Universiti Utara Malaysia

INTENTION TO USE E-GOVERNMENT SERVICES AMONG THE ACADEMIC STAFF IN SAUDI UNIVERSITIES

AL-ANAZI, MUJAHED KHALID

**DOCTOR OF BUSINESS ADMINISTRATION
UNIVERSITI UTARA MALAYSIA
March 2016**

INTENTION TO USE E-GOVERNMENT SERVICES AMONG THE ACADEMIC STAFF IN SAUDI UNIVERSITIES

By

AL-ANAZI, MUJAHED KHALID

Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
In Fulfilment of the Requirements for the Degree of
Doctor of Business Administration
Universiti Utara Malaysia

PERMISSION TO USE

In presenting this thesis in fulfillment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of Othman Yeop Abdullah Graduate School of Business where I did my thesis. It is understood that any copying or publication or use of this thesis or parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my thesis.

Requests for the grant permission to copy or to make other use of the material in this thesis, in whole or in part, should be addressed to:

Dean of Othman Yeop Abdullah Graduate School of Business
Universiti Utara Malaysia
06010, UUM Sintok
Kedah Darul Aman

ABSTRACT

E-government diffusion and usage is a global topic that concerns many countries worldwide. E-government is a way for providing services of government over online channels of communication to its citizens. Saudi Arabia has implemented a program of e-government in 2005 to encourage performance of public sectors through acquiring the benefits of Information Communication Technology (ICT) advances. This study focuses on the factors that influence intention to use e-government among the academic staff in Saudi Arabia. In addition, this study is to identify the mediating role of e-government awareness on the relationships between social influence, trust of internet and trust in intermediaries and intention to use e-government and the mediating role of perceived risk on the relationships between trust of internet and trust in intermediaries and intention to use e-government. Based on the Theory of Planned Behaviour (TPB), this study integrated these factors to examine their influences on intention to use e-government. This study utilized a quantitative approach using a survey to reflect consumers' perspectives towards e-government usage. To examine the hypothesized model, the data were collected from the academic staff working in Saudi public universities. This study employed Partial Least Squares techniques to confirm the validity and reliability of the measurement model and to examine the structural relationships. The findings of the study confirmed the influences of social influence, e-government awareness, trust in intermediary and perceived risk on intention to use e-government. Further, awareness of e-government is influenced by social influence, trust in Internet and trust in intermediary and mediates the relationship between these factors and intention to use e-government. Trust in Internet factor emerged as significant predictor of consumers' risk perceptions and mediates the relationship between this factor and intention to use e-government. This study has important implications for e-government practitioners, researchers and policy decision makers interested in the implementation of e-government.

Keywords: electronic government, usage intention, perceived risk, awareness, social influence.

ABSTRAK

Penyebaran dan penggunaan e-kerajaan adalah satu topik global yang melibatkan banyak negara di seluruh dunia. E-kerajaan adalah satu kaedah menyediakan perkhidmatan kerajaan melalui saluran komunikasi kepada rakyat. Dalam usaha bertindakbalas kepada perubahan ini, kerajaan Arab Saudi telah melaksanakan program e-kerajaan pada tahun 2005 untuk menggalakkan prestasi sektor awam melalui perolehan pelbagai faedah daripada kemajuan teknologi inovatif dalam ICT. Kajian ini memberi tumpuan kepada faktor-faktor yang mempengaruhi niat untuk menggunakan e-kerajaan di kalangan staf akademik di Arab Saudi. Di samping itu, kajian ini adalah untuk mengenalpasti peranan pencelah kesedaran terhadap e-kerajaan dan tanggapan risiko terhadap hubungan diantara pengaruh sosial, kepercayaan terhadap internet dan kepercayaan terhadap orang tengah dengan niat untuk menggunakan e-kerajaan. Berdasarkan Teori Tingkahlaku Dirancang (TPB), kajian ini menggabungkan faktor-faktor ini untuk mengkaji pengaruh mereka ke atas niat untuk menggunakan e-kerajaan. Kajian ini menggunakan pendekatan kuantitatif melalui kaedah tinjauan untuk mencerminkan perspektif pengguna terhadap penggunaan e-kerajaan. Untuk mengkaji model hipotesis, data telah diperolehi daripada kakitangan akademik yang bertugas di universiti awam di Arab Saudi. Kajian ini menggunakan teknik *Partial Least Squares* untuk mengesahkan kesahihan dan kebolehpercayaan model pengukuran dan untuk memeriksa hubungan struktur. Hasil kajian itu mendapati pengaruh sosial, kesedaran terhadap e-kerajaan, kepercayaan terhadap orang tengah dan tanggapan risiko mempunyai hubungan dengan niat untuk menggunakan e-kerajaan. Di samping itu, kesedaran terhadap e-kerajaan adalah dipengaruhi oleh pengaruh sosial, kepercayaan terhadap internet dan kepercayaan terhadap orang tengah. Kepercayaan terhadap internet muncul sebagai faktor peramal penting kepada tanggapan risiko pengguna. Juga didapati bahawa tanggapan risiko menjadi faktor pencelah hubungan diantara kepercayaan terhadap internet and niat untuk menggunakan e-kerajaan. Kajian ini mempunyai implikasi yang penting bagi pengamal e-kerajaan, penyelidik dan pembuat keputusan yang berminat dengan pelaksanaan e-kerajaan.

Kata kunci: kerajaan elektronik, niat penggunaan, tanggapan risiko, kesedaran, pengaruh sosial.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

IS	Information System
IT	Information Technology
E-government	Electronic Government
E-commerce	Electronic Commerce
E-services	Electronic Service
E-intermediary	Electronic Intermediary
E-office	Electronic Office
G to G	Government to Government
G to B	Government to Business
G to C	Government to Citizen
ICT	Information System Technology
IU	Intention Usage
TRA	Theory of Reasoned Action
TAM	Technology of Acceptance Model
TPB	Theory of Planned Behaviour
C-TAM-TPM	Model Combined between TAM and TPM
DOI	Diffusion of Innovation
MPCU	Model of PC Utilisation
UTAUT	Unified Theory of Acceptance and use of Technology
PR	Perceived Risk
AW	E-government Awareness
SI	Social Influence
TI	Trust in Internet
TEI	Trust in E-government Intermediary

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The current chapter offers an overview of the background of study, problem statement, the study objectives, research questions and the definition of key terms used in the current study. Then, this chapter provides discussion on the study's contribution. Lastly, the chapter includes a discussion on the organization of the remaining chapters.

1.2 Background of the Study

Continued globalisation and the Internet growth have prompted many countries to move towards increased use of the information and communication technologies (ICT). The transition to using digital systems is very evident, which in turn, has led to governments succeeding in achieving competitive benefit (Deakins & Dillon, 2002; Whitson & Davis, 2001).

In this context, governments have made huge investments to fully utilize cost-effective operational applications of ICT. This has been done to satisfy their stakeholders with improved, effective and transparent ways to interact with their government services using the advantages of online services (Brannen, 2001). E-government is a way for providing government services using online channels of communication for its citizens (Sharifi & Zarei, 2004).

In addition, following the development of government website gateways, government organizations have maximized their productivity, maintained their competitive advantage and minimized the gap existing among different government agencies and entities via efficient services provision. Several governments have adopted various transformation application models in order to improve user-centered systems (Laudon & Laudon, 2009; Norris & Moon, 2005). In other words, services of government vary according to the needs of the users, and this variety has led to the advancement of different online government services.

Online government applications can be divided into three major categories: government to government (G2G), which comprises e-government activities between government units with single governmental entity as well as amongst governments; government to business (G2B) which is directed towards e-commerce, whereby the government provides or delivers several services to businesses, or businesses offer products to the government; and the government to citizens (G2C) which is directed to the interactions between the government and citizens through electronic means, whereby government handles citizens' queries, and enables them to pay taxes and receive payment and documents online.

As the largest developing country in the Arab Region, Saudi Arabia continues to show progress in terms of its economy and technology owing to its oil revenues (U.N. World Economic Situation and Prospects Report, 2015). According to Saudi Arabian General Investment Authority (SAGIA), the Kingdom is one of the world's fastest growing countries worldwide, with per-capita income forecast to rise from USD $25,000 in 2012 to USD $33,500 by 2020 (SAGIA, 2016). Over the last two decades or so, Saudi has

been undergoing a transformation from a centrally planned economy into a knowledge-based one to ensure sustainability of its development process and building of a modern, competitive economy (Al-Jasser, 2014).

In attempting to respond to this transformation, Saudi Arabia implemented an e-government programme in 2005 to enhance the performance of the public sector by utilizing the possible benefits of ICT and innovative technological advances. The Saudi e-government comprises various initiatives, such as Saudi e-government portal, Almadinah e-government portal, e-Umrah project, smart card project, and electronic data interchange project.

The Saudi e-government project is supported by top management in Saudi public sectors in addition to the huge resources provided (Ministry of Information and Communication Technology - MICT, 2015). As a result, the Saudi Kingdom has displayed considerable progress in its e-government service readiness and managed to transform the e-government services delivery (United Nations Department of Economic and Social Affairs - UNDESA survey, 2014). However, despite the potential for growth, the Saudi e-government still suffers various shortcomings. For example, the efforts of Saudi e-government unfortunately have mostly focused on its large cities, like Riyadh (Al-Sobhi, 2011), and there is limited IT criminal law and legal framework to safeguard e-transactions (Alateyah, Crowder & Wills, 2014). Further, Saudi has become a major target for cyber conflicts due to increased economic activity (Nadi & Drew, 2014). Saudi faces a major digital divide risk among its citizens, and e-government project has not built widespread awareness among citizens (Alfarraj, Alhussain & Abugabah, 2013; Basamh, Qudaih & Suhaimi, 2014). Added to the above, there are also very few

3

specialists and no R&D centers that could manage and enable improved e-services and utilization of available resources in industries.

In developing countries, although significant investment has been made for the implementation of government online systems, only 15% of the e-government projects have been successful (Heeks & Bailur, 2007). Further, in an e-service delivery context, most studies have focused on issues related to the ICT technical and functionality aspects (Millard, 2007). Online government usage not only depends on the technical side of such services, but also the impact of several aspects, such as social and human issues, on these services. Further, organizational and cultural concerns have an influence on the usage rate (Carter & Belanger, 2004).

According to a study, an efficient infrastructure might not lead to a high level of usage of online government services (Chan, Fan, & Farn, 2007). However, comparatively little attention has been paid to issues relating to usability and accessibility of e-government services from the perspective of the citizens (Belanger & Carter, 2012; Carter & Belanger, 2005; Reddick, 2005; UNDESA survey, 2014).

Contrary to traditional methods of government interaction that citizens are more inclined to use (Chabrow, 2004; Accenture, 2005), online government services are distinct owing to the Internet's characteristics of distance and impersonality (Pavlou, 2003). Further, with the diffusion of technological developments across society and the growth of global cybercrimes, fraud and loss of privacy occur; this in turn, has led to users' perceptions of risk (Akkaya, Wolf & Krcmar, 2013; Belanger & Carter, 2008; Fu, Farn & Chao, 2006).

Al-Athmy (2013); and Meftah, Gharleghi and Samadi (2015) found that lack of public awareness and ineffective marketing are the major challenges to government services website usage. Citizens cannot obtain the online services if these services are not known to them. Furthermore, the e-services should be suitable for all people equally in spite of the digital divide and limited access to such services (Akkaya *et al.*, 2013; Belanger & Carter, 2008; Hong & Cha, 2013; Sipior, Ward & Connolly, 2011).

The requirement for offering the citizens who are the majority of e-government services users with efficient e-government services has been influenced by the need to serve them with effectively e-services to enable their interaction with the government (Brannen, 2001; Torres, Pino & Royo, 2005). Thus, even if e-government services deliver most benefits to government services stakeholders, citizens who are the foremost users of such services receive the broadest range of e-government benefits (Floropoulos *et al.*, 2010). However, despite the acceptance and success of e-government projects relying on the citizens' intention to use e-government, citizens are often coping with usage challenges (Basamh *et al.*, 2014; Belanger & Carter, 2012). Consequently, when the management of e-government services want to encourage usage of these systems, it is obviously fundamental to understand what drives this usage.

The UNDESA survey in 2014 and various researchers (Heeks, 2005; Kumar, Mukerji, Butt & Persaud, 2007) have stressed on the issue of low e-government services usage worldwide with some countries faring better compared to others. In the case of the majority of developing nations, the citizens' usage of government services offered online has fallen short of expectations (Al-Fakhri *et al.*, 2008; UNDESA survey, 2014), especially in developing nations (Alshawi & Alalwany, 2009). However, the

5

understanding of the significant factors that contribute to the usage of government services is still lacking (Venkatesh *et al.*, 2012).

Online government service providers transform complex e-service because they involve a variety of complex needs and a wide range of heterogeneous service demands. In addition, government agencies face many constraints and restrictions, including time, economic and organizational constraints (Bagozzi, Davis & Warshaw, 1992). These have called for further focus from e-government management in order to minimize the gap stemming from the limited technical means and abilities required for e-government implementation.

Therefore, e-government service providers must fully understand the factors contributing the most to the use of such online services and their influence on the rate of citizens' usage in order to promote long-term mutual benefits and build a relationship between themselves and their citizens (Blakemore & Wilson, 2009, Blackstone *et al.*, 2005). Thus, based on the above discussions, the importance of continuous research for citizens to benefit from e-government services is justified.

1.3 Problem Statement

Looking into the scenario in Saudi Arabia, with the continued and promising growth of the economy, the e-government sector has enormous potential for growth. The Saudi e-government project is maintained by clear vision and a strategic plan, top management support and the highest ICT investment of about 12.3 billion dollars from 2010 to 2014, with an estimated growth of 23% in 2017, forming the largest IT market in the Middle East and African region (MICT, 2015).

Owing to the huge resources for the e-government initiative, the Saudi Kingdom has displayed considerable progress in its e-government readiness and has managed to transform the e-government services delivery. The Saudi government progressed rapidly it its rankings from 70 in 2008 to 36 in 2014 worldwide and is ranked eighth in Asia in e-government readiness (UNDESA survey, 2014). Additionally, Accenture (2014) carried out a comparative digital government performance survey involving 10 countries and ranked Saudi Arabia as number 5. However, despite the potential for growth, the e-government program is not without challenges.

Compared to Oman, Saudi e-government development ranking is 36 which is above the 48 ranking of Oman, but is lower for e-participation ranking where Oman is ranked 24 and Saudi Arabia, 51 (UNDESA survey, 2014). Both these countries are in the Gulf Cooperation Council (GCC). Further, comparing network readiness ranking of Saudi to Oman, Saudi is ranked 35 which is above the Oman ranking of 52; yet, it is lower for e-government usage ranking where Oman's ranking is 46 and Saudi Arabia's is 51 (Global Information Technology Report, 2015). Therefore, when it comes to e-government usage, Saudi's usage is lower compared to Oman, although Saudi e-government readiness is higher. In fact, even the most effective infrastructure cannot lead to a high level of adoption and continued usage. This proves the need for governments to successfully promote e-services following its implementation (Chan *et al.*, 2010).

As shown in literature, a crucial factor for successful implementation of any information technology project is users' usage of the technology since users' attitude to using the new technology determines its success or failure. This applies to any information systems (IS) project (Succi & Walter, 1999). Therefore, the crucial aim of the Saudi e-

7

government's vision is to achieve 75% usage level by 2010 to ensure the huge investments effectively reap the potential benefits and avoid possible failure of this project (Al-Suwail, 2007).

Currently, Saudi government agencies offer 2,260 out of 2,544 (88%) of their main services online compared to traditional services; 1,955 online services to benefit individuals (MICT, 2016). However, despite the availability of many online services for the individuals, there has been a low level of usage of these services. Therefore, the Saudi e-government's vision has not yet been completely realized (Alghamdi & Beloff, 2014).

In this regard, there are delays in utilizing and using e-government services (Alateyah et al., 2014; AlGhamdi *et al.*, 2014; Alfarraj *et al.*, 2013), even with a sharp increase in Internet users of up to 18.3 million (67% of the population), a growth of about 9500% over the last 14 years (Internet World Sates - IWS, 2015).

Recent studies have also revealed that the introduction of Saudi e-government to its agencies has posed more challenges than expected (Alateyah *et al.*, 2014; Alghamdi & Beloff, 2014; Nadi & Drew, 2014). Further, local literature has highlighted the shortage and limited empirical research in this context (Alateyah *et al.*, 2014; AlGhamdi *et al.*, 2014; Basamh *et al.*, 2014; Nadi & Drew, 2014), specifically in the usage context (Alghamdi & Beloff, 2014). Consequently, when Saudi e-government management wants to promote the continuation of its e-services usage, it clearly needs to understand what the key factors are that drive the usage of these e-services.

Several countries face the issue of low usage level of government e-services among their citizens (Choudrie & Dwivedi, 2005; Gupta, Dasgupta & Gupta, 2008; Kumar *et al.*, 2007; UNDESA survey, 2014). For instance, among the member countries of the Organization for Economic Cooperation and Development (OECD), e-government usage averages out at 50%; in European countries, it is only 32%; whereas in developing countries, such as Saudi, these statistics are even lower (UNDESA survey, 2014). This could be due to various e-environment issues, like social influence, trust, infrastructure of ICT, risk perceptions among individuals and lack of government service awareness, in terms of its availability and benefits (Alhujran & Chatfield, 2008; Belanger & Carter, 2012; Nadi & Drew, 2014).

In the literature, what drives the usage of government websites is still not well understood (Belanger & Carter, 2012; Kumar & Best, 2006). Venkatesh *et al.* (2012) argue that there is lack on understanding of the factors contributing to the use of such portals and the extent of its usage. Thus, this situation has led several researchers to suggest the need for more research in the area of e-government to help governments to improve their understanding of the issues that influence citizens' usage of e-government services (Belanger & Carter, 2012; Venkatesh *et al.*, 2012). In this regard, managing citizens' e-government service by narrowing the gap between e-government readiness and citizens' ability has become a serious issue for the providers of e-government services.

Research on e-government services usage has mainly focused on developed countries; relatively little attention has been given to the citizens' usage of the e-government portal in developing countries (Alhujran & Chatfield, 2008; Belanger & Carter, 2012).

9

Specifically, Alshawi and Alalwany (2009) highlight the necessity to tackle the lack of effective usage of online government services among public users, specifically in developing nations.

To address the aforementioned identified problems, Ajzen's (1991) Theory of Planned Behaviour (TPB) is utilized as the theoretical foundation for the present research as the most appropriate tool for understanding factors that may influence e-government usage at an individual level. Under the TPB, the significant impact of perceived behavioral control on behavioral intention stresses the important role of the internal and external impediments that can hinder or facilitate the use of e-government technology. Thus, as recommended by the TPB, this study evaluates several beliefs as antecedent factors that may influence both intention to use an e-government service (perceived risk, the awareness, trust of Internet, trust of e-government intermediaries and social influence). Additionally, this study assesses antecedent factors that may influence e-government service awareness (trust of Internet, trust of e-government intermediaries and social influence) and perceived risk (trust of Internet and trust of e-government intermediaries) and their mediating effects on e-government usage setting.

Further, since the TBP comprises a subjective norm construct, the present study takes an alternative path by investigating the effect of social influence on intention since social influence is system- or application-specific (Hejazi, Zarei & Mozaffari, 2013). Chan *et al.* (2010) also suggest future research should further examine the role of social influence in the e-government usage context.

An understanding of the complex social and institutional contexts of how e-government services are delivered is a significant research gap (Yildiz, 2007). Sia *et al.* (2001) recommend for future research to investigate the factors that build awareness in information technology to better understand the mechanisms through which an encouraging awareness of an innovation could lead to actual usage behavior. Given the social nature of information in the e-government context, Dombrowski *et al.* (2014) also recommend future research to explore how information does and does not propagate within the society.

In this regard, the social influence factor has been said to increase awareness (Baker & Ozaki, 2008). However, hardly any study has focused on understanding citizens' behavior to examine the role of social influence on awareness of e-services, specifically in the e-government context (Dombrowski *et al.*, 2014).

Similarly, trust is a social phenomenon that directly influences the awareness of individuals and indirectly, their decision-making (Aydoğan, Sharpanskykh & Lo 2015). Importantly, broadening the scope of research on trust in e-government field should be done to understand how trust within the context of online government could be developed as Dombrowski *et al.* (2014) suggests. According to Aydoğan *et al.* (2015), the existing studies that have included the awareness factor do not consider trust as an important factor in these studies. Contrary to these studies, the current study introduces a proposed model incorporating trust in Internet to enable building e-service awareness and in turn, e-service usage, in an e-government setting. Beldad *et al.* (2012); and Carter and Belanger (2008) recommend that the link between trust in Internet and e-government usage is not only direct, but also indirect.

Further, literature reveals that risk perception and trust are among the crucial variables that need investigation to better understand e-government services usage (Akkaya *et al.*, 2013; Rehman *et al.*, 2012). Kesharwani and Singh (2011); and Pavlou and Gefen, (2004) recommend future research that could further examine the mechanisms and interrelationships among trust, perceived risk and behavioral intention for technology acceptance.

In the context of e-government, a recent study has suggested future research should focus on understanding the mediating effect of trust on perceived risk rather than analyzing its direct effect (Akkaya *et al.*, 2013). This is because only a few studies exist in the context of e-government that includes the links between trust in the Internet and perceived risk (Carter & Belanger, 2008).

With reference to the role of intermediaries organisations, literature has highlighted the potential benefits of their roles, such as producing a trusting environment, reducing perceived risks of e-services and building e-government awareness (Al-Sobhi *et al.*, 2010; Bailey & Bakos, 1997; Dombrowski *et al.*, 2014; Sarkar, Butler & Steinfield, 1998). In the e-government setting, studies on intermediaries have highlighted the need to examine the usage of e-services from the users' perspective, which are prompted by the roles of intermediaries (Howells, 2008; Dombrowski *et al.*, 2014; Weerakkody *et al.*, 2013; Janssen & Klievink, 2009). Consequently, as a response to these gaps and calls for research, the problem that this research seeks to address is what are the underlying factors that influence intention to use e-government services.

Further, the current study takes a step further towards understanding the influence of these factors in enhancing citizens' e-government usage, which in turn, have research value and implications for strategy makers and researchers. Subsequently, this study focuses on understanding the mediating influence of e-government services awareness on the relationship between trust of Internet, trust of e-government intermediaries and social influence on intention to use e-government services. It also examines the mediating influence of perceived risks on the relationship between trust of Internet and trust of e-government intermediaries on intention to use e-government services.

1.4 Research Objectives

The general objective of this study is to investigate the antecedent factors that influence the intention to use e-services of the government at individuals' level. The specific objectives are as follows:

1. To identify the underlying factors that may influence intention to use e-government services.

2. To identify the underlying factors that may influence e-government services awareness.

3. To identify the underlying factors that may influence perceived risk.

4. To identify the mediation effect of e-government services awareness on the relationship between social influence, trust of Internet and trust in e-government intermediaries and intention to use e-government services.

5. To identify the mediation effect of perceived risk on the relationship between trust of Internet and trust of e-government intermediaries and intention to use e-government services.

1.5 Research Questions

Based on the research background and to achieve the research objectives, the present study seeks to address the following research questions:

1. What are the factors that influence intention to use e-government services?
2. What are the factors that influence e-government services awareness?
3. What are the factors that influence perceived risk?
4. Does e-government services awareness mediate the relationship between social influence, trust of Internet and trust in e-government intermediaries and intention to use e-government services?
5. Does perceived risk mediate the relationship between trust of Internet and trust of e-government intermediaries and intention to use e-government services?

1.6 Significance of the Study

The present study has theoretical and practical significance regarding to the intention to use e-government services at the individuals' level. From the theoretical perspective, researchers have stressed on the lack of empirical work dedicated to understanding the antecedent factors that influence the usage of government online services (Belanger & Carter, 2012; Bwalya & Healy, 2010; El-Haddadeh, Weerakkody, & Al-Shafi, 2013; Venkatesh *et al.*, 2012). Therefore, the present study contributes to the existing of

literature by responding to the need for empirical research on the antecedents of e-government services usage and to validate the previous findings on citizens' usage of e-government services.

Several studies on online government services usage have primarily concentrated on factors that affect the citizens' attitude towards government websites (Belanger & Carter, 2008; Carter & Belanger, 2005; Weerakkody *et al.*, 2013; Khan *et al.*, 2012; Shareef *et al.*, 2011). However, to our knowledge, there is no single study that has simultaneously investigated the influence of e-government services awareness, perceived risk, social influence, trust of Internet and trust of e-government intermediaries in the e-government context which could give a clearer theoretical perspective for encouraging citizens' intentions to use e-government services.

Thus, the unique contribution that the current study adds to literature comes from the fact that the relative influences of these factors are assessed at the individual level. The factors are integrated simultaneously by building a multivariate model of intentions to use online government services. This may be especially useful and contribute towards prompting higher e-government services usage.

Since the TBP as the theoretical model comprises the subjective norm construct, the present study takes an alternative path by examining the effect of social influence on intention since social influence is system-specific, unlike subjective norm which relates to non-system specific behavior (Hejazi *et al.*, 2013). Chan *et al.* (2010) also suggest future research should further examine the role of social influence in an e-government setting to better understand the effectiveness of this factor on e-services usage.

15

While social influence, trust of Internet and trust of e-government intermediaries can increase awareness (Dombrowski *et al.*, 2014; Bailey & Bakos, 1997; Baker & Ozaki, 2008), existing research does not empirically address the influences of these three factors on e-government service awareness and intentions to use e-government services (Aydoğan *et al.*, 2015; Dombrowski *et al.*, 2014; Weerakkody *et al.*, 2013). Further, Sia *et al.* (2001) recommend for future research to pursue the factors that build awareness in information technology innovations to better understand the mechanisms through which innovation awareness could lead to actual usage behavior.

Given the social nature of information in the e-government context, Dombrowski *et al.* (2014) recommend future research investigate how social influence could influence awareness within an e-government setting. The understanding of the complex social of how e-government services is delivered is a significant research gap (Yildiz, 2007) and most of the existing models of awareness do not take trust into account (Aydoğan *et al.*, 2015), particularly in an e-government setting (Dombrowski *et al.*, 2014).

Thus, a better understanding on the impact of trust of Internet, trust of e-government intermediaries and social influence in influencing awareness of e-services, would therefore give a better understanding on the mechanisms through which awareness of e-services could lead to e-government services usage.

Furthermore, although it is believed that trust of Internet and trust of e-government intermediaries can mitigate perceived risk (Akkaya *et al.*, 2013; Carter & Belanger, 2008; Bailey & Bakos, 1997), the current research empirically addresses the issue of the impact of trust of e-government intermediaries on perceived risk and intentions to use e-

16

government services (Weerakkody *et al.*, 2013). Beldad *et al.* (2012); and Carter and Belanger (2008) recommend that the link between trust in Internet and e-government usage is not only direct, but indirect as well.

Literature also reveals that risk perception and trust are among the crucial variables that need to be investigated to comprehend the government website systems usage (Akkaya *et al.*, 2013; Rehman *et al.*, 2012). Kesharwani and Singh (2011); and Pavlou & Gefen (2004) recommend future research examine the mechanisms and interrelationships among trust, perceived risk and intention for technology acceptance. Thus, Akkaya *et al.* (2013) suggest future research should focus on understanding the mediating effect of trust on perceived risk rather than analyzing its direct effect within the context of the e-government. However, limited studies exist in the context of e-government that includes the interrelationships among trust in the Internet and trust in e-government intermediaries and perceived risk (Carter & Belanger, 2008). Thus, a better understanding of the mechanisms through which trust of Internet and trust of e-government intermediaries could influence perceived risk and e-services usage should give a clearer theoretical perspective of the nature of effective e-services usage in an e-government setting.

A review of the literature shows that most developed models for citizens' e-government services usage have been validated and include findings from different countries, especially western countries. Alshawi and Alalwany (2009) suggest that the scope of citizens' utilization of e-government services research must be extended to newer non-western countries to fill the serious gap in the literature. In line with this, Kransberg and Davenport (1972); and Erumban and Jong (2006) suggest that future research might

17

consider cross-cultural comparative studies of technology adoption, as the usage rate of the e-government services differs from one country's setting to another (Heeks, 2005; Lee, Kim & Ahn, 2011). Thus, this situation calls for a need to design and build a new theoretical framework for online government services usage to suit the current context of Saudi Arabia since it is difficult to apply existing models that are compatible with its values, customs and traditions.

Viewed from a practical perspective, this study's findings are expected to support governments in developing strategies to improve citizens' e-government services usage rate by minimizing the occurrences of barriers through the provision of in-depth information on such factors. The findings are also expected to highlight the effect of the proposed factors on Saudi citizens' intention to use the e-government services in order to develop new initiatives to support the successful implementation of Saudi's second action plan for e-government. Importantly, this study attempts to minimize the existing gap between e-government readiness and the citizens' capability in using the government website.

Understanding what drives intention of citizens to use online government services would enable the government to conduct an evaluation of the citizens' perspective in order to implement effective marketing strategies that could enhance potential usage. Thus, examining social influence, trust of Internet and trust of e-government intermediaries as important influential factors in increasing citizens' e-government services awareness, could consequently lead to improving the level of using such services as part of multiple strategies to support Saudi's e-government initiatives. Further, trust in Internet and trust

18

in e-government intermediaries can be a potential set of facilitating factors to minimize perceived risk, consequently encouraging e-government services usage.

In sum, this study's findings are expected to assist Saudi e-government policy-makers, operational managers and practitioners to increase the level of e-government usage among citizens besides achieving the second action plan. A clear understanding of the relevant factors can assist policy-makers in their formulation and development of strategies towards increasing the citizens' intention to use e-services offered by the government. In other words, the study's findings are expected to contribute locally through the facilitation of the government online services offered to citizens and globally via the provision of insights into various aspects of e-government.

1.7 Scope of the Study

The above objectives are achieved by conducting a study in the context of Saudi Arabia with the rationale being that Saudi Arabia has made considerable progress in e-government readiness. The present study focuses on the G2C category, i.e., e-services directed to the citizens who interact with the e-government services.

The current study focuses on usage of e-government services at individual level to determine the factors that influence usage, and the role of intermediaries in disseminating e-services in a government setting. Specifically, the current study investigates the antecedent factors that affect the intention to use e-services of government as well as factors that influence the e-government services awareness and perceived risk, and their mediating role that works to further such e-government usage.

19

In more detail, this study investigates the academic staff in public universities operating in Saudi Arabia who are considered as the unit of analysis.

The model of this study examines the Saudi Arabian setting since the studies on e-government services usage has mainly focused on developed countries with relatively little attention being given to the citizens' usage of e-government portal in developing countries (Alhujran & Chatfield, 2008; Belanger & Carter, 2012). Further, Saudi Arabia represents the Arab and Islamic states from a cultural point of view, and the Gulf States from an economic standpoint in terms of e-government initiatives (Alsharni, 2012).

1.8 Definition of Key Terms

Some relevant terms that are repeatedly used in this study are defined briefly as follows:

1. Electronic government - a means for providing government services to citizens through online communication channels (Sharifi & Zarei, 2004).

2. Intention to use - a person's subjective probability that he or she will perform behavior (Fishbein & Ajzen, 1975).

3. Perceived risk - the person's subjective expectation of suffering a loss in pursuit of a desired outcome (Warkentin, Gefen, Pavlou & Rose, 2002).

4. E-government awareness - the citizens' level of awareness of the introduction of e-government technology (Charbaji & Mikdashi, 2003).

5. Social influence - the normative pressure of associated members, like family or friends who influence the intention to use e-government services (Venkatesh, Morris, Davis & Davis, 2003).

6. E-services intermediaries - either a public or private entity that coordinates the providers and users of government services (Janssen & Kilevink, 2009).

7. Trust in an intermediary - a subjective belief with which a buyer believes that the intermediary will institute and enforce fair rules, procedures, and outcomes in its marketplace competently, reliably and with integrity, and if necessary, will provide recourse for buyers to deal with seller's opportunistic behavior (Pavlou & Gefen, 2004).

1.9 Organization of Remaining Chapters

The present study comprises five chapters as follows: the first chapter contains the study background, the problem statement, study objectives, research questions and the study contributions. This is followed by the second chapter that provides the literature review relevant to the study's variables, which are intention of e-government service usage antecedents. Based on literature review, the chapter further explains the theoretical framework developed and the study hypotheses.

The third chapter contains the research methodology, including research design, the measurement of variables, the sample and population, method of data collection, questionnaire design and pilot study. The chapter also specifies statistical methods that are used for study inference. Chapter four 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 and descriptive statistics. Additionally, this chapter reports the results of the partial least squares- structural equation modeling (PLS-SEM) approach by confirming the validity and reliability of the

21

instrument before examining the hypotheses of the study. It also reports the results regarding the mediating role of the selected variables.

Finally, Chapter five provides a summary of the research in relation to the research questions and research objectives. This chapter discusses in detail 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, suggestions for future research and conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter offers a detailed explanation of citizens' usage of e-government services and the relevant antecedents of intention toward usage of online services offered by the government. The antecedent variables chosen as the independent variables for this study are then discussed. Finally, the chapter provides a review of past studies concerning the factors influencing e-government services awareness and perceived risk as well as mediating effects of e-government services awareness and perceived risk. Finally, the study's research framework and the development of hypotheses are explained.

2.2 Citizens' Usage Behavior and Intention to Use e-Government Services

Technology usage and acceptance among users are deemed to be main criteria in Information Technology (IT) project implementation and progress. This is because users' attitude towards using and adopting new innovations is a significant factor for the success or failure of an information system (IS) (Pinto & Mantel, 1990; Succi & Walter, 1999). In the case of the information systems, studies have always focused on the why and how of individual's new technology adoption. Many research studies have mentioned that the intention positively and directly influences usage behavior (Venkatesh *et al.*, 2003). More specifically, Ajzen (1991) states that behavioral intention directly influences usage behavior, including technology usage behavior.

Intention itself can explain attitude of an individual toward the actual behavior. Added to this, the intention towards technology use-actual use relationship is well proven in information systems literature (Ajzen, 1991; Taylor & Todd, 1995; Venkatesh & Morris, 2000), and these variables are employed as measurements of technology acceptance. Moreover, intention to use the system is deemed to be the most important predictor of actual usage (Chau & Hu, 2001; Venkatesh *et al.*, 2003, Davis, 1989; Ajzen & Fishbein, 1980).

Various definitions have been proposed for e-government usage among citizens (Kumar *et al.*, 2007) with some researchers referring to the willingness of an individual to use e-services of government (Carter & Belanger, 2005; Gilbert *et al.*, 2004; Warkentin *et al.*, 2002); or citizens' intention to interact through e-government to avail government provided information and online services (Warkentin *et al.*, 2002). Other studies have considered e-government usage as the intention to use e-government services provided (Akkaya *et al.*, 2013; Al-Hujran, Aloudat & Altarawneh, 2013; Gilbert & Balestrini, 2004).

In addition, intention is described as the level of intention of the prospective user to use e-government innovation (Mahadeo, 2009). It directly influences citizens' actual technology use (Ajzen, 1991) and is a significant predictor of the decision to use. It is said that usage is determined by the attitude towards adoption of technology and this encourages usage behavior. Additionally, intention towards using technology-actual use relationship is widely evidenced in literature (Ajzen, 1991; Taylor & Todd, 1995; Venkatesh & Morris, 2000) and the two are employed to measure the acceptance of

technology, with intention being more widely used to indicate acceptance of users as it is challenging to obtain data on actual usage (Sun & Xiao, 2006).

The preference of a user to make use of the services is considered to be closely linked to his or her actual system use, an assumption that is applicable in cases when behavior is voluntarily made by the individual (Ajzen & Fishbein, 1980). Hence, it is believed that the intention of the user towards system usage is linked to his or her usage behavior if the use of technology is according to his/her voluntary decision. Many studies on online services usage have considered intention to predict use-actual use of technology (Irani, Love & Jones, 2008).

Several studies have evidenced the intention and usage of technology relationship and the two variables are invaluable in measuring technology acceptance (Ajzen, 1991; Moon & Kim, 2001; Rana, Dwivedi & Williann, 2014; Taylor & Todd, 1995; Venkatesh & Davis, 2000; Venkatesh & Morris, 2000; Venkatesh *et al.*, 2003). Hence, in certain cases, employing actual usage measure can result in an erroneous conclusion concerning the e-government services acceptability. As such, intention measure is an invaluable proxy for the measurement of actual behavior as it can gauge the potential when required. Moreover, according to Venkatesh *et al.* (2003), several studies evidence the direct and positive impact of intention on usage behavior. Irani *et al.* (2008) state that most technology adoption studies have considered intention to predict technology adoption.

From the discussion above, in order to use the accurate term, this study considers intention toward using e-government services to measure actual service usage in the

case of Saudi for its high correlation with behavioral use (Alshehri, Drew & AlGhamdi, 2013). To clarify, the citizens' intention toward using online government services is considered a dependent factor in this study model.

2.3 Antecedent Factors Influencing the Citizens' Intention to Use e-Government

E-services researchers have examined the models that are known to have predictive and explanatory powers towards behavior (Wangpipatwong, Chutimaskul, & Papasratorn, 2008; Venkatesh *et al.*, 2012). To this end, several models have been put forth, like the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975); the TPB proposed by Ajzen (1991); the Technology Acceptance Model (TAM) proposed by Davis (1989); and the Unified Theory of Acceptance and Use of Technology Model (UTAUT) by Venkatesh *et al.* (2003). Each of the above mentioned models has factors that cater to users' technology usage with several of the factors overlapping (Dillon, Deakins & Chen, 2006).

The TRA is a pioneering model which explains people's behavioral intention in addition to the actual (Venkatesh *et al.*, 2003; Ajzen, 1991). It posits behavioral intention towards new information technology. However, there are other factors that could influence users' intention towards using technology, comprising perceived behavioral control (PBC).

