide the understanding of the factors that contribute to trust in e-government services and explain the theoretical framework for the study, which clarifies the relationships between the factors that affect trust in e-government.

Then Chapter 3 describes the research methodology adopted by the researcher. The design of the research shows where the field research and sample size are conducted. It then discusses and justifies methods of data collection and method of analyzing the data that the researcher will do in order to obtain the results.

After that, Chapter 4 shows the results and discussion compared to the previous studies and what we have reached according to the answer to the research questions.

Finally, Chapter 5 discusses the conclusions for this study, highlighted the theoretical contributions and practical contributions, recommendations, and limitations of the study, and work in the future.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The discussion of this chapter is based on a systematic literature review conducted on the issues of trust and the use of e-government based on citizens' perspectives that was derived from 58 articles (Al-nidawy, Sidek and Al-shami, 2018). The chapter is organized into ten sections: the first section describes the conduct of the systematic literature review. Highlighting the findings of the literature review, the second and third section respectively presents the benefits and challenges of adopting and using e-government, while the fourth section presents the concept of trust as the important factor for e-government usage together with its definitions. The fifth section discusses the studies related to trust and e-government, highlighting the factors influencing trust in e-government. In this section, the factors that influence trust on e-government were determined. These factors are considered as the constituents of the e-government trust model. The next section, section 7 provide a theoretical framework and the theories that adopted in literature review. Then section 8 reports on the gap in the literature and section 9 presents the various methodological approach adopted by the researchers in the study of trust and e-government and finally, the summary of this chapter is provided in the last section, section 10.

2.2 The systematic literature review

A systematic literature was conducted to analyse the existing body of knowledge relevant to the adopting and using e-government emphasizing on the concept of trust that affect the use of e-government. The conduct of the systematic literature was adapted from the guidelines adopted by (Kitchenham et. al., 2009), which consists of three main stages: planning, conducting and reporting the review. Three digital databases chosen to seek for the target papers are the Web of Science (WoS), ScienceDirect and IEEE Xplore. The description of the process of planning, conducting and reporting the review is presented in Appendix E.

The following sections present the findings or the answers for the research questions one and two drawn from the 58 articles.

2.3 Factors affecting trust in e-government: Benefits

The first research question that guides the literature review related to identifying the factors of trust that provides benefits for the adoption of e-government. The summary of the factors affecting trust that lead to the benefits of adopting e-government is presented in Table 2.1. These factors can be categorized into three categories namely, the benefits for developing country, benefits for government agency and policy makers as well as practitioners. The description of these aspects is provided below.

Table 2.1: Benefit categories for factors affecting trust in e-government usage

No.	Benefit for factors affecting trust in e-government	Source
1	Developing country	Ahmed et al., 2015; Al-Hujran et al., 2015; Alawneh et al., 2013; Alenezi et al., 2013; Alghamdi and Beloff, 2016; Aljarrah et al., 2016; Alkhalani and Sulaiman, 2015; Bwalya and Mutula, 2016; Chen et al., 2015; Fakhoury and Aubert, 2015; Fgee and Alkallas, 2013; Khanyako and Maiga, 2013; Khasawneh and Tarawneh, 2016; Kumar et al., 2017; Lallmahomed et al., 2017; Mpinganjira, 2015; Rehman et al., 2016; Shajari and Ismail, 2013; Sharma and Mishra, 2017; Susanto and Aljoza, 2015; Weerakkody et al., 2013
2	Government agency	Freire, Fortes and Barbosa, 2014; Myeong, Kwon and Seo, 2014; Chatzoglou, Chatzoudes and Symeonidis, 2015; Mohajerani et al., 2015; Roy et al., 2015; Alghamdi and Beloff, 2016; Alzahrani et al., 2017, Rodrigues et. al., 2016, Waller and Genius, 2015, Belanche et. al., 2014; Nam, 2014; Seo and Bernsen, 2016, Abu-Shanab, 2017, Dombrowski et al., 2014, Detlor et. al., 2013, Porumbescu, 2016, Venkatesh et. al., 2016, Xie et. al., 2017, Gracia and Casaló Ariño, 2015; Nulhusna et. al., 2017, Alharbi et. al., 2017, Rahim and Alharbi, 2014, Rey-Moreno and Medina-Molina, 2017.
3	Policymakers and practitioners	Lee and Kim, 2014, Weerakkody et. al., 2016, Voutinioti, 2013; Amagoh, 2015; Kurfali et. al., 2017, Scott, Delone and Golden, 2016, Alshibly and Chiong, 2015, Wang and Lo, 2013; AL Athmay et. al., 2016, Savoldelli et. al., 2014.