The TPB is an extension of the TRA, and assists in explaining volitional behaviors. The model includes other factors of behavioral control; it defines a person's perception of how he or she has the ability to perform a specific behavior (Ajzen, 1991). Mathieson (1991) advises that the TPB model offers a better understanding of behavioral usage. A

further discussion of each construct in addition to the details of TBP is provided in section 2.5.

In the e-government services context, researchers have increasingly concentrated on e-government distinctively from other IT fields (Belanger & Carter, 2012). Several studies have provided a description of distinct government online systems and cases of specific government websites (Saxena, 2005); or they have elaborated on the success or failure rate of such projects (Heeks, 2003). Aside from some studies (Heeks, 2003; Kumar & Best, 2006; Heeks & Stanforth, 2007), many studies in this area have focused on developed nations (Venkatesh *et al.*, 2012).

In this regard, some authors, like Verdegem and Verleye (2009); and Heeks and Bailur (2007) explain that studies on e-government have overlooked individuals who are supposed to use these e-government services. Numerous scholars (Belanger & Carter, 2008; Carter & Belanger, 2005; Gefen & Straub, 2003; Warkentin *et al.*, 2002) have noted that the government portal usage essentially is subject to the citizens' willingness toward usage of the services offered online, and as such, different models have been used in studies dedicated to e-government services (Ahmad, Markkula, & Oivo, 2013; Harby, Qahwaji & Kamala, 2012; Rehman, Esichaikul & Kamal, 2012; Venkatesh *et al.*, 2012; Schaupp, Carter, & McBride, 2010; Carter & Weerakkody, 2008). However, most of these theories have been utilized to examine western countries; only a few studies are available for developing countries, and even less for Arab countries, like the Kingdom of Saudi Arabia (Nadi & Drew, 2014).

27

Therefore, there is a dire need to look into the low rate of e-government usage at individuals' level in the case of developing countries (Alshawi & Alalwany, 2009). Different countries are characterized by different environments and this adds to the complexity of the usage issue. The variations in culture between the developed and developing countries should be taken into consideration when examining e-government usage (Heeks, 2002). Researchers (Belanger & Carter, 2008; Gupta *et al.*, 2008; Kumar *et al.*, 2007) have revealed many countries continue to tackle the low level of usage of e-government by the people.

Accordingly, governments across the globe need to understand the factors influencing e-government services usage to boost users', namely citizens' usage of these e-services. Intermediaries of e-government work as media to enhance trust of possible users, mitigate perceived risk and develop e-services awareness. Studies carried out to clarify the intermediaries' role in the government websites usage are still lacking (Al-Sobhi *et al.*, 2010). It is therefore obvious from the above discussion of the current gaps and the various calls for more empirical studies that there is a dire need to better understand the factors that influence e-government usage. In response to this requirement in literature, the present study examines the citizens' intention to e-government usage in terms of the antecedent factors. Thus, in order to understand the antecedent factors linked to e-government usage and acceptance, several adoption factors can be synthesized from the previous usage models (Shajari & Ismail, 2011).

In this regard, several antecedent factors on usage have already been highlighted in the context of e-government in Saudi (Al-Shafi & Weerakkody, 2010; Alawadhi & Morris, 2008; Carter & Belanger, 2005). These antecedent variables which influence the use of

28

government online systems are e-government services awareness, social influence, perceived risk, trust in Internet and trust of e-government intermediaries, which are briefly explained in the following sub-sections. According to Heeks (2005), owing to the differences between countries and the situations therein, the significant factors may differ. Hence, selecting the accurate and suitable technology usage model for each technology and situation is important. This is one of the issues that complicates technology usage.

Within this context, variables, such as perceived usefulness, performance expectancy, perceived ease of use, experience, complexity and compatibility, facilitating conditions, effort expectancy, relative advantage and demographic variables have been shown to influence citizens' e-government services uage behavior. For instance, research by Alawadhi and Morris, (2008); Davis (1989); and Venkatesh *et al.* (2003) have found that performance expectancy positively affects citizens' intention to use online government systems.

Different information systems models provide varieties constructs such as performance expectancy and perceived usefulness constructs introduced in the technology acceptance model; extrinsic motivation introduced in motivational model; job-fit including model of personal computer utilization relative advantage introduced in the diffusion of innovation theory; and outcome expectancy introduced in social cognitive theory (Venkatesh *et al.*, 2003). Thus, similarities between constructs are according to their definitions and measurement scales (Venkatesh *et al*., 2003).

29

The advantages of e-services remain hidden if the users of the online services are initially not aware about them (Sipior *et al.*, 2011). Therefore, strategies must be undertaken in order to promote the e-services (Alshehri *et al.*, 2013). Additionally, studies have identified that the knowledge about the website of the government and its benefits could encourage citizens to use these online services, specifically in the early stage of implementation, until the project succeeds (Al-Shafi & Weerakkody, 2010; Shareef *et al.*, 2011).

Other studies have focused on the impact of the effort expectancy construct's link to users' usage of government websites. This construct of effort expectancy has been adopted from different information system models (Venkatesh *et al.*, 2003). Venkatesh *et al.* (2003) explain that constructs are similar according to their definitions and scales of measurement. However, the construct of effort expectancy predicts behavior towards innovations in the initial phase; it may not be significant in extended stages and during continued use. Moreover, some authors, such as Wu, Tao and Yang (2007) have revealed that effort expectancy construct becomes non-significant towards intention to use e-government.

Some studies have also concentrated on the impact of facilitating conditions that affects usage behavior towards e-government services; this construct loses its significance with regards to intention toward use of e-government services once performance expectancy and effort expectancy constructs are included in the same model (Venkatesh *et al.,* 2003). Therefore, these constructs are excluded from the current study.

On the basis of demographic findings in literature, several studies have specified that demographic factors could affect the intention factor (Weerakkody *et al.*, 2013). As for age, elderly individuals are more disinclined to adopt technology and therefore, any e-government strategy needs to take into consideration and include them as beneficiaries of government online portal systems (Phang *et al.*, 2006). Past research has evidenced that senior individuals require higher assistance and support when it comes to use of technology (Morris & Venkatesh, 2000; Venkatesh *et al.*, 2003).

Overall, researchers have yet to have a full understanding of the factors that drive e-government websites usage and the extent of the use of government websites (Belanger & Carter, 2012; Heeks, 2002; Kumar & Best, 2006; Venkatesh *et al.*, 2012). Consequently, not much evidence can be found to support the demographic factors and online government behavior usage link. Further, demographic variables in the TPB used as underlying theories for this study exclude demographic factors. Wang and Yang (2005) exclude the demographic variables in order to simplify the research models of their study. Thus, demographic variables are not included as main independent variables to be investigated in the present study.

2.3.1 Factors Influencing Intention to Use e-Government Services

This section discusses the factors influencing intention to use e-government services included in the present research, including a discussion on awareness of e-government services, the role of social influence in using e-government services, perceived risk of using e-government services, trust in the Internet and trust in e-government intermediaries. These are followed with discussion on factors influencing e-government

services awareness and perceived risk. Lastly, this section provides a discussion on the mediating effects of e-government services awareness and perceived risk .

2.3.1.1 Awareness of e-government Services

Awareness is the key factor associated with the improvement of the Innovation Diffusion Theory (IDT) (Amescua, 2007; Rogers, 1995). Awareness of e-services is described as an influential variable that impacts the citizens' intention towards using services offered by e-government (Alateyah *et al.*, 2014). The definition of awareness factor in this context is the individuals' level of awareness about the website on e-government systems (Charbaji & Mikdashi, 2003). This shows whether or not the users are aware of the service itself and its benefits (Al-Majali, 2011; Sathye, 1999).

A substantial number of studies (Alawadhi & Morris, 2008; Charbaji & Mikdashi, 2003; Jaeger, 2003; Khan *et al.*, 2012; Phang *et al.*, 2006; Al Athmay, 2013; Mofleh, Gharleghi & Samadi, 2015; Rehman *et al.*, 2012; Sang & Lee, 2009) conducted on potential antecedents of e-government usage have demonstrated a significant influence of awareness of benefits and available e-government services on the level of citizens' online government systems usage . While the e-government services success hinges on the acceptance of its usage by the citizens (Carter & Belanger, 2005; Fu *et al.*, 2006; Park, 2008), the citizens' awareness of the existence of e-services on the government portal is one of the top priorities (Carter & Belanger, 2008; Khan *et al.*, 2012; Jaeger & Thompson, 2003). Similarly, Ahmad *et al.* (2013); and AlAwadhi and Morris (2008) determine that awareness is among the top determinants of the citizens' usage of e-services provided by the government.

32

Along a similar line of contention, Mellor (2006) examined citizens' e-initiatives in the United Kingdom (U.K.) and concluded that awareness is an influential factor and it should be promoted through the development of marketing campaigns as without this, the available services are unknown to some local areas. More broadly, such awareness regarding the e-government service availability is a top priority and a basic factor for successful e-government initiatives (Ke & Wei, 2004; Rehman *et al.*, 2012). This suggests that even if people have the capability to go online, they may still require other factors to motivate their access, such as awareness, skills and online content.

Several studies dedicated to e-government have reported a link between awareness and intention to use e-government in a positive way, which results in participation in e-government services (AlShihi, 2005; Golubeva & Merkuryeva, 2006; Kharade & Sharma, 2013; Rehman & Esichaikul, 2012). As contended by Phang *et al.* (2006), the knowledge that utilizing online services can save time, money and effort can lead to increased citizens' perceived usefulness and acceptance of them. Sipior *et al.* (2011) stress on fostering awareness which could lead to adoption. In Jordan, studies by Al-Hujran *et al.* (2013) and Shannak (2013) show that the presence of e-government services is positively linked to their use.

On the other hand, the absence of awareness about benefits and available e-government services and limited promotion, are the common reasons reported for the low rate of e-government adoption (Carter & Belanger, 2008; Khan *et al.*, 2012; Rehman & Esichaikul, 2012; Sipior *et al.*, 2011). It is significant for potential adopters to perceive the economic, social and political benefits that can be gained through e-government services adoption (Bates *et al.*, 2014) in order to encourage their access (Sipior *et al.*,

2011). In the context of the UK., Mellor's (2006) findings reveal that low e-government awareness is the top barrier to government website access and usage. Among the several reasons behind the limited use of the government website include, among others, insufficient advertising of the capabilities of government online services (AlFawwaz, 2012; Eynon & Dutton, 2007). For instance, the lack of awareness of Australian citizens of the services provided by e-government stems from perceived lack of promotional campaigns on the e-government website (Sipior *et al.*, 2011). Over ambitious expectations may come from governments as they invest significant amounts on e-government but at the same time, they fail to make their citizens aware of it. For instance, in the initial phases of e-government, the U.K. government invested significant amount of money to establish services of e-government but majority of its citizens were not aware of it, while some were not inclined to use it (Jaeger, 2003).

According to Bates *et al.* (2014) and UNDESA survey (2014), awareness issues influence several different parts of the population affected by the digital divide. However, the benefits of e-government cannot be obtained by the citizens if the services offered are not known. Thus, the more citizens are aware of such benefits, the more they will be inclined to use e-government. Such awareness regarding the e-government service availability is important and a basic factor for successful e-government initiatives. Stated clearly, saving in terms of time, money and effort in using e-services and its awareness, can maximize their perceived usefulness and acceptance (Phang *et al.*, 2006).

In Arab countries, Al-Athmy (2013) finds that lack of awareness and ineffective public sector marketing is the major obstacles to online government usage. In a research which

34

focused on the same subject matter, AlShihi (2005) reveals several hindrances to the use of the Oman government website, specifically, deficiency of knowledge, limited awareness and motivation, as well as government online strategies marketing restriction.

In the Saudi context, citizens' awareness of online service benefits significantly impacts e-service adoption (Alzahrani & Goodwin, 2012; Al-Ghaith, Sanzogni & Sandhu, 2010). Alfarraj *et al.* (2013) reveal that awareness is one of the top factors influencing e-government development along with education about e-services and the actual perceived benefits. Alghamdi *et al.* (2014) found that the awareness levels of the government online advantages are low for both employees and users. Lack of citizens' awareness in Saudi regarding e-government services has also been highlighted by numerous studies (Alghamdi *et al.*, 2014; Alshehri *et al.*, 2012). They state that citizens should be made aware of the e-government services through a campaign that promotes their benefits and advantages.

Alshehri *et al.* (2013); and Alateyah *et al.* (2014) identify lack of awareness as among the top influential variables that affects Saudi citizens' intention to adopt e-services. Similarly, Al-Fakhri *et al.* (2008) state that optimizing Saudi citizens' e-government awareness would lead to enhanced e-government effectiveness. Related to this is the lack of marketing to promote the benefits and advantages that can be obtained from services provided by the Saudi e-government (El-Sofany, Al-Tourki, Al-Howimel & Al-Sadoon, 2012). Specifically, Al-Sobhi *et al.* (2009) report that the main challenge faced by the Saudi e-government initiative is the issue of funding its marketing and dissemination among the citizens. Therefore, in order to create opportunities that are accessible to all, e-government services knowledge has to be enhanced.

Based on the above discussion, the initiative from the government side in promoting and building the awareness of citizens is considered to be low. With this lack of awareness of citizens, the communication between government and citizens cannot be successfully developed. Further, outcomes obtained from statistical analysis show awareness has a significant influence on the citizens' intention toward government website usage. Baabdullah, Dwivedi & Williams, (2013) call for investigating the Saudi citizens' awareness of online government so that they can be informed about the e-government systems' availability. As a response to this call for research, this study investigates the individuals' awareness level about e-government.

2.3.1.2 Perceived Risk about Using e-Government Services

The role of perceived risk on intention has been the subject of numerous studies (Akkaya *et al.*, 2013; Khasawneh, Rabayah & Abu-Shanab, 2013; Pi, Liao & Chen, 2012; Pavlou, 2003; Warkentin *et al.*, 2002). Perceived risk is commonly defined as the belief of the trustor regarding potential for gains and losses for sufferers (Mayer, Davis & Schoorman, 1995; Pavlou, 2003; Warkentin *et al.*, 2002).

Owing to the challenges in objectively measuring risk, studies have concentrated on the perception of risk. In literature therefore, perceived risk is the belief of the individual that loss will be incurred in pursuit of a result (Warkentin & Gefin, 2002). On a similar contention, Featherman and Pavlou (2003) consider perceived risk in e-services as the possibility of loss in pursuit of an expected outcome of using e-services. In general, perceived risk is the uncertainty that consumers will experience when they are not aware of their purchase decision outcomes (Kim, Ferrin & Rao, 2008). The current study uses

36

the perceived risk defined by Warkentin *et al.* (2002) that the citizen's subjective expectation of suffering a loss in pursuit of a desired outcome.

Perceived risk is heightened with uncertainty or with the possibility of negative outcomes (Lu, Hsu & Hsu, 2005). According to Pavlou, (2003), perceived risk involves two types of uncertainties: the behavioral uncertainty and the environmental uncertainty. The behavioral uncertainty towards e-services stems from the nature of the Internet that is characterized as impersonal (Pavlou, 2003). Owing to the fact that it is a distal medium, service providers via the Internet have the potential to take advantage of users to satisfy their own interests (Pavlou, 2003). On the other hand, environmental uncertainty is described as the unforeseen feature of the Internet which the consumer has no control over (Pavlou, 2003).

High perceived risk may stem from deficiency of security, which is also among the main factors affecting intention towards government website portal adoption (Akkaya *et al.*, 2013; Pi *et al.*, 2012). Alsaghier, Ford, Nguyen & Hexel (2009) examined perceived risk and trust in e-government and show that risk is attributed to reduced e-government systems usage. Both concerns of risk and privacy have a key role in online technology adoption (Luo, 2002).

This is why several studies have stressed on the user's perceptions of risks involved in e-transactions as the key factor that prevents the adoption of online technologies (Akkaya *et al.*, 2010; Schaupp & Carter, 2010). Further, the perceptions of risks vary considerably from one nation to another (Luo, 2002). In the electronic commerce field, perceived risks have been evidenced as minimizing intention of users to exchange

37

information and conduct transactions (Kim *et al.*, 2008; Pavlou, 2003). A greater risk perception will lead to the minimization of the technology's perceived benefits (Horst, Kuttschreuter & Gutteling, 2007). Added to this, customers of e-services are often concerned with the occurrence of system breakdown while they are transacting online and this may consequently lead to losses (Kuisma, Laukkanen, and Hiltunen, 2007).

Littler and Melanthiou (2006) explain that system breakdown could minimize the tendency of the customer to use online banking. Also, Al-Smadi (2012) demonstrates the significantly undesirable effect of risks perception on customers' approach to using e-banking services. In a few related studies conducted in the context of Saudi Arabia, perceived risk has been revealed to negatively and significantly impact the adoption of Saudi mobile banking (Al-Jabri & Sohail, 2012). This is consistent with the findings of prior studies, such as Tan & Teo (2000), which indicate that bank customers consider risk as a top barrier to mobile banking adoption. Further, Suryaningsih *et al.* (2014) find a reciprocal association between trust and perceived risks.

In e-government, perceived risk has been suggested as having the same effect (Warkentin *et al.*, 2002). Further, Khasawneh *et al.* (2013) determine perceived risks as a significant variable influencing e-government usage. However, the perceived risks in usage of government websites are greater compared to that in e-commerce (Gefen, 2002). Consumers have to handle only their credit card data theft risk when their private information is obtained by hackers, whereas online government users could have long-term consequences due to their information, such as permanent biometrics, being available (Akkaya *et al.*, 2013). For example, one of the foremost online security companies has been noting that healthcare organizations are vulnerable in terms of their

38

personal data that can be accessed by hackers. Healthcare data is valuable as the medical records can be utilized to conduct fraudulent activities or even to steal someone's identity. In fact, they are more invaluable than credit card data (Paganini, 2014).

More importantly, reports released recently regarding cybercrime show increase of cybercrime in the private and public sectors (Ablon & Libicki, 2015; Pascual & Miller, 2014). Further, according to the report of the Internet Crime Complaint Center (IC3) in 2014, it received 289,874 complaints, or over 24,000 complaints every month on average. Reported losses increased 8.3% over the previous year (IC3, 2014). The report also reveals that the total number of complaints from the top 50 countries (where Saudi Arabia is ranked number 25) constituted a loss of around SR4,000,000 (US$1,250,000) (IC3, 2014). This is attributed by Myron (2004) to the diffusing of technological advancements in society and the heightened occurrences of identity theft and loss of privacy.

Therefore, majority of the citizens may not have the tendency to adopt such services owing to their perceived lack of security in online transactions and issues related to information use. Thus, the findings show that the society is hesitant to utilize e-government. In addition to the above, a clear lack of policy statements regarding privacy and security may play a part in discouraging individuals from availing online government systems.

Added to above mentioned, a review of the protection laws stipulated in Saudi Arabia shows the laws to be lackluster compared to the neighboring countries. In this regard, the IT Criminal Law was launched in 2007 to define IT crimes and the accompanying

penalties but Saudi Criminal Law does not provide a definition of privacy rights or any punishments that may be brought against companies, organizations and website operators who fail to safeguard the information of their clients (Alzahrani & Goodwin, 2012). Thus, perceived risk is considered to be among the crucial constructs that needs investigation to realize the impact of cybercrimes on the government online systems usage (Akkaya *et al.*, 2013; Rehman *et al.*, 2012).

Evidently, e-government programs in Saudi Arabia have to face challenges arising from the lack of a legal framework to safeguard e-transactions (Al-Shafi, 2007; Alateyah *et al.*, 2014). According to Alfarraj *et al.* (2013), the Saudi e-government is lacking in IT policies and a legal framework to establish online transactions (Al-Shafi, 2007; Alateyah *et al.*, 2014). Added to this, individuals' risk perception may be related to other attributes such as the distant and impersonal nature of the online environment, the inherent uncertainty of using opening Internet technological infrastructure (Alateyah *et al.*, 2014; Al-Sobhi *et al.*, 2009; Al-Fakhri *et al.*, 2008; Alfarraj *et al.*, 2013).

To compound the issue further, past studies have revealed that national culture is the basis of individuals' perception and brings about or prevents new technology adoption (Srite & Karahanna, 2006). National culture has been proven to influence the way people react to perceived risk and trust (Hofstede, 1980). Cultural values are considered as the top influential factor of behavior, and as such, it is expected to have a key role in the citizens' intention towards the use of e-transactions (Schwartz, 2003). Prior studies have shown the way cultural values influence the behavior of the people through their belief structures (Gefen & Heart, 2006; Srite & Karahanna, 2006), more specifically, in the e-government context (Carter & Weerakkody, 2008).

40

The Saudi society is a conservative one, which may influence societal technology usage and is riddled with the lack of both trust in addition to avoidance of risk (Nadi & Drew, 2014; Alshehri *et al.*, 2013; Hofstede, Hofstede & Minkov, 2010). As a consequence, the Saudi citizens are vulnerable to data protection and security issues coupled with the prevalence of high uncertainty avoidance of its culture (80 scores), compared to the global average (60 scores) based on Hofstede's index (Nadi & Drew, 2014; Al-Gahtani, Hubona & Wang, 2007; Alshaya, 2002; Bjerke & Al-Meer, 1993; Hofstede, 2001). Thus, this necessitates the consideration of the Saudi citizens' perceived risks and trust and evidences the influence of these factors as hindrances to e-government implementation (Alshehri *et al.*, 2013; Nadi & Drew, 2014).

With regards to the other barrier, Accenture (2005) carried out a survey involving 22 countries and revealed that citizens have a tendency to conduct face-to-face communication in comparison to online transactions when it comes to dealing with their government agencies. Although some stakeholders are comfortable using online systems as a substitute, citizens are still notably more comfortable in using traditional methods of interaction, like phone calls or face-to-face interaction (Belanger & Carter, 2008; Ebbers, Pieterson & Noordman, 2008; Kumar *et al.*, 2007; Millard, 2007; UNDESA survey, 2012). In this regard, Arab countries are primarily collectivistic where people care much about face-to-face interactions and their day-to-day issues are solved through this traditional means of communication.

Based on the above discussion, and in the light of the growth of cybercrimes, perceived risk is considered to be among the crucial constructs that needs analysis to understand the effect of the growth of cybercrimes on e-government usage. Specifically, Akkaya *et*

41

al. (2013) and Rehman *et al.* (2012) argue that risk perception is a crucial construct that calls for analysis and understanding in the online government usage context. Further, it is very crucial to be aware of the risks that citizens perceive in order to lessen them for effective e-government implementation. Consequently, additional empirical research is required to study the expectations of online government services around the globe (Akkaya, Obermeier, Wolf & Krcmar, 2011; Patel & Jacobson, 2008; Verdegem & Verleye, 2009). This study responds to the call by examining the influence of citizens' perceived risk on their intentions to use the e-government systems in Saudi.

2.3.1.3 The Role of Social Influence in Using e-Government Services

A substantial number of studies have identified social influence on the acceptance and usage behavior of new innovation adopters (AlAwadhi & Morris, 2008; Venkatesh *et al.*, 2003; Venkatesh & Davis, 2000). Loch *et al.* (2003) claim that the closer the affinity of the individuals to their reference group, the more likely the individuals are to perform according to the reference group's expectations. Social influence is a construct that refers to the normative influence of significant others (friends and families) on the individual's intention towards e-government. Venkatesh *et al.* (2003) describe social influence as the level to which an individual is convinced that people (family or friends) who are important to him/her, think that he/she should make use of the system.

As an element of behavioral intention, social influence is proxied by subjective norm introduced in theory of reasoned action and theory of planned behaviour, social factors introduced in model of personal computer utilization, and image introduced in innovation diffusion theory (Venkateshet *et. al*, 2003). Each of these variables is

42

premised on the notion that the behavior of an individual is impacted by the manner he/she believes others think of him/her in using the technology.

The association between social influence and adoption has been widely examined in the social influence context (Fulk & Boyd, 1991; Fulk, Steinfield, Schmitz & Power, 1987; Venkatesh & Brown, 2001). Several scholars of social influence have contended that social influence affects the individual's adoption behaviour at the level of the individual (Irani, Dwivedi & Williams, 2009; Tan & Teo, 2000). Also, Venkatesh & Brown (2001) report that the influence of significant others plays a role in influencing technology adoption. In a similar line of study, Al-Majali (2011) contends that social influence may be a major impediment to adoption.

Studies in the same context have indicated that intention usage of nations is affected by the ingrained cultural beliefs (Srite & Karahanna, 2006). Elements that affect the public's usage of services offered online would be citizens' cultural values (Patel & Jacobson, 2008). It has been noted that social and cultural norms affect ICT adoption (Myers & Tan, 2003). Loch *et al.* (2003) conclude that once important persons in the society may force people to adopt online communications and usage of online transactions. The social influence factor could be particularly advanced in a collective culture (Alshaya, 2002; Bjerke & Al-Meer, 1993). Hung, Chang and Yu (2006) reveal that social influence significantly affects non-adopters' intention to use online services.

Warkentin *et al.* (2002) suggest that higher uncertainty avoidance will reinforce the positive effect of citizens' trust on intentions to engage in e-government. Additionally, the associated members will agree with others' beliefs - those considered as essential in

43

terms of cultural values of power distance. As a consequence, in the culture of Arabs, employees are expected to display a significant link to the social influence construct and intention in comparison to the U.S. Similar to this, the low individualism of Saudis is a societal culture. Greater consideration for the group and others' opinions would affect the intentions of the individual. As a result, the others' collective opinions are expected to significantly impact the intentions of the individual.

In the Saudi context, social pressure can be received from a number of relevant referents, as indicated by prior research (Al-Gahtani *et al.*, 2007; Alshehri *et al.*, 2013). Social influence is anticipated to affect adoption. The Saudi society is collectivist, where individuals affect the opinions of others; citizens, therefore, might influence others when relating to acceptance intention (Al-Gahtani *et al.*, 2007). Al-Fulih (2002) describes the Saudi culture as socially active in the lives of its citizens and engenders strong relationships among family members. As identified by a number of prior studies, family, friends/colleagues and intermediaries are relevant referents of social influence in this study (Al-Shafi & Weerakkody, 2010; Al-Sobhi *et al.*, 2011).

Many studies have been conducted to investigate the association between social influence and e-government services adoption behavior (AlAwadhi & Morris, 2008; Al-Shafi & Weerakkody, 2010; Foon & Fah, 2011; Venkatesh *et al.*, 2003; Venkatesh *et al.*, 2012; Al-Sobhi *et al.,* 2011). Specifically, in the Kingdom of Saudi Arabia, prior studies' findings have used the UTAUT model. For instance, studies have found a significant role of social influence in e-government services adoption (Al-Sobhi *et al.*, 2011; Alkhunaizan & Love, 2012; Alshehri *et al.*, 2013). Chan *et al.* (2010) suggest future research should investigate social influence in terms of technology adoption to

provide a complete picture of the relationship of social influence and behavioral intention in the online government context.

2.3.1.4 Trust in the Internet

Another factor chosen as an antecedent variable in the present study is trust in the Internet that impacts the citizens' intention towards adopting services offered by the e-government. Rotter (1967) describes trust as an expected promise that an individual could be depended on. Carter and Belanger's (2005) trustworthiness definition is the perception of confidence in the electronic marketer's reliability and integrity. Users' judgment on using the government website systems is subject to the provider of the services being trusted (Carter & Belanger, 2005).

Several studies have presented the significance of trust in using and accepting new technologies, while others have assessed it as a crucial predictor of users' intention to adopt e-services (Al-Adawi,Yousafzai & Pallister, 2005; Al-Hujran *et al.*, 2013; Belanger & Carter, 2008; Gilbert *et al.*, 2004; Pavlou & Fygenson, 2006; Schaupp *et al.*, 2010).

In this regard, citizens will only use e-services if they are convinced of their trustworthiness (Belanger & Carter, 2008). The need for trust perhaps refers to the distinction between e-services and traditional services. The online environment is a conduit between the citizens and government, where the former should share some personal information in order to interact through it. Following the completion of the interaction between parties online, trust becomes a core issue to be defined and measured.

45

According to several authors, the trust requirement stems from situations that are unsafe, just as how electronic surroundings are characterized (Gefen *et al.*, 2003; Slyke, Belanger & Comunale, 2004). Further, fear could emerge from transmitting information, which is subject to interception and misuse. Trust has a vital role in forming an initial association of citizens with their government online systems, whereby the former are not aware of the online service (Carter & Weerakkody, 2008). Therefore, in the case of e-government, trust is important and a lack of trust can hinder its acceptance.

Literature provides two broad classifications of trust, namely: trust in the organization that supplies the online services; and trust in the Internet innovation used to deliver users' services (Tan, 2000). Trust in the organization that supplies the services online, implies that users must be satisfied (Teo, Srivastava & Jiang, 2008). Nevertheless, the importance does not lie only in getting the users to use e-services, but it also lies in the users' trust in the Internet. This is also a main variable which is considered as a predictor of online commercial services usage (McKnight *et al.*, 2002; Pavlou, 2003; Warkentin *et al.*, 2002; Welch, Hinnant & Moon, 2005); as well as e-government adoption (Belanger & Carter, 2008; Carter & Weerakkody, 2008; Sang & Lee, 2009). Added to the above, Gefen *et al.* (2002) claim that trust impacts e-government usage intention.

Trust of the internet refers to the perceptions of the individual concerning about the established environment including the safeguard structures and regulations (McKnight *et al.*, 2002). In this context, Shapiro (1987) describes institutional trust such as Internet trust; trust in the safekeeping and safety procedures therein; and actions of organizations in the e-environment. In broad terms, the two studies of McKnight *et al.* (2002); and Gefen *et al.* (2003) are rooted in the TRA and use trust theory, confirming institutional

trust is a key antecedent to trust. In the view of the institutional trust, the notion posited extensively used by both e-commerce and e-government dedicated studies (Carter & Belanger, 2005; McKnight *et al.*, 2002; Pavlou, 2003; Welch *et al.*, 2005).Warkentinet *et al.* (2002) confirm this type of trust is the most crucial element to study online government trust.

According to Belanger and Carter (2008), institution-based trust is a vital element in e-government usage. In other words, users have to be convinced that mechanisms are set up to ensure the protection of private data relayed over the online environment (Belanger & Carter, 2008). They stress that government entities should leverage the trust construct to boost the usage of government websites.

In a related research, Lee and Turban (2001) examined e-shopping trust and suggest that web merchant and Internet trustworthiness both indicate trust in electronic shopping. In a study dedicated to using e-channel banking, Kim and Prabhakar (2004) posit that trust and organizational assurance are antecedents of online banking trust. Their findings show that organizational guarantees are important factors in this context.

Ha and Stoel (2009) utilized the TAM model to investigate determinants of online shopping among consumers. The study integrated trust, online shopping quality and enjoyment factors into the TAM model. They surveyed university students by sending email questionnaires and succeeded in collecting 298 usable responses. The findings show that trust and enjoyment significantly impact adoption. Further, the quality of e-shopping, ease of use and online transaction self-efficacy positively and significantly

affect consumer trust as well as risk perceptions and have an impact on users' online procurement behavior.

Thompson and Liu (2007), in a study involving consumer trust in electronic commerce, confirm that system assurance, the reputation of the web retailer and the propensity to trust, are determinants of trust in e-commerce. System assurance measures consumers' perceptions of the security features of the vendor's transaction system, which is a surrogate term for structural assurance. Belanger and Carter (2008) indicate that it is common to term trust in web vendors as the individual's perception of a web retailer's reputation.

Schaupp *et al.* (2010) investigated taxpayers' adoption of the electronic file. The study integrated trust dimensions into the UTAUT theory. The results show that trust in the Internet provider significantly influences perceived risk, which affects taxpayers' behavior to use the services. The study confirms the previous studies that indicate both trust in the Internet and service providers are key issues of trust in government online website systems.

Several authors in the field of government online usage have proposed the link between trust in government entities and systems usage. In current times, Internet applications are widely used for information exchange and communications that link the government with its people. Nevertheless, interacting with government hinges on trust of the Internet, and such interaction is rife with confidentiality, safety and threat matters.

Carter and Belanger (2005) state trustworthiness is a key element when using Internet applications. According to Al-Gahtani *et al.* (2007); and Alshaya (2002), it is important

to consider trustworthiness in a society, like Saudi, which has uncertainty avoidance values. Thus, the construct of trust in the Internet is included in the present research to investigate the effect of trust perception. Beldad Jong and Steehouder (2012) indicate that only some studies have focused on trust issues from the citizens' perspective for e-government usage.

In the same line of research efforts, prior authors have reported several elements linked to views which differ according to the culture of a nation (Luo, 2002). Consequently, additional empirical studies are required to understand the citizens' expectations when they use government websites (Akkaya *et al.*, 2011; Belanger & Carter, 2008) within each culture individually (Gefen & Heart, 2006). Trust is effective in countering uncertainty and risk causes this uncertainty (Akkaya *et al.*, 2010). According to recent research, trust is one of the constructs that should be understood in the realm of online government adoption (Akkaya *et al.*, 2013; Rehman *et al.*, 2012). The underlying gaps have led many researchers to suggest the need for further empirical research (Akkaya *et al.*, 2011; Patel & Jacobson, 2008; Verdegem & Verleye, 2009). Therefore, additional research is necessary to better comprehend the variable of trust in Internet in e-government usage setting.

In acknowledgement of the requirement to minimize the knowledge gaps in literature dedicated to online government systems usage, this present research examines trust in Internet pertaining to government portal adoption, simultaneously validating previous findings in an e-government setting.

49

2.3.1.5 Trust in e-government Intermediaries

Many studies dedicated to intermediary organizations have shown that intermediaries can add value to both providers of the services as well as requesters of these services and to maximize the requisite trust between them (Al-Sobhi *et al.*, 2011; Bailey & Bakos, 1997; Dombrowski *et al.*, 2014; Howells, 2008; Janssen & Klievink, 2009; Weerakkody *et al.*, 2013). Specifically, they stress intermediaries' primary role are to improve trust among parties and to minimize the risky e-environment. Similarly, Sorrentino and Niehaves (2010); and Dombrowski *et al.* (2014) emphasize the contribution of intermediaries in the development of trust that links the government to its people.

Trust of the intermediary refers to the subjective belief that the buyer is convinced of the intermediary's use of fair rules and procedures in a competent, reliable and integral manner, and if need be, offers resolution for the seller's opportunistic behavior (Pavlou & Gefen, 2004). Several studies (Al-Sobhi *et al.*, 2010; Carter & Weerakkody, 2008; Griffin & Halpin, 2002; Weerakkody, 2008) have shown that trust of citizens in intermediary organizations positively relates to the online public service use and adoption. The analysis of intermediary's role is a major step in evaluating the existing theories on intermediation (Sorrentino & Niehaves, 2010).

Given these insights, examining the function of trust in e-government intermediaries could assist in providing a better insight into the behavior of citizens towards usage of e-services (Chircu, Davis & Kauffman, 2000; Pavlou & Gefen, 2004); and the feasibility of online government services (Al-Sobhi *et al.*, 2010; Dombrowski *et al.*, 2014; Janssen & Klievink, 2009). Consequently, investigating the impact of trust in intermediary

organizations on usage of e-government services can be of value and provide suggestions to strategy planners and scholars. Likewise, in Saudi's situation, developing trust in e-government intermediary organizations is crucial as Saudi citizens have for a long time, been sending their personal data to the portal through new authorized e-intermediaries (Al-Sobhi *et al.*, 2010).

Several researchers have examined the relationship between trust and technologies in a online government usage context (Tolbert & Mossberger, 2006; Carter & Belanger, 2005; Welch *et al.*, 2005). In this regard, the current research hopes to contribute to literature by examining the citizens' trust in government intermediaries operating in an e-service setting, in order to develop awareness and trust and minimize risks stemming from the inefficiency of Internet applications and the limited information concerning online systems (Al-Sobhi *et al.*, 2010). Specifically, this present study aims to understand what the citizens expect and the decision-making mechanisms they use when using e-government services through physical intermediaries.

E-government system developers are trying to build a trustworthy setting for remote societies. Intermediaries are defined as independent private organizations that provide a formal conduit to customers within a risky marketplace setting by managing the interactions in the market (Datta & Chatterjee, 2008). On this basis, Pavlou and Gefen (2004) contend that trust in electronic dealings can be reinforced via institutional trust tools. They show that intermediaries could help in building trust among users. Pavlou and Gefen (2004) define institutional trust as response mechanisms that provide insurance card guarantees through third-party institutions in order to bring about online transactions.

Moreover, trust in the merit offered through particular intermediaries is equal to the tools that allow the distribution of e-services as evidenced by Chircuet *et al.* (2000). They contend that trust has a key role in individuals' intention to adopt e-services (directly and indirectly). In a more recent study, Dombrowski *et al.* (2014) focus on non-government outreach workers' intermediaries. This study shows how the e-government intermediaries could nurture trust in their customers (Dombrowski *et al.*, 2014). Al-Sobhi *et al.*'s (2009) research explored the significance of the role played by intermediaries as third party in e-services. They included trust in intermediaries in the UTAUT model and find trust to play a significant role in the adoption intention of e-services among citizens.

In the e-government context, Carter and Belanger (2005) developed and tested another model that affects citizens' government website usage. The study finds that factors, such as perceived usefulness, relative advantage and compatibility, have a significant influence in predicting citizens' intention to use online government services. Belanger and Carter (2008) investigated the role of trust and perceived risk in e-government adoption from a citizens' point of view. They hypothesized a model of trust in the application of e-government services by incorporating disposition to trust, trust in the Internet and government. The findings show that trust in the Internet and government and perceived risk have an important effect on citizens' intentions to use public portal website systems.

Another study in the same field is by Akkaya *et al.* (2013), who examined German households' e-filing adoption. They created an extensive research model and tested 1,000 users. Their findings show risk perceptions and trust in new technology as key

52

factors in Germany. Warkentin *et al.* (2002) formulated a theoretical framework to investigate the influence of trust of citizens' to complete e-tax transactions. Their findings support prior findings (McKnightet *et al.*, 2002; Gefenet *et al.*, 2002) that contend the institutional trust is a crucial component in developing trust in e-government.

In the Saudi case, intermediaries have been present for many years and such entities are deemed to be successful in being a conduit between users and government institutions (Al-Sobhi *et al.*, 2010). Developing trust in the intermediary remains a primary concern in terms of online government portal usage as Saudi citizens are required to forward their personal data to the portal (Al-Sobhi *et al.*, 2010).

As the foregoing discussions demonstrate, the examination of trust in e-government intermediaries could provide an insight into the behavior of citizens towards e-service usage and the utilization of the e-government website. Added to this, intermediaries facilitate e-government system access by promoting government initiatives and services through them, offering technical support, familiarizing clients with the various assistance venues and providing support through the years. The aforementioned authors have claimed that trust in e-government intermediaries as channels, could assist in making the citizens to be more inclined towards e-government services.

This calls for empirical research to shed light on potential public services users and their judgment building processes when it comes to e-government services. However, studies that have investigated the use of intermediaries in e-services usage are still rare (Al-Sobhi *et al.*, 2010; Janssen & Klievink, 2009). Several researchers (Al-Sobhi *et al.*,

53

2010; Griffin & Halpin, 2002) have shown that trust between individuals and intermediaries of e-government positively correlate with the use and adoption of e-public services.

Sarkar *et al.* (1995) stress on investigating the intermediary's role in detail, but few, if any, have stressed on the trust implication of e-government intermediaries in online public services adoption. Consequently, the present study investigates the influence of trust in intermediary organizations in government website usage. Thus, this current research has significance for both strategy makers and scholars.

2.3.2 Factors Influencing e-Government Services Awareness

Chen *et al.* (2010) reveal awareness as a significant construct of online government websites. Heeks (2003) states that effective e-government marketing may maximize its awareness, acceptance and use by the citizens as well as maximize e-government projects' success rate. However, benefits will remain hidden if an individual has no awareness of the services being offered (Sipior *et al.*, 2011). Thus, strategies should be undertaken to promote these e-services (Alshehri & Drew, 2010; El-Sofany *et al.*, 2012).

It is pertinent for governments in general to take part in activities that promote and popularize e-service usage (UNDESA survey, 2012) because regardless of the several e-services available, the levels of use may remain low. Hence, the Saudi government should exert effort to promote such awareness to assist the citizens' transition from traditional services to online services and transactions (Alenezi & Amin, 2013).

54

For the development of e-government adoption, enhancing social awareness is important. El-Sofany *et al.* (2012) recommend that the Saudi e-government program and governmental agencies may benefit from the marketing and promotion of e-government and other new e-services. In turn, this would maximize acceptance and use of such services by the public (Alshehri & Drew, 2010; Geetika, 2007). Further, Alghamdi *et al.* (2014) stress the need for legislation to build the website government usage benefits and awareness.

Limited e-government awareness is still the top barrier to its adoption and extensive promotion and awareness campaigns can overcome this (Lamblin & Siweris, 2014). Despite the government's provision of e-services, the government seems to be unaware of what citizens actually want; hence, there is a dire need to manage expectations among stakeholders (Mohammad, Almarabeh, T. & Abu Ali, 2009). It is therefore important for governments to proactively conduct such activities to ensure awareness of e-services (UNDESA survey, 2012, 2014). If left as it is, although e-services are available, their use will remain at a low level.

Further, governments should be proactive in building the awareness of citizens rather than concentrating on the technical issues because without the awareness and adoption by citizens, e-government efforts will be wasted (Prima, Ibrahim, 2011). Thus, campaigns on e-government should promote its advantages and provide general information of what is technically involved, where e-government services can be accessed and adopted (Lamblin & Siweris, 2014). With mandatory e-government technology adoption, governments are required to expend resources to promote citizens'

awareness and social norms towards technology usage (Brown *et al.*, 2002) in order to build IS opportunities that are accessible to all.

To create users' awareness and adoption of e-services, new strategies must be executed to promote and build this awareness. The governments can use various channels and provide training programs to create citizens' awareness on how to benefit from the usage of e-government services and IT tools, generally (Graafland-Essers & Ettedgui, 2003; Khan *et al.*, 2010, 2012; Meer & Winden, 2003). The latest survey (UNDESA survey, 2014) shows that using various channels as intermediaries, could be an effective strategy. Further, Sorrentino and Niehaves (2010) indicate the need to build social awareness of e-government using new delivery gateways in order to provide other possibility choices to the individuals to access e-service.

In this respect, trust is a social phenomenon that impacts the awareness of individuals and indirectly their decision-making. However, most of the existing computational models of awareness do not take interpersonal trust into account (Aydoğan *et al.*, 2015). To the best of our knowledge, integration of e-government services awareness and trust has not been considered in agent-based modelling before. However, recently, experimental studies on the relationship between trust and awareness have been performed involving human subjects (O'Donovan *et al.*, 2013; Teng, *et al.*, 2013). These studies have indeed confirmed that trust plays an important role in formation and maintenance of awareness of people. In particular, they establish that trust influences the reasoning of subjects of the experiment about their strategy choices.

Previously, the important role of trust to build awareness was also acknowledged by researchers (Parasuraman, Sheridan, & Wickens, 2008). Aydoğan *et al.* (2015) investigated the effect of trust on airline operations controllers' awareness in a case study. According to the results of their study, the trustworthiness of information sources has a significant effect on airline operations controllers' awareness. This indicates support that the trustworthiness of the information sources has a significant influence on decision-makers' awareness.

Christianson *et al.* (2014) explored the factors associated with awareness of physicians' quality of information among older people and the implications for medicare. Precisely, they examined the influence of trust in the Internet on the collective awareness of physicians' quality information factor. Higher levels of trust in the Internet are associated with higher levels of awareness of physicians' quality information (Christianson *et al.*, 2014). Similarly, this means lower trust in the Internet levels are related to lower physicians' quality information awareness levels. This suggests that trust in the Internet is associated with a greater likelihood of being aware of physicians' quality information.

Daassi *et al.* (2006) investigated the relationship between trust and collective awareness levels over time to provide an initial understanding of the dynamic nature of trust and collective awareness in virtual teams. Specifically, they examined the influence of the trust factor on collective awareness. Daassi *et al.* (2006) show that trust levels are associated with collective awareness levels; in addition, they claim, in line with the studies of Van der Kleij (2007), that trust and collective awareness may increase over time. Daassi *et al.* (2006) find that higher trust levels are associated with higher

collective awareness levels. Correspondingly, this means lower trust levels are associated with lower collective awareness levels. Contrary to those models and studies, this study introduces a model incorporating trust in Internet to enable building more e-service awareness and e-service usage.

The functions of e-government intermediaries that assist e-services providers include the formation of awareness concerning the product or service (Sarkar *et al.*, 1995). The e-government intermediary officers may carry out promotional campaigns (Al-Sobhi *et al.,* 2009; Bailey & Bakos, 1997; Sarkar *et al.*, 1998). They claim that the intermediary's primary role could improve awareness between the providers (e-government services agencies) and customers (citizens). It also aims to develop e-environment knowledge. In a more recent study, Dombrowski *et al.* (2014) reveal that the intermediaries could foster awareness among their customers.

A study was undertaken to find the significance of the role played by e-government intermediaries as an awareness agency (Al-Sobhi *et al.*, 2009). Wahid *et al.* (2011) advocate the intermediaries' role in transforming society through the promotion of awareness. This is also supported by Rao (2004) who elaborates on the crucial role of intermediaries in raising awareness, supporting networks and creating societal trust. In addition, Rehman *et al.* (2012) studied expert feedback and show that both awareness and trust in the Internet are crucial constructs impacting citizens' intention towards e-government services usage for information or to conduct transactions.

In Saudi Arabia, e-government intermediaries are a platform for socially effective marketing of e-government services and for focusing on citizens in hard-to-reach

58

locations (Al-Shafi & Weerakkody, 2007), although this proposition has not been examined. Furthermore, the e-government intermediaries work as e-government cross-media advertisements (Al-Sobhi *et al.*, 2010; Sorrentino & Niehaves, 2010) that can contribute to the promotion of e-government awareness in the society (Alshehri & Drew, 2010; Sarkar *et al.*, 1995), thereby increasing success rate of e-government projects (Heeks, 2003). Therefore, e-government intermediaries may bring about e-government services adoption through thorough and effective marketing strategies (Al-Sobhi *et al.*, 2009).

While Sarkar *et al.*(1995) emphasize the roles of intermediaries in more detail, no study has been found that examines the influence of intermediaries for online public services awareness (Al-Sobhi *et al.*, 2009). Moreover, marketing of e-services through e-government intermediaries requires the examination of social influence (Maibach, 1993). Therefore, there is a critical need to examine to what extent strategies implemented by intermediary organizations have an impact on promoting citizens' awareness of online government. Consequently, this present study aims to study trust of e-government intermediaries' in promoting awareness as well as benefits of services offered by online government systems.

With mandatory e-government technology adoption, governments are required to expend resources to promote citizens' awareness and social norms towards technology use (Brown *et al.*, 2002). Thus, the government should increase social awareness of its e-systems to enhance citizens' usage of online government services. In this regard, researchers have attempted to determine how both social as well as structural organizations can influence citizens' awareness (Adams & Blandford, 2002).

59

Baker and Ozaki, (2008) found that awareness building can be achieved through utilize the social influence. Similarly, using social learning theory, Bush, Martin and Clark (2001) prove that direct role models have the greatest impact on consumers' market place knowledge and purchase decisions. Social influence has been found to have an effect on the awareness and building of e-government services social marketing (Al-Sobhi *et al.*, 2009, Adams & Blandford, 2005; Dombrowski *et al.*, 2014; Sorrentino & Niehaves, 2010; Sein, 2011; Giaglis, Klein & O'Keefe, 2002). Further, social influence stems from messages as well as signals that assist in the formation of perceptions concerning the product/activity (Venkatesh & Brown, 2001).

The advertising of online government services thus requires such signals (Maibach, 1993). For instance, organizations comprise government offices, banks, schools and other entities that can be deemed as entities that can facilitate the advertising of the services and focusing on citizens in various locations. The marketing of such services can be leveraged by the government through the locations of the intermediaries that are accessible to the citizens (Al-Sobhi *et al.*, 2009).

There are studies which have examined the social influences-awareness relationship in the field of IS. Anvar and Venter (2014); and Chan *et al.* (2010) found a positively significant association between awareness of e-government and social influence. Moreover, researchers have argued the pressure from friends in addition to families that have a solid social influence in using innovations (Al-Sobhi *et al.*, 2009; Venkatesh & Brown, 2001; Venkatesh *et al.*, 2003). However, limited empirical research has been carried out in the online government services context that investigates the role of social influence in increasing the awareness of online government services.

60

Additionally, the facilitation of socially aware e-government strategies calls for multiple delivery channels to provide alternatives to the users as to which service access they prefer (Sorrentino & Niehaves, 2010). Further, an understanding of the complex social and institutional contexts of how e-government services are delivered is a significant research gap (Yildiz, 2007). Therefore, the role of social influence as an antecedent of e-government services awareness is chosen to be investigated in this current research.

On the basis of the above, trust in the organization's intermediaries and social influence are considered to be potential antecedents of e-government services awareness. Therefore, these two variables are included in the present study.

2.3.3 Factors Influencing Perceived Risk

To date, the primary focus of many studies has been the antecedents of citizens' usage of e-government services intention. However, studies have found that the existence of risk mandates the existence of trust (Corritore, Kracher &Wiedenbeck, 2003; Mayer *et al.*, 1995; Pavlou, 2003). Therefore, besides the perceived risk factor that influences intention to use online government, another factor related to citizens' usage of e-government systems behavior that has generated much interest is the antecedent of perceived risk.

In this context, Pavlou (2003) reveals trust to antecede perceived risk; in other words, when trust exists, perceived risk is minimized (Featherman & Pavlou, 2003; Ganesan, 1994; Jarvanpaa *et al.*, 2000). Without risk, actions can be taken with utmost certainty and there would be no need for trust (Al-Adawi *et al.*, 2005; Pavlou, 2003).

61

Trust is significantly correlated with risk in a way that the need for the former stems from the presence of the latter (Adams, 1995; Luhmann, 2000). Also, risk leads to improbability and lack of confidence although trust is a mechanism used to decrease perceived risk when uncertainties are present (Akkaya *et al.*, 2010). It assists in overcoming risk by modifying its perception. Mayer *et al.* (1995) note that if the level of trust surpasses the threshold of perceived risk, then the trustor will engage in the trusting behavior.

Several risks, especially confidentiality and safekeeping risks, arise during information sharing via the Internet (Carter & Belanger, 2005). This is linked to the users' trust in the e-environment, where individuals are often concerned with the safety of the exchange and storage of individual data, especially concerning online financial transactions (Carter & Weerakkody, 2008). The government website usage is subject to the belief of the users that the medium that is utilized to offer e-services is secure and reliable (Teo *et al.*, 2008).

The development of trust that links the public sector and its people is crucial in order to encourage the usage of online government services. The citizens must trust the enabler of e-services (the Internet) that their personal information is safe and confidentiality is maintained so that they can adopt the initiatives of the e-government (Carter & Belanger, 2005).

Empirical studies have evidenced the negative influence of trust on perceived risk (Akkaya *et al.*, 2010, 2013; Alateyah *et al.*, 2014; Alfarraj *et al.*, 2013; Alshehri *et al.*, 2013; Salam, Rao & Pegels, 2003). High perceived risk and low trust may stem from

lack of security, which is also among the main factors affecting intention to adopt e-government services. Previous research has highlighted these facts (Akkaya *et al.*, 2013; Pi *et al.*, 2012). For example, Alsaghier *et al.* (2009) investigated both perceived risk and trust in using government services online. They show that risk is attributed to reducing the use of e-services of the government.

In Jordan, Khasawneh *et al.* (2013) find trust and risk as significant variables influencing e-government application in such a way that increased trust in such application will result in decreased fear of its use. Trust is hence required in uncertain situations as it diffuses the vulnerability of the parties. Additionally, Akkaya *et al.* (2013) investigated trust as well as perceived risks in the usage of government website from a citizens' point of view. They showed that trust in the Internet has influence in reducing perceived risk.

By including trust factor in addition to perceived risk, Pavlou (2003) proposes a model in order to find out the determinants of online commerce usage. He assumes risk perceptions influence usage behavior. Pavlou (2003) also finds trust affects perceived risk and claims that trust in the web retailers and communication media are crucial elements of trust in e-commerce.

Owing to the existing risk perception concerning Internet-facilitated transactions (Forno & Feinbloom, 2001), recent e-government developments have focused on the requirement for creating an environment conducive to trust for the society via the minimization of risk perceptions. Based on the above mentions, trust in the e-government intermediaries could assist in shedding light into the citizens' behavior towards employing e-government services (Al-Sobhi *et al.*, 2010; Janssen & Klievink,

2009; Pavlou & Gefen, 2004). Because trust must be built due to future higher risks (Koller, 1998; Mayer *et al.*, 1995), it becomes important to construct citizens' trust in the online government systems usage through the introduction of activities and assistance like intermediaries as e-government involves exchange of sensitive and private data that leaves citizens' susceptible to the risk of identity theft (Warkentin *et al.*, 2002).

Intermediaries have been evidenced as adding value to service providers and users, reducing the risks and boosting trust between them (Janssen & Klievink, 2009). Bailey and Bakos (1997) find that the main objective of the intermediary is to improve communication by instilling trust and lessening the risks in the environment.

In developing nations, building trust in the intermediaries to mitigate risk is deemed to be crucial to e-services adoption among citizens. This is necessary for the citizens to volunteer their private data to the website via an entity approved by the government (i.e., the intermediary) at the intermediaries' offices (Akhter, Onishi & Kidokoro, 2007; Al-Sobhi *et al.*, 2010; Janssen & Klievink, 2009; Sein, 2011). More importantly, intermediaries are capable of responding to the local citizens' needs (James, 2003).

The citizens' underlying risk perceptions and the methods for promoting trust in online transactions call for a deeper understanding (Akkaya *et al.*, 2010, 2011; Patel & Jacobson, 2008; Rehman *et al.*, 2012; Verdegem & Verleye, 2009). Specifically, Akkaya *et al.* (2013); and Rehman *et al.* (2012) argue that risk perception and trust are among the crucial variables that need analysis to comprehend the government website systems usage.

64

Although only a few studies have examined the trust in Internet-perceived risk link in the services provided by e-government, unfortunately, the findings are inconsistent (Akkaya *et al.*, 2013; Rehman *et al.*, 2012; Belanger & Carter, 2008). For instance, Akkaya *et al.* (2013) find a significant role of trust in Internet on risk perception; while Belanger and Carter's (2008) results show an insignificant effect. This indicates that additional studies are needed to clarify the relationship between trust in Internet and perceived risk in the context of e-government. Moreover, past studies have acknowledged the significance of determining the core beliefs antecedent in the context of general technology models (Venkatesh & Bala, 2008; Venkatesh Brown, Maruping & Bala, 2008).

Thus, trust in Internet and intermediaries is considered to be among the essential constructs that needs analysis to understand its influence on the usage of online government services due to the existence of cybercrimes and the associated risks (Akkaya *et al.*, 2013; Rehman *et al.*, 2012). Consequently, additional research is needed to comprehend the expectations of users to realize the government systems website on a global scale (Akkaya *et al.*, 2011; Patel & Jacobson, 2008; Verdegem & Verleye, 2009). In addition, with regards to intermediaries, Sarkar, Butler and Steinfield (2001) suggest the role of intermediaries must be considered in more detail in order to understand the impact of their role. However, no study has been found that examines the influence of intermediaries on the risks in the e-services area (Al-Sobhi *et al.*, 2009).

This study responds to this call for additional research by investigating the impact of trust in Internet and intermediary organizations directly on government website

adoption; the current research further examines the impact of trust in Internet and trust in intermediary' organizations on citizens' perceived risk.

2.3.4 The Mediating Effects of e-Government Services Awareness

A substantial number of research has linked the importance of awareness of e-services with e-government services adoption (Jaeger & Thompson, 2003; Graafland-Essers & Ettedgui, 2003; Khan *et al.*, 2010, 2012; Meer & Winden, 2003). According to Rogers, (1995); and Amescua (2007), awareness is one of the important variables related to the IDT. Several studies in the e-services field have specifically highlighted the role of awareness of e-government services through intermediaries (Weerakkody *et al.*, 2013; Al-Sobhi *et al.*, 2010; Sorrentino & Niehaves, 2010; Janssen & Klievink; Rao, 2004; Wahid *et al.*, 2011; Sein *et al.,* 2008; Sarkar *et al.*, 2001).

Foley and Gallery (2012) claim that the governments should continue to target a third party to develop the e-government services awareness advantages of using e-government services (Lamblin & Siweris, 2014). Additionally, Aydoğan *et al.* (2015) and Christianson, *et al.* (2014) indicate that trust in Internet has a significant influence the awareness. Nevertheless, there are limited studies that have included the awareness and trust in Internet factors in one model (Aydoğan *et al.*, 2015). In contrast, this study introduces a model incorporating trust in Internet to improve building awareness about the advantages of e-government services. Further, the current research investigates the mediating effects of citizens' e-government services awareness. Consequently, it examines the mediation effect of government online systems awareness on the relationship between trust in the Internet and citizens' intention to use these services. It

also looks into trust in the Internet that brings about awareness leading to greater access of e-government systems.

Sorrentino and Niehaves (2010) analyzed the e-government intermediaries and e-government awareness. They claim that new intermediaries play a potentially significant role in inclusive e-government strategies. Considering the nature of e-government services offered to citizens, trust in e-government intermediaries would raise the accessibility of online facilities for users, mainly in areas where there are digital divide issues (Al-Sobhi *et al.*, 2010; Griffin & Halpin, 2002; Weerakkody *et al.*, 2013).

In this context, trust in e-government intermediaries can obviously be powerful channels to disseminate ICT related awareness, knowledge and skills (Wahid *et al.*, 2011). Further, the key role of intermediaries is mainly to develop awareness of technology, make it accessible and guarantee its quality (Adams & Blandford, 2006). As stated by Wahid *et at.* (2011), trust in e-government intermediary may have a transforming role by raising awareness of the users about the nature and the availability of e-government services. In brief, one of the main roles of the intermediary is to increase product and services awareness (Sarkar *et al.*, 2001).

Al-Sobhi *et al.*, (2009) and Dombrowski *et al.*, (2014) indicate that the e-government intermediary has an influence on e-government services awareness. Further, Al-Sobhi *et al.*, (2009) show that rare empirical studies has been found that investigates the influence of trust in intermediary on awareness of e-government services in the context of e-governments. Sarkar *et al.* (1995) also demonstrate that investigating the roles of intermediary is important. Thus, studying to what extent e-government intermediary

67

organizations have an influence on using e-government services by building awareness of these online portals at the individuals' level.

The current research examines the mediating effects of citizens' e-government services awareness as a response to this call for research. Therefore, the present research investigates the mediation effect of e-government systems awareness on the relationship between trust in e-government intermediaries and citizens' intention to use these services, in addition to the role of trust in intermediaries in promoting online government systems awareness and to motivate their access to the Saudi e-government.

In addition, numerous researchers have observed a positive association between awareness of e-government behavioral intention and usage (AlShihi, 2005; Charbaji & Mikdashi, 2003; Golubeva & Merkuryeva, 2006; Kharade & Sharma, 2013; Sang & Lee, 2009; Rehman & Esichaikul, 2012). Further, the public service announcements by the government has been found to successfully promote social norms, increase government awareness and change normative beliefs among message receivers (Borzekowski & Poussaint, 1999). When the adoption of an e-government technology is needed, countries have to dedicate supplementary resources to build higher citizens' awareness in addition to utilizing social norms to encourage citizens' use of these new systems (Brown *et al.*, 2002).

Social influences also influences awareness and forms new marketing factor to online public portals usage (Al-Sobhi *et al.*, 2009; Chan *et al.*, 2010). In addition, researchers have found a positively significant association between awareness of e-government and social influence (Anvar & Venter, 2014; Chan *et al.*, 2010).

Thus, the more effective the normative pressure, the greater is the citizens' awareness about online public systems and the individuals' intention to use public websites. However, limited research has been done in the e-services field to examine the role of social influence. Therefore, the current study aims to examine the mediating influence of citizens' online government services awareness on the relationship between social influence and citizens' intention to use these services besides its role as a potential antecedent of e-government services awareness.

On the whole, the present study hopes to contribute further to current literature by investigating the development of trust among citizens in intermediaries and the social influence as potential antecedents of e-government services awareness. It also examines the mediation influence of awareness of online government systems on both the association of trust in intermediaries and citizens' intention to use these services. Additionally, this study investigates the mediating influence of citizens' e-government services awareness on the relationship between social influence and citizens' intention to use these services.

2.3.5 The Mediating Effects of Perceived Risk

Gefen (2002); and Jarvenpaa *et al.* (2000) show perceived risk to directly and negatively influence trust through the mediating role of uncertain and potential negative outcomes. In e-government services, perceived risk could significantly influence individual's intention toward online government services usage. Trust in intermediary organizations and the internet could in-turn, lead to reducing perceived risks.

69

Research generally shows that trust minimizes the risk perceptions in institutions that are acknowledged to be trustworthy (Salam *et al.*, 2003). This holds true in the online systems usage studies as evidenced by Pavlou (2003); Schlosser, White, and Lloyd (2006), where the above studies found perceived risk to mediate the effect of trust on intention. Based on the uncertainties attributed to Internet-based transactions, the risk perceptions have a high probability of impacting the individuals' intention toward e-government usage and their trust in intermediary organizations and the Internet, which will in turn, decrease risk perceptions.

While trust has been proven to lessen perceived risk in trustworthy institutions (Salam *et al.*, 2003), perceived risk also could mediate the relationship between trust and intention to use e-government (Schlosser *et al.*, 2006). Additionally, perceived risk is expected to mediate the relationship between trust in e-government intermediates and intentions to use e-government.

Carter and Belanger (2005) adopted the trustworthiness theory and citizens' risk perception in their study to conduct an evaluation of the e-government services users' intention to use e-government transactions on the basis of two trust levels: in government organizations providing e-government website; and in technology tools, specifically the Internet. The findings show these factors have an important effect on citizens' intentions toward e-government website usage.

In relation to this, Chan and Chen (2008) found website quality and brand impact consumers' trust and perceived risk, and eventually user procurement intention. They also conclude a reciprocal relationship between trust and perceived risk. Suryaningsih *et*

al. (2014) also find that trust and perceived risk has a reciprocal relationship. Alsaghier *et al.* (2009; 2010) focused on perceived risk and trust in their examination of Saudi e-government and find perceived risk of e-government to reduce trust on the same. Akkaya *et al.* (2013); Warkentin *et al.* (2002); and Belanger and Carter (2008) examined role of trust and perceived risk in citizens' government online adoption. In addition, they hypothesized a model for the usage of online public systems by incorporating risk perception in the trust factor.

It becomes important to build trust in online public systems usage through the introduction of multichannels, like e-government intermediaries, as e-government involves exchange of sensitive and private data that leaves citizens' susceptible to the risk of identity theft (Warkentin *et al.*, 2002). Moreover, perceived risk has been proposed as mediating the effect of trust on intention towards e-government services usage via intermediaries (Salam *et al.*, 2003; Pavlou, 2003). In addition, local intermediaries can also fill the role of "catalysts" (Sein, Ahmad & Harindranath, 2008). Even more vital is the ability of intermediaries to respond to local needs (James, 2003). Moreover, a trusted intermediary can reduce environmental uncertainty in addition to risks connected to the Internet.

Overall, trust in intermediaries enhances the beliefs of the individuals concerning intent to use e-government and its related infrastructure (Weerakkody *et al.*, 2013); and reduces the level of perceived risk (Pavlou, 2003; Salam *et al.*, 2003). Added to this, a trusted intermediary is expected to decrease the uncertainty and risks in the environment that are linked to Internet infrastructure and transactions. Moreover, the researcher

71

indicates trust could minimize level of perceived risk, which in turn, can mediate the link between trust and intention (Pavlou *et al.*, 2003; Schollosser *et al.*, 2006).

The above explains that trust of intermediaries might directly develop the intention of citizens towards using the online government systems and that intermediaries could indirectly and reduces perceived risk, eventually working together to convince citizens to use public website systems.

In this regard, e-government intermediary firms exist in Saudi and they are deemed as successful intermediaries that act between the users and public agencies (Al-Sobhi *et al.*, 2010). Further, Internet non-users are confident of using intermediaries as another alternative (Margett, 2006). Hence, it is logical to say that the individual' decisions to utilize the government portal requires the building of trust in the government intermediaries and also e-media utilized for this task. In addition, the combined trust in e-government intermediaries' channels could eventually lead to reducing perceived risk attributed to e-government and develop citizens' intention toward e-government systems usage.

Trust in these e-government intermediaries in other words, might develop users' intention toward e-government systems usage directly and indirectly by reducing perceived risk. Therefore, in addition to investigating the impact of trust in Internet and intermediary organizations directly on e-government adoption, the current study examines the influence of trust in intermediary organizations indirectly on e-government adoption by examining the mediation influence of perceived risk on citizens' intention to use e-services of the government.

In sum, the previously mentioned shows that trust in intermediary organization might directly lead to intention to use public website systems to connect to the public sector or indirectly by negatively affecting perceived risk, in-turn, working together to effect online government services usage by citizens. Pavlou (2002) suggests that risk perceptions mediate the effect of trust on behavioral intention towards e-government services use via intermediaries. Therefore, it follows the logic that users' choices of online public systems usage require certain trust of the intermediary, in addition to trust in internet; these trusts will lead to reduced perceived risk.

The present study considers the influence of perceived risk on e-government usage by citizens through two levels of trust – trust in intermediaries; and trust in the Internet. Added to this, the study also considers the effect of the relationship between the two trusts as recommended by Weerakkody *et al.* (2013) on the perceptions of risk and eventually, on the intention to use online government systems (Belanger & Carter, 2008).

In this study, the direction is consistent with that of Featherman and Pavlou's (2003) recommendation of a model that predicts e-service adoption via perceived risk and trust and the risk model proposed by Belanger and Carter (2008). Therefore, trust in intermediaries, trust in the Internet and perceived risk in addition to awareness of e-government are all included in the TPB model to facilitate a systematic method to identify intention towards e-government adoption. Moreover, this study suggests that trust in the Internet and trust in government intermediaries might develop online government services intention by citizens directly, which in-turn, can reduce perceived risk.

73

Further, the current study investigates the influence of trust in Internet and trust in e-government intermediary in reducing citizens' perceived risk and influencing the individuals' intention concerning the e-government services. Thus, this study investigates the mediation influence of perceived risk on the association between trust in Internet and citizens' intention toward using these new online services. Further, this study examines the influence of mediation effect of perceived risk on the relationship of trust in e-government intermediaries and citizens' e-government services usage.

2.4 Theoretical Framework

In the IS setting, the arguments of researchers have been built based on a theoretical background (Belanger &, Carter 2008; Weerakkody *et al.*, 2013; Reddick & Turner, 2012). Therefore, in response to the aforementioned identified problems, Ajzen's (1991) TPB is selected as the theoretical background for the present research and as a most appropriate tool for understanding factors that may influence e-government services usage at the individual level.

INDEPENDENT VARIABLES   MEDIATION VARIABLES   DEPENDENT VARIABLE
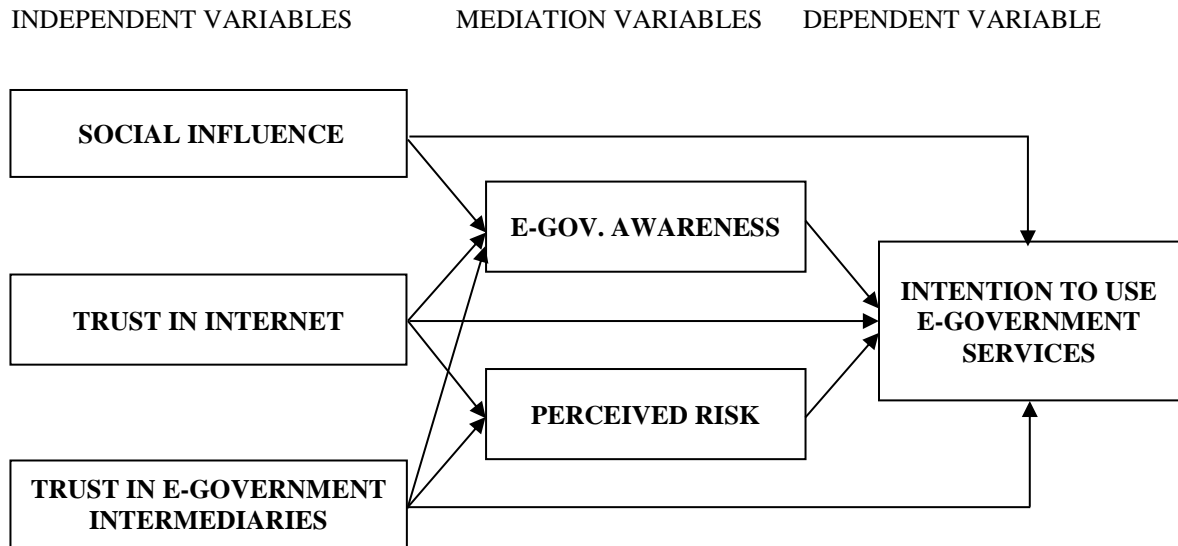
Figure 2.1
Theoretical Framework

This study primarily focuses on the citizens' intention to use-government and explores the factors of intention. This study proposes an integrative framework as presented in Figure 2.1. The above theoretical research framework consists of five fundamental constructs delineating the proposed framework to explain the citizens' intention towards e-government use: trust in the Internet; trust in the intermediaries; perceived risk; awareness; and social influence, that have been observed to affect citizens' behavioral intention towards using services provided by e-government. These factors are integrated from the TPB (Ajzen, 1991).

The TPB has been extensively utilized in the IS context. Specifically, the TPB, as proposed by Ajzen (1991), is an extension of the TRA, where there is always a need to provide a more detailed explanation for complex human behavior (Ajzen, 1991). The theory is used to explain situations where people exhibit a lack of control over their behavior (Taylor & Todd, 1995). This lack stems from the existence or non-existence of

opportunities and resources that are needed to perform certain behavior (Ajzen, 1991). The TPB suggests that attitude, subjective norm and behavioral control are antecedents to behavioral intention, which in turn influence behavior.

Intention refers to a person's subjective probability that he or she will perform some behavior (Fishbein & Ajzen, 1975). In the present study, intention is utilized to refer to the actual influence on e-government services usage. Several studies have mentioned that intention positively and directly affects usage behavior (Chau & Hu, 2001; Venkatesh *et al.*, 2003).

Irani *et al.* (2008) contend that most technology adoption studies have considered intention as a predictor of technology adoption. In addition, Ajzen (1991) explains that intention directly impacts technology adoption. Also, the intention to use technology-actual use relationship is well established (Ajzen, 1991; Taylor & Tood, 1995; Venkatesh & Morris, 2000), and both are invaluable for measuring acceptance of technology. To clarify, the current study considers intention to use e-government services to measure actual use of such services in the Kingdom of Saudi and acknowledges its high correlation with users' behavior.

Moreover, behavioral attitude and subjective norms are similar to the ones in the TRA. A comparison between the TRA and the TPB shows that the TPB is stronger (higher ability) than TRA in testing the individual's intention to use e-government services. However, TPB differs from TRA in having PBC as a further concept, which refers to the internal in addition to external obstacles that stand as barriers to perform certain behavior (Ajzen, 1991). PBC represents the extent to which the resources and

opportunities available to a person dictate the likelihood of behavioral achievement (Ajzen, 1991). This new factor of PBC impacts behavior in addition to behavioral intention and all the associations among the antecedents of behavioral intention. In the present study, awareness of e-government services as the resource and opportunities available is proposed as PBC, which impacts citizens' intention towards usage of e-services offered by the government.

According to Ajzen (1991), attitude is a component of an individual's belief towards certain behavior and the outcome assessment that results from the specific act. Subjective norm comprises normative beliefs, reflecting an individual's perceptions about certain behavior, which is influenced by important people who desire the user to perform this act (Ajzen, 1991; Fishbein & Ajzen, 1975). According to Mathieson (1991), the motivation to comply is the individual's willingness to comply with the wishes of those important persons.

Subjective norm refers to the social influence to perform or not to perform a behavior (Ajzen, 1991). Subjective norm is non-system-specific behavior, while social influence relates to system- or application-specific behavior (Hejazi *et al.*, 2013). While the theory that this study is based on discusses the traditional subjective norm construct, the present study also takes an alternative path by examining the effect of the construct of social influence on intention. One important distinction between the current study and past studies is this substitution of the more general construct of subjective norm for a social influence variable measurement.

Social influence is typically defined as the degree to which an individual perceives that important others believe he or she should use the new system (Venkatesh *et al.*, 2003). Social influence, as a direct determinant of behavioral intention, is represented by three constructs: subjective norm, social factors and image introduced in innovation diffusion theory (Venkatesh *et al.*, 2003). The link between social influence and usage have been extensively examined within the information system context (Fulk & Boyd, 1991; Fulk *et al.*, 1987; Venkatesh & Brown, 2001).

The importance of TPB resides in its applicability to a variety of settings and their successful projections of behavioral intention and behavior (Ajzen, 1991; Taylor & Todd, 1995). Prior studies have applied the TPB in the field of IS; for instance, Hung, Chang and Kuo, (2013); Chen, Fan and Farn (2007); and Chu *et al.* (2006) also utilized the TPB in the e-government area. Mathieson, Peacock and Chin (2001) conducted a comparison between TAM and TPB and found that the former provides a broad information of the intention of users as it is easily applicable and is not expensive. However, it does not succeed in providing important information concerning the usage of a specific technology due to its broad-based information (Mathieson, Peacock & Chin, 2001).

Several researchers have backed the superiority of TAM as a reliable, valid and powerful model in its prediction of users' usage of innovation in various fields (Belanger & Carter, 2008; King & He, 2006; Gilbert *et al.,* 2004; Phang *et al.,* 2006). Other researchers, based on their observation, have stated that TAM only focuses on extrinsic motivation rather than intrinsic motivation (Davis *et al.*, 1989). As a consequence,

various modified TAM models have been put forth that can be applied to new systems (Horton *et al.*, 2001; Chau & Hu, 2001).

It has been revealed that TAM and UTAUT models do not include significant variance sources and they do not consider issues of trust and perceived risks as those that could prevent IS usage. In contrast to TPB, TAM and UTAUT models also do not include significant factors hindering users' intention to use information technology. Gilbert *et al.* (2004) emphasize the importance of taking adoption barriers into consideration to understand the phenomenon. In addition, the UTAUT model has been criticized for its inability to measure acceptance of technology outside the boundaries of organizations and working environment (Hill & Troshani, 2010).

Indeed, e-government acceptance is not limited to these boundaries. Users of these e-services are not necessarily affected by the organizational mindset captured by the UTAUT and TAM. However, the UTAUT model does not highlight many other factors that could influence individuals' intention to use online services; equally the awareness of the availability and benefit of technology or services that are requested. Further, the UTAUT model concentrates totally on individual perception of outside settings that would lead to intention and actual behavior (Masrom & Hussein, 2008).

Moreover, according to Masrom and Hussein (2008), this hinders the consideration of any objective environmental factors that may influence adoption. They argue that application of UTAUT is context-dependent; it is ironic that little attention has been given to the context in which IT is used. Likewise, a single application of the UTAUT model considers only one individual's behavior (Masrom & Hussein, 2008). In reality,

individuals' behavior may be necessary to ensure IT use. Therefore, this study considers only the social influence constructs from the UTAUT model. Regarding the DOI theory, although this theory offers an explanation of usage, the theory is riddled with limitations in light of the way attitudes influence the acceptance and rejection behaviors in the decision of users towards adoption (Karahanna, Straub & Chervany, 1999).

Another model on trust and risk beliefs is the 'Trust and Risk Model' of Belanger and Carter (2008). This model stems mainly from the TRA. Belanger and Carter (2008) hypothesized a model of trust in the government e-services of by incorporating disposition to trust, trust in the Internet and government, in addition to risk perceptions. Findings show that trust in Internet and perceived risk have a significant effect on citizens' intention to use online public services.