2.3.1 Benefits to developing countries

The similarity in the efficiency of ICT as well as similarities in cultures and political structures benefit many countries in the Middle East and North Africa (Alawneh et al., 2013). Many governments are still struggling to provide the best e-services for good governance. These articles emerge pointers to understand crucial factors that impact e-government development particularly in developing countries. Thus, the design of e-government must be in view of the essence of society and the environment in which e-services are adopted. Societies with the same traditions, values and cultures have a successful experience in e-government (Alkhalani and Sulaiman, 2015; Mpinganjira, 2015;

Susanto and Aljoza, 2015; Alghamdi and Beloff, 2016; Bwalya and Mutula, 2016; Khasawneh and Tarawneh, 2016; Rehman et al., 2016; Lallmahomed et al., 2017). A model is provided for improved understanding of the information security issues critical for increasing the adoption and usage of e-government services. The model is generic to other technologically developing countries (Khanyako and Maiga, 2013). E-government must have a superior opportunity of success with conscious natives and actives when governments improve their e-government approach and enforcement as well as when paths accelerate the diffusion of their e-services amongst citizens. Trustworthiness can also raise behavioural intent of using e-government services (Fakhoury and Aubert, 2015). Moreover, achievement factors behind governmental e-service delivery from a native point of view are recognised (Fgee and Alkallas, 2013). Guidelines for developing and designing E-voting system are also illustrated (Aljarrah et. al., 2016). To upgrade trust in their e-government services, intermediary e-offices' concept support governments that further exploit the maximum benefit of their services (Weerakkody et. al., 2013). Supply confirmation implies that e-government services are more probable to encourage the natives to use e-government services (Shajari and Ismail, 2013). Taxes are the primary wellspring of financing for government services for citizens on the national, regional and local levels. Administrative and financial corruption as well as inefficiency in developing countries are critical to screen e-government sites constantly. Screening avoids the risks to these websites. Smoothly gathering electronic tax is important (Chen et. al., 2015). Barriers and challenges that emerge in online services must be determined to find appropriate solutions to mitigate or eliminate them (Alenezi et. al., 2013). Introducing new ways help governments increase citizen participation in their online services. Communication between governments and citizens through e-government websites to provide services is difficult in developing countries due to the limited knowledge of IT, user experience and problems of trust.

(Ahmed et. al., 2015). The best comprehension of the factors affecting natives adopting e-government services is a basic critical strategy issue (Al-Hujran et. al., 2015). Providing valuable directions for fitting policy decisions to augment the use of these outlets in outside urban cities (rural areas) develop the decision-making operation when they rollout (Sharma and Mishra, 2017). E-government citizens' motive to change their response is enhanced. These new citizens' experience is improved, and value for e-government users is created (Kumar et. al., 2017).

2.3.2 Benefits to government agency

One of the main motivations to study factors that influence trust is the lack of clear understanding from a citizen perspective. The accurate analysis in rural and urban areas of factors that influence users' trust in adopted e-government is another motivation (Freire, Fortes and Barbosa, 2014; Myeong, Kwon and Seo, 2014; Chatzoglou, Chatzoudes and Symeonidis, 2015; Mohajerani et al., 2015; Roy et. al., 2015; Alghamdi and Beloff, 2016; Alzahrani et. al., 2017). Understanding demand-side factors is important to governments to augment the usage and adoption of e-services by citizens and expatriates (Rodrigues et. al., 2016). Government agencies provide chances to determine practical gap in the implementation of e-government (Waller and Genius, 2015). Convincing and understanding citizens by using and adopting e-government services permanently is a concern of governments. Such concern helps them in developing their strategies to augment the number of users using e-government (Belanche et. al., 2014; Nam, 2014; Seo and Bernsen, 2016). Governments must know the lack of natives' perceptions concerning the obligation of governments in domain like consultations, e-participation, investors' attraction and other things that result in the absence of certain electronic means that serve citizens (Abu-Shanab, 2017). Knowledge of the challenges faced by intermediaries in e-government is essential for design which creates and widens new avenues to access