Many studies have also examined trust-user behavior relationship with the help of TRA (Gefen *et al.*, 2003; Jarvenpaa *et al.*, 2000; McKnight *et al.*, 2002; Pavlou, 2003). However, these studies do not include PBC to explain the usage, as proposed by the TPB (Ajzen, 1991). Specifically, the model of Belanger and Carter (2008) exclude important factors, such as social influence, that is included in the present study.

To sum up, although the discussed theories and their constructs have been investigated and put forth in the area of IS/IT innovations, studies have revealed that the current area is a most important cause for concern that relates to the slow online service portal usage (Belanger & Carter, 2008; Carter & Weerakkody, 2008; Gilbert *et al.*, 2004; Al-Shafi & Weerakkody, 2008).

As recommended by the TRA, this study examines factors that may affect the intentions to use e-government services; trust in the Internet; trust in the intermediaries; risk, awareness; and social influence perceptions. Three of the above factors are expected to positively affect intention to use e-government, whereas one is expected to negatively affect it. This study includes awareness as an antecedent of intention to use an e-government service. In the light of the discussed studies, the research further identifies two important referent groups of social influence, which are expected to impact on the citizens' intention to use e-government services (Weerakkody *et al.*, 2013; Venkatesh *et al.*, 2003). They are family and friends/colleagues' influence. This should be able to provide a more insightful understanding .

The main aims of this study are to investigate the five antecedent factors' influence on citizens' intention toward e-government usage, and the mediation effect of perceived risk on the relationship between trust in e-government intermediaries and the Internet, and the intention of users to use e-government services, as well as the mediating social influence of e-service awareness on the relationship between trust in e-government intermediaries and citizens' intention to use e-government services.

The proposed framework is applicable in the e-government context and it highlights the role of important factors in intention to use government online portal systems. The component dealing with the mediation effect factors and antecedents of individuals' intention towards e-government services usage draws heavily from previous research discussed earlier in section 2.3.

Based on the aforementioned, the present research proposes that trust in e-government intermediaries reduces perceived risk and increases awareness, leading to the usage of e-government services. Hence, contrary to the above studies, the present study contributes to the related literature in the following ways: firstly, it combines the excluded factors, like e-government services awareness, social influence, perceived risk, trust of Internet and e-government intermediaries; and secondly, extends the sample to cover new and unexplored domains.

2.5 Hypotheses

Awareness is described as the level to which citizens are aware of the presence of e-government technology (Charbaji & Mikdashi, 2003). Various studies have been carried out concerning the factors and issues influencing the citizens' awareness about public websites, while other researchers have suggested several strategies to maximize such awareness. While citizens' awareness of the existing e-government services portal is a high priority (Graafland-Essers & Ettedgui, 2003; Jaeger & Thompson, 2003; Khan *et al.*, 2010, 2012; Meer & Winden, 2003), not all citizens are aware of the existence of e-services provided by the government (Jaeger, 2003; Graafland-Essers & Ettedgui, 2003). Thus, the current study explores the level of awareness of citizens' intention towards online government portal usage in the Kingdom of Saudi Arabia.

Alshehri and Drew (2010) find that one of the barriers to e-government service awareness in Saudi stems from the lack of initiatives that promote such services and their advantages. A survey conducted by Alghamdi *et al.* (2014) shows that Saudi e-government lacks awareness. Similarly, Al-Shishi (2006) stresses on the strategies that

82

could be employed to maximize the awareness of citizens of e-government services; he argues that marketing as well as education are crucial strategies that can improve such awareness.

The government also has a responsibility to promote awareness and attract the citizens to use e-government services available on the government portal. Therefore, several strategies have been proposed by the researchers to maximize the citizens' awareness via cross-media marketing comprising intermediaries, that would also lead to increased e-government user population.

The additional PBC construct included in the TBP refers to the resources and opportunities available to a person which dictate the likelihood of behavioral achievement (Ajzen, 1991). This construct influences behavioral intention. Thus, in the current study, awareness of e-government services as the resource and opportunity available is proposed as the PBC construct that impacts the citizens' intention to use e-services offered by the government.

Past studies have shown that awareness among users is important to develop their attitude towards IT innovation usage (Sia *et al.*, 2001); and e-government usage (Charbaji & Mikdashi, 2003; Jaeger, 2003; Jaeger & Thompson, 2003). Graafland-Essers and Ettedgui (2003) identify that familiarity of the services provided by e-government significantly correlates with the attitude towards e-government services usage; however, most of the citizens are not aware of the e-government service types that are offered in different countries around the world.

Jaeger (2003); and Carter and Weerakkody (2008) show that governments may have high expectations for e-government, and they may have invested significant amounts but have failed to make citizens aware of them. Moreover, the results of Meftah *et al.* (2015) show a significant association between awareness and intention towards e-government usage. Rehman *et al.* (2012) demonstrate that awareness is an important variable that affects the intention of the citizens to use the public website. Khan *et al.*, (2012); and Carter and Belanger (2008) note that making government portal well-known can raise the awareness of the users. Hence, the following hypothesis is proposed:

H1:   E-government awareness has a positive influence on intention to use an e-government services.

Perceived risk refers to the subjective expectation of the citizens concerning the loss of pursuit of the expected result (Warkentin *et al.*, 2002). Perceived risk that citizens face vis-à-vis e-government systems adoption has been examined by several researchers in both developing and developed countries. Several studies have revealed that perceived risk impacts the intention to use e-government (Akkaya *et al.*, 2011; Carter & Belanger, 2005; Fu *et al.*, 2006; Schaupp *et al.*, 2010; Warkentin *et al.*, 2002). The existence of risk calls for the mandatory presence of trust (Corritore *et al.*, 2003; Mayer *et al.*, 1995; Pavlou, 2003).

Moreover, perceived risk consists of environmental uncertainty, where the presence of perceived risk is attributed to online service providers' opportunistic behavior in that they may take benefits of the nature of e-environment, whereas the latter is attributed to

the unpredictable nature of the Internet-based technology that cannot be controlled by the consumer (Pavlou, 2003).

The perceived risk variable has been included in various research models in literature (Akkaya *et al.*, 2013; Fu *et al.*, 2006; Gallant *et al.*, 2007; Hsu & Chiu, 2004). In the above studies, perceived risk has been found to significantly impact intention of current and future users of e-service. Along the same line of contention, Akkaya *et al.* (2011); and Alsaghier *et al.* (2009) show that perceived risk negatively impacts intention to use e-government.

In a similar study, Al-ateyah *et al.* (2013) stress on the sensitivity of citizens towards storing their personal data and this aspect negatively impacts their inclination to public website usage. Similarly, Akkayaet *et al.* (2013) conducted a study dedicated to the usage of e-government among German citizens, and reveal that perceived risk reduces citizens' intention to use online government services. Accordingly, the following hypothesis is proposed:

H2:   Perceived risk has a negative influence on intention to use an e-government services.

Social influence refers to the normative pressure of relatives (e.g., family or friends) that affects the individual's e-government usage in this study. While the theory of behavioral planned, as the base theory of this study, uses the subjective norm construct, the present study takes an alternative path by investigating the effect the social influence construct on intention as discussed above section. Prior studies' findings (Rogers, 1995; Taylor &

85

Todd, 1995; Lu *et al.*, 2005; Pavlov & Fygenson, 2006) have reported that social influences are crucial behavior determinants.

Social influences have been investigated as important predictors of technology use and intention to use (Fulk *et al.*, 1991; Venkatesh & Davis, 2000). Whether or not the relationship between them is positive or negative, it is evident that it is a crucial factor in the citizens' lives and it is potentially influential (Venkatesh *et al.*, 2003).

According to the TBP, the behavior of individuals is influenced by the manner in which they are convinced that others who are important to them perceive that they should or should not go through a specific behavior. Loch *et al.* (2003) claim that the closer the affinity of the individuals with their reference group, the more likely the individuals are to perform according to the reference group's expectations. It would be expected that such social influence would be especially higher in a collective society (Alshaya, 2002; Bjerke & Al-Meer, 1993).

The Saudi society has a collectivist culture where individuals affect the opinions of others; citizens, therefore, might influence others when relating to acceptance intention (Al-Gahtani *et al.*, 2007). Influential persons could force people to make use of e-services and that may add to its increased usage. Additionally, several scholars in the field of information systems have highlighted the impact of social influence from friends, family, peers and colleagues on the individual's behavior adoption (Irani *et al.*, 2009; Tan & Teo, 2000; Venkatesh & Brown, 2001). Thus, the following hypothesis is developed:

H3:   *Social influence positively influences intention usage of e-government services.*

86

Trust has been frequently posited as improving online services adoption such as e-government services usage (Belanger & Carter, 2008; Lee & Turban, 2001; Pavlou & Gefen, 2004; Schaupp *et al.*, 2010; Thompson & Liu, 2007; Meftah *et al.*, 2015). Trust in the Internet has been constantly described in literature as a major online website usage construct (Carter & Belanger, 2005; Al-Sobhi *et al.*, 2010; Warkentin *et al.*, 2002; Al-hujran *et al.*, 2013). The argument is that with low trust, citizens will need additional focus to complete their website transactions. Added to this, trust would minimize the needs of the citizens to monitor, oversee and comprehend online task instructions, thus, making online tasks easier to complete, and in turn, improving e-services adoption.

In e-government literature, among the crucial topics of discussion concerning e-government challenges and issues, are perceived risk and trust (Akkaya *et al.*, 2013; Belanger & Carter, 2008, 2012; Fu *et al.*, 2006; Gallant *et al.*, 2007). This underlies both constructs' significance in the usage of electronic government and the importance of these constructs in online technologies adoption. The online government services may be perceived as unsafe and risky, which in turn can inhibit citizens' adoption. This fear presents the need to establish a safe and secure environment. Trust arises in environments that are characterized by uncertainty (Schlenker, Helm & Tedeschi, 1973); and risk (Lewis & Weigert, 1985). Therefore, the risk perception factor, in addition to trust, are two of the crucial constructs that need analysis to comprehend the usage of online government services (Alateyah *et al.*, 2014; Akkaya *et al.*, 2013; Rehman *et al.*, 2012).

Empirical studies have supported the effect of trust with respect to the Internet in terms of the intention to use online services. McKnight *et al.'s* (2002) study on the trust

construct finds strong support for trust for web merchants. By integrating the trust factor into the TAM, Gefen *et al.*'s (2003) study indicates that structural assurances have a significant effect on building trust in the website.

Carter and Belanger (2005) studied the main antecedents of citizens' e-government services adoption and reveal that in effect, trust of citizens on government and the Internet are essential elements to engender trust in citizens in order to accept the technology. Another study by Belanger and Carter (2008) confirms that the citizens' trust in both the Internet and their government are vital elements of citizens' willingness to utilize e-government services as well as reducing perceived risk.

Finally, Schaupp *et al.* (2010) studied e-file adoption and asserted that trust in the Internet and the service provider significantly influence perceived risk, which affects taxpayers' intentions to use the system. In the light of this discussion, it is anticipated that citizens with higher levels of trust in e-services media will have high level of intention to use e-government services. From this discussion, the following hypothesis is developed.

H4: Trust in Internet has a positive effect on intention to use e-government services.

Several researchers have indicated the way intermediaries enhance the importance of both service suppliers and demand to promote trust among them (Al-Sobhi *et al.*, 2010; Janssen & Kilevink, 2009; Howells, 2008; Bailey & Bakos, 1997). Bailey and Bakos (1997) explain that the key intermediary functions are to improve promote the trust and minimize the online environmental threats.

Trust of the intermediary is referred to as an individual belief upon that the intermediary drives applying and implementing right rules and processes that results in a competent, reliable, and integral way, and if required, will offer the buyers an opportunity to handle the opportunistic behavior of the providers (Pavlou & Gefen, 2004). Further, e-government intermediaries are the media to develop the trust of possible users (Al-Sobhi *et al.*, 2010). Considering the above, examining the intermediary's role could assist in understanding the behavior of citizens towards e-service usage (Pavlou & Gefen, 2004; Chircu *et al.*, 2000); and public website systems usage (Janssen & Kilevink, 2009; Al-Sobhi *et al.*, 2010).

In the case of Saudi Arabia, developing trust in the intermediary is deemed to be crucial for the usage of online services of the government, as the citizens have to provide their private data to the government online website via intermediaries as third party entities (Al-Sobhi *et al.*, 2010). Thus, trust in intermediaries has been shown to have an effect on the citizens' intention towards e-government service usage (Al-Sobhi *et al.*, 2009; Janssen & Klievink, 2009; Dombrowski *et al.*, 2014; Sorrentino & Niehaves, 2010; Sein, 2011). Hence, the following hypothesis is developed:

H5: *Trust in the e-government intermediaries has a positive influence on intention to use e-government services.*

Researchers have noted that governments have a responsibility to publish the information about the online website availability and the launching of the public sector portal by various media and information channels (intermediaries), (Jaeger & Thompson, 2003). The possibility of intermediaries developing social awareness of e-

government, is high (Bhatnagar, 2004; Cecchini & Raina, 2004). Thus, it is important for governments to concentrate on creating higher levels of social influences and citizens' awareness in an attempt to motivate the use of technology among citizens (Brown *et al.*, 2002).

As a social phenomenon, trust influences the awareness of users directly in addition to influencing their decision-making indirectly. Nevertheless, only a few awareness computational models address interpersonal trust (Aydoğan *et al.*, 2015). Thus, the current study examines the role of trust in Internet in facilitating e-government services awareness and its influences toward citizens' intention to use e-government services.

In this respect, Christianson *et al.* (2014) suggest that trust of the Internet is associated with a higher possibility of being physician quality information awareness. Furthermore, Daassi *et al.* (2006) concluded that the greater trust levels linked to greater awareness levels. Correspondingly, this means lesser levels of trust linked to lesser levels of awareness. In the same line, Aydoğan *et al.* (2015) support that the sources information trustworthiness found significantly to impacts on awareness of decision maker.

According to Wahid *et al.*'s (2011) study, the intermediaries may have a transforming role in raising awareness. Moreover, the key roles for intermediaries are to develop awareness; improve accessibility; and ensure quality (Adams & Blandford, 2006). By being empowered through awareness, intermediaries emphasize building the capabilities of the people rather than simply facilitating access (Sein, 2011).

Rao (2004) shows that the role of intermediaries is pertinent in the creation of extensive awareness, reinforcing networks and promoting trust in the society. Additionally,

Sorrentino and Niehaves (2010) explain that new intermediaries play a crucial role in inclusive strategies of e-government in developing as well as developed nations. They identify that the promotion of social awareness of e-government strategies call for the employment of various delivery channels to provide the different kinds of users an alternative as to which service access they can use at any time. Accordingly, e-government intermediaries maximize the availability service points for citizens especially in rural areas (Griffin & Halpin, 2002).

E-government intermediaries allow governments to minimize the digital divide and assist citizens in using new technology, as this would increase the awareness of such services. Intermediaries could educate individuals on the way online services are used, and in effect, heighten their awareness of their benefits and advantages of its adoption, including time saving, cost saving and minimizing the physical contact with government employees (Al-Sobhi *et al.*, 2009; Sorrentino & Niehaves, 2010).

In an e-market, intermediaries are increasingly being introduced due to the drawbacks of e-service mechanisms in the proliferation of required services as explained by Datta and Chatterjee (2008). They add that this influences consumers' behavior towards trusting a third party that facilitates the link between the requester and the service provider. Intermediary functions that benefit producers include creating service and product awareness (Sarkar *et al.*, 1995).

In Saudi, intermediary organizations for government online awareness among citizens is an important government project (Al-Sobhi *et al.*, 2009). The objectives behind making use of such an intermediary is to assist citizens who face difficulties, such as lack of

information literacy and Internet access to adopt e-government and to promote social awareness of Saudi e-government's benefits (Al-Sobhi *et al.*, 2009).

These e-government intermediaries primarily aim to facilitate a link between the government and citizens, promote both parties' interaction, train individuals on how to employ new IT and relevant services and to assist e-government in achieving its objectives (Al-Sobhi *et al.*, 2009). The current study investigates the influence of trust in e-government intermediaries in increasing citizens' awareness of their behavioral intention to use e-government services in Saudi.

As a consequence, increased awareness of citizens through the use of intermediaries and various media could convince the important others that the individual should employ e-government services via intermediaries (Brown *et al.*, 2005; Venkatesh & Brown, 2001). For instance, in the case of India, the government expects the strategic potential of the intermediaries, particularly in rural areas (Bhatnagar, 2004; Cecchini & Raina, 2004). Further, trust in e-government intermediary has been shown to have an influence on awareness towards e-government services usage (Al-Sobhi *et al.*, 2009; Dombrowski *et al.*, 2014; Sorrentino & Niehaves, 2010; Sein, 2011).

Additionally, future research on the possible role intermediaries must improve understanding of e-government (Centeno *et al.*, 2005; Sorrentino & Niehaves, 2010). While Sarkar *et al.* (1995) stress on examining the intermediary's role in more detail, no study thus far has combined the interplay between e-government intermediary roles and awareness of e-services as factors that impact e-government usage (Al-Sobhi *et al.*, 2011). Additionally, researchers on intermediaries, have likewise emphasized the need

92

to investigate the online services usage at users' level prompted through the role of intermediaries (Centeno *et al.*, 2005; Howells, 2008; Dombrowski *et al.*, 2014; Weerakkody *et al.*, 2013; Sorrentino & Niehaves, 2010).

The government also should increase social awareness of its e-services to encourage citizens to use online government services. In a related study, Adams and Blandford (2002) posit social and organizational structures can affect the awareness and acceptance of digital resources. The social influence-awareness relationship has also been studied in the field of commerce (Anvar & Venter, 2014; Bush, Martin & Clark, 2001; Baker & Ozaki, 2008). They find that a positive and significant relationship exists between awareness and social influence.

Social influence of an environmentally aware user is recognized by way of spillover influences on the role models (Baker & Ozaki, 2008). The social learning theory also confirms that direct role models, like family, have a great influence on users' market-place awareness and buying decisions (Bush *et al.*, 2001). Mostly, social influence (Baker & Ozaki, 2008). Consequently, social influence could lead to growing awareness in addition to developing social marketing to use the online portal of government systems (Al-Sobhi *et al.*, 2009; Dombrowski *et al.*, 2014; Chen *et al.*, 2010; Sorrentino & Niehaves, 2010; Sein, 2011).

Additionally, understanding the complex social and institutional contexts of how government online systems are delivered is a significant research gap in literature (Yildiz, 2007). Dombrowski *et al.* (2014) recommend that future research explores how information does and does not propagate within the society. While social influence has a

strong influence on citizens' intention to use e-government (Meftah *et al.*, 2015), however, it is rarely associated with e-government services awareness. Hence, the market for e-government could be exploited more within the social influence of related groups, like family, friends or intermediates that impact on the intention to use online government services.

Owing to the importance of the intermediary as a social support source for online services, the intermediary is expected to work using various means (Al-Shafi & Weerakkody, 2007) to promote the government portal and increase awareness among citizens. In this regard, e-government services need for such signals to marketing these services (Maibach, 1993); organizations, including government agencies and local schools, can be as a core for social marketing of public website systems that focus on citizens regardless of their settings.

Specifically, e-government management can gain benefits from the locations of intermediaries frequented by citizens to promote e-government services. More importantly, social influence is reflected via messages and signals that assist in the formation of perceptions regarding a product/activity (Venkatesh & Brown, 2001).

The facilitation of socially aware e-government strategies call for multiple delivery channels to provide alternatives to the users as to which service access he or she prefers (Sorrentino & Niehaves, 2010). Therefore, trust in intermediaries besides social influence, affects awareness of government online services, which turn, influences intention, i.e., government online portal services awareness mediates the relationship between trust in the intermediaries and social influence and intention towards e-

government services usage (Al-Sobih *et al.*, 2009; Al-Shafi & Weerakkody, 2007; Chan *et al.*, 2010; Adams & Blandford, 2005; Dombrowski *et al.*, 2014; Sorrentino & Niehaves, 2010; Sein, 2011). Accordingly, the following hypotheses are developed:

H6: *Social influence has a positive influence on e-government services awareness.*

H7: *Trust in the Internet has a positive influence on e-government services awareness.*

H8: *Trust in the e-government intermediaries has a positive influence on e-government awareness.*

Considering the nature of the risks involved in an open technology infrastructure, such as the Internet, citizens naturally look for reassurance when interacting with the government online (Pavlou, 2003). Implementation of secure technologies can be deemed as the top factor that influences the risk perception among citizens when it comes to e-service adoption. With the transformation of society through technology, governments will be urged to keep abreast of the new changes (Thomas & Streib, 2003).

Interacting with the government via Internet greatly hinges on trust level of the citizens and this interaction is always related to risk issues. Hence, shedding light on mechanisms that decrease risk and increase adoption of e-services among citizens is necessary. Thus, in terms of the reluctance of citizens to leave traditional means of government interaction, a better understanding is needed to explain the relationships of the following constructs: trust in Internet, trust in intermediaries, perceptions of risk and adoption of e-government.

95

A thorough literature review reveals that researchers are of the consensus of the position of trust as a crucial element in a relationship riddled by unexpected risks or uncertainty (Mayer *et al.*, 1995; Pavlou, 2003; Warkentin *et al.*, 2002). Additionally, some researchers have concentrated on the role of trust, specifically in e-commerce context, such as Belanger *et al.* (2002); Gefen (2002); Gefen *et al.* (2003); Hoffman *et al.* (1999); Jarvenpaa *et al.* (2000); and Slyke *et al.* (2004). Pavlou (2003) reports that trust significantly antecedes perceived risk.

The scenario is such that with a decrease in perceived risk, trust increases (Feather & Pavlou, 2003; Ganesan, 1994; Jarvenpaa *et al.*, 2000). Moreover, literature dedicated to the adoption of electronic services suggests the development of users' trust (Slyke *et al.*, 2004) in order to minimize their risk perceptions and encourage adoption (Belanger & Carter, 2008, 2012; Khasawneh *et al.*, 2013; Luo, 2002).

According to Akkaya *et al.* (2013), both risk perceptions and trust are included in the many significant variables that require exploration when understanding e-government implementation. Furthermore, Carter & Weerakkody (2008) highlight two crucial factors influencing the government provided e-services adoption, namely relative advantage and trust on the Internet. Their study reveals that disclosure of personal data may influence the users' trust in services, which in turn, may lead to preventing e-government implementation.

Similarly, Chang and Chen (2008) contend that trust and perceived risk relationship is a two way street and as such, both are vital when implementing e-government systems (Khasawneh *et al.*, 2013). In Saudi Arabia, the deficiency in information security and

96

privacy when it comes to government sites are primary barriers to e-government initiatives implementation (Al-Shehri *et al.*, 2012; AlFarraj *et al.*, 2013; Alateyah *et al.*, 2014).

Through these online interactions, the government can enhance government services only when the citizens adopt e-services and to achieve this, such e-services should be trustworthy. Therefore, in the hopes of decreasing the negative outcome of the deficiency of security of e-governments initiatives, intermediaries are used and through these intermediaries, an environment that is conducive to trust is achieved (Sarkar *et al.*, 1998). In fact, several intermediary functions benefitting consumers are enumerated upon by Sarkar *et al.* (1998, 2001) and these include the reduction of perceived risks of e-services and the facilitation of an environment conducive to trust.

Trust may be enhanced by intermediaries through the minimization of the risks attributed to transaction failure between parties and by informing parties of the up-to-date services and transaction processes (Datta & Chatterjee, 2008; Chircu & Kauffman, 1999). Moreover, a classic intermediary may offer legal representations among parties and authenticate and communicate as required (Al-Sobhi *et al.*, 2010). Pavlou and Gefen (2004) add credence to this statement by contending that from the commerce point of view, trust in the intermediary facilitates institutional context and develops trust of buyers in sellers and such trust brings about online transactions through the reduction of perceived risk.

In a related case study, Al-Sobhi *et al.* (2010) show the key function that intermediaries play in online service in terms of privacy and security. Similarly, Salam *et al.* (2003)

97

contend that the role of well-known and dependable institutions like authorized third party entities as intermediaries in the promotion of trust, would work towards reducing perceived risk related to e-commerce transactions online. Thus, trust in intermediaries has a key role in assisting citizens to tackle perceived risks (Al-Sobhi, Kamal & Weerakkody, 2009; Bailey & Bakos, 1997).

Accourding to Dombrowski *et al.* (2014), broadening the scope of research on trust in e-government should be done to better understand how trust within the context of online government transactions could be created or developed. However, scarcely any research has investigated the e-government intermediaries' role in mitigating perceived risks of e-services and improving its awareness.

Considering the above discussion, it can be stated that trust of citizens on the Internet and their trust in e-government intermediaries could influence the citizens' intention towards e-government services usage (Al-Sobhi *et al.*, 2010; Janssen & Klievink, 2009). Thus, trust influences perceived risk (Akkaya *et al.*, 2013; Belanger & Carter, 2008; Pavlou, 2003; Gefen, Rao & Tractinsky, 2003). Accordingly, the following hypotheses are developed:

H9: **Trust in the Internet has a negative influence on perceived risk of using an e-government service.**

H10: Trust in the e-government intermediaries has a negative influence on perceived risk of using an e-government service.

Besides the meditation influence of perceived risk, the meditation influence of e-government awareness is included in this study. While trust in Internet, trust in e-government intermediates and social influence are considered as the antecedents of e-government awareness as shown above, this study investigates the mediation influence of awareness of online government systems on the association between trust in Internet and citizens' intention to use these services; on the association between trust in intermediaries and citizens' intention to use these services; and on citizens' e-government services' awareness on the relationship between social influence and citizens' intention to use these services.

As a social phenomenon, trust influences the awareness of users directly in addition to influencing their decision-making indirectly. Nevertheless, only a few of the current awareness computational models address interpersonal trust (Aydoğan *et al.*, 2015). Hence, the current study presents a framework integrating the factor of trust in Internet to facilitate developing citizens' e-government usage.

Consequently, the existing research examines the mediation effect of government online systems awareness on the relationship between trust in the Internet and citizens' intention to use these services. Several studies have linked e-services awareness to e-government services usage (Jaeger & Thompson, 2003; Graafland-Essers & Ettedgui, 2003; Khan *et al.*, 2012; Alawadhi & Morris, 2008; Meer & Winden, 2003). Governments have to dedicate additional means to improve citizens' awareness and social norms to encourage citizens' use of e-services (Brown *et al.*, 2002).

Specifically, studies on intermediaries and e-services highlight the role of awareness of e-government services through intermediaries (Weerakkody *et al.*, 2013; Al-Sobhi *et al.*, 2010; Sorrentino & Niehaves, 2010, Janssen & Klievink, Rao, 2004; Wahid *et al.*, 2011; Sein *et al.*, 2008; Sarkar *et al.*, 2001). In this context, trust in e-government intermediary can obviously be a powerful channel to raise awareness of e-services technology (Wahid *et al.*, 2011; Adams & Blandford, 2006).

Additionally, trust in e-government intermediaries has been shown to include influence on website usage of public services behavioral intention (Al-Sobhi *et al.*, 2009; Dombrowski *et al.*, 2014; Sorrentino & Niehaves, 2010). Therefore, intermediary organizations may have a significant impact on citizens' e-government services adoption behavior by promoting citizens' awareness of e-government services.

Further, normative pressure has impacted the promotion of awareness of public websites and creating social marketing to make use of such services (Al-Sobhi *et al.*, 2009). Chan *et al.* (2010) claim that government online portal awareness directly impacts social influence on government portal usage. They find that awareness is a significant determinant of social influence.

In addition to this, some researchers have concluded that friends in addition to families have social influence, which is a solid factor that affects e-services (Al-Sobhi *et al.*, 2009; Venkatesh *et al.*, 2012; Venkatesh & Brown, 2001; Venkatesh *et al.*, 2003). Therefore, the more effective social influence from friends and families is in creating awareness, the greater is the citizens' e-government services awareness created, which in turn, leads to more individuals' intention to use online government systems. Grounded in

the above discussion and other supporting arguments, the following hypotheses are introduced to be tested:

H11. The awareness of e-government services meditates the relationship between social influence and intention to use e-government services.

H12. The awareness of e-government services meditates the relationship between trust in the Internet and citizens' intentions to use e-government services.

H13: The awareness of e-government services meditates the relationship between trust in e-government intermediaries and intention to use e-government services.

Building on the previous studies, perceived risk impacts negatively the citizens' intention to use e-government (Akkaya *et al.*, 2011; Carter & Belanger, 2005; Fu *et al.*, 2006; Schaupp *et al.*, 2010; Warkentin *et al.*, 2002). Perceived risk also has a directly negative effect by stressing the mediating role of uncertainty and potential negative outcomes (Gefen, 2002; Jarvenpaa *et al.,* 2000). Further, the literature generally suggests that trust is interwoven with risk (Ganesan, 1994). Several studies have revealed that perceived risk and trust are important constructs (Al-Adawi *et al.*, 2005; Akkaya *et al.*, 2013; Belanger & Carter, 2012, 2008; Fu *et al.*, 2006; Gallant *et al.*, 2007; Jarvenpaa & Tractinsky, 1999).

Further, Akkaya *et al.* (2013) argue that perceived risk and trust are among the essential constructs that need to be analyzed to understand e-government adoption. Therefore, the impact of trust in Internet and in e-government intermediaries and the perception of risks

101

related to e-government adoption should be examined in-depth. It indicates trust of Internet and government and perceived risk have a major impact on citizens' intentions toward online government systems usage (Carter & Belanger, 2005).

Alsaghier *et al.* (2009; 2010) also find perceived risk on e-government reduces trust on the same. Additionally, Suryaningsih *et al.* (2014); and Chan and Chen (2008) find a reciprocal relationship between trust and perceived risk. Similarly, Chang & Chen (2008) contend that trust-perceived risk relationship is a two way street and as such, both are significant in e-government implementation (Khasawneh *et al.*, 2013).

Based on the aforementioned discussion, trust in Internet and trust in e-government intermediary organizations could build the citizens' intention directly towards e-government service usage (Al-Sobhi *et al.*, 2010; Janssen & Klievink, 2009). Further, Sarkar *et al.*(1998, 2001); Carter & Weerakkody (2008); and Akkay *et al.* (2013) argue that trust in Internet could influence citizens' perceived risk to use e-government services and that risk perceptions may mediate the relationship between trust and citizens' intention to use online government services (Akkaya *et al.*, 2013; Pavlou, 2003; Gefen, Rao & Tractinsky, 2003).

With regards to intermediaries, a trusted intermediary can be expected to take steps to reduce related risks associated with the Internet infrastructure (Pavlou, 2003). Thus, trust in intermediaries improves the citizens' beliefs about intent to use e-government and the associated infrastructure, which in turn, leads to decreased risk perceptions (Weerakkody *et al.*, 2013; Salam *et al.*, 2003).

Moreover, perceived risk has been proposed to mediate the effect of trust on intention towards e-government services use via intermediaries (Pavlou, 2002; 2003). Therefore, trust of channels, such as intermediaries, might directly develop users' intention to use online public systems and to link with public website services; or indirectly by affecting negatively perceived risk of citizens using e-public systems.

The present study therefore investigates the mediation influence of perceived risk on the relationship between trust of Internet and citizens' intention to use these systems of e-government in addition to the mediation influence of perceived risk on the relationship between trust in e-government intermediaries and intention to use e-government. Accordingly, the following hypotheses are proposed:

H14: Perceived risk meditates the relationship between trust in Internet and intention to use e-government services.

H15: Perceived risk meditates the relationship between trust in e-government intermediaries and intention to use e-government services.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter offers an explanation of the study methodology. It elaborates on the following elements; the study's research design, operationalization of variables, the population and sample and data collection procedure. The chapter also explains the way the pilot study was conducted and it ends with the statistical methods for data analysis.

3.2 Research Design

The present research is correlational in nature and attempts to provide an insight into the intention toward e-government usage among academic staff in public universities in the Kingdom of Saudi Arabia. It adopts a cross-sectional method where data is collected at once to resolve the research questions. Added to this, according to Kerlinger (1973), a survey method is used to acquire individual and social facts, beliefs and attitudes. Moreover, several researchers in the setting of information technology, particularly in e-government, have made use of the survey to collect data (Carter & Belanger, 2005; Gilbert *et al.*, 2004; Gefen *et al.*, 2002). In this research, the unit of analysis is the individual confined to individuals who are employed as academic staff in Saudi public universities. The study views every staff's response as an individual source of data.

3.3 Operationalization of Variables

The measure of academic staffs' intention to use online e-services in a government setting in the present study is generated from the respondents. Intention measures generated from respondents have been generally employed in e-government services research (Akkay *et al.*, 2013, Belanger & Carter, 2008), and are also used in this study.

The individuals' intention measurements employed by the researcher consist of subjective measures. This type of measure is presented in intention rating format. This dimension consists of five items measured on a five-point Likert scale, where respondents were requested to rate themselves in the level to which they intend to make use of the Internet or the online services (Ajzen, 1991; Davis, 1989; Venkatesh*et al.*, 2003).

Antecedent factors of academic staffs' intention to use e-government services in the present research are categorized into two major components, namely: direct and mediating factors. The first component reflects the factors that directly affect individuals' intention towards e-government services usage. This consists of five factors: e-service awareness, social influence, perceived risk, trust of Internet and trust in e-government intermediaries. The second component reflects the mediating influence of e-government awareness on the relationship between social influence, trust of internet and trust in e-government intermediaries, and the intention of citizens to use e-government services in addition to the mediating influence of perceived risk on the relationship between trust in Internet and trust in intermediaries and intention to use e-government services.

E-government services awareness is operationalized as the extent to which respondents obtain enough information and are aware of the availability and benefits of using e-government services (Al-Majali, 2011; Khan *et al.*, 2012). On the other hand, perceived risk is operationalized as the potentiality of respondents' loss in pursuit of an expected outcome when making use of e-services (Featherman & Pavlou, 2003; Pavlou, 2003; Warkentin *et al.*, 2002).

Trust of Internet is operationalized by asking the level to which respondents are convinced of the reliability of the Internet as an online communication tool with government (Carter & Belanger, 2005). Trust in intermediary is operationalized as the extent to which the respondents believe that intermediaries are dependable entities to be utilized to access online services provided by the government (Al-Sobhi *et al.*, 2009; Bailey & Bakos, 1997; Chircu *et al.*, 2000; Howells, 2008; Pavlou & Gefen, 2004). Finally, social influence is operationalized as the important people (whether family or friends) that influences the intentions of the respondents to use e-government systems in increasing the awareness and the social marketing to use e-government services (Ajzen, 1991; Al-Sobhi *et al.*, 2009; Venkatesh *et al.*, 2003).

3.4 Measurement

Aside from the demographic factors, all the variables of this study are multiple items adopted from prior studies. But the phrasing of items was changed to align them with the purposes and context of this study. The Likert scale is utilized in the present research to measure the responses as it has been widely tested in the social sciences field (Garland, 1991; Shih & Fang, 2004).

106

The responses are rated on a five-point Likert scale as it is the most used scale in researches (Gwinner, 2006). Moreover, it is also able to measure accurately (Hair, Black, Babin & Anderson, 2010) and to test the proposed hypotheses (DeVellis, 1991). The respondents were able to choose a neutral rating in case some of them were neutral on some topics. According to Gwinner (2006), it can be described as a legitimate opinion existing among respondents. As such, all the items were assessed using the five-point Likert scale in order to guarantee that consistency exists among variables and to steer clear of ambiguity among respondents (Ackfeldt & Coole, 2005).

Intention to use the services provided by the online government was measured using the scale developed by previous studies (Ajzen, 1991; Davis, 1989; Venkatesh *et al.*, 2003). It calls for respondents' assessment of the level to which they are inclined to use e-government services in the future (Ajzen, 1991; Davis,1989; Venkatesh *et al.*, 2003). It comprises four items measured through a five-point Likert scale with '1' depicting strongly disagree and '5' depicting strongly agree. Added to this, the items were adopted from prior literature dedicated to use intentions (Carter & Belanger, 2005; Belanger & Carter, 2008; Gefen, 2000; Pavlou, 2003). The items to measure citizens' degree of intention to use e-government services in the future are shown in Table 3.1 below.

Table 3.1
Intention to Use e-Government Services Measure

Items
I intend to use the government services website in future
I intend to use the government services website directly
I will recommend others to use e-government services directly
I intend to use the government services website through intermediaries in the future

Source: Adapted from Ajzen, (1991) and Venkatesh *et al.* (2003)

The e-service awareness is gauged on a scale utilized by Khan *et al.*, (2012); and Al-Majali (2011) with some changes on the phrasing of items. For example, the e-government intermediary's offices promote awareness about e-government services. Specifically, the instrument consists of six items that focus on receiving enough information about the e-government services and benefits and using the government services website. The items were measured with the help of a five-point Likert scale with '1' depicting strongly disagree and '5' depicting strongly agree. Table 3.2 shows the items used to measure trust in Internet.

Table 3.2
Awareness about e-Government Services Measure

Items
I receive enough information about e-government services
I receive enough information about the benefits of e-government services
I receive enough information about how to use e-government services
The government promotes awareness about e-government services provided through the Internet
The e-government intermediary's offices promote awareness about e-government services
Nowadays, government services are available on the Internet

Source: Adapted from Khan *et al.* (2012) and Al-Majali (2011)

In the present study, perceived risk was measured using an adapted instrument developed by Belanger and Carter (2008); and Pavlou (2003). It involves five items on a five-point Likert with '1' =strongly disagree to '5'= strongly agree. Table 3.3 shows the items used to measure perceived risk.

Table 3.3
Perceived Risk to Using e-Government Services Measure

Items
The decision of whether to use e-government services is risky
In general, I believe using the government services over the Internet is risky
I feel that the risks outweigh the benefits of using the government services website
Using the online government services is not secure to send sensitive information
Using the e-government services through the intermediaries is not secure to send sensitive information

Source: Adapted from Belanger and Carter (2008); and Pavlou (2003)

Social influence was measured using an adapted instrument developed by Adulwahab &

Dahalin (2011); and Venkatesh *et al.* (2003). It involves five items on a five-point Likert

scale from '1 = strongly disagree to '5' =strongly agree. Table 3.4 below shows these

five items used to measure social influence.