electronic services (Dombrowski et al., 2014). E-government also helps government to enhance the democratic process (Alomari, 2016). Best comprehension of the role information quality plays in community municipal portals CMP adoptions and uses, where it has great potential to help local governments to achieve more adoption and use of local gates which is aimed at achieving (Detlor et al., 2013). Various forms and relationships of e-government with theoretical and practical visions as well as citizens' assessment of services provided by the public sector are reviewed (Porumbescu, 2016). Governments helping citizens can resolve citizens' doubt about e-government services (Venkatesh et al., 2016). For the best grasp adoption of e-government, few studies focus on integrating perceived risk (PR) and trust using TAM and TPB in the e-government context (Xie et al., 2017). Through trust, the overall participation rate of e-government grows and studies are interested in providing a deep and accurate understanding of factors of trust (Gracia and Casaló Ariño, 2015; Nulhusna et al., 2017). Helping governments to identify factors affecting end-users' view of e-government security and the roles of e-services security in e-government adoption and continued use (Alharbi et al., 2017) augment users' trust and decrease their disquiet levels of using e-government sites that can improve user satisfaction (Rahim and Alharbi, 2014). Moreover, reasons for the non-reception of e-government services by nationals need to be clarified (Rey-Moreno and Medina-Molina, 2017).

2.3.3 Benefits to policy makers and practitioners

Providing a theoretical framework that is useful and clear for understanding the behaviour of participants in e-government services is done through social capital literature (Lee and Kim, 2014). Estimating the request side point of view of client satisfaction and grasping the widened aspects of citizens' satisfaction according to the trust and expense of e-government services have become easy for governments (Weerakkody et al., 2016). By disclosing the priorities and needs of citizens regarding e-government services, electronic

services are improved and disseminated (Voutinioti, 2013; Amagoh, 2015; Kurfalı et. al., 2017). Petter et. al. (2012) claimed that future evolution of information system success measures mostly reflect the actual complication of online communication by capturing individual and intangible benefits based on social, traditional, economic and utilitarian values (Scott, Delone and Golden, 2016). Understanding of the connection between customer empowerment and ability enhances the e-government services (Alshibly and Chiong, 2015). Moreover, strategic planning and strategies for e-government services for continued use by citizens are improved and developed (Wang and Lo, 2013; AL Athmay et. al., 2016). The e-government paradox is also understood (Savoldelli et. al., 2014).

Based on the analysis of the existing studies, it can be concluded that trust is one of the significant concepts included in the studies of e-government. It is included in the studies related to the adoption of e-governemnt in developing country, government agency and the policymakers and practitioners. Although these studies address the trust issue in the respective agencies, trust on the perspective of users is still lacking and that is the gap that this study intends to address.

2.4 Challenges of adopting e-government

The second research question that guides the literature is related to the factors of trust on the use of e-government that highlight on the challenges of adopting e-government. Several researchers and developers have conducted studies in different fields in e-government. However, these studies are not perfect solutions to e-government service delivery in other various domains. The surveyed studies indicate that researchers are attentive about the challenges in increasing user adoption, usage, users' satisfaction and trust in e-government. As shown in Table 2.2, the challenges relating to factors that affecting trust in e-government can be classified into four categories, which are: 1) adoption

and continuous use, 2) e-government success, 3) user's participation, 4) avert high failure rate of e-government.

Table 2.2: Challenging factors affecting trust and e-government usage

No.	Challenge for factors affecting trust and e-government usage	Source
1	Adoption and continuous use	(Alghamdi and Beloff, 2016) (Kurfalı et. al., 2017) (Chatzoglou et. al., 2015; Weerakkody et. al., 2016; Abu-Shanab, 2017) (Voutinioti, 2013; Freire et. al., 2014; Savoldelli, Codagnone and Misuraca, 2014; Fakhoury and Aubert, 2015; Mohajerani, Shahrekordi and Azarlo, 2015) (Fgee and Alkallas, 2013; Chen et. al., 2015; Alomari, 2016) (Aljarrah et. al., 2016) (Weerakkody et. al., 2013) (Alawneh et. al., 2013; Shajari and Ismail, 2013; Ahmed et. al., 2015; Alkhilani and Sulaiman, 2015; Susanto and Aljoza, 2015; Rehman et. al., 2016) (Wang and Lo, 2013; Belanche et. al., 2014; Kumar et. al., 2017; Rey-Moreno and Medina-Molina, 2017; Xie et. al., 2017) (Alharbi et. al., 2017) (Kumar et. al., 2018) (Munyoka and Maharaj, 2019) (Tang et. al., 2018)
2	Averting high failure rate	(Bwalya and Mutula, 2016) (Myeong, Kwon and Seo, 2014; Gracia and Casaló Ariño, 2015) (Nam, 2014; Roy et. al., 2015; Seo and Bernsen, 2016; Sharma and Mishra, 2017) (Alenezi et. al., 2013) (Porumbescu, 2016) (Idoughi and Abdelhakim, 2018)
3	E-government success	(Detlor et. al., 2013) (Khanyako and Maiga, 2013) (Waller and Genius, 2015) (Amagoh, 2015) (Dombrowski et. al., 2014) (Scott et. al., 2016)
4.	Users' Participation	(Rahim and Alharbi, 2014; Venkatesh et. al., 2016) (Lee and Kim, 2014) (Khasawneh and Tarawneh, 2016) (Alshibly and Chiong, 2015; Mpinganjira, 2015; AL Athmay, Fantazy and Kumar, 2016; Rodrigues, Sarabdeen and Balasubramanian, 2016) (Al-Hujran et. al., 2015) (Nulhusna et. al., 2017)