Table 3.4
Social Influence to Use e-Government Services Measure

Items
People who are important to me think that I should use the e-government services facilities
I would use the e-government services if my friends use them
People who influence my behavior think I should use the e-government services
In general, my friends have supported the use of government services online
People who are important to me think that using the e-government services is a good idea

Source: Adapted from Ajzen (1991); and Venkatesh *et al.* (2003)

Trust in Internet was measured with the help of a four-item measurement proposed by

Carter and Belanger (2005), and subsequently used by Carter and Belanger (2008). The

measure assesses citizens' trust toward using Internet. The items are designed to indicate

the degree to which the citizens will trust the Internet. Respondents were requested to

show the rate regarding each item through a Likert scale. The measurement items of

trust in Internet as are presented in Table 3.5.

Table 3.5
Trust in Internet to Use e-Government Services Measure

Items
The Internet has enough safeguards to make me feel comfortable interacting with the e-government services
I feel assured that legal and technological structures adequately protect me from problems on the Internet
I would feel secure sending sensitive information across the Internet
In general, the Internet is now a robust and safe environment in which to transact with the government services online

Source: Adapted from Carter and Belanger (2005); and Belanger and Carter (2008)

To measure trust in e-government intermediaries, the instrument developed by Al-Sobhi

et al. (2009) was employed. It involves four items, each providing the respondents'

perspective regarding trust in intermediaries. Specifically, the respondents were requested to describe their level of perception through a Likert scale with '1' depicting strongly disagree and '5' depicting strongly agree. The items used to measure trust in e-government intermediaries are offered in Table 3.6.

Table 3.6
Trust in Intermediary to Use e-Government Measure

Items
I think I can trust intermediary organizations.
In my opinion, intermediary organizations are trustworthy
The intermediaries have enough safeguards (passwords, secure computers etc.) to make me feel comfortable using it to interact with the government services online
I am not concerned that the information I submit through the intermediaries could be misused

Source: Adapted from Al-Sobhi *et al.* (2009)

Demographic information captured in this study are marital status, age, current occupation, monthly income in Saudi Riyals (SRs), education level and duration of Internet usage. For demographic information questions, respondents were required to cross the appropriate blank space provided.

Values of Cronbach's alpha were taken in order to measure the internal consistency value of the collected data. Table 3.7 below shows the value of reliability coefficient (Cronbach's coefficient alpha value) of the measurements from previous studies for all main variables included in the current study.

Table 3.7
Measure of Variables Reliability Coefficient from Previous Studies

Variables	Cronbach's alpha	Studies
Intention to use e-government	0.842, 0.92	Weerakkody *et al.* (2013); Pavlou and Gefen (2004)
Perceived risk	0.83, 0.93	Belanger and Carter (2008); Pavlou and Gefen (2004)
E-government awareness	0.811, 0.91	Meftah *et al.* (2015); Faaeq (2014)
Trust in intermediary	0.80, 0.92	Weerakkody *et al.* (2013); Pavlou and Gefen (2004)
Trust in the Internet	0.83, 0.761	Belanger and Carter (2008).; Meftah *et al.*, (2015)

110

3.5 Study Population

The population refers to people, events or records containing the required information that can answer the study questions as stated by Cooper and Schindler (2008). In the present research, the population includes public universities academic staff in Saudi Arabia. The reason to target public universities in this study is that the majority of academic staff includes in these public universities with about 90% of the total staff in Saudi universities. In addition, the Saudi public universities are distributed in the main regions of the country and have the same academic standards. Hence, the Saudi Ministry of Higher Education (MOHE) list of Saudi universities was used to determine the number of staff in the public universities in Saudi Arabia. Furthermore, university staff were selected for the following reasons:

Firstly, based on the list of Saudi MOHE, the public universities are distributed geographically in all the regions of the country where this study was conducted. In addition, by using the universities as the sampling frame, the population list of the staff is readily available. Thus, this ensured the right sampling selection. Secondly, academic staff have good income and so they have opportunity to pay the cost of e-services' tools to get e-government services in order to save time and cost. Almost all employees need government services, like to buy cars, thus being in need of the traffic department's services. For example, to pay their traffic fines, etc., and make enquiries through the e-government website. As another example, academic staff travel often for work, training and to attend conferences, and therefore need passport. They need to know the requirement for applying for new and renewal passport. Therefore, it is important for employees to use the e-government services.

Thirdly, the Saudi e-government portal offers a lot of information that are important to academic staff in the education sector, such as: education sector challenges, education sector objectives and Saudi universities information (Saudi e-government Portal); and services, such as: E-Library and E-Scientific Innovations form. Thus, they use online government services. Finally, the majority of university staff have a basic knowledge about computer and e-application. Thus, university staff use government online systems and websites.

Based on above discussion, the academic staff at universities need to use e-government services. Therefore, this sample (university academic staff) was selected as the population of the current study.

3.6 Study Sample

A sample is described as a group of people, objects or items that are obtained from a general population in order to measure aspects of the study's phenomena. According to Gay, Mills and Airasian, (2009), sampling is the process through which respondents are selected in a way that they will be representative of the whole population from which they are drawn. Sampling is often conducted instead of collecting data from every population element due to practicality reasons (Sekaran, 2003; Zikmund, Badin, Carr & Griffin, 2012). Sampling results in a more successful outcome owing to the minimization of fatigue and errors resulting from data collection, particularly when the number of elements is considerably large (Sekaran, 2003).

Two main sampling techniques in the literature on research methodology are: probability sampling method and non-probability sampling method. The probability sampling

method is used as a technique to represent the whole population and such technique normally generates valid results as they represent the population characteristics from which they have been obtained (Cohen, 2000). However, in some cases, a non-probability sampling technique is used when it is not feasible or possible to include all the individuals in the population of the research. In the present study, the probability sampling method was utilised. The following sections explain the sample frame of the study, the sample size, in addition to the sampling selection strategy.

3.6.1 Sampling Frame

After determining the type of respondents, the sampling frame of the population of public universities was based on the MOHE list in Saudi Arabia. In the present research, the target sampling frame includes specifically the staff who work in the public universities operating in Saudi Arabia and listed by the MOHE as in Table 3.8. The list of public universities and the total number of academic staff in Saudi Arabia are demonstrated in Table 3.8.

Table 3.8
List of public universities in Saudi Arabia by Region

Region	Name of University	Number of Academic Staff
Riyadh	King Saud University	4,657
Riyadh	Al-Imam Mohammad Islamic University	2,894
Riyadh	Princess Nora University	1,537
Riyadh	Al Kharj University	763
Riyadh	Shagra University	729
Riyadh	Almajmaah University	512
Riyadh	King Saud University for Health Sciences	484
Riyadh	e-Saudi University	48
Makkah	King Abdulaziz University	5,171
Makkah	Umm Al-Qura University	2,915
Makkah	Taif University	1,125
Medinah	Taibah University	855
Medinah	Islamic University	632
Qaseem	Qassim University	1,782
Eastern	University of Dammam	1,562
Eastern	King Faisal University	859
Eastern	King Fahd University of Petroleum and Minerals	326
Aseer	King Khalid University	1,570
Tabouk	University of Tabuk	714
Hail	University of Hail	274
Northern	Northern Borders University	189
Jazan	Jazan University	870
Al-Jouf	Al Jouf University	465
Najran	Najran University	415
Baha	Al Baha University	572
Total	25	31,920

Source: Saudi Ministry of Higher Education (2015)

The total number of academic staff in Saudi public universities is 31,920 spread across 25 universities as shown in Table 3.8. The 25 public universities and their staff were included in this study to keep the sample representative of regions of Saudi Arabia.

3.6.2 Sample Size

The sample size is described as the number of units needed to get accurate results (Fink, 2002). According to Pallant (2007), scholars have not reached a consensus concerning sample size but the majority of them tend to agree that a large sample is better than a small one as the latter often leads to inaccurate correlation coefficients and hence defeats the study purpose. Zikmund *et al.* (2012) claim that if the sample size is large, errors are

minimized. Hence, relatively large samples ensure statistical significance. In the context

of a quantitative study, getting accurate results entails a reasonably large sample size so

that a subset of the larger population can be created (Krejcie & Morgan, 1970).

Moreover, the results that are derived from a large sample could be generalized to the

whole population (Hair, Money, Samouel & Page, 2007).

In this research, as mentioned earlier, there are 31,920 academic staff members in Saudi

public universities. For a population between 30,000 and 40,000, Table 3.9 shows that

379-380 academic staff members are suitable. This study selected 380 academic staff

members as the sampling size (Krejcie & Morgan, 1970).

Table 3.9
Determining Sample Size of a Given Population

Population Size (N)	Sample Size (S)
10,000	370
15,000	375
20,000	377
30,000	379
40,000	380
50,000	381

Source: Sekaran and Bougie (2011)

Depending on the above discussion, 380 questionnaires were targeted to be technically

acceptable, completed, and returned. However, the recorded response rate for the

universities' staff in past studies has been 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.*, 2007). Based on this evidence, the researcher used 760 as

the amount of the sample size.

The determination of the probability sampling of academic staff for each university was

needed before distributing the 760 questionnaires to the 25 public university staff in

Saudi Arabia. Thus, this study utilized a proportionate sampling to determine the number of academic staff to be included in the sample for the present study. From Table 3.10, the number of questionnaires distributed for each university is displayed.

Table 3.10
The Probability Sampling of Academic Staff for Each University

University	Number of staff	% of total sampling	Probability sampling of staff
King Saud University	4,657	14.59	111
Al-Imam Mohammad Islamic University	2,894	9.07	69
Princess Nora University	1,537	4.82	37
Al Kharj University	763	2.39	18
Shagra University	729	2.28	17
Almajmaah University	512	1.60	12
King Saud University for Health Sciences	484	1.52	12
e-Saudi University	48	0.15	1
King Abdulaziz University	5,171	16.20	123
Umm Al-Qura University	2,915	9.13	69
Taif University	1,125	3.52	27
Taibah University	855	2.68	20
Islamic University	632	1.98	15
Qassim University	1,782	5.58	42
University of Dammam	1,562	4.89	37
King Faisal University	859	2.69	20
King Fahd University of Petroleum and Minerals	326	1.02	8
King Khalid University	1,570	4.92	37
University of Tabuk	714	2.24	17
University of Ha'il	274	0.86	7
Northern Borders University	189	0.59	5
Jazan University	870	2.73	21
Al Jouf University	465	1.46	11
Najran University	415	1.30	10
Al Baha University	572	1.79	14
Total	31,920	100%	760

Source: Researcher's calculation (2015)

The researcher chose a random sample in which 760 academic staff members were systematically identified from the 25 universities in Saudi Arabia as shown in Table 3.10. The list of email address for each university was used to ensure randomness. Every thirty nine member of Hail university, every thirty eight member of Northern Borders university, every forty one member of King Fahd, Al Baha and Jazan universities, every forty two member of King Saud, Al-Imam, Princess Nora, Al Kharj, King Abdulaziz,

Umm Al-Qura, Taif, Islamic, Qassim, Dammam, King Khalid, Tabuk, Al Jouf and Najran universities, and every forty three member of King Faisal, Shagra, Almajmaah and Taibah universities were selected as respondents in this study.

3.7 The Survey Questionnaire

The present study employed a survey research technique where a set of questionnaires was used as the study instrument to assess the study's research model. The survey questionnaire consists of an organized series of questions which can be used by respondents to note down their answers about the defined variables (Hair *et al.*, 2007). De Vaus (2002) describes a research questionnaire as a research instrument in which each person is asked to respond to the same set of questions in a predetermined order. The questionnaire is more appropriate in comparison to other methods, like interviews; at the same time, this kind of approach is a fast, inexpensive, efficient and authentic method of population data assessment (Zikmund *et al.*, 2012).

Self-administering and sending the questionnaire through post or email are different ways to administer questionnaires that have their advantages and disadvantages. For example, postal or emailed questionnaires are less costly compared to self-administered questionnaires. Further, an emailed survey questionnaire is a popular method for collecting information on innovation diffusion (Attewell, 1992; Teece, 1980). Gefen and Pavlou (2012). Pavlou and Gefen (2004) conducted their studies on building effective online marketplaces with institution-based trust and used emailed survey questionnaires.

Following Pavlou and Gefen's (2004) data collection method (sending email questionnaires), the researcher utilized email to approach the selected academic staff

117

working in public universities in Saudi Arabia. The reason for using e-mail is that a complete e-mail list was provided by the public universities in Saudi Arabia, and data could be sent to all respondents once via the system's in-built e-mail in all Saudi public universities. This method saves time, cost and data entry errors. Further, the researcher employed emailed questionnaires rather than postal questionnaires, as the latter is problematic due to the difficulty of using post offices in the Kingdom. Further, emailed questionnaires are suitable as they ensure the questions can be understood; also respondents can liaise with the researcher on any unclear issue as an email link was included with the questionnaires to help with issues pertaining to the questions, whenever needed. Thus, the current study used email questionnaires method to collect data.

The items that were used in the study are adapted from well-established measures in the literature on the six main variables of the study, namely: e-government service awareness, social influence, perceived risk, trust of Internet and trust of e-government intermediaries (independent variables); and academic staff's intention to use e-government services (dependent variable). The questionnaire was then translated into Arabic by a translation office who has expert officers in English and Arabic languages to achieve equivalence in both languages. The questionnaire translation was prepared to ensure equivalence in lexical aspects (Brislin, 1970).

3.8 Pilot Study

A pilot study refers to a project of small scale entailing data gathering from respondents who are similar in characteristics as the study's target respondents (Zikmunder *et al.*,

2012). A pilot study guides the researcher for the actual study and allows the researcher to gauge the ambiguous aspects of the study for the determination of whether or not the procedures are feasible. The importance of pilot studies lie in their refining of the survey questions, reducing the study flaws (Zikmund *et al.*, 2012). A pilot study is generally employed on 25-100 subjects (Cooper & Schindler, 2008).

To validate data and to understand the variables that affect e-government services usage in the Kingdom, the researcher carried out a pilot study on sample of universities' academic staff. This pilot study was done prior to carrying out the main field work of the main study and sending the email questionnaires to the target respondents who represent the academic staff currently working in the public universities in Saudi Arabia. Additionally, it is a significant step to conduct a pilot study by collecting data from the same sample source in order to test the measurements' validity and reliability (Sproull, 2004).

A sample of 30 Saudi academic staff was selected randomly from the Saudi cultural mission in Kuala Lumpur. The aim of the pilot study is to ensure the clarity of the questions and instructions; to validate data; to comprehend the variables that affect government online services usage in the Kingdom; to determine whether or not the questions yield relevant information; and to measure the time respondents take to complete the questionnaire. In this regard, the researcher adopted the recommendations of Straub, Boudreau and Gefen (2004) of using prior validation instruments rather than developing new ones. The pilot study was conducted with the aim to highlight the validity and effectiveness of the research process, the questionnaire and to examine the statements in the questionnaire, in terms of their content and language.

The items of pilot study questionnaire that were measured, include perceived risk, awareness of e-service, trust in intermediaries, trust of Internet, social influence and intention to e-government systems usage.Utilizing Cronbach's alpha, the instrument reliability of the current pilot study was done. The reliability of instrument is considered to be acceptable when the alpha coefficient values are between 0.6 and 0.7, and when these values are more than 0.7, it will have high reliability (Hair *et al.*, 2010). The data were collected and then calculated using SPSS 21 for Windows. The assessment of Cronbach's alpha reliability in this study is found to be at a value of 0.815 ($\alpha = 0.815$), which is higher than 0.70 as shown in Table 3.11. Therefore, the study's questionnaire is reliable and can be utilized in the actual study.

Table 3.1
Reliability Coefficient Values for Items of Constructs in Pilot Study

Constructs	No. of original items	Cronbach's Alpha	Items deleted	Cronbach's Alpha if item deleted
Intention To Use E-government Services	4	0.788	Nil	0.788
Perceived Risk	5	0.702	Nil	0.702
E-government Awareness	6	0.803	Nil	0.803
Trust in Internet	4	0.805	Nil	0.805
Trust In Intermediary	4	0.847	Nil	0.847
Social Influence	5	0.723	Nil	0.723

3.9 Data Collection Procedures

Once the questionnaire was finalized, the researcher initiated data collection. A cover letter with the online survey was emailed to the email addresses of the vice- rectors for graduate studies and scientific research in each Saudi public university during the period of data collection starting on 14 August 2015. The assistance of vice-rectors were sought in emailing the survey link of the questionnaire to the academic staff members

120

addresses (respondents) to fill up the online questionnaire using an online survey linked to a web-based survey instrument, GoogleFormsSurvey. Each email sent to the vice-rectors was numbered and linked to listed public universities in order to facilitate the follow-up process for non-responses. A spreadsheet to monitor the results was developed.

The staff received an e-mail with an introductory letter that informed them about the purpose of the study, including instructions for filling out the questionnaire. The respondents were asked to click on the URL GoogleFormsSurvey link provided in the e-mail message, which linked them to the web-based survey instrument. Most of the questions were only a "click" of the mouse that required a response and other questions were open-ended questions. Some questions were compulsory and respondents could not proceed if required fields were not completed.

After sending the email to the respondents, a ten-day period was allowed for responses. Those who had already participated were thanked for their participation. The same e-mail questionnaires were resent to the non-respondents after 10 days. Furthermore, after a week, responses were asked again from the non-respondents via e-mail. After around five weeks, the survey was closed.

3.10 Data Analysis

Majority of social researchers conduct data analysis through three main phases, namely: cleaning and organizing data; describing data; and testing hypotheses and models. Preparation of data entails data check which covers data checks for precision, data entry of responses, data transformation, and recording a database organization.

121

3.10.1 Descriptive Statistics

The basic features of a study's data is described by described statistics – a tool that provides summarized description of the sample and measure, along with simple graphical analysis. Such a tool is the core of almost every quantitative data analysis. In the present research, both statistical tests (descriptive and inferential) were used to analyze the variables and make the exploratory factor analysis through the use of SPSS version 21.0.

3.10.2 Inferential Statistics

Inferential data statistics are utilized in order to arrive at conclusions. This form of statistics could be employed to evaluate the independent, dependent as well as mediating factors. Consequently, it is valuable for building implications from the data to additional general situations. This type of statistics examines hypotheses in addition to frameworks. Therefore, in confirming the study hypotheses, the main inferential statistics used comprised the t-test, regression analysis and the multivariate approaches, such as factor analysis.

3.10.3 Partial Least Squares-Structural Equation Modeling (PLS-SEM)

To evaluate the measurement model and test the hypotheses, the present research utilized partial least squares-structural equation modeling (PLS-SEM) technique, using smartpls3.0 as the better approach (Hair, Hult, Ringle & Sarstedt, 2013). PLS, a component based SEM technique was used to assess the model in order to maximize the variance described in the model. SEM is a combination of statistical modelling that

examines the relationships of several latent constructs (Hair *et al.*, 2010). SEM is also utilized to analyze causal relationships between the latent variables. These relationships explain changes in the variables (exogenous constructs) that will affect other variables (endogenous constructs).

Moreover, SEM can construct the paths in the final model. According to Baumgartner & 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 behavioral sciences. SEM consists of two major functions: i) the measurement; and (ii) causal relationships amongst factors (Hair *et al.*, 2010). The PLS-SEM method is a second generation SEM according to Wold (1989). Hair *et al.* (2010) state that PLS is now well known as an alternative to the Covariance-based (CB)-SEM method. The PLS tactic is a valuable and adjustable instrument for statistical model development besides prediction (Ringle, Sarstedt & Straub, 2012).

The PLS-SEM needs to be used in the initial stage of the development of theory to assess and validate relevant exploratory models, with one of its powerful features, i.e., its suitability for prediction-oriented research where the methodology assists in focusing on endogenous constructs. Another feature of PLS is its vulnerability to multicollinearity. The PLS path modeling can be also utilized in reflective as well as formative measurement models (Chin, 1998).

To propose a solution for the problems faced by Saudi e-government services, this study's main objective is to examine the causal associations among antecedents (e-services awareness, perceived risk, trust in Internet, trust in e-government intermediaries

123

and social influence) and intention to use e-government services. Further, it aims to examine the factors influencing perceived risk and e-government services awareness. Moreover, this study examines the mediation effect of e-government services awareness as well as the mediation effect of perceived risk.

The software package of Smart-PLS 3.0 was used in the present study. More specifically, the PLS method is employed for several reasons, the first is because structural equation models have been evidenced to surpass other models in their performance estimations and it has been proven to be superior to regressions for its assessment of mediation effects (Iacobucci, Saldanha & Deng, 2007; Preacher & Hayes, 2008).

Additionally, it has also been revealed that PLS explains measurement error and is able to offer accurate mediating influence estimates (Chin, 1998). Second, the PLS path modeling is more suitable for actual usage and provides more benefits to complex models (Fornell & Bookstein, 1982; Hulland, 1999). The model's assumptions (flexibility in developing and validating complex models) allow it to estimate large complex models (Akter *et al.*, 2011). Because of the complex associations entailed, the PLS-SEM method is appropriate for superior prediction of relationships.

Third, majority of social science researches tend to have no normality issues in their data (Osborne, 2010), but PLS path modeling does not require that data should be normal (Chin, 1998) as it treats non-normal data in a relatively effective way. Overall, the PLS path modeling was chosen in this study to steer clear of normality issues that may occur during the analysis of data.

124

Fourth, the PLS-SEM provides results that are meaningful and valid, whereas other analysis methods, like the SPSS software package lead to ambiguous conclusions and would need several individual analyses (Bollen, 1989). Additionally, the PLS is a robust statistical method that permits the researcher to investigate the existing associations among a series of variables and determine the major pathways therein (Hair *et al.*, 2013). Although SEM on its own is considered to be a well-known statistical method for multivariate data analysis in the field of social and behavioral sciences (Hair *et al.*, 2013), specifically, Tabachnick and Fidel (2007) indicate that SEM is one of the best statistical approaches in both social and behavioral sciences that could be used to assess a number of associations concurrently.

In the present study, the PLS path modeling was used to establish measurement and structural models. In addition, PLS determines the measurement and structural models through multiple regressions, whose estimates can be vulnerable to issues of multicollinearity. Measurement model was utilized to provide an explanation and to evaluate the reliability and validity of the constructs in the present study. Second, the structural model was used to carry out a bivariate correlation analysis and regressions analysis at the same time, to determine the correlation effects among the study constructs. Additionally, using the PLS mechanism of algorism and bootstrapping, the mediating effects of perceived risk (mediator) on the relationship between trust in Internet and trust in intermediaries and intentional behavior can be analyzed. Furthermore, the mediating effects of social influence (mediator) on the relationship between e-services awareness and intention can be analyzed as well.

3.10.4 Validity and Reliability

Previous studies using the earlier measures have established high levels of reliability (Table 3.7). SEM is used in the current study to determine the validity and reliability of the measurement model followed by the hypotheses to be tested. Construct reliability and discriminant validity were assessed by the process defined by Fornell and Larcker (1981).

The average variance extracted (AVE) for each construct must be greater than the shared variance between each pair of constructs (AVE $>.50$), thus providing support for discriminant validity among the constructs. The internal consistency of the constructs was also assessed by analyzing the AVE and composite alpha scores for each construct. Once an acceptable goodness of fit was found for the measurement model, and convergent and discriminant validity was demonstrated for the latent variables, the full hypothesized structural model was evaluated as per Anderson and Gerbing's (1988) recommendation.

3.11 Ethical Considerations

For the purpose of ensuring that all ethical considerations are taken into account, prior consent was sought from the participants and their personal freedom was highly respected in the course of the research. Furthermore, each of the respondents was informed of their rights and their autonomous decision to back out of the survey anytime they want. Participants were also assured that personal information will be kept highly confidential. Apart from that, the researcher's email address and the mobile phone

126

number were offered to the respondents to discuss any issues they faced when answering the questionnaire.

Prior to conducting the present research, the approval of Saudi MOHE was ensured with the detailed confidentiality clause from the Department of Statistics and Informatics (DSI) in Saudi's MOHE. A sample of the questionnaires was sent to MOHE for their review so that they understood exactly what the research was about in order to secure their approval by issuing a permission letter to get access and cooperation from the vice-rectors for graduate studies and scientific research in each Saudi public university to help distribute the questionnaires.

As for the dissemination of research results, the respondents were informed that the results gained from the analysis of the data would become part of the researcher's academic work. Finally, for the purpose of ensuring confidentiality, each of the respondents was assured that their identities would be excluded in the final work, presentation and publications.

CHAPTER FOUR
DATA ANALYSIS AND RESULTS

4.1 Introduction

In the earlier chapters, an explanation on how the present study was practically carried out is offered. Based on the data analyzed, the current chapter presents the findings of the study. This study first looks at the demographic profile of the respondents. In addition to that, the study describes the main variables and tests the non-response bias, descriptive statistics, multicollinearity test and normality using SPSS. Also, as a prerequisite for the inner structure model assessment, the current study utilizes PLS technique using smartpls3.0 as the better approach to SEM (Hair *et al.* 2013) in order to assess the outer model measurement. While the inner model defines the link between the latent variables that make up the model, the outer one describes the link between the latent variables and their indicators.

Precisely, the current study establishes the goodness of the outer model linked to the constructs of the present study, specifically, e-government services awareness, perceived risk, trust of the Internet, trust of e-government intermediaries, social influence; and the dependent variable, namely, intention to use e-government. After the validity of constructs was determined, the next step was to examine the structural model quality and hypothesis testing.

4.2 Response Rate

For the current study, the unit of analysis is the individual employee, confined to individuals who are employed as academic staff in public universities in Saudi Arabia. In total, 760 emailed questionnaires were send to the academic staff in the Saudi universities and 588 questionnaires were filled up. The questionnaires have a filter question to classify the respondents to e-government user who tick on "YES", and who tick on "NO". Only 546 questionnaires were useable representing 71.8% of responding who are users of e-government services in Saudi Arabia. Table 4.1 illustrates the response rate of study sample.

Table 4.1
Response Rate of Study Sample

Response	Frequency	Rate
Questionnaires distributed	760	100
Returned questionnaires	588	77.4
Usable questionnaire	546	71.8

4.3 Demographic Profile of Respondents

Table 4.2 provides the universities of the respondents involved; and Table 4.3 shows the background information of the survey respondents, such as, gender, nationality, educational qualification, marital status and income.

Table 4.2
Universities of the Respondents

University	Frequency	Percent
Umm Al-Qura University	26	4.8
Al-Imam Mohammad Islamic University	6	1.1
Islamic University	27	4.9
King Saud University	119	21.8
King Abdulaziz University	52	9.5
King Fahd University	3	0.5
King Faisal University	1	0.2
King Khalid University	20	3.7
Qassim University	17	3.1
Taibah University	24	4.4
Taif University	6	1.1
King Saud University for Health Sciences	46	8.4
Jazan University	18	3.3
University of Ha'il	24	4.4
Al Jouf University	8	1.5
University of Tabuk	24	4.4
Najran University	6	1.1
Princess Nora University	22	4.0
Northern Borders University	11	2.0
Shagra University	2	0.4
Prince Sattam University	20	3.7
Almajmaah University	43	7.9
e-Saudi University	21	3.8
Total	546	100

As shown in Table 4.3, majority of the respondents are Saudi (69.2%); and (30.8%) are Non-Saudi; majority of the respondents are male (63.7%) and female (36.3%), married (79.7%) and single (20.3%).

130

Table 4.3
Respondents' Demographic Information

Nationality	Frequency	Percent
Saudi	378	69.2
Non-Saudi	168	30.8
Total	546	100
Gender		
Male	348	63.7
Female	198	36.3
Total	546	100
Marital status	Frequency	Percent
Single	111	20.3
Married	435	79.7
Total	546	100
Education	Frequency	Percent
Bachelor's	124	22.7
Masters	158	28.9
PhD	220	40.3
Prof PhD	44	8.1
Total	546	100
Income	Frequency	Percent
Less than SR5000	18	3.3
SR5001 – 10000	110	20.1
SR10001 – 15000	170	31.1
SR15001 - SR20000	114	20.9
SR20001 - SR25000	70	12.8
More than SR25001	64	11.7
Total	546	100

To understand the frequency of e-government usage among respondents in Saudi (Internet usage to gather information about or from the government, Internet usage to complete e-government services, usage of e-government transaction and the type of respondents' government transaction), 23 multiple choice scales were used to obtain the answer as illustrated in Table 4.4.

This study also included a filter question intended to screen whether the respondents have ever used e-government services earlier. Among those who have never used, the underlying reason for not using e-government services was also asked.

Table 4.4

Respondents' e-Government Usage

Internet Usage To Gather Information about e-government	Frequency	Percent
Everyday	64	11.7
Several times a week	114	20.9
Once a month	93	17.0
Several times a month	100	18.3
Once a year	15	2.7
Several times a year	140	25.6
Never	20	3.7
Total	546	100
Internet Usage to Complete e-government	Frequency	Percent
Everyday	32	5.9
Several times a week	100	18.3
Once a month	95	17.4
Several times a month	83	15.2
Once a year	24	4.4
Several times a year	195	35.7
Never	17	3.1
Total	546	100
Percentage of e-government Transactions	Frequency	Percent
All e-government services	262	48.0
Some e-government services	210	38.5
Little e-government services	74	13.6
Total	546	100
Type of e-government transaction	Frequency	Percent
All e-government services available	381	69.8
Renew passport	29	5.3
Pay e-government fees	117	21.4
Renew driving license	10	1.8
Renew Visa	4	.7
ID Saudi card	5	.9
Total	546	100
Not use e-government services reasons	Frequency	Percent
I do not need it now	5	14%
My guardian is responsible	6	17%
No idea about e-government services	12	33%
No Internet facilities	2	6%
Using the e-government services is difficult	6	17%
Using the e-government services is risky	5	14%
Total	36	100

132

4.4 Testing of Non-Response Bias

It was necessary to conduct non-response bias for the reason that some respondents responded only after reminders. Further, in order to assess if there was any response bias, t-test was conducted to match early respondents with late ones on the main variables. Consistent with Armstrong and Overton (1977); and Kannan, Tan, Handfield and Ghosh (1999), if the variances between late respondents and early ones are established to be significant, non-response bias could occur and hence may invalidate the finding. In this study, 118 respondents were classified as late responses while 428 as early responses on all dimensions: awareness of e-government services, perceived risk, social influence, trust of the Internet, trust of e-government intermediaries and e-government intention usage. Table 4.5 and Table 4.6 provide the findings of the t-test.

Table 4.5
Group Statistics of Independent Sample t-test

Variables	Early/late responses	N	Mean	Std. Deviation	Std. error mean
Intention To Use E-government	Early responses	428	4.334	0.927	0.045
	Late responses	118	4.200	0.937	0.086
E-government Awareness	Early responses	428	3.563	0.880	0.043
	Late responses	118	3.534	0.830	0.076
Perceived Risk	Early responses	428	2.472	0.851	0.041
	Late responses	118	2.592	0.892	0.082
Social Influence	Early responses	428	3.710	0.932	0.045
	Late responses	118	3.790	0.742	0.068
Trust in the Internet	Early responses	428	3.520	1.045	0.051
	Late responses	118	3.458	0.889	0.082
Trust in Intermediary	Early responses	428	3.343	1.044	0.050
	Late responses	118	3.422	0.893	0.082

Table 4.5 shows small differences of the mean scores between the two groups on each dimension, which is not significant. It can be safely said that the two groups have similar characteristics and hence non-response bias is not an issue (refer also to Levene's test for equality of variance as in Table 4.6).

133

Table 4.6
Independent Sample t-test Results for Non-Response Bias

Variables	Levene's test for equality of variance		t-test for equality of means		
	F	Sig.	t	df	Sig.
Intention To Use E-Government	.014	.905	1.383	544	.167
E-government Awareness	.485	.487	.327	544	.744
Perceived Risk	.568	.451	-1.337	544	.182
Social Influence	8.136	.005	-.860	544	.390
Trust in the Internet	4.074	.044	.596	544	.551
Trust in e-Government Intermediary	4.958	.026	-.741	544	.459

4.5 Descriptive Statistics Analysis

Sekaran and Bougie (2011) maintain that the descriptive statistics of the dimensions through mean, standard deviation, and variance can give the researcher a detailed idea of how the respondents in the study have responded to the questions in the questionnaire. Consequently, a descriptive analysis was conducted to describe and summarize the main characteristics of the data set from the respondents' perspective on every variable: e-government services awareness, perceived risk, social influence, trust of the Internet, trust of e-government intermediaries and online government intention usage.

The findings of descriptive statistics of the variables are shown in Table 4.7. Most of the variables have the mean ranging from 3.360 to 4.305, with the exception of e-government awareness that has a mean value of 2.498. The standard deviation ranges from 0.861 to 1.013. The minimum and maximum responses on the variables are also presented in Table 4.7.

Table 4.7
Descriptive Statistics of the Constructs

Variables	Minimum	Maximum	Mean	Std. deviation
Intention To Use e-Government Services	1	5	3.557	0.869
E-government Awareness	1	5	2.498	0.861
Perceived Risk	1	5	4.305	0.930
Social Influence	1	5	3.728	0.895
Trust in the Internet	1	5	3.507	1.013
Trust in e-Government Intermediary	1	5	3.360	1.013

4.6 Multicollinearity Test

The test of multicollinearity between variables is highly recommended before beginning to test the proposed model (Hair *et al.*, 2010). It indicates the existence of relapse in the correlation matrix in which the independent variable is highly and significantly correlated with another independent variable. In addition, according to Hair *et al.* (2010), multicollinearity can be detected when the correlation value is more than 0.90. The multicollinearity tests were done by examining the influence of VIF and the tolerance value.

VIF is the variability amount of the chosen independent factor which is described in other independent factors; while tolerance is the inverse of VIF (Hair *et al.*, 2010). The VIF and tolerance values' cut-off points are 10 and 0.10, respectively, which indicates that VIF closer to 1.00 represents little or no multicollinearity.

Table 4.8 shows that the five models highlight collinearity findings, including all independent factors. Moreover, the correlation between variables is lower than 0.90 and VIF is less than 5, which indicates that there is no problem of multicollinearity. Additionally, VIF assessment ranges from 1.051 to 1.867, whereas tolerance assessment

ranges between 0.536 to 0.951. Therefore, the results show that there is no violation of multicollinearity assumption.

Table 4.8
Multicollinearity Test

Variables	Collinearity Statistics	
	Tolerance	VIF
e-government Awareness	.589	1.699
Perceived Risk	.951	1.051
Social Influence	.536	1.867
Trust in the Internet	.605	1.652
Trust in e-Government Intermediary	.561	1.784

Dependent variable: Intention To Use e-Government Services

4.6.1 Assumption of Normality

According to Pallant (2005), normality is used to indicate the symmetrical curve that has the greatest frequency of scores towards extremes in the small and middle frequencies. To do so, some researchers, such as Kline (1998); and Pallant (2005) suggest assessing the normal distribution of scores for the independent and dependent variables by examining their skewness and kurtosis values. In social sciences, the nature of the constructs has many scales and measures may be skewed positively or negatively (Pallant, 2005). In addition, kurtosis is also a score for measuring distribution that represents the degree to which observations around the central mean are gathered.

According to Hair *et al.* (2007), the values of skewness outside the range of +1 to -1 are substantially skewed. However, Kline (1998) suggests a cut-off between +3 to -3 is acceptable. Based on these criteria suggested by many researchers, the skewness values are within the acceptable range suggested by Kline (1998) (+3 to -3); however, not within acceptable values according to Hair *et al.* (2007) (+1 to -1). Similarly, the values

of kurtosis as suggested by Coakes and Steed (2009) must range from +3 to -3, which are acceptable based on the Table 4.9 below.

Based on discussion above, the results show that some of the skewness values deviate from being normally distributed. Therefore, to be able to handle non-normal and skewed data to test the hypothesized relationships, this study employed PLS-SEM, which is a distribution free statistical modeling technique (Chen, 1998).

Table 4.9
Results of Skweness and Kurtosis for Normality Test

Variables	Skewness		Kurtosis	
	Statistic	**Std. Error**	**Statistic**	**Std. Error**
Intention To Use e-Government Services	-.671	.105	.128	.209
e-government Awareness	.817	.105	.637	.209
Perceived Risk	-2.103	.105	4.415	.209
Social Influence	-1.130	.105	1.461	.209
Trust in the Internet	-.720	.105	.086	.209
Trust in e-Government Intermediary	-.509	.105	-.341	.209

4.6.2 Test of Linearity

Linearity testing locates the relationship of independent variables with dependent variable which predicts the hypotheses' right direction; therefore, the positive values indicate that the association is considered positive. Hair *et al.* (2007) suggested partial regression plot to be used for each variable when there is more than one independent variable to guarantee the best representation in the equation. In order to obtain this point, the normal P-P plot of regression standardized residual plot was established for independent variables on dependent variable. The findings confirm the linearity test.