2.4.1 Challenges on adoption and continued usage of e-government

The most persistent and critical challenges in e-government services are adoption and continued usage. According to (Alghamdi and Beloff, 2016), the usage and adoption of e-government services has been below the required level in many countries, especially in developing countries that face challenges in various fields. Researchers pointed out various issues, such as the impact of trust on behavioural intent to use whilst its impact on

execution anticipation has not been investigated in the e-government domain beforehand (Kurfalı et. al., 2017). To take advantage of all e-government services, we must be careful building citizen trust and enhancing it (Chatzoglou et. al., 2015; Weerakkody et. al., 2016; Abu-Shanab, 2017). However, global literature has not yet fully studied user's intent to use e-government services. By increasing trust in the Internet, technology and government, we address the weakness of using e-government services and their continued usage by citizens. Such usage is a major obstacle to the success of e-government. It also increases the beliefs and procedures of citizenship (Voutinioti, 2013; Freire et. al., 2014; Savoldelli, Codagnone and Misuraca, 2014; Fakhoury and Aubert, 2015; Mohajerani, Shahrekordi and Azarlo, 2015).

Governments have assisted in achieving efficiency and provided public services to users to ensure successful adoption of new techniques, such as electronic services provided by e-governments to their citizens (Fgee and Alkallas, 2013; Chen et. al., 2015; Alomari, 2016). In this case, further attention, improvement and continuous strengthening of electronic systems provided by governments are important. These systems include taxes and electronic filing, as well as preparedness to vote in electronic form and awareness to achieve true democracy (Aljarrah et. al., 2016). The adoption, usage and spread of e-services by governments are still lagging behind in many countries (Weerakkody et. al., 2013). The lack of knowledge of information technology in terms of software and hardware, user awareness and experience and factors of trust that motivate its use are the reasons for the acknowledgement and utilisation of e-government services to citizens' (G2C) in developing countries (Alawneh et. al., 2013; Shajari and Ismail, 2013; Ahmed et. al., 2015; Alkhilani and Sulaiman, 2015; Susanto and Aljoza, 2015; Rehman et. al., 2016). The challenge is to motivate users to reuse and continue using together with actively participation in e-government services (Wang and Lo, 2013; Belanche et. al., 2014; Kumar

et. al., 2017; Rey-Moreno and Medina-Molina, 2017; Xie et. al., 2017). The absence of security is one of the main challenges related to the adoption of e-government services (Alharbi et. al., 2017). Security and privacy remain among the most important challenges developing countries face in adopting an e-government (Kumar et. al., 2018). In developing countries, the adoption of e-government by citizens (G2C) is still very low (Munyoka and Maharaj, 2019). Among the challenges faced by governments is the continued use as in the gates of the Chinese government, which is controlled by many psychological factors for users such as trust in technology and government (Tang et. al., 2018).

2.4.2 Challenges for averting high failure rate of e-government

Countries with limited resources have failed to introduce electronic services to their citizens because of the high costs required by the creation of interactive, efficient and secure electronic governments. Therefore, the failure of these projects leads to the loss of economic and social benefits provided by e-government (Bwalya and Mutula, 2016). Some researchers believe that the failures in the adoption of e-government is due to the understanding that the adoption of e-government facilitate the trust of the citizens (Myeong, Kwon and Seo, 2014; Gracia and Casaló Ariño, 2015). Citizens who live in rural areas are less inclined to utilise different e-government services than those from urban areas. However, they are the most useful for their distance from government institutions. Several citizens do not utilise e-government services in rural and urban areas (Nam, 2014; Roy et. al., 2015; Seo and Bernsen, 2016; Sharma and Mishra, 2017). Governments are concerned because citizens use the services provided by e-governments whilst others do not. The reason is due to absence of trust in the security services offered by governments and other organizations (Alenezi et. al., 2013). Relationships between citizens and their government should be improved (Porumbescu, 2016). Developing countries seek to avoid failure to implement e-government and avoid large losses in case of failure. By seeking to satisfy