4.7 Testing the Measurement Model

Initially, the outer model or the measurement model was evaluated by means of PLS-

137

SEM. Actually, to know the goodness of fit of model, this study used two stages. Firstly, construct validity was determined. This validity comprises composite reliability, convergence validity, factor loadings as well as Cronbach's alpha. Secondly, discriminant validity was determined. This validity comprises Fornell-Larcker's (1981) criterion. Figure 4.1 shows the model with its structural dimensions.
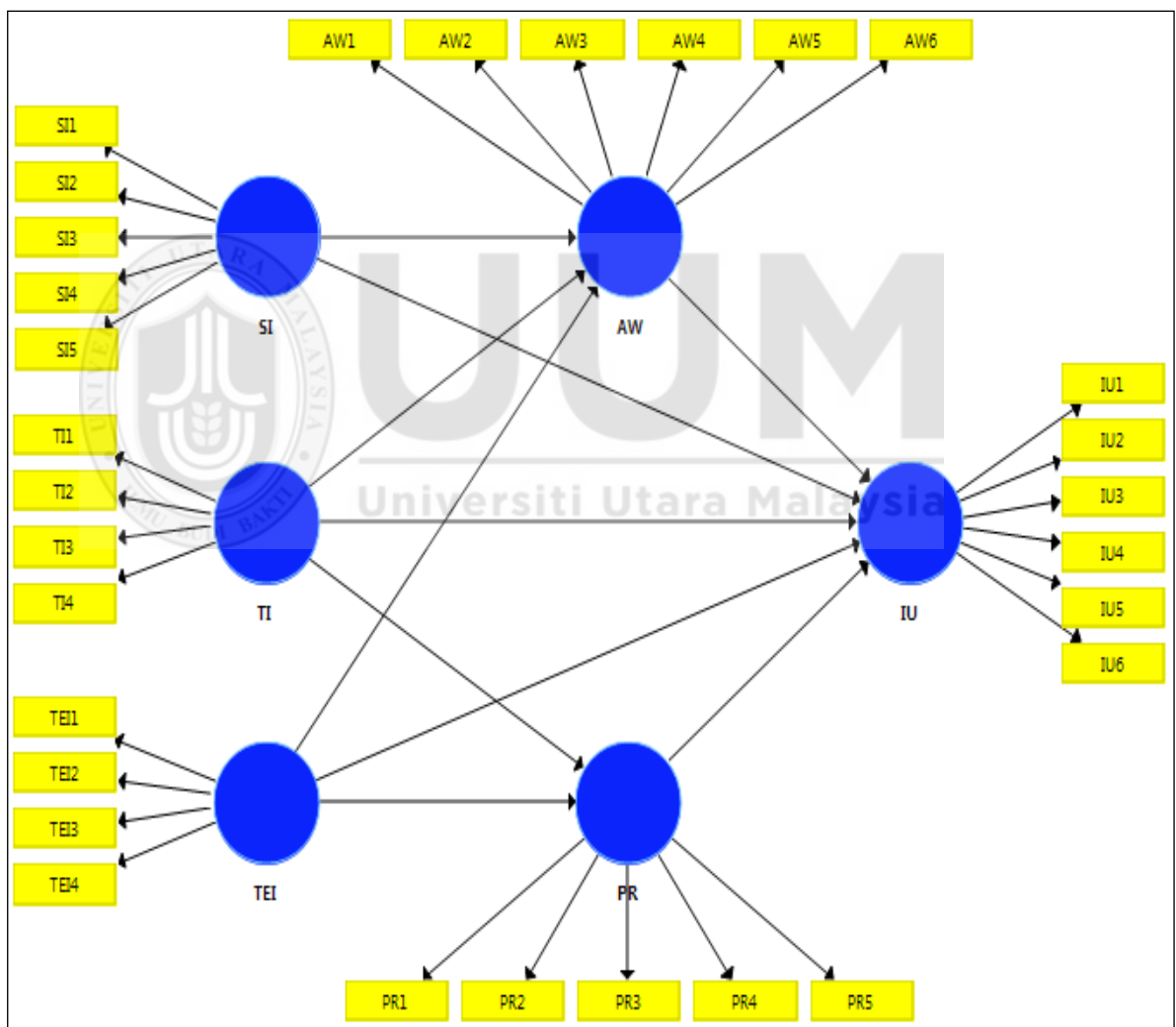
Figure 4.1
Research Framework and Hypotheses

4.7.1 Construct Validity

According to Hair *et al.* (2010), construct validity refers to the degree to which the items generated to measure a construct can appropriately measure the concept it was designed to measure. More specifically, all the items designed to measure a construct should load higher on their respective construct than their loadings on other constructs. This was ensured by a comprehensive review of the literature to generate the items that already have been established and tested in previous studies.

Founded on factor analysis, items of this study were correctly assigned to their constructs. Construct validity was ascertained in two ways. Firstly, the items showed high loadings on their respective constructs when compared with other constructs. Secondly, the item loadings significantly loaded on their respective constructs, and only three items with low loading PR5= -0.141, IU2= -0.122 and SI3= 0.446 were deleted (Chow & Chan, 2008) as in Figure 4.2 . Table 4.10 and Table 4.11 show the result.
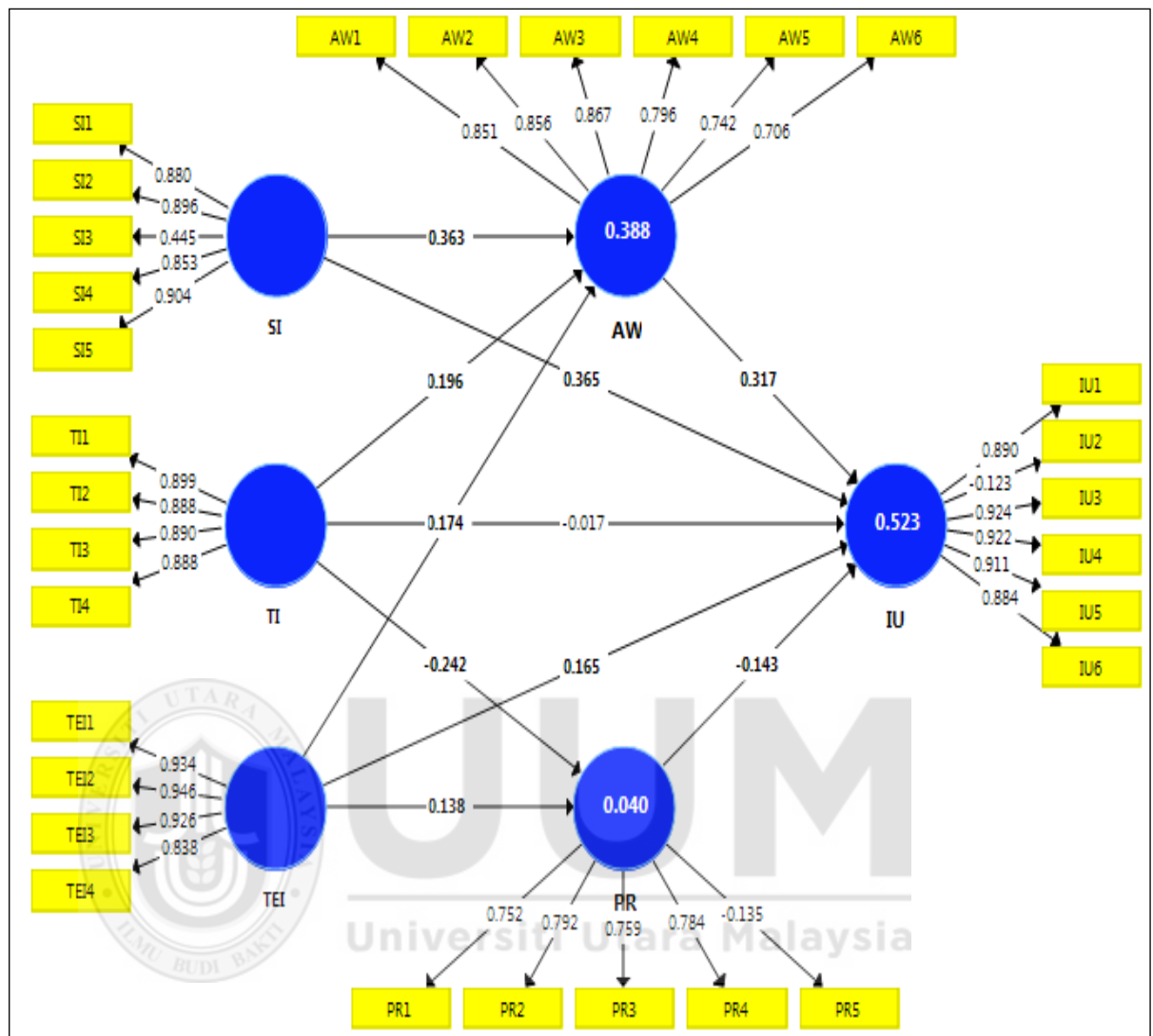
Figure 4.2
Research Framework and the Items Deleted

Table 4.10
Factor Analysis and Cross-Loading

Variables	Items	AW	IU	TE	PR	SI	TI
e-government Awareness	AW1	**0.852**	0.481	0.330	0.069	0.450	0.418
	AW2	**0.856**	0.488	0.353	-0.038	0.463	0.425
	AW3	**0.867**	0.506	0.358	0.047	0.467	0.443
	AW4	**0.796**	0.412	0.448	0.074	0.427	0.410
	AW5	**0.742**	0.614	0.404	0.098	0.528	0.353
	AW6	**0.705**	0.349	0.421	0.167	0.395	0.375
Intention To Use e-Government	IU1	0.534	**0.890**	0.464	-0.056	0.574	0.408
	IU3	0.569	**0.924**	0.459	-0.067	0.595	0.435
	IU4	0.533	**0.922**	0.439	-0.056	0.588	0.415
	IU5	0.528	**0.912**	0.451	-0.018	0.594	0.411
	IU6	0.558	**0.885**	0.472	-0.060	0.587	0.457
Trust in e-Government Intermediary	TEI1	0.448	0.493	**0.934**	0.008	0.519	0.501
	TEI2	0.446	0.478	**0.946**	0.000	0.489	0.492
	TEI3	0.461	0.483	**0.926**	-0.010	0.509	0.547
	TEI4	0.381	0.373	**0.838**	-0.010	0.421	0.515
Perceived Risk	PR1	0.066	0.001	-0.003	**0.867**	0.006	-0.112
	PR2	0.057	-0.063	-0.019	**0.889**	-0.011	-0.076
	PR3	0.090	-0.139	0.030	**0.764**	0.001	-0.007
	PR4	0.079	-0.044	-0.006	**0.927**	-0.016	-0.175
Social Influence	SI1	0.502	0.540	0.457	0.020	**0.886**	0.482
	SI2	0.494	0.538	0.447	0.046	**0.897**	0.477
	SI4	0.496	0.583	0.474	-0.020	**0.853**	0.517
	SI5	0.529	0.632	0.509	-0.067	**0.909**	0.555
Trust in the Internet	TI1	0.446	0.412	0.520	-0.119	0.537	**0.899**
	TI2	0.447	0.438	0.531	-0.112	0.489	**0.890**
	TI3	0.426	0.376	0.461	-0.137	0.466	**0.892**
	TI4	0.468	0.443	0.490	-0.104	0.552	**0.887**

141
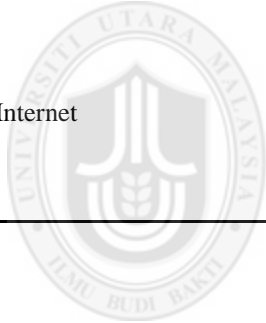
Table 4.11
Significance Level of Factor Loadings

Variables	Items	Loadings	Stad. Error	T Value	P Value
Intention To Use e-Government	IU1	0.889	0.020	45.331	0.000
	IU3	0.924	0.011	81.285	0.000
	IU4	0.922	0.014	64.677	0.000
	IU5	0.912	0.014	63.763	0.000
	IU6	0.885	0.016	56.049	0.000
e-government Awareness	AW1	0.852	0.015	55.948	0.000
	AW2	0.856	0.013	63.465	0.000
	AW3	0.867	0.012	71.311	0.000
	AW4	0.796	0.019	42.445	0.000
	AW5	0.742	0.026	28.411	0.000
	AW6	0.705	0.027	25.813	0.000
Perceived Risk	PR1	0.865	0.061	14.258	0.000
	PR2	0.888	0.063	14.217	0.000
	PR3	0.762	0.111	6.855	0.000
	PR4	0.928	0.058	15.947	0.000
Social Influence	SI1	0.886	0.014	64.400	0.000
	SI2	0.897	0.013	71.174	0.000
	SI4	0.853	0.019	44.426	0.000
	SI5	0.909	0.009	100.113	0.000
Trust in the Internet	TI1	0.899	0.011	81.369	0.000
	TI2	0.888	0.012	75.139	0.000
	TI3	0.891	0.012	76.913	0.000
	TI4	0.887	0.011	77.927	0.000
Trust in e-Government Intermediaries	TEI1	0.934	0.009	98.517	0.000
	TEI2	0.946	0.006	145.755	0.000
	TEI3	0.926	0.010	90.425	0.000
	TEI4	0.838	0.016	51.776	0.000

4.7.2 Convergent Validity

The values of composite reliability in Table 4.12 are 0.959 to 0.917. These values are higher than that of Fornell and Larcker' (1981) and Hair *et al.* (2010) of 0.7. Based on Barclay, Higgins and Thompson, (1995), the values of the average variances extracted (AVE) in this study show a good level of construct validity, ranging from 0.649 to 0.831. These values confirm the outer model's convergent validity as shown in Table 4.12.

Table 4.12
Analysis of Convergent Validity

Variables	Items	Loading	Cronbach's Alpha	AVE[b]	CR[a]
Intention To Use e-Government	IU1	0.889	0.946	0.822	0.959
	IU3	0.924			
	IU4	0.922			
	IU5	0.912			
	IU6	0.885			
e-government Awareness	AW1	0.852	0.891	0.649	0.917
	AW2	0.856			
	AW3	0.867			
	AW4	0.796			
	AW5	0.742			
	AW6	0.705			
Perceived Risk	PR1	0.865	0.893	0.746	0.921
	PR2	0.888			
	PR3	0.762			
	PR4	0.928			
Social Influence	SI1	0.886	0.909	0.786	0.936
	SI2	0.897			
	SI4	0.853			
	SI5	0.909			
Trust in the Internet	TI1	0.934	0.914	0.795	0.940
	TI2	0.946			
	TI3	0.926			
	TI4	0.838			
Trust in e-Government Intermediaries	TEI1	0.899	0.932	0.831	0.952
	TEI2	0.888			
	TEI3	0.891			
	TEI4	0.887			

4.7.3 Discriminant Validity

To confirm the construct validity of the outer model, it was necessary to establish the discriminant validity. This step was mandatory prior to testing the hypotheses through the path analysis. The discriminant validity of the measures shows the degree to which items differentiate among constructs. It shows that the items used different constructs do not overlap. Therefore, constructs although correlated, yet measure distinct concepts. This meaning was clearly explained by Compeau, Higgins, and Huff (1999). They concluded that if the discriminant validity of the measures was established, it means that the shared variance between each construct and its measures should be greater than the

variance shared among distinct constructs. For this study, the discriminant validity of the measures was confirmed employing the method of Fornell and Larcker (1981). As illustrated in Table 4.13, the square root of average variance extracted (AVE) for all the constructs were placed at the diagonal elements of the correlation matrix. As the diagonal elements were higher than the other element of the row and column in which they are located. Thus, this confirms the discriminant validity of the outer model. Having established the construct validity of the outer model, it is assumed that the obtained results pertaining to the hypotheses testing should be valid and reliable.

Table 4.13
Analysis of Discriminant Validity

Variables	1	2	3	4	5	6
e-government Awareness	**0.806**					
Intention To Use e-Government Services	0.601	**0.907**				
Trust in e-Government Intermediary	0.478	0.504	**0.912**			
Perceived Risk	0.083	-0.057	-0.003	**0.864**		
Social Influence	0.571	0.648	0.533	-0.008	**0.886**	
Trust in the Internet	0.501	0.469	0.562	-0.132	0.574	**0.892**

4.8 The Model Goodness of Fit (GoF)

The assessment value of GoF was calculated to support the validity of the PLS model based on the formula by Wetzels, Odekerken-Schroder and Oppen (2009) below:

$$GoF = \sqrt{(\overline{R^2} \times \overline{AVE})}$$

The value of GoF calculated utilizing the formula was 0.490.

144

Table 4.14
Goodness of Fit of the Model

Variables	AVE	R Square
Intention To Use e-Government Services	0.822	0.520
e-government Awareness	0.649	0.389
Perceived Risk	0.746	0.025
Social Influence	0.786	
Trust in the Internet	0.795	
Trust in e-Government Intermediaries	0.831	
Average	0.772	0.311
GoF		0.490

Wetzels *et al.* (2009) suggest that GoF values of large = 0.36; medium = 0.25; and small
= 0.1. Therefore, the GoF of the current study is large as shown in Table 4.14. This
finding is a suitable level of global PLS model validity.

4.9 Prediction Relevance of the Model

Table 4.15 demonstrates the prediction quality of the model. The intention to use e-
government, e-government awareness and perceived risk's cross-validated redundancies
are 0.822, 0.649 and 0.747, respectively. In addition, the cross-validated communality
value is 0.427, 0.014 and 0.245, respectively. The results show the values are more than
zero, representing an adequate predictive model validity. These results are based on
Fornell and Cha's (1994) recommendation.

Table 4.15
Predictive Quality of the Model

Variables	R Square	Cross-Validated Communality	Cross-Validated Redundancy
Intention To Use e-Government Services	0.520	0.427	0.822
e-government Awareness	0.389	0.245	0.649
Perceived Risk	0.025	0.014	0.747

4.10 Assessing the Inner Model and Procedures of Hypotheses Testing

Once the outer model goodness was established, the hypothesized relationships testing amongst the factors followed. The current study hypothesized model was assessed utilizing the Smart-PLS3.0 by running the PLS-algorithm. As result of running the PLS-algorithm, the study path coefficients were produced, as demonstrated in Figure 4.3 and Figure 4.4.
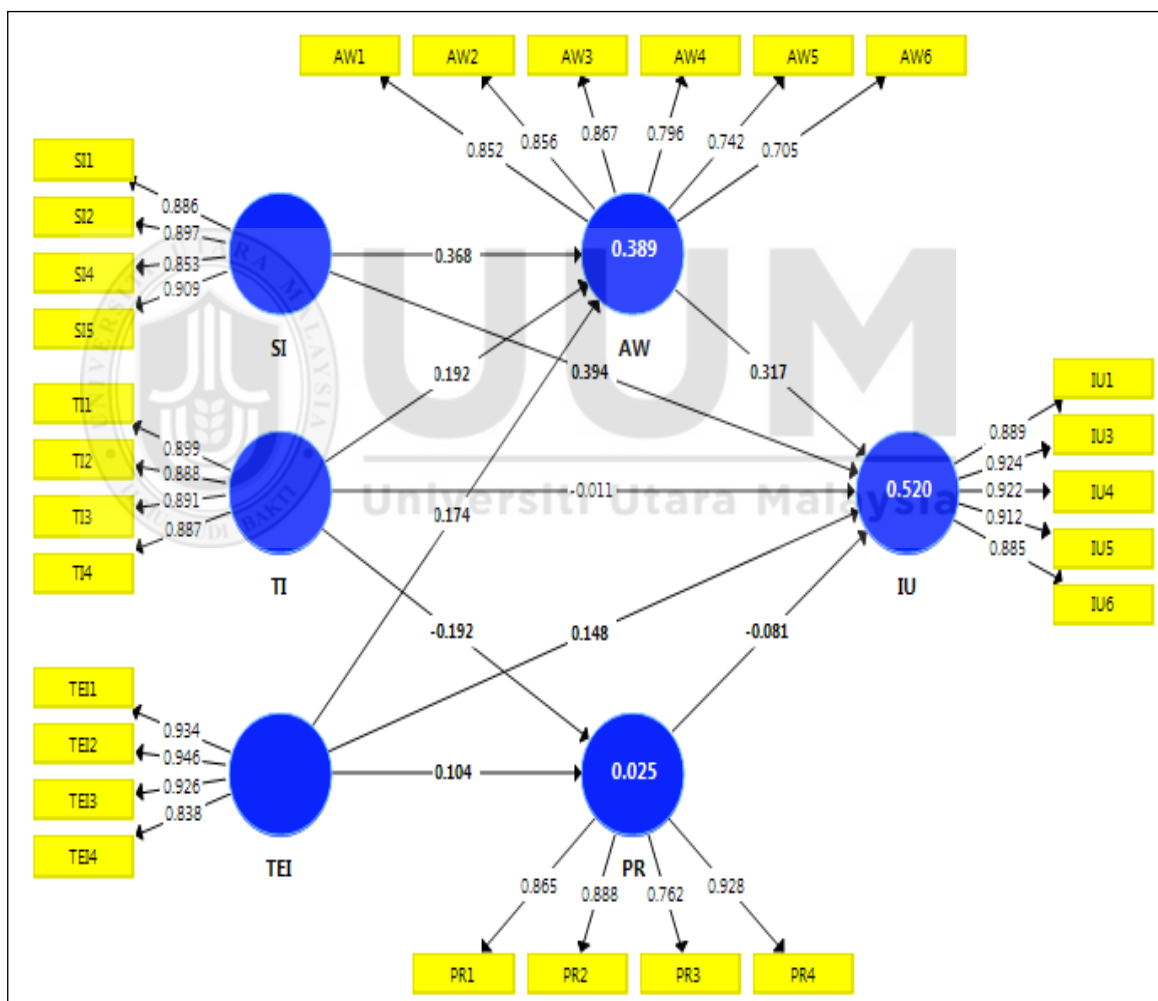
Figure 4.3
Path Model Results

146
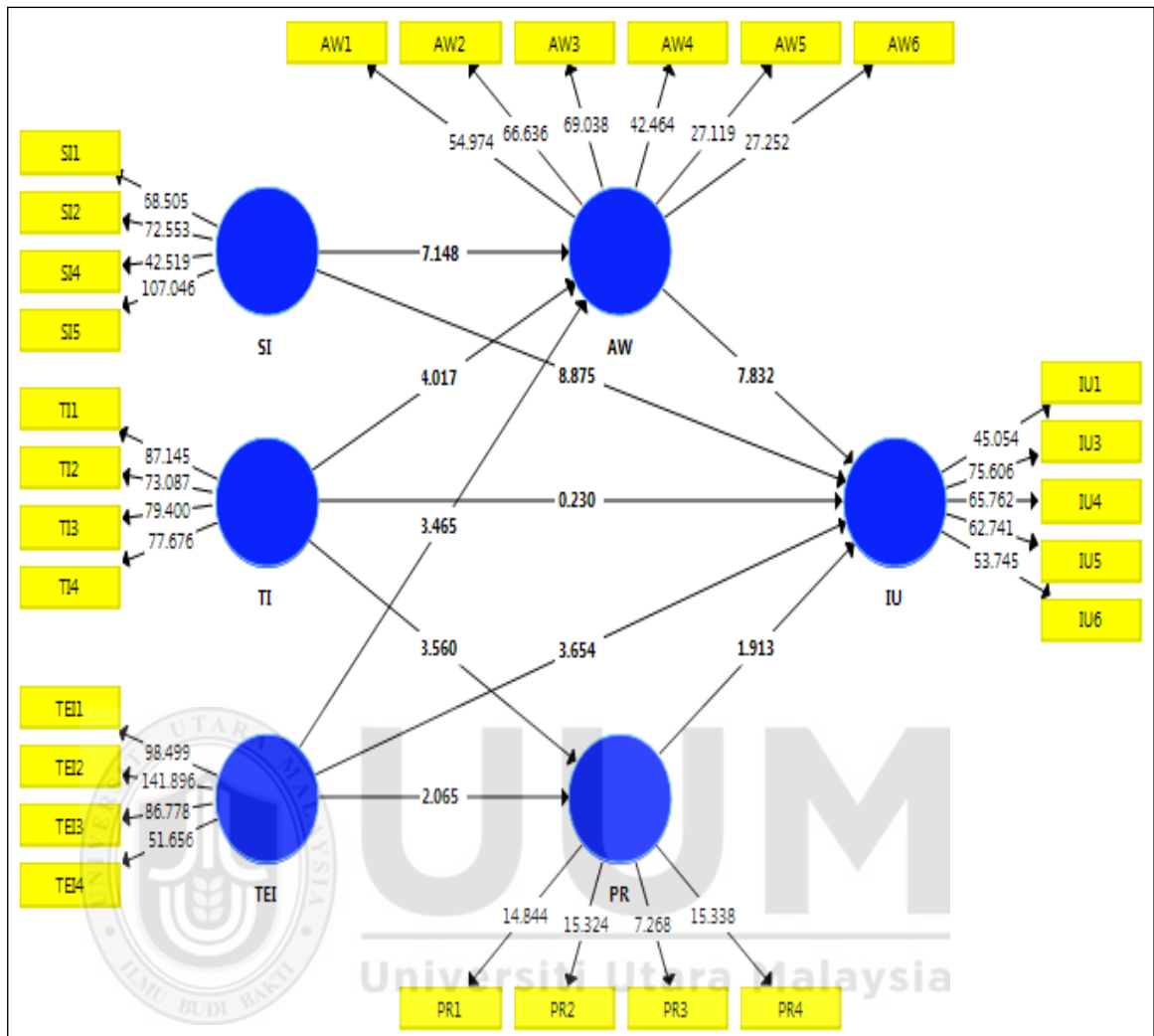
Figure 4.4
Path Model Significance Results

The present study used the techniques of bootstrapping set in the SmartPLS3.0 in order to statistically assess the path coefficients. Thus, as recommended by Hair et. al. (2014), 5,000 samples were used with 546 case-observations in order to run the study model bootstrapping. Precisely, by utilizing the bootstrapping technique, this study calculated t-values associated with every path coefficient and the p-values were consequently calculated. These results are illustrated in Table 4.16.

147

The findings show that the effect of e-government awareness has a significantly positive impact on e-government intention usage ($\beta = 0.317$, $t = 7.832$, $p < 0.000$); perceived risk on intention to use e-government services has a negative and significant influence ($\beta = -0.081$, $t = 1.913$, $p < 0.05$); there is a significant effect of social influence on e-government intention usage ($\beta = 0.394$, $t = 8.875$, $p < 0.000$); the relationship between trust in the intermediaries and e-government intention usage is significantly positive ($\beta = 0.148$, $t = 3.654$, $p < 0.000$). Thus, these results indicate that hypotheses H_1, H_2, H_3 and H_5 are supported. However, the relationship between trust in the Internet and e-government intention usage is negative and insignificant ($\beta = -0.011$, $t = 0.230$, $p > 0.05$). Thus, this result indicates that hypothesis H_4 is not supported.

Furthermore, social influence has a positive and significant impact on e-government awareness ($\beta = 0.368$, $t = 7.148$, $p < 0.000$); the relationship between trust in the Internet and awareness of e-government is significantly positive ($\beta = 0.192$, $t = 4.017$, $p < 0.000$); and there is a positive and significant impact of trust in e-government intermediaries on e-government awareness ($\beta = 0.174$, $t = 3.465$, $p < 0.000$). Therefore, these results indicate that hypotheses H_6, H_7 and H_8 are supported.

Finally, the association between trust in the Internet and perceived risk is significantly negative ($\beta = -0.192$, $t = 3.560$, $p < 0.000$); and the relationship between trust in e-government intermediaries and perceived risk is insignificantly positive ($\beta = 0.104$, $t = 2.065$, $p < 0.05$). Therefore, these results indicate that the hypothesis H_9 is supported, whereas hypothesis H_{10} is not supported.

Table 4.16
Results of the Inner Structural Model

N	Hypothesis	Path coefficient	Standard Error	T.Value	P.Value	Result
H$_1$	e-government Awareness -> Intention To Use e-Government Services	0.317***	0.042	7.832	0.000	Supported
H$_2$	Perceived Risk -> Intention To Use e-Government Services	-0.081*	0.045	1.913	0.028	Supported
H$_3$	Social Influence -> Intention To Use e-Government Services	0.394***	0.043	8.875	0.000	Supported
H$_4$	Trust in the Internet -> Intention To Use e-Government services	-0.011	0.044	0.230	0.409	Not supported
H$_5$	Trust in Intermediary -> Intention To Use e-Government services	0.148***	0.039	3.654	0.000	Supported
H$_6$	Social Influence -> e-government Awareness	0.368***	0.052	7.148	0.000	Supported
H$_7$	Trust in the Internet -> e-government Awareness	0.192***	0.049	4.017	0.000	Supported
H$_8$	Trust in Intermediary -> e-government Awareness	0.174***	0.052	3.465	0.000	Supported
H$_9$	Trust in the Internet -> Perceived Risk	-0.192***	0.056	3.560	0.000	Supported
H$_{10}$	Trust in Intermediary -> Perceived Risk	0.1040*	0.052	2.065	0.019	Not supported

Note: *p < 0.05; **p < 0.01; *** p < 0.001

4.10.1 Analysis of Mediation Effect

In general, a mediating variable mediates the influence on independent variables towards its dependent variable. According to Hair *et al.* (2010), once the direct influence from X-variable as trust in the Internet to Y-variable, like online government intention usage is not present, the influence indirectly occurs by another M-variable as perceived risk. Accordingly, in the present case, M was the mediating variable. Figure 4.5 below demonstrates the mediation variable's location in the model:
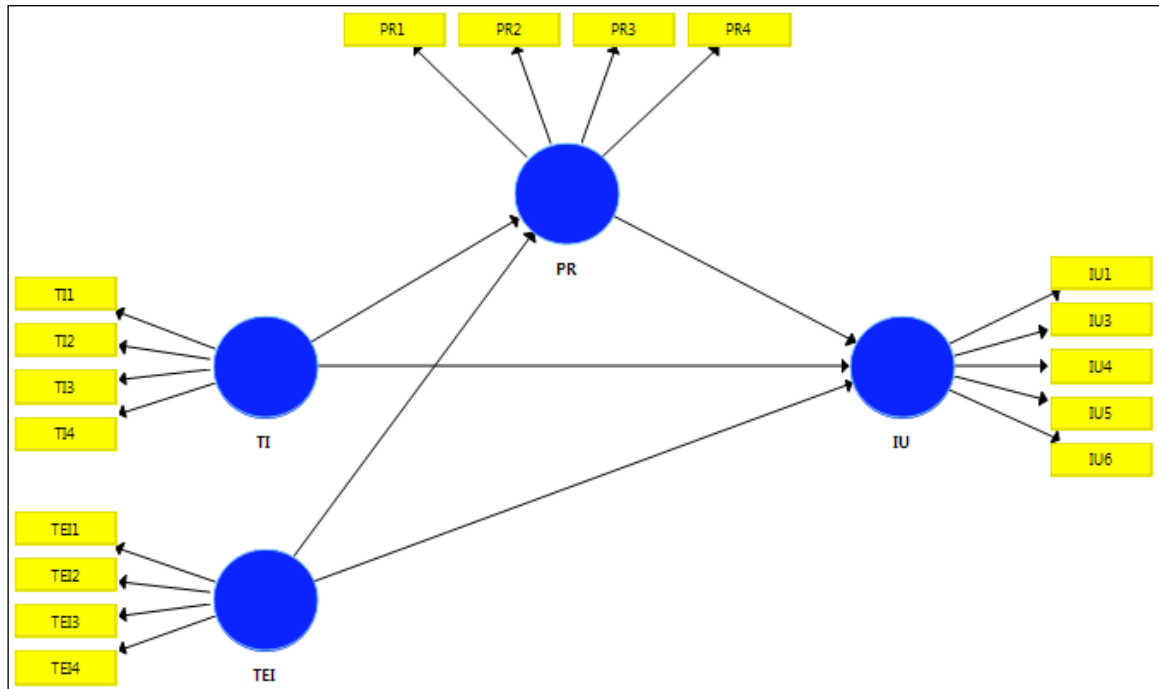
Figure 4.5
Mediation Effect of Perceived Risk

Perceived risk in the current study was hypothesized to mediate the relationship between trust in the Internet and online government intention usage, and mediates the association between trust in e-government intermediaries and e-government intention usage as shown in Figure 4.6. Moreover, e-government services awareness was hypothesized to mediate the relationship between trust in the Internet and online government intention usage; mediates the association between trust in e-government intermediaries and intention to use e-government services; and also mediates the relationship between social influence on e-government intention usage as shown in Figure 4.6.
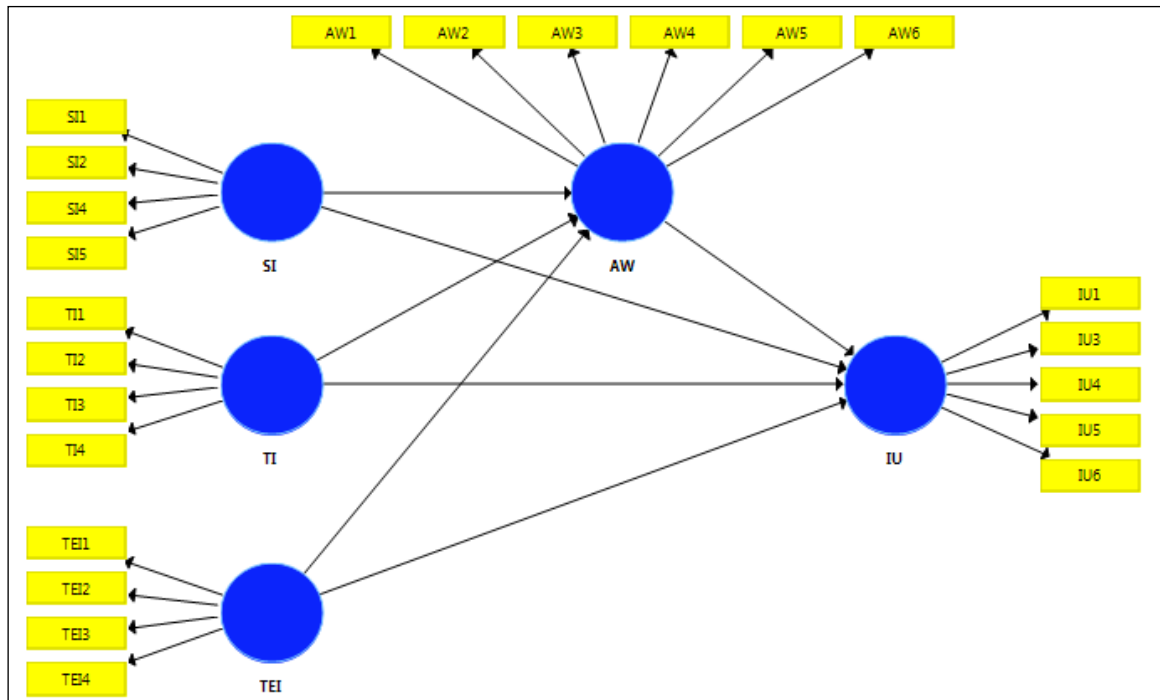
Figure 4.6
Mediation Effect of E-government Awareness

Mediation represents a situation in which a mediator variable to some extent absorbs the effect of an exogenous variable on an endogenous latent variable in the PLS path model (Hair *et al.*, 2014). Baron and Kenny (1986) argue that a mediator variable is a generative mechanism wherein the main independent variable influences the dependent variable of interest. Mediation appropriately occurs when there is a significant association between predictor and criterion variables. Kenny and Little (2011) state that the mediator variable is capable of transmitting some causal effects of previous variables onto the next ones. A mediator variable is considered if it develops an indirect effect through which the important independent variable influences the criterion variable under study (Baron & Kenny, 1986). Thus, mediating variables play an important role to a better understanding of the investigating indirect processes.

151

To evaluate the mediation effect, there are a number of approaches that have been used in different studies. A mediation analysis provides the identification of basic processes that underlie human behavior and that are significant throughout behaviors and contexts (Fairchild & MacKinnon, 2009). Four conditions must be met in order to test the mediation of M factor: firstly, X-predictor should significantly be related to Y; secondly, X-predictor should significantly be related to M; thirdly, after controlling for X, M should significantly be related to Y; and finally, the effect of X on Y is significantly lesser after controlling for M.

4.10.2 Testing the Mediation Hypotheses

The result in Table 4.17 shows partial mediation influence of e-government awareness on the relationship between trust in e-government intermediaries and intention to use e-government and partial mediation effect of e-government awareness on the relationship between social influence and intention to use e-government. Therefore, these results indicate hypotheses H_{11} and H_{13} are supported.

The relationship between X (trust in the Internet) and Y (intention to use e-government) should be significant if the M (e-government awareness) is not included in the model. Even though this is not a necessary condition (Zhao, Lynch, & Chen, 2010), this kind of situation makes the mediator analysis much easier to understand and interpret. In this study, since the direct effect of trust in the Internet on intention to use e-government was found not to be significant; according to Baron and Kenney (1986) the mediation hypothesis could not be supported. However, following the indirect effect analysis suggested by Hayes and Preacher (2014) we utilized the bootstrapping methodology and

confirmed that the indirect effect of trust in the Internet on intention to use e-government was found to be significant. This mean that trust in the Internet has a significant and indirect effect on intention to use e-government through e-government awareness.. Therefore, this result indicates hypothesis H_{12} is supported.

Finally, there is full mediation influence of perceived risk on the relationship between trust in the Internet and intention to use e-government services. Contrary to the hypothesized relationship, there is no mediation influence of perceived risk on the relationship between trust in intermediaries of e-government and e-government intention usage. Therefore, these results indicate that the hypothesis H_{14} is supported, while the hypothesis H_{15} is not supported.

Table 4.17
Testing the Mediation Hypothesis

N	Hypothesis	a		b		C		C'		Mediation
		Path	T	Path	T	Path	T	Path	T	Effect
H_{11}	SI-AW-IU	0.368	7.148	0.317	7.832	0.649	16.576	0.394	8.875	Partial
H_{12}	TI-AW-IU	0.192	3.922	0.317	7.832	0.471	11.363	-0.011	0.230	Full
H_{13}	TEI-AW-IU	0.174	3.232	0.317	7.832	0.505	11.936	0.148	3.654	Partial
H_{14}	TI-PR-IU	-0.192	3.790	-0.081	1.905	0.471	11.363	-0.011	0.230	Full
H_{15}	TEI-PR-IU	0.104	1.960	-0.081	1.905	0.505	11.936	0.148	3.654	Not support

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

4.11 Summary of the Findings

This study utilized PLS-SEM as the major analysis technique, since PLS-SEM is a relatively new analytical technique. Prior to testing the model of the study, rigorous procedures to establish the outer model's validity and reliability were followed. Once the measurement model was shown to be valid and reliable, the hypothesized relationships were tested. Before examining the hypothesized relationships, the predictive power of

the model was investigated and reported and the goodness of the overall model was confirmed.

After that, the structural model was examined and the results are reported in detail. As shown in Table 4.18, the hypotheses H_1, H_2, H_3, H_5, H_6, H_7, H_8 and H_9 are statistically supported; while the hypotheses H_4 and H_{10} are not supported. Finally, the mediating hypothesis H_{11} and H_{13} are supported and have partial mediation effect; hypothesis H_{12} and H_{14} are supported and have full mediation; whereas one mediating hypothesis, H_{15}, is not supported.

Table 4.18
Summary of the Findings

No.	Hypotheses	Result
H_1	There is a significant positive effect of e-service awareness on intention to use e-government services.	Supported
H_2	Perceived risk has a negative influence on intention to use an e-government service.	Supported
H_3	Social influence positively affects intention usage of e- government services.	Supported
H_4	Trust in Internet has a positive effect on intentions to use e- government services.	Not support
H_5	Trust in the e-government intermediaries has a positive influence on intentions to use e-government services.	Supported
H_6	Social influence has a positive effect on e-government services' awareness.	Supported
H_7	Trust in the Internet has a positive effect on e-government services' awareness.	Supported
H_8	Trust in the e-government intermediaries has a positive effect on e-government services' awareness .	Supported
H_9	Trust in the Internet has a negative influence on perceived risk of using an e-government service.	Supported
H_{10}	Trust in the e-government intermediaries has a negative influence on perceived risk of using an e-government service.	Not support
H_{11}	The awareness of e-government services mediates the relationship between social influence and intentions to use e-government services.	Partial Mediation
H_{12}	The awareness of e-government services mediates the relationship between trust in the Internet and intentions to use e-government services.	Full Mediation
H_{13}	The awareness of e-government services mediates the relationship between trust in intermediaries and citizens' intentions to use e-government services.	Partial Mediation
H_{14}	Perceived risk mediates the relationship between trust in Internet and intention to use e-government services.	Full mediation
H_{15}	Perceived risk mediates the relationship between trust in e-government intermediaries and intention to use e-government services.	Not support

154

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter recapitulates the findings, followed by a discussion of them. It then provides the theoretical and managerial implications as well as limitations of the study. Finally, it offers suggestions for future research.

5.2 Recapitulation of the Study Findings

Based on the TPB of Ajzen (TPB), the present study investigates the antecedents of intention to use e-government services at individual level and the mediating effects of e-government services awareness, perceived risk and their antecedents. Specifically, the first objective is to identify antecedent factors that influence intention of online government services usage at individuals' level . The second objective is to identify the factors that influence awareness of e-government services. The third objective is to identify the factors that influence perceived risk when they seek e-services of the government. The fourth objective is to examine whether e-government services awareness has mediation effect on the relationship between social influence, trust in Internet and intermediaries and intention to use online services of the government. The fifth objective is to examine whether perceived risk by citizens has mediation effect on the relationship between trust in Internet and trust in intermediaries and intention to use online government services.

The present study was carried out to pursue possible answers to the five research questions of this study: (i) What are the factors that influence intention to use online services of the government? (ii) What are the factors that influence awareness of online services of government? (iii) What are the factors that influence perceived risk? (iv) Does awareness of online services of government mediate the association between social influence, trust in Internet and trust in intermediaries of e-government and intention to use online services of the government? (v) Does perceived risk mediate the relationship between trust in Internet and trust in intermediaries and intention to use online services of the government?

Before testing the hypotheses and examining the structural relationships of this study, the measurement model was evaluated first utilizing PLS technique using smartpls3.0 as the better approach to SEM (Hair *et al.* 2013). In order to know the model's GOF, two steps were conducted. Firstly, construct validity, which includes factor loadings, convergence validity and composite reliability and Cronbach's alpha, was ascertained. Secondly, discriminant validity, that includes Fornell-Larcker's (1981) criterion, was determined.

Responding to the first research question, PLS path coefficient and bootstrapping approach that were carried out show that four of five hypotheses tested are supported. The four hypotheses include: e-government Services Awareness, Social Influence Perceived Risk, and Trust in e-Government Intermediaries. Awareness of e-government, Influence of Social and Trust in Intermediaries are found to be positively associated with intention to use online services of the government, while a negative association exists between intention to use online services of government and Perceived Risk. However,

157

hypothesis formulated for the association of Trust in the Internet with intention to use e-government services is not supported.

To answer the second research question, the current research shows that for the three hypotheses linked to e-government services awareness and its underlying factors relationship, all hypotheses are supported, and positive association is found between awareness of e-government and Social influence, Trust in the Internet and Trust in e-Government Intermediaries.

In relation to the third research question, this study's outcomes show that one hypothesis is supported, and a negative association is found between Perceived Risk and Trust in Internet. However, a positive association is found between Perceived Risk and Trust of Intermediaries; this hypothesis is hence not supported.

To answer the fourth research question, this study finds a full mediation effect of online government awareness on the association between Trust of the Internet and intention to use online services of government; partial mediation effect of awareness of online government services between Trust of e-Government Intermediaries and intention to use online services of the government; and finally partial mediation effect of e-government services awareness on the association between Social Influence and intention to use e-services of the government.

To answer the fifth research question, the analysis undertaken revealed that perceived risk has a full mediation effect on the link between trust of the Internet and intention to use online services of the government. On the other hand, no mediation influence of

158

perceived risk on the relationship between trust in intermediaries and citizens' intention to use online services of the government is found.

5.3 Discussion

This section discusses the effects of antecedent factors on citizens' intention to use online services of the government; the factors that influence awareness of e-government; the factors influencing perceived risk; the mediation effect of awareness of online services of the government; and finally, the mediation influence of perceived risk.

5.3.1 The Effects of Antecedent Factors on Intention to Use e-Government

In the current study, the first research question, as mentioned above, relates to the antecedent factors of intention to use online services of the government. Out of the five antecedents factors included in the current study, four factors emerge as important interpreters of intention to use online government services. These, in order of importance, are social influence, e-government awareness, trust of intermediaries and perceived risk, while only trust in the Internet is found to be an insignificant factor.

It is interesting to find that major influences of intention to use e-government services can be found in all antecedent factors with the exception of one factor, namely trust in the Internet as illustrated in Figure 2.1. This means the present study finds relationships with most of the antecedents. The important implication of this study is that most of the antecedents influence intention to use online government services and the hypothesized relationships are supported. The next paragraphs discuss these relationships in detail.

159

Firstly, this study shows that social influence impacts positively on the level of academic staff members' intention to use online government services. This social influence stems from messages as well as signals that assist in the formation of perceptions concerning the product, services or activity (Venkatesh & Brown, 2001). This means the greater the social influence, represented by friends and families, the more positive the pressures will be in furthering intention to use online government services.

Based on the social learning theory, the direct role models, such as friends and family, have the greatest impact on consumers' purchase decisions (Bush *et al.*, 2001). Additionally, the differences in behaviors may occur because of social group memberships and associations as recommended by Grob (1995). This probably happens through role modeling effect, where friends and families are instrumentally involved in shaping and reinforcing the behavior of each other through communication of certain guidelines and contributions from each other (Bush *et al.*, 2001). Accordingly, the practice and development of these social influences could be achieved through the acts of reciprocity and social exchange, as well as through modelling or imitation (Bandura, 1977).

From the commerce point of view, consumers' socialization process through which consumers form attitudes towards purchases in the marketplace could explain this result (Bush *et al.*, 2001). This finding validates the work of earlier studies on the important role of social influence in prompting attitudes of others in the direction of new e-services usage (Al-Shafi & Weerakkody, 2010; Ahmad *et al.*, 2013; Venkatesh *et al.*, 2003). They conclude that citizens would use online services of the government when others who are important to them use them. In short, the finding shows that online agencies

160

could utilize social influences to encourage their services usage where some users are to be aware with e-government services by following their colleagues and friends behavior.

Secondly, the current research finds that the awareness of online services of government agencies positively influences intention of academic staff to use e-services of the government. The research finds that the more the awareness of e-government services, the more will be academic staff's intention toward e-government services usage. In doing so, the more citizens are aware of such benefits, the more they will be encouraged to use online government services.

The significant influence of e-government awareness on intention to use online services provided to the citizens by government happens due to the presence of online services of government through building awareness about benefits and availability of online government services which in turn leading to use these online government systems (Phang *et al.*, 2006). On the other hand, the absence of awareness about benefits and availability of e-government services and limited promotion, are the common reasons reported for the low rate of e-government adoption (Khan *et al.*, 2012; Rehman & Esichaikul, 2012; Sipior *et al.*, 2011).

Thus, the knowledge that utilizing online services can save time, money and effort can lead to increased citizens' perceived usefulness and acceptance of them. While the government media has the responsibility to advertise the availability of e-services by different channels, the programmes of awareness about these online government systems designed to build knowledge at individuals' level possibly can assist to diffuse online services government all over society. This suggests that for successful e-government

161

initiatives that impact the intention to use the services among citizens, top management must boost citizens' use of websites by increasing their awareness.

The results of the current research are in line with the innovation diffusion theory (Rogers, 1995), which states awareness is the key variable associated with the improvement of the innovation. Further, this study's findings support Al-Hujran *et al.* (2013); Khan *et al.* (2012); and Meftah *et al.* (2015), who found that citizens with the knowledge and awareness about benefits and availability of e-government services have higher tendency to use e-government in a positive way, resulting in participation in and adoption of e-government services .

Similar to Pavlou and Fygenson (2006), awareness of a new service means greater intention to use the service, leading ultimately to actual usage. The present study's findings also indicate that building awareness about benefits and availability of online government services at the level of academic staffs would lead to improving their intention to use such services.

A substantial number of studies (Khan *et al.*, 2012; Phang *et al.*, 2006; Al Athmay, 2013; Alateyah *et al.*, 2014; Mofleh *et al.*, 2015; Rehman *et al.*, 2012) have investigated potential antecedents of e-government services usage intention and have demonstrated a significant influence of e-government awareness on e-government usage.

The finding of this study concurs with Charbaji and Mikdashi (2003). They indicate a significant influence of awareness of benefits and availability of online government services on the level of citizens' online government behavior. In brief, the finding indicates that awareness plays an essential role in increasing the intention to use e-

services of the government, which may in turn, promote better e-government service usage.

Thirdly, despite limited evidence that shows the relationship between the e-government intermediaries and intentions to use e-government services in the literature on e-government (Al-Sobhi *et al.*, 2010), the present study finds that trust in e-government intermediaries significantly impacts intention to use online government services. The current research findings show that e-government intermediaries form academic staff's trust between them and e-government services.

The positive relationship between role of trust of intermediaries and intention to use online services of the government indicates that the more the trust of intermediaries' role as perceived by the academic staff, the more likely they are going to be to use e-services of the government. Hence, the resulting implication is that having this construct is significant to policy-makers in determining intention toward using e-services of the government in Saudi setting.

The finding of this study indicates that the online government intermediary is a valuable gateway for successful building of trust and assisting citizens to use e-government services. Additionally, this study enhances our understanding that the role of trust in e-government intermediaries works as an influence factor that demonstrates intentions to e-government services and this result confirms prior studies (Weerakkody *et al.*, 2013; Datta & Chatterjee, 2008; Bailey & Bakos, 1997).

One plausible reason for the trust in online government intermediaries is that academic staff members lack assurance and confidence to trust the e-government services. Further,

163

these e-government intermediaries may be successful in improving trust by minimizing the failure of transaction risks and ensuring safe transactions between parties and the parties are kept abreast of the processes (Bailey & Bakos, 1997).

The intermediary's use of fair rules and procedures offer resolution for the seller's opportunistic behavior (Pavlou & Gefen, 2004). Thus, this may be seen as willingness to trust the e-government intermediary and maximizes the intentions to use the e-government services. Importantly, the e-government intermediary is capable of responding to the needs of the locals through their role that possibly leads to trust in the intermediary (James, 2003).

This study supports assertions of the intermediary theory (Bailey & Bakos, 1997), which states that the role of intermediaries enhances trust among parties. Consistent with prior studies in the intermediary setting, the current research indicates that the online government intermediaries are an essential channel to encourage trust in e-government services (Bailey & Bakos, 1997; Howells, 2008). Dombrowski *et al.* (2014); and Weerakkody *et al.* (2013) show how these intermediaries can foster trust with their customers and accordingly the effect of this trust on intentions to use e-government applications. In sum, the important implications with regards to this study's theoretical outcome are that the online applications usage of government services at citizens level could possibly be explained through trust of e-government intermediaries; therefore improving trust among government and citizens can encourage government of systems usage.

164

Fourthly, the present research shows that perceived risk of academic staff inversely and significantly influences their intentions to use e-government systems. The inverse association of perceived risk with intention to use e-government indicates that when perceive risk, intention to use e-government will be lower. This indicates that the more the risk perceived by the academic staff, the less likely they are going to be to use e-government.

The negative relationship found is as expected because perceived risk has been regarded as a particularly problematic issue among users as cybercrimes have increased in the past five years (Ablon & Libicki, 2015; Pascual & Miller, 2014) Thus, the impact of this growth of cybercrimes possibly could be an influence on the e-government usage (Akkaya *et al.*, 2013; Rehman, *et al.*, 2012).

In light of inherent uncertainty of using an open technological infrastructure, such as the Internet, citizens want assurance that their online interaction with the government is secure (Pavlou, 2003). Obviously, the risk perceptions in websites of the government are greater compared to that in e-commerce (Gefen, 2002). Thus, the academic staff may not have the tendency to use such services owing to their perceived lack of security in online transactions and issues related to information use.

Another reason is possibly because of the Saudi laws are lackluster compared to the neighboring countries and the criminal law does not provide a definition of privacy or any punishments that may be brought against companies and organizations (Alzahrani & Goodwin, 2012). Further, e-government programs in Saudi Arabia are saddled with

165

challenges arising from the lack of a legal framework to safeguard e-transactions (Al-Shafi, 2007; Alateyah *et al.*, 2014).

Alfarraj *et al.* (2013) say that the Saudi e-government lacks information technology policies implementation and the absence of a legal framework to establish online transactions (Al-Shafi, 2007, Alateyah *et al.*, 2014). Thus, owing to their perceived risk, the academic staff may have low intention to use online services of the government. The current study's findings validate the work of earlier studies by Akkaya *et al.* (2013); Gefen and Pavlou (2012); Khasawneh *et al.* (2013); and Pavlou (2003) on the role of risk perceptions in intention to use technology. They conclude that a greater risk perception will lead to the minimization of the technology's perceived benefits.

In a few related studies conducted in the Saudi setting, perceived risk has been revealed to negatively and significantly influence the adoption of Saudi mobile banking (Al-Jabri & Sohail, 2012). To summarize, the key implications of this research with regards to theoretical outcomes, are that intentions to use online government systems at individuals' level can be explained by citizens' risks perceptions, which can reduce their intentions to use online services of the government.

Finally, contrary to what was hypothesized, the study's findings demonstrate that trust of Internet is insignificantly associated with the academic staff members' intentions to use online systems of the government. The finding indicates that even if trust in Internet is perceived by the academic staff, their trust in Internet as media will not have any influence on the level of intentions to use online applications of the government. Belanger and Carter (2008) show that attitude of users regarding online systems of the

166

government are effected by their views which involve e-environment of the Internet. For that reason, developing trust at level of citizens will encourage their usage of e-government systems (Belanger & Carter, 2008).

Nevertheless, the findings on trust in the Internet in this research may be attributed to the fact that two trustworthy factors are included in this study, namely: trust of intermediary and trust of Internet. While the hypothesis on trust of Internet is not supported, the results of this study are extremely meaningful because they focus only on the most trustworthy factor, i.e., trust of intermediary. This research finds relationship with only one important trust factor as the antecedents of intention to e-government services usage, namely trust of intermediary.

This could be related to the fact that while citizens utilize the Internet which is the main medium to connect with the website of government systems in Saudi, the two constructs, namely trust of the e-government intermediary and the Internet overlap with intention to use e-government . As a result, strengthening the assertion by Weerakkody *et al.* (2013), when trust in the intermediary contributes significantly, trust of the Internet has insignificant impact in influencing intention to use e-government.

Although these findings are unique to the current research, a significant implication is that certain antecedents might perform like alternatives for another in effecting intention to use e-government systems at the individuals' level. For example, trust of the online government intermediary may override trust of the Internet in influencing intentions to use e-government at the level of citizens. From the results, we can conclude that trust in

the intermediary is a major driver to develop a trustworthy setting for citizens' intentions to use e-government.

Another plausible reason why trust in the intermediary drives the academic staff's intentions to use e-government instead of trust in the Internet could be related to the intermediary organizations having the ability to add value to both providers (e-government) of the services and requesters of these services (the academic staff) and to maximize the requisite trust between them (Bailey & Bakos, 1997; Dombrowski *et al.*, 2014; Weerakkody *et al.*, 2013). The contribution of intermediaries is in the development of trust that links the government to its people as emphasized by Sorrentino and Niehaves (2010).

To sum up, the current research enhances our understanding of the social influence role, e-government awareness, risks perceptions, trust of e-government intermediaries and trust of Internet as different factors that influence e-government services usage.

5.3.2 The Factors Influencing e-Government Services Awareness

The second research question relates to the factors that influence e-government services awareness. All three factors included in the current study emerge as significant predictors of awareness of online government. These, in order of importance, are social influence, trust of Internet and trust of intermediary. Based on prior research, however, no empirical studies exists on the relationship between these proposed factors with awareness of e-government services. The following discusses these relationships in detail.

168

Firstly, the current research shows that a significant effect of social influence on e-government awareness and the hypothesis is supported. Furthermore, the current research suggests that social influence is a key to improving online government systems awareness. Thus, the current study indicates that as the level of social influence in Saudi increases, the likelihood is that online services awareness will also be high. It can be concluded that academic staff are likely to use e-government as their others who are important to them use these online systems. The finding of the present study shows that families and friends influence others regarding e-government services and its benefits and availability. The main implication of this study theoretically is that e-services awareness can be explained by social influence, which can enhance e-government usage. Further, the social influence factor influences awareness of online services of agencies, which shows this factor can improve e-services awareness in Saudi's e-government context.

Online government should therefore utilize social influence to encourage e-government services. In assisting the formation of perceptions concerning the services, the advertising of online government services requires messages as well as signals that stem from social influence. The Saudi government agencies that provide e-services can also target its e-services marketing campaigns at friends and family in an attempt to influence the attitudes of potential citizens' usage.

As literature has shown, the lack of awareness would be an issue in an e-government services setting. Such lack of awareness of e-services may be an opportunity for the government to utilize social influence as a strategy to enhance awareness of their e-government services. Further, since the government media has the responsibility to

advertise the availability of e-services using different channels, the finding indicates that in order to increase citizens' knowledge about e-government services, an awareness plan may possibly assist to promote online government applications in society.

Hence, the marketing for e-government services could be exploited more within the social influence of associated members, like family or intermediates that influence awareness of e-government services. Therefore, governments have to leverage these impacts and promote e-government systems.

One probable reason for this positive finding of the relationship between social influence and awareness is that the signals and messages of social influence regard e-services usage assist to form e-government services perceptions (Venkatesh & Brown, 2001). The message is carried out to the receivers over a communication method that acts as factor in building marketing. Therefore, this social influence-awareness online government services relationship needs such similar signals. Further, direct role models, like friends and family, also have the greatest impact on consumers' market place knowledge and purchase decisions (Bush *et al.*, 2001). Accordingly, once academic staff are familiar with e-government, they may persuade their colleagues and friends to use these online government.

Another equally plausible explanation for this result might be because of the collectivist culture in Saudi society, where individuals affect the opinions of others through a communication process, consequently creating e-government services awareness (Al-Gahtani *et al.*, 2007). Similarly, the significant influence of social influence of associated members, like family or intermediates on awareness is probably due to

170

differences in environmental attitudes and behaviors that may occur because of social group memberships and associations (Grob, 1995). Further, consistent with Baker and Ozaki (2008), social influence can increase awareness by effects of spillover on the main correlation leading to form attitudes towards purchases behavior. Thus, social influence is considered as a potential antecedent of e-government services awareness. To sum up, the current research enhances our understanding of social influence's role in trust in Internet and trust in intermediaries as antecedents of e-government awareness to explain directly and indirectly intentions towards usage.

Secondly, the present research shows a significant association between trust in Internet and awareness of e-government application, confirming that there is a positively significant effect between trust of the Internet and e-government services awareness as hypothesized in this study. The resulting implication is that having trust of Internet is important for online services awareness. This study finds that trust of the Internet can build e-government services awareness and promote academic staff's knowledge about benefits and availability of online government services, in turn leading to not only usage and diffusion of e-government services, but also e-services usage throughout society. The outcomes of this study propose that the concept of trust in the Internet must be exploited to improve awareness about e-government systems in the Saudi setting. Also, this study suggests that trust of the Internet has an important role in the marketing and increased awareness of online government services.

In this regard, the motivation of users possibly will be higher to evaluate trustworthiness of information on the website; consequently, they might place higher trust in such information gateways (Parasuraman *et al.*, 2008). Thus, trust of Internet as a social

171

phenomenon impacts the e-government services awareness and indirectly citizens' intention of academic staff to use e-services of government. This finding supports the earlier work done by Parasuraman *et al.* (2008) on the essential role of trust in promoting e-services awareness. This result also concurs with Aydoğan *et al.* (2015). They concluded that trust in sources of information has an important influence on awareness . Further, this finding validates the work of the earlier study by Christianson *et al.* (2014) who found that higher levels of trust of the Internet is linked to higher levels of awareness of physicians' quality information.

In addition, this is in line with Daassi *et al.* (2006). In their study, they find that higher levels of trust are related to higher levels of collective awareness. It is also consistent with studies on awareness (O'Donovan, *et al.*, 2013; Teng, *et al.*, 2013). They show that trust has a key role to build awareness. In short, the main theoretical associations of this study results are that e-government usage by academic staff could be explained indirectly through trust in Internet, which may develop e-government awareness and consequently encourage citizens' usage.

Finally, the current study shows an important association between trust in e-government intermediaries and awareness of e-government services, supporting this research's hypothesis. The positive relationship between role of trust in intermediaries and awareness of e-government services shows that the more the trust in intermediary's role as perceived by the academic staff, the more likely they know about e-government services. The implication of the outcomes is that trust in e-government intermediary has a crucial role in predicting awareness of e-services of government. This indicates e-

172

government services awareness in Saudi Arabia's e-government setting could be improved by utilizing the role of intermediaries.

These outcomes show that the e-government intermediary model must be better exploited with the aim of developing Saudi's online government awareness in society. The Saudi government has to utilize the intermediary's role to improve e-government awareness. The findings demonstrate that awareness of e-government could be aligned with utilizing the e-government intermediaries. In Saudi Arabia, e-government intermediaries are a platform for socially effective marketing of e-government services and for concentrating on citizens in hard-to-reach locations. Thus, the theoretical effects of this study's results are that trust of intermediaries could enhance e-government services usage at individuals' level. This could lead to building awareness of e-government services and consequently encourage usage of such e-services by citizens.

The possible reasons for this finding could be that intermediates could be functioned as a hub for socially marketing about the e-government systems pursuing users in the intermediaries' location. Thus, e-government can better utilize the assistances of the positions of such intermediaries toward promote the e-government where citizens are frequented visited intermediaries. In addition, the e-government intermediary performs likewise any general media since the e-government intermediaries are a main social support source for the e-government and that could lead to increase e-government awareness within society (Al-Shafi & Weerakkody, 2007). This finding indicates that promoting e-government awareness possibly can contribute in e-government applications diffusing over society by intermediaries. Government can utilize from media and intermediaries to advertise e-government awareness. Thus, the effects of e-

173

government intermediaries are important in supporting e-services usage in government setting.

Intermediary theory suggests that one of the intermediaries roles improves awareness by the provision of market knowledge (Bailey & Bakos, 1997). The present research empirically conforms that e-government intermediaries are to could built e-government awareness about benefits and available of e-services and encourage academic staff to intentions to use e-government. This finding also validates the work of earlier research by Dombrowski *et al.* (2014); and Wahid *et al.* (2011), on the important role of intermediaries in transforming society through the promotion of awareness; they conclude that the intermediaries could foster awareness among their customers.

To sum up, this research explains social influence, trust in Internet and trust in e-government intermediaries as antecedents of e-government services awareness to explain directly and indirectly intentions to use e-government.

5.3.3 The Factors Influencing Perceived Risk

The third research question relates to the factors that influence perceived risk. In this study, two factors, trust of Internet and trust of Intermediaries were hypothesized to influence perceived risk. This study's findings indicate that trust in Internet factor is significantly and negatively associated with citizens' risk perceptions. In contrast to the hypothesis, trust of intermediaries is surprisingly hypothesized to have a positive impact on risk perceptions towards government website use. The following discusses these relationships in detail.

174

As hypothesized, the present research demonstrates that trust in Internet has a significantly negative influence on the level of risk perceived by the citizens. The trust in the Internet and perceived risk has an inverse relationship, indicating that when the level of trust of the Internet by academic staff as the transmitting medium is greater, the less likely they are to have perceived risk regarding e-government services.

Probably, this significant relationship between trust in Internet and perceived risk is because of the effect of trust in forming an initial association of citizens with their government online systems, whereby the former are not aware of the online services (Carter & Weerakkody, 2008). Without risk, actions can be taken with utmost certainty and there would be no need for trust (Al-Adawi *et al.*, 2005; Pavlou, 2003). This leads to online services being utilized by citizens only when the citizens are convinced of their trustworthiness (Belanger & Carter, 2008). With regards to increased perceived risk due to cybercrimes, citizens may want assurance that their online interaction with the government is safe. According to several authors, the trust requirement stems from the situations that are unsafe (Gefen *et al.*, 2003; Slyke *et al.*, 2004).

Another reason for trust is perhaps due to the distinction between e-services and traditional services. Additionally, fear might arise when communicating online with e-services providers, which is open to misuse. Therefore, following the completion of the interaction between parties online, trust becomes a core issue to be provided to reduce perceived risk.

This finding validates the work of earlier studies about the important role of trust as a transmitting medium (the Internet) in decreasing citizens' perceived risk level (Akkaya

175

et al., 2013; Alateyah *et al.*, 2014; Belanger & Carter 2008). They conclude that when trust level goes above perceived risk level, the trustor possibly could participate in trusting actions. Also, this is consistent with Al-Gahtani *et al.* (2007); and Alshaya, (2002). They show that trustworthiness in a society like Saudi, which has uncertainty avoidance values, is important to be considered.

Secondly, despite the limited evidence on the association between perceived risk and trust of the intermediary in the e-government literature (Weerakkody *et al.*, 2013), this research suggests that trust in the e-government intermediary has an influence on the perceived risk. Surprisingly, this research's findings demonstrate that trust in the e-government intermediary, contrary to the hypothesized expectation, does not reduce perceived risk about using government websites. In effect, a great level of trust in the intermediary is not a predictor of lower academic staff's perceived risk towards government website usage.

Although these findings are unique to this research is that one of the antecedents may act as a substitute for another in influencing perceived risk. For instance, trust of Internet may override trust of the intermediary in influencing academic staff's perceived risk regarding intentions to use e-services of government. Consequently, whereas trust in the Internet is a key reason for perceived risk reduction, trust in the intermediary insignificantly influences perceived risk in e-government website usage.

In this research, the findings on the relationship between trust in the intermediary and perceived risk may be attributed to the fact that people are confident that trust in the Internet is ensured by having the best security measures in place and would always

176

consider the privacy and integrity as one of their main concerns. Thus, as the security concerns are considered as a non-issue, the users of e-government agencies' services find that trust of the intermediary is not a factor that would influence their perceived risk toward e-government services usage.

Another probable explanation could be related to the nature of perceived risks and the inherent uncertainty that stems from this uncertainty, which forming the belief of the users' concerning potential for gains and sufferers a loss leading them to place their trusted more on the Internet acting as substitutes for influencing this perceived risk.

To summarize, trust of the e-government intermediary is not sufficient for building trust to reduce citizens' perceived risk. This research shows trust of e-government intermediary as a direct antecedent of intention to use online services of government systems but not to reduce citizens' perceived risk. This study also shows that trust in the Internet has an impact on perceived risk while trust in intermediary has an insignificant effect on citizens' perceived risk.

5.3.4 The Mediating Effects of e-government Services Awareness

The fourth research question relates to identifying the mediating influence of the awareness of e-government on the relationship among social influence, trust in Internet and trust of intermediaries on intention to use e-government services. The e-government awareness factor mediates the relationships between social influence, trust in Internet and trust of intermediaries and intention to use e-government services.

177

As hypothesized, the analysis undertaken demonstrates a partial mediation effect of online government awareness on the link between social influence and intention to use e-government. This means that the relationship between social influence and intention to use online services of government is significantly affected by e-government services awareness. Thus, the e-government awareness has a significant role to play in mediating the association between social influence and intention to use online government systems.

These results indicate that high level of social influence affects directly the intention to use e-government in addition to indirectly enhancing the level of e-services awareness. Hence, the e-government awareness could be exploited more within the social influence of related members, such as friends, that encourages e-government usage.

These two factors, namely social influence and e-government usage, have been examined in the setting of information systems, for instance, the study done by Irani *et al.* (2009). However, these scholars provide no empirical evidence on how social influence acts to influence the citizens' intentions to use e-government systems. This is why some researchers have suggested that social influence has significant impact on the citizens' intentions to use e-government applications through the mediation of other factors, for example, e-services awareness (Dombrowski *et al.*, 2014).

In this regards, e-government awareness influences the academic staff's intention to use e-government and the social influences have the impact on their e-government knowledge consequently the e-government awareness mediates the association of social influence and intention to use e-government .

178

One possible explanation for this mediation result can be answered by the social learning theory (Bandura, 1977) that proposes any social behavior people display is achieved as a result of perceiving and copying the movements of others. Additionally, the present mediation result is supported by the social learning theory. Social learning theory states that the direct role models, like friends and family, are an important source for learning new behaviors and for achieving behavioral change. Thus, the direct role model's knowledge of the benefit and availability of e-government is passed to other people; the more people become knowledgeable about these e-government services, the more likely they are to develop intention to use e-government services. Therefore, one way academic staff respond to the direct role models' behavior is by imitating the role models and consequently demonstrating intention to use e-government.

In e-commerce setting, Bush, Martin and Clark (2001) show that the role models had the greatest impact on consumers market place knowledge and in turn purchase decisions of consumers. Thus, the direct role models could be another possible explanation for this mediation effect of the e-government services awareness. Consumer socialisation is the process through which consumers gain knowledge, skills and form attitudes towards purchases in the marketplace could also offer another possibly reason (Anvar & Venter, 2014; Bush *et al.*, 2001). Thus, social influence can increase e-government awareness stemming from messages that assist in the formation of perceptions concerning e-services and this can increase e-government services usage.

The present study's findings empirically confirm that the awareness of e-government through social influence would lead to improving academic staff's intention to use e-government systems. Thus, the theoretical associations of this study's results are that the

e-government usage could be demonstrated only indirectly through social influence, which can enhance awareness of e-government systems, consequently increasing citizens' usage.

Secondly, as hypothesized, the e-government awareness mediates the relationship between trust in Internet and intention to e-government. The analysis undertaken reveals a positively significant effect of e-government websites awareness on the link between trust in the Internet and intention to use online government services. This means that the association between trust of Internet and intention to use e-government is significantly affected by e-government awareness. Thus, awareness has a significant role to play in mediating the relationship between trust of Internet and intention to use online systems provided by the government.

These findings indicate that high level of trust of Internet indirectly increases the intention to use e-government applications through the enhancement of their level of awareness. Thus, the degree of trust in the Internet directly benefits e-government systems usage by academic staff. This implies that the level of trust in Internet can affect indirectly citizens' awareness of the e-government agencies' websites. Thus, including the factor of trust of Internet leads to e-services' awareness, showing trust of Internet may possibly form awareness for online service providers in the context of the Saudi government. The marketing of e-government systems by improving trust in the Internet would, in turn, lead to diffusing these online websites of e-government and e-services throughout society.

The plausible explanation of this finding could be related to the e-government awareness, as conformed in this study, which consequently leads to further academic staff's intention to e-government usage. Therefore, trust in Internet is developing knowledge of e-government systems benefits and accordingly demonstrates intention to e-government usage.

Another explanation for this result is that when the academic staff have high level of trust of the Internet, they may possibly utilize it to search for information on e-government; consequently, they gain more awareness of e-government and become more knowledgeable about its benefits. The academic staff as Internet users who are more motivated might have higher trust to evaluate trustworthiness of e-government services; as a result, they will place higher trust in it as a gateway and this trust of Internet indirectly encourages their intention to use e-government.

The present research's outcomes are consistent with prior studies by Aydoğan *et al.* (2015) who find that the motivated users will have higher certainty to evaluate trustworthiness of information on the website; consequently, they might place higher trust in such information Further, this finding validates the work of earlier studies by Christianson *et al.* (2014); and by Daassi *et al.* (2006) who indicate that greater trust in the Internet is linked to higher levels of awareness; it also validates the studies by Phang *et al.* (2006); Al-Hujran *et al.* (2013); and Meftah *et al.* (2015) who find that citizens with the knowledge and awareness about benefits and availability of e-government services have greater tendency to use e-government systems in a positive way; hence, the positive mediation effect of e-services awareness on the association between trust in the Internet and intention to use e-government systems.

181

Similarly, in line with Pavlou & Fygenson (2006), the present study's findings indicate that e-government awareness would improve intention to use e-government by building trust in the Internet. In short, the current study finds a positively significant mediation effect of e-government awareness on the link between trust in Internet and intention to use e-government.

Finally, as hypothesized, the e-government services awareness mediates the relationship between trust of e-government intermediaries and intention to use e-government. The statistical findings confirm the partial mediation of e-government awareness between trust of Internet and intention to use online government. This means that the association between trust of e-government intermediaries and intention to use e-government website is significantly affected by awareness. Therefore, online government services awareness has a significant role to play in mediating the relationship between e-government intermediaries and intention to use online services provided by the government. These findings indicate that a high level of trust of intermediaries affects directly the intention to use e-government systems and indirectly by enhancing the level of e-services awareness.

The mediating effect of e-government services awareness on the link between trust in intermediaries and intention to use e-government systems may be because the intermediary's primarily role is to enhance government-citizens communication by developing e-environmental trust (Al-Sobhi, *et al.*, 2009; Sarkar *et al.*, 1995; Sarkar *et al.*, 1998; Wahid, *et al.*, 2011; Rao; 2004; UNDESA survey, 2014). Further, trust in e-government intermediaries in turn helps in increasing e-government services awareness since intermediaries are considered a hub for promotion of the e-government.

182

The e-government awareness are done through messages in developing social advertising about e-government leading to promote citizens' knowledge about benefits of such e-services within society. Furthermore, trust in intermediaries and awareness are important factors impacting e-government systems usage (Weerakkody *et al.*, 2013). Ultimately, as e-government awareness builds through intermediates, the intention to use online government will be encouraged. Thus, the mediating effect of awareness on the association between trust in intermediaries and citizens' usage of e-government systems is confirmed. The findings are also in line with studies that show the role of intermediaries as a significant factor to improve e-services awareness in the society (Sarkar *et al.*, 1995), thereby increasing the success rate of e-government projects (Heeks, 2003). Furthermore, Carter and Belanger (2005) state that e-government services awareness has a significant role in influencing e-government portal's usage.

The results reported are consistent with prior results by Dombrowski *et al.*, (2014) who claim that the intermediary's primarily role could improve trust between e-government agencies' services and users as it aims to develop e-environment knowledge, thus leading to the use of e-government systems. They reveal that the intermediaries could foster awareness among their customers.

Further, these findings are in line with studies done by Sorrentino and Niehaves (2010) that suggest the intermediaries' role is to improve e-services awareness in the society, thereby increasing success rate of e-government projects (Heeks, 2003). Howells (2008) highlights a significant role of intermediaries is to tackle several issues involving dissemination of innovation information and their impact on the societal rates of adoption. A study to find the significance of the role played by e-government

183

intermediaries in enhancing awareness (Al-Sobhi *et al.*, 2009; Wahid *et al.*, 2011) advocates the intermediaries' role in transforming society through the promotion of awareness. This is also supported by Rao (2004) who elaborates on the crucial role of intermediaries in raising awareness, supporting networks and creating societal trust, thus impacting citizens' intention towards e-government usage (Rehman *et al.*, 2012).

In Saudi Arabia, e-government intermediaries are a platform for socially effective marketing of e-government services and for focusing on citizens in hard-to-reach locations (Al-Shafi & Weerakkody, 2007). Therefore, e-government intermediaries may bring about e-government services usage through thorough and effective marketing strategies (Al-Sobhi *et al.*, 2010).

These findings are in keeping with Bailey and Bakos (1997) and Sarkar *et al.* (1998) who highlight that the provision of market knowledge of these traditional intermediaries is key. Additionally, Dombrowski *et al.* (2014) identify how these intermediaries could foster awareness about e-government websites. Al-Sobhi *et al.* (2009) note a promising attitude from centers for training citizens to use and adopt e-services. In brief, the current research shows that the role of e-government intermediaries and other diverse factors directly and indirectly enhance awareness of e-services usage. The present empirical findings confirm prior studies' results and are in line with the intermediary theory (Datta & Chatterjee, 2008; Bailey & Bakos, 1997).

To sum up, with growing awareness of e-government services, namely through trust in intermediaries and trust in Internet, citizens will have the knowledge about e-government system's availability. Consequently, e-government social marketing will

184

lead to encouraging the intentions to use e-government portals. Thus, this current research enhances our understanding of the mediating role of e-government applications awareness on the association between social influence, trust of Internet and trust of intermediaries on intention to use e-government services.

5.3.5 The Mediating Effects of Perceived Risk

The fifth research question relates to identifying the mediation effect of perceived risk on the link between trust of Internet and trust of intermediaries with intention to use e-government portals. Perceived risk has full mediation effect on the association between trust of Internet and intention to use e-government systems. Conversely, this study's findings demonstrate that perceived risk does not have a mediation effect on the association between trust of intermediaries and intention to e-use government services contrary to what was hypothesized. The following discusses these relationships in detail.

Firstly, the hypothesis regarding perceived risk's mediating influence on the relationship between trust of Internet and intention to use e-government is validated. As hypothesized, the result of the data analysis confirms the full mediating effect of perceived risk of the academic staff on the link between trust of Internet and intention to use e-government applications. This suggests that this association is significantly affected by the mediating impact of perceived risk. Thus, perceived risk has an important role to play in mediating the association between the two constructs of trust of Internet and intention to use online applications provided by the Saudi government to its citizens.

A possible explanation of perceived risk's significant mediating influence on the link between trust in Internet and intention to use e-government is that trust factor could be a subject with regard to the situation of Internet as uncertain environmental. Social uncertainty occurs due to the providers of e-services acting in an opportunistic way by engaging with the e-environment's impersonal nature. Thus, the risk comes from the uncertain e-environment which is beyond the control of the e-services users and the existence of risk mandates the existence of trust (Corritore *et al.*, 2003; Mayer *et al.*, 1995; Pavlou, 2003).

Online government will be utilized by citizens once they are convinced of their trustworthiness which leads to reducing citizens' perceived risk as confirmed by this study, and this in turn, encourages them to use e-government applications. This research results are consistent with prior studies in an online government setting (Schlosser *et al.*, 2006) that perceived risk has a significant mediating influence on the relationship between trust and intention. Thus, whereas trust is proven to lessen perceived risk in trustworthy institutions (Salam *et al.*, 2003), perceived risk could lead to mediating the link between trust and usage intention (Schlosser *et al.*, 2006).

The research findings are consistent with Akkaya *et al.* (2013), who state that higher levels of trust of the Internet decrease citizens' perceived risk to deal with e-services. Thus, as trust of the Internet level grows, perceived risk lessens; this implies that the level of trust in Internet can affect indirectly citizens' view of the ability to carry out e-services over the Internet safely. Similarly, lower levels of perceived risk improve and positively enhance intention to use online government applications. The results indicate

186

that high level of trust of Internet affects directly the intention to use e-government agencies systems and indirectly mitigates the level of citizens' perceived risk.

Secondly, contrary to what was hypothesized, the result of the analysis reveals that perceived risk's mediation result on the association between trust of the e-government intermediaries and intention to use e-government is not significant. This finding of mediation effect of perceived risk is insignificant due to the relationship between trust of intermediaries and perceived risk is not significant. Thus, this hypothesis is not supported. The possible reason for this finding is that this study includes two factors, namely trust of the intermediary and trust of the Internet. Therefore, trust in the Internet may override trust in the intermediary in influencing citizens' risk perceptions. Accordingly, when trust in the Internet contributes significantly as the reason for perceived risk reduction, trust in the intermediary is insignificant in reducing perceived risk. Thus, the impact of trust in the Internet is probably subsumed under the impact of trust in the intermediary as antecedent of citizens' intentions to use e-government applications.

To summarize, while Kesharwani and Singh (2011); and Pavlou and Gefen (2004) recommend future studies to investigate the mechanisms and interrelationships between perceived risk and trust, a significant positive correlation indicates that trust of e-government intermediaries does not reduce citizens' risk perceptions. Thus, the current research demonstrates there is no mediating role of perceived risk on the link between trust of intermediaries and intention to use government portals. Consequently, the current research extends our knowledge about the perceived risk's mediating effect on

187

the association between trust of Internet and intention to use online services of government, which may override trust in the e-government intermediary.

5.4 Contributions of the Research

The current study and the findings provide theoretical and managerial implications. These contributions and implications are discussed further below.

5.4.1 Theoretical Contribution

The contribution of the current study to the literature involves examining the citizens' intention to use e-services in the context of the government. From the theoretical perspective, Venkatesh *et al.* (2012); and Belanger and Carter (2012) argue that there is a lack of knowledge about the constructs that have an effect on online government websites usage and the extent of such usage.

Thus, this study develops an integrated model for e-government usage by integrating these factors in the TPB. The model of this study shows how the selected factors influence intentions to use e-government based on statistics data from a huge size sample of the real population. Accordingly, this research's contribution lies in identifying multiple ways through which e-government service awareness, perceived risk, social influence, trust of Internet and trust of the intermediaries impact on the citizens' intention to use government portals, particularly in the context of e-services in the government of Saudi.

The outcomes of the present research include theory implications. This research develops and confirms a framework grounded on the TPB for e-government usage from

188

the perspectives of academic staff. This research's results show the strength to assist in realizing e-service usage intention in Saudi. The current research is interpretations about 52% of the variance in intentions to use e-government service from academic staff's perspectives.

On the other hand, no significant impact of trust of Internet on intention to use e-government applications is found in this study. This could be due to the two constructs of trust of the Internet and trust of the e-government intermediaries overlapping on intention to use government e-services. Therefore, the unique contribution of the current study is that when trust of the e-government intermediary contributes significantly to intention to use e-government services, trust of the Internet is insignificant on e-government services usage.

The current study goes one step further by providing evidence that the results of the mediating influence of e-government awareness on the relationship between social influence and trust in intermediaries and trust in Internet on intention to use government portals is empirically supported.

Briefly, these findings show that online government services awareness, which is an essential requirement of innovation dissemination, might be built by developing trust in e-government intermediaries as well as trust in Internet besides social influence. These constructs seem to be valued sources of e-government awareness, and possibly will encourage further e-government application usage intentions. The present research could help to narrow this research gap in literature by providing empirical evidence in an e-government setting. Thus, this study's results show that usage of e-government at

189

individuals' level could be explained by trust in Internet, which would lead to mitigating perceived risk, consequently increasing e-government portals usage.

Another interesting finding in the current study involves the effect of the role of intermediaries on intentions toward use of online agencies' websites at individuals' level. Thus, the present research contributes by developing an integrated framework that considers the e-government intermediary's role to recognize e-government applications usage intentions from citizens' viewpoints when they utilize these channels. This is significant because it extends the knowledge of the role played by e-government intermediaries.

The current research contributes by investigating the role of intermediaries as enablers between the public agencies and citizens. Importantly, this research further extends prior studies by underlining how e-government usage improves through the building of awareness. Moreover, the current research could assist in e-government applications usage in developing and developed nations.

The e-government intermediaries have insignificant effect on perceived risks as found in this study, contrary to the intermediary theory that demonstrates perceived risk reduction is the main role of these intermediaries in an e-services setting (Bailey & Bakos, 1997). This study includes trust on intermediaries and trust on Internet which could overlap in reducing perceived risk. As a result, trust of the intermediary is insignificant and trust of Internet is significant in reducing perceived risk, which is a unique contribution of this study.

Furthermore, while most related studies have been undertaken in developed countries, the current research studies e-government systems in a developing country, i.e., in Saudi Arabia. Subsequently, it seems that several outcomes achieved in studies on developed countries could be generalized not only to developing countries' settings, but also to the Saudi setting, thus lending credence to efforts to investigate developed countries outcomes expending local samples.

To sum up, by utilizing the TPB model, this research extends our knowledge about the four antecedents of citizens' intention to use e-government services, namely, e-government services awareness, perceived risk, trust of the intermediaries and social influence, that have important impact on citizens' intention to use e-government portals in Saudi Arabia in line with previous studies (Belanger & Carter, 2008; Weerakkody *et al.*, 2013; Khan *et al.*, 2012).

5.4.2 Managerial Contribution

Various managerial implications are achieved from this study. Knowledge of the related constructs of e-government agencies portals usage could allow policy-makers and senior management to devise strategic management plans to improve e-government services usage.

This study provides key implications on factors that impact e-government portals usage by citizens to help managers of online government projects in Saudi, in particular, and e-services, in general, to manage these online services usage provided to citizens in a more effective way. The current findings contribute to management practices in four major ways; highlighting the importance of the antecedent variables to promote e-government

191

usage by citizens; revealing the significance of trust of the Internet as an important factor influencing citizens' perceived risk; revealing the importance of trust of Internet besides trust of intermediary, in addition to social influence as significant factors influencing e-government services awareness; and highlighting the importance of citizens' perceived risk as a significant mediating variable on trust in the Internet and trust in e-government intermediaries on intention to use e-government services.

First and foremost, the findings of this study could be used by Saudi policy-makers and managers to encourage the citizens' usage of e-government agencies nationwide. The results indicate the significant effect of citizens' awareness on their intention towards e-government. This further implies that the public agencies have to run more marketing promotions to confirm that citizens are utilizing the online applications.

As the literature has shown, the lack of awareness could be an issue in an e-government services setting. Citizens cannot utilize online government services if they are not aware of the services offered. This suggests that for successful e-government initiatives that influences citizens' intention to use them, top management must increase their awareness. Accordingly, e-government management must promote campaigns on the benefits of this project to its citizens over diverse media. Thus, the current study statistically reveals the significance of e-government services awareness as a significant mediating factor for transferring the effects of trust in Internet and social influence and trust of e-government intermediaries on intention to use e-government agencies' services. Therefore, with the aim of building awareness towards e-government, these findings suggest that the Saudi management should focus on these significant determinants of awareness. Hence, managers should appreciate the influence of the

government portals awareness to increase intention to use e-government services. Ultimately, their investments in e-government projects could be worthwhile. In addition, public agencies should consider increasing e-government awareness of the online services over the use of traditional means.

Eventually, this implies that the management should utilize practicing and developing trust and social influence of friends and families through the act of reciprocity and social exchange, as well as through modelling or imitation to achieve e-government awareness toward e-government usage. Thus, Saudi's e-government management could utilize these significant antecedents of awareness which should facilitate the usage of e-services. It is essential for government management to work on awareness plans towards e-government availability and benefits which advantage to distribute e-government over society and towards using e-government.

Secondly, in terms of social influence, this study finds that it is a significant predictor of e-government intention usage by citizens. This suggests that Saudi online agencies' senior management and policy-makers should utilize social influence to directly influence citizens' e-government services intention usage as well as indirectly by enhancing e-government systems awareness, and in turn, intentions to use these applications.

It is important for management to understand the power of social influence for citizens' positive outcomes, such as intention to use e-government agencies and positive awareness of online government, such as social marketing. Against this background, management should take advantage of social influences to motivate and enhance e-

193

government services usage among their citizens. Thus, management can prioritize and encourage social influences through their policies and practices.

Thirdly, the current study also reveals the trust of intermediaries as a significant factor that positively influences citizens' intention to use e-government directly and indirectly enhance online services awareness. Thus, this finding presents yet another important fact for e-government managers to utilize the intermediaries to promote and motivate trust and assist in e-government usage among their citizens. The current study's outcomes indicate that the management of Saudi e-government projects has to utilize the e-government intermediary model to enhance awareness of the e-government systems in Saudi society. Thus, to advertise e-government portals, e-government authorities have to leverage on the continual visits of e-government intermediaries' by citizens to promote their portals, to increase e-government agencies' awareness and ultimately to disseminate online applications of agencies throughout society.

Saudi intermediaries are a platform for effective marketing of e-government systems besides focusing on its suitability for citizens. Therefore, the government should leverage on the influence of e-government intermediary organizations to advertise and market e-government services as these intermediaries are serious in encouraging e-government usage. Therefore, examining the intermediary organizations' influence toward e-government usage has important implications.

Fourthly, the current study reveals perceived risk as an important construct that negatively affects citizens' intention to use e-government services. This finding indicates that managers must understand the role of perceived risk in reducing citizens'

194

e-government services usage. Hence, managers should mitigate perceived risk of e-government usage. This further implies that e-government management should be aware when citizens feel perceived risk about using e-government services, as then, citizens' intention to use e-government applications will be lower. Consequently, practitioners and managers have to target overcoming the potential obstacles by exploiting the e-government applications successfully and employing the security policies in addition to supporting in order to encourage e-government usage. Lack of security of the applications possibly can result in lack of confidence besides trust in the capability of the government to successfully execute such systems.

Since the government has the responsibility to develop e-services awareness by different channels, this suggests that trust in the Internet improves e-government services knowledge for citizens and in turn, leads to dissemination of e-government systems in society. Thus, governments have to utilize trust in the Internet and intermediaries of e-governments benefits to promote e-government usage. The present study outcomes indicate that the management of e-government projects in Saudi Arabia must improve trust in the Internet to encourage more awareness about e-government.

5.5 Limitations and Future Research Directions

From a methodological perspective, data in the research were achieved from academic staff members in the public universities in Saudi Arabia. Therefore, the findings of this study do not reflect the intention of other groups of users, such as non-academic staff members and students in public universities, private universities, school teachers, the agriculture sector, military sector, industrial sector, etc. Future researchers could conduct

related studies on e-government services in different sectors to be more comprehensive. This would reduce any possible bias in the current study.

It must be noted that the findings of the present research might not be appropriate for other nations that have different cultural, social and economic circumstances. Thus, any generalizations of these findings have to make allowances for this research's scope.

The current research utilizes a quantitative method employing a questionnaire survey. Therefore, it is suggested that other research approaches, such as qualitative method, could also be an appropriate approach to study e-services usage in the context of governments. Researchers may be able to develop a more trusting relationship with participants in addition to communicating with them in the same language.

Further, since this study is based on the TPB model, future research could extend this theory . The current study targets intention of users towards e-government and indicates the factors that possibly could encourage the citizens' engagement in e-government opportunities in the Saudi Arabia context. A similar method could be utilized for non-users to enhance e-government services usage.

Also, this study focuses on the antecedents of intention to use government portals and the mediating effects of e-services awareness and perceived risk in Saudi Arabia. Future research could examine other antecedents or mediating constructs. These variables could include readiness, cost, time, motivation, service quality, resistance to change, website features and others. Future studies can follow this approach of investigation in other e-government services to enhance understanding of the mechanisms by which e-government services awareness could improve usage.

196

Additionally, future research could conduct more related studies on e-services of the government of Saudi Arabia s since there are only a few past studies that have investigated this area. Comparative research could be conducted to compare between Saudi e-government and other countries. Further, future research on citizens' usage of e-government could investigate the e-government intermediaries' roles to encourage citizens' usage of e-government with other samples.

5.6 Conclusion

E-government usage has been considered widely in developed countries in comparison to developing ones. In developing nations, specifically in Arab countries, not much research has been undertaken on e-government usage. The purpose of this research is to identify factors that may impact intentions toward e-government services usage from citizens' perspective in addition to determining the factors that influence perceived risk and online government service awareness as well as their mediating effects. Thus, this study narrows this e-government usage research gap in Saudi Arabia from the citizens' perspective.

Utilizing TPB model, significant positive correlations indicate that awareness of online services, trust of intermediaries and social influence are factors that effectively encourage citizens to use the services of online government. Further, the study's findings show that perceived risk influences intention to use Saudi e-government systems by citizens. While trust of Internet has an important influence on improving levels of e-government usage (Belanger & Carter, 2008), however, the results show that trust in Internet construct could not develop such intentions.

197

With regards to the awareness of e-government services, several inferences can be concluded from these findings. Importantly, for the first time, the current study adds to the existing knowledge by demonstrating that antecedents of e-government services awareness are social influence, trust of the intermediaries and trust of Internet. Thus, these factors are likely to promote citizens' knowledge about benefits and availability of online government services, eventually leading to not only usage and diffused e-government services, but also availability of e-services throughout society. Hence, the current research enhances our knowledge about the mediating role of e-services awareness on the association of social influence, trust in Internet and trust in intermediaries on intention to use online services. Further, social influence's impact on e-government services usage appears to be the stronger factor in addition to its role in promoting citizens' knowledge about benefits and availability of online government services.

E-government management should exert efforts to develop the intention to use e-government portals from citizens standpoint to achieve higher utilization of e-government. Thus, successively advertising and marketing e-government systems could support the e-government management. The results contribute to both academicians and managers by providing an understanding of e-government services awareness.

The present study's results also demonstrate that the citizens' perceived risk factor could be negatively influenced by trust of Internet; consequently, perceived risk has a mediation effect on the association between trust of Internet and intention to use e-government services. Contrary to what was hypothesized, the findings show that trust of intermediaries has a positive influence on citizens' perceived risk; also, the potential

198

mediating effect of citizens' perceived risk on the relationship between trust of intermediaries and intention to use online services of the government usage does not have a negative impact.

REFERENCES

Ablon, L., & Libicki, M. (2015). Hackers' Bazaar: The Markets for Cybercrime Tools and Stolen Data. *Defense Counsel Journal*, *82*(2), 143-152.

Accenture. (2005). The Government Executive Series e-Government Leadership: Leadership in Customer Service: New Expectations. Available online at: http://www.accenture.com/Global/Research_and_Insights/By_Industry/Government/EGovernmentVision.htm

Accenture. (2010). Digital government pathways to delivering public services for the future a comparative study of digital government performance across 10 countries. Available online at: http://nstore.accenture.com/acn_com/Accenture-Digital-Government-Pathways-to-Delivering-Public-Services-for-the-Future.pdf

Ackfeldt, A. L., & Coote, L. V. (2005). A study of organizational citizenship behaviors in a retail setting. *Journal of Business Research*, *58*(2), 151-159.

Adams, A., & Blandford, A. (2006). The developing roles of digital library intermediaries. UCLIC working paper. Available online at: http://www.researchgate.net/profile/The_developing_roles_of_digital_library_intermediaries/links/.pdf

Adulwahab, L., & Dahalin, Z. M. (2011). Effectiveness of Telecentre using a Model of Unified Theory of Acceptance and Use of Technology (UTAUT): Structral Equation Modeling Approach. *Emeging Trends in Computing and Information Sciencess*, *2*(9), 402-406.

Ahmad, M. O., Markkula, J., & Oivo, M. (2013). Factors affecting e-government adoption in Pakistan: a citizen's perspective. *Transforming Government: People, Process and Policy*, 7(2), 225–239. doi:10.1108/17506161311325378

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp.11-39). Heidelberg: Springer.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*, 179-211.

Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. New Jersey, USA: Prentice-Hall.

Akhter, M.S., Onishi, T. and Kidokoro, T. (2007). E-government in a developing country: citizen-centric approach for success, *International Journal of Electronic Governance*, *1*(1), 38-51.

Akkaya, C., Obermeier, M., Wolf, P., & Krcmar, H. (2011). Components of trust influencing egovernment adoption in Germany. In *Electronic Government* (pp. 88-99). Springer Berlin Heidelberg.

Akkaya, C., Wolf, D., & Krcmar, H. (2010). The role of trust in e-government adoption: A literature review. In *Proceedings of the 16th Americas Conference on Information Systems* (AMCIS) (pp. 297). Lima, Peru.

Akkaya, C., Wolf, P., & Krcmar, H. (2012). Factors influencing citizen adoption of e-government services: A cross-cultural comparison (research in progress). In *System Science (HICSS), 2012 45th Hawaii International Conference on* System Science (pp. 2531-2540). IEEE.

Akkaya, C., Wolf, P., & Krcmar, H. (2013). A Comprehensive analysis of e-government adoption in the german household. In *11thInternational Conference on Wirtschaftsinformatik* (pp. 1525–1539).. Available online at:

http://aisel.aisnet.org/cgi/viewcontent.cgi?article=1094&context=wi2013

Akter, S., D'Ambra, J., & Ray, P. (2011). An evaluation of PLS based complex models: the roles of power analysis, predictive relevance and GoF index. *AMCIS 2011 Proceedings-All Submissions*.

Al Alhareth, Y., Al Dighrir, I., & Al Alhareth, Y. (2015). Review of women's higher education in Saudi Arabia. *American Journal of Educational Research*, *3*(1), 10-15.

Al-Adawi, Z., Yousafzai, S., & Pallister, J. (2005). Conceptual model of citizen adoption of e-government. In *The Second International Conference on Innovations in Information Technology (IIT'05)*,1-10.

Alateyah, S. A., Crowder, R. M., & Wills, G. B. (2014). Identified factors affecting the intention of Saudi Arabian citizens to adopt e-government services. *International Journal of Innovation, Management and Technology*, *5*(4), 280.

Al-Athmay, A. R. (2013). E-Governance in Arab countries: status and challenges. *Global Journal of Business Research*, *7*(5), 79-98.

AlAwadhi, S., & Morris, A. (2008). The use of the UTAUT model in the adoption of e-government services in Kuwait. *Proceedings of the 41st Annual Hawaii International Conference on System Sciences*, 219–219.

Alenezi, H., & Amin, S. (2013). Issues associated with citizens in developing countries trusting the security of online services. *International Conference on Computer Applications Technology* 2013, (ICCAT), 1–4. doi: 10.1109/iccat.2013.6522012

Al-Fakhri, O., Cropf, R. A., Higgs, G. & Kelly, P. (2008). E-government in Saudi Arabia: between promise and reality. *International Journal of Electronic Government Research*, *4*(2), 59-85.

Alfarraj, O., Alhussain, T., & Abugabah, a. (2013). Identifying the Factors Influencing the Development of eGovernment in Saudi Arabia: The Employment of Grounded Theory Techniques. *International Journal of Information and Education Technology*, *3*(3), 319–324. doi:10.7763/IJIET.2013.V3.289

AlFawwaz, B. M. (2012). *Evaluation of eGovernment websites usability in Jordan* (Doctoral dissertation, Brunel University School of Engineering and Design PhD Theses).

Al-Fulih, K. (2002). *Attributes of the Internet perceived by Saudi Arabian faculty as predictors of their Internet adoption for academic purposes* (pp. 1-212).

Al-Gahtani, S. S., Hubona, G. S., & Wang, J. (2007). Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT. *Information & Management*, *44*(8), 681–691.

203

Al-Ghaith, W.A., Sanzogni, L. and Sandhu, K. (2010). Factors influencing the adoption and usage of online services in Saudi Arabia. *Electronic Journal on Information Systems in Developing Countries*, *40*(1), 1-32.

AlGhamdi, I. a., Goodwin, R., & Rampersad, G. (2014). Organizational e-government readiness: An investigation in Saudi Arabia. *International Journal of Business and Management*, 9(5), 14–24. doi:10.5539/ijbm.v9n5p14

AlGhamdi, R., Nguyen, A. T., & Jones, V. (2013). Wheel of B2C e-commerce development in Saudi Arabia. In *Robot Intelligence Technology and Applications 2012* (pp. 1047-1055). Springer Berlin Heidelberg.

Alghamdi, S., & Beloff, N. (2014). Towards a comprehensive model for e-Government adoption and utilisation analysis: The case of Saudi Arabia. In *Computer Science and Information Systems (FedCSIS), Federated Conference on* 2014 (pp. 1217-1225). IEEE.

Alhujran, O. & Chatfield, A. (2008) "Toward a Model for EGovernment Services Adoption: The Case of Jordan", in Proceedings of the 8th European Conference on eGovernment, Ecole Polytechnique, Lausanne, Switzerland, 2008, 13-22.

Al-Hujran, O., Al-dalahmeh, M., & Aloudat, A. (2011). The role of national culture on citizen adoption of eGovernment services: An empirical study. *Electronic Journal of E-government*, *9*(2), 93-106.

204

Al-Hujran, O., Aloudat, A., & Altarawneh, I. (2013). Factors influencing citizen adoption of e-government in developing countries: The case of Jordan. *International Journal of Technology and Human Interaction*, *9*(2), 1-19.

Al-Jabri, I. M., & Sohail, M. S. (2012). Mobile banking adoption: Application of diffusion of innovation theory. *Journal of Electronic Commerce Research*, *13*(4), 379-391.

Al-Jasser, S. (2014). The 2015 - 2020 KSA Science Technology and Innovation Plan. *The Advanced Technologies Forum*, KACST Headquarters - Conference Hall, King Abdullah Road Riyadh, Saudi Arabia.

Alkhunaizan, A., & Love, S. (2012). What drives mobile commerce? An empirical evaluation of the revised UTAUT model. *International Journal of Management and Marketing Academy, 2*(1), 82-99.

Al-Majali, M. M. (2011). *The antecedents of internet banking service adoption in Jordan: using decomposed theory of planned behavior* (Doctoral dissertation, Universiti Utara Malaysia).

Alsaghier, H. M., Ford, M., Nguyen, A., & Hexel, R. (2010). Factors Affecting the Citizens' Trust in E-Government. *Handbook of Research on E-Services in the Public Sector: E-Government Strategies and Advancements: E-Government Strategies and Advancements*, 118.

Alsaghier, H., Ford, M., Nguyen, A., & Hexel, R. (2009). Conceptualising Citizen's Trust in e-Government: Application of Q Methodology. *Electronic Journal of e-Government*, *7*(4), 295-310.

Al-Shafi, S. & Weerakkody, V. (2007). Implementing and managing e-government in the State of Qatar: a citizens' perspective. *Electronic Government, an International Journal*, *4*(4), 436-450.

Al-Shafi, S. (2007). Free Wireless Internet Park Services: An Investigation of Technology Adoption in Qatar from a Citizens' Perspective. *Journal of Cases on Information Technology*, *10*(3), 21-34.

Al-Shafi, S., & Weerakkody, V. (2008). The use of wireless Internet parks to facilitate adoption and diffusion of e-government services: An empirical study in Qatar. *AMCIS 2008 Proceedings*, 322.

Al-Shafi, S., & Weerakkody, V. (2010). Factors affecting e-government adoption in the state of Qatar. In: European and Mediterranean Conference on Information Systems (Emcis), 2010, Abu Dhabi, UAE,

Alshawi, S. & Alalwany, H. (2009). E-government evaluation: citizen's perspective in developing countries. *Information Technology for Development*, *15*(3), 193-208.

Alshaya, S. S. (2002). *Culture's Consequences: The Relationship Between Saudi National Culture and the Roles of School Leaders in Saudi Public Schools* (Doctoral dissertation, Michigan State University).

Alshehri, M., & Drew, S. (2010). Challenges of e-government services adoption in Saudi Arabia from an e-ready citizen perspective. *Education*, *29*(5.1).

Alshehri, M., Drew, S., & Alfarraj, O. (2012). A Comprehensive Analysis of E-government services adoption in Saudi Arabia: Obstacles and Challenges. *Higher education*, 6(1), 8-2.

Alshehri, M., Drew, S., & AlGhamdi, R. (2013). Analysis of citizens acceptance for e-government services: applying the UTAUT model. *arXiv preprint arXiv:1304.3157*.

AlShihi, H. (2005). E-government development and adoption dilemma: Oman case study. In *6th International We-B (Working for e-Business) Conference*. Victoria University, Melbourne.

AlShihi, H. (2006). *Critical Factors in the Adoption and Diffusion of E-government Initiatives in Oman* (Doctoral dissertation, Victoria University).

Al-Smadi, M. O. (2012). Factors affecting adoption of electronic banking: An analysis of the perspectives of banks' customers. *International Journal of Business and Social Science*, *3*(17), 294-309.

Al-Sobhi, F. (2011). *The roles of intermediaries in the adoption of e-government services in Saudi Arabia* (Doctoral dissertation, Brunel University, School of Information Systems, Computing and Mathematics).

Al-Sobhi, F., Weerakkody, V. & Shafi Al-Shafi. (2010). The role of intermediaries in facilitating e-government diffusion in Saudi Arabia. *European and Mediterranean Conference on Information Systems* (EMCIS) July 12-13 2010, Abu Dhabi, UAE.

Al-Sobhi, F., Kamal, M. & Weerakkody,V. (2009) Current State Of E-Services in Saudi Arabia: The Case Of Intermediaries In Facilitating Government Services In Madinah City. *European and Mediterranean Conference on Information Systems* (EMCIS) July 13-14 2009, Izmir.

Al-Sobhi, F., Weerakkody, V., & El-Haddadeh, R. (2011). The relative importance of intermediaries in egovernment adoption: A study of Saudi Arabia. In *Electronic Government* (pp. 62-74). Springer Berlin Heidelberg.

Al-Sobhi, F., Weerakkody, V., & El-Haddadeh, R. (2011). The relative importance of intermediaries in egovernment adoption: A study of Saudi Arabia. In *Electronic Government* (pp. 62-74). Springer Berlin Heidelberg.

Al-Suwail, M. (2007). E-government Program. Proceedings of the national e-transactions conference, Al-Riyadh, Saudi Arabia.

Alzahrani, M. E., & Goodwin, R. D. (2012). Towards a UTAUT-based model for the study of e- government citizen acceptance in Saudi Arabia. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, *6*(4) 376–382.

208

Amescua, B. S. (2007). Adult instructors' perceptions on ICT and diffusion practices: implications for equity of access. *Canadian Journal of Learning and Technology/La revue canadienne de l'apprentissage et de la technologie*, *33*(2).

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological bulletin*, *103*(3), 411.

Anvar, M., & Venter, M. (2014). Attitudes and Purchase Behaviour of Green Products among Generation Y Consumers in South Africa. *Mediterranean Journal of Social Sciences*, *5*(21), 183. Available online at: http://mcser.org/journal/index.php/mjss/article/viewFile/4191/4101

Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of marketing research*, 396-402.

Attewell, P. (1992). Technology diffusion and organizational learning: The case of business computing. *Organization Science*, *3*(1), 1-19.

Aydoğan, R., Sharpanskykh, A., & Lo, J. (2015). A Trust-Based Situation Awareness Model. In *Multi-Agent Systems* (pp. 19-34). Springer International Publishing.

Baabdullah, A., Dwivedi, Y. K., & Williams, M. D. (2013). IS/IT Adoption Research in The Saudi Arabian Context: Analyzing Past and Outlining Future Research Directions. In *European, Mediterranean and Middle Eastern Conference on Information Systems* (pp. 17-18).

Bagozzi, R., Davis, F. D., & Warshaw, P. R. (1992). Development and test of a theory of technological learning and usage. *Human Relations*, *45*(7), 660-686.

Bailey, A. (2009). Issues affecting the social sustainability of telecentres in developing contexts: A field study of sixteen telecentres in Jamaica. *Electronic Journal of Information Systems in Developing Countries*, *36*(4), 1-18.

Bailey, J., & Bakos, Y. (1997). An exploratory study of the emerging role of electronic Intermediaries. *International Journal of Electronic Commerce*, *1*(3), 7–20.

Barclay, D., Higgins, C., & Thompson, R. (1995). The partial least square (PLS) approach to casual modeling: Personal computer adoption and use as an illustration. *Technology*, *2*(2), 285-309.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. Journal of Personality and Social Psychology, *51*(6): 1173-1182.

Basamh, S. S., Qudaih, H. A., & Suhaimi, M. A. (2014). E-Government Implementation in the Kingdom of Saudi Arabia: An Exploratory Study on Current Practices, Obstacles & Challenges. *International Journal of Humanities and Social Science*, *4*(2), 296-300.

Bates, K., Malakoff, L., Kane, S., & Pulidini, J. (2012). Closing the digital divide: promoting broadband adoption among underserved populations. Available online at:

210

http://www.nlc.org/Documents/Find%20City%20Solutions/Research%20Innovation/Infrastructure/Closing_Digital_Divide_Promoting_Broadband_Adoption_Underserved_Popula tions.pdf.

Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing*, *13*(2), 139-161.

Belanger, F. & Carter, L. (2012). Digitizing government interactions with constituents: an historical review of e-government research in information systems. *Journal of the Association for Information Systems*, *13*(5), 363–394.

Belanger, F., & Carter, L. (2006). The Effects of the Digital Divide on E-Government: An Emperical Evaluation. In *System Sciences, 2006. In Proceedings of the 39th Hawaii International Conference on System Sciences, Kauai, Hawaii,* (4), 81-81c.

Belanger, F., & Carter, L. (2008). Trust and risk in e-government adoption. The Journal of Strategic Information Systems, *17*(2), 165–176. doi:10.1016/j.jsis.2007.12.002

Belanger, F., & Carter, L. (2009). The impact of the digital divide on e-government use. *Communications of the ACM*, *52*(4), 132-135.

Belanger, F., Hiller, J. S., & Smith, W. J. (2002). Trustworthiness in electronic commerce: the role of privacy, security, and site attributes. *The Journal of Strategic Information Systems*, *11*(3), 245-270.

Beldad, A., van der Geest, T., de Jong, M., & Steehouder, M. (2012). A cue or two and I'll trust you: Determinants of trust in government organizations in terms of their processing and usage of citizens' personal information disclosed online. *Government information quarterly*, *29*(1), 41-49.

Bhatnagar, S. (2004). *E-government: From vision to implementation-A practical guide with case studies*. Sage.

Bjerke, B., & Al-Meer, A. (1993). Culture's consequences: Management in Saudi Arabia. *Leadership & Organization Development Journal, 14*(2), 30.

Blackstone, E. A., Bognanno, M., & Hakim, S. (Eds.). (2005). *Innovations in E-government: the Thoughts of Governors and Mayors*. Rowman & Littlefield.

Blakemore, M., & Wilson, F. (2009). MC-eGov Study on Multi-channel Delivery Strategies and Sustainable Business Models for Public Services addressing Socially Disadvantaged Groups. Available online at:

www.mcegov.eu/media/452/think%20paper%201%20final.pdf

Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods & Research*, *17*(3), 303-316.

Borzekowski, D. L., & Poussaint, A. F. (1999). Public service announcement perceptions: A quantitative examination of anti-violence messages. *American journal of preventive medicine*, *17*(3), 181-188.

212

Brannen, A. (2001). E-government in California: Providing services to citizens through the Internet. *Spectrum Lexington*, *74*(2), 6-10.

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of cross-cultural psychology*, *1*(3), 185-216.

Brown, S. A., A. P. Massey, M. M. Montoya-Weiss, and J. R. Burkman (2002). Do I really have to? User acceptance of mandated technology. *European Journal of Information Systems 11*(4), 283-295.

Bush, A. J., Martin, C. A. & Clark, P. W. (2001). The effect of role model influence on adolescents' materialism and marketplace knowledge. *Journal of Marketing Theory and Practice*, *9*(4), 27-36.

Bwalya, K. J., & Healy, M. (2010). Harnessing e-government adoption in the SADC region: a conceptual underpinning. *Electronic journal of e-government*, *8*(1), 23-32.

Carter, L., & Belanger, F. (2004). Citizen adoption of electronic government initiatives. In *System Sciences, 2004. Proceedings of the 37th Annual Hawaii International Conference on* (pp-10). IEEE.

Carter, L., & Belanger, F. (2005). The utilization of e-government services: citizen trust, innovation and acceptance factors. *Information systems journal*, *15*(1), 5-25.

Carter, L., Weerakkody, V. (2008) E-Government Adoption: A Cultural Comparison. *Information Systems Frontiers*, *10*(4), 473–482.

213

Centeno, C., van Bavel, R., & Burgelman, J. C. (2005). A prospective view of e-government in the European Union. *The Electronic Journal of e-Government*, *3*(2), 59-66.

Chabrow, E. (2004). Survey says citizens want more than e-government. *InformationWeek*. Available online at:

http://www.informationweek.com/story/showArticle.jhtml?articleID=21100103/

Chan, F. K., Thong, J. Y., Venkatesh, V., Brown, S. A., Hu, P. J., & Tam, K. Y. (2010). Modeling citizen satisfaction with mandatory adoption of an e-government technology. *Journal of the Association for Information Systems*, *11*(10), 519-549.

Chang, H. H., & Chen, S. W. (2008). The impact of online store environment cues on purchase intention: Trust and perceived risk as a mediator. Online Information Review, *32*(6), 818-841. http://dx.doi.org/10.1108/14684520810923953

Charbaji, A., & Mikdashi, T. (2003). A path analytic study of the attitude toward e-government in Lebanon. *Corporate Governance*, *3*(1), 76–82.

Chau, P. Y. K., & Hu, P. J. H. (2001). Information technology acceptance by individual professionals: A model comparison approach. *Decision Sciences*, *32*(4), 699–719.

Chen, C. D., Fan, Y. W. & Farn, C. K. (2007) Predicting electronic toll collection service adoption: An integration of the technology acceptance model and the theory of planned behavior. *Transportation Research Part C: Emerging Technologies*, *15* (5), 300-311.

Chen, Y. S., & Chang, C. H. (2012). Enhance green purchase intentions: The roles of green perceived value, green perceived risk, and green trust. *Management Decision*, *50*(3), 502-520.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research*, *295*(2), 295-336.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information systems research*, *14*(2), 189-217.

Chircu, A. M., & Kauffman, R. J. (1999). Strategies for Internet middlemen in the intermediation/disintermediation/reintermediation cycle. *Electronic Markets*, *9*(1),109-117.

Chircu, A. M., Davis, G. B., & Kauffman, R. J. (2000). The role of trust and expertise in the adoption of electronic commerce intermediaries. *Management Information Systems Research Center Working Paper 00-07*.

Choudrie, J., & Dwivedi, Y. (2005). A survey of citizens adoption and awareness of e-government initiatives, the government gateway: a united kingdom perspective. In *E-Government Workshop. Brunel University, West London*.

Chow, W.S., & Chan, L.S. (2008), Social network, social trust and shared goals in organizational knowledge sharing. Information & Management, *45*(7): 458-465.

Christianson, J., Maeng, D., Abraham, J., Scanlon, D. P., Alexander, J., Mittler, J., & Finch, M. (2014). What Influences the Awareness of Physician Quality Information? Implications for Medicare. *Medicare & medicaid research review*, *4*(2).

Coakes, S. J., & Steed, L. (2009). *SPSS: Analysis without anguish using SPSS version 14.0 for Windows*. John Wiley & Sons, Australia, Ltd.

Davidson, W. B., & Cotter, P. R. (1991). The relationship between sense of community and subjective well-being: A first look. *Journal of community psychology*, *19*(3), 246-253.

Cohen, J. (2000). *Statistical power analysis for the behavioral sciences*. Academic press.

Compeau, D., Higgins, C.A., & Huff, S. (1999), Social cognitive theory and individual reactions to computing technology - A Longitudinal-Study. *MIS quarterly*, *23*(2): 145-158.

Cooper, D. R., Schindler, P. S., & Sun, J. (2008). *Business research methods* (Vol. 9). New York: McGraw-hill.

Corritore, C. L., Kracher, B., Wiedenbeck, S., (2003). On-line trust: concepts, evolving themes, a model. *International Journal of Human– Computer Studies, 58* (6), 737–758.

Daassi, M., Jawadi, N., Favier, M., & Kalika, M. (2006). An empirical investigation of trust's impact on collective awareness development in virtual teams. *International journal of networking and virtual organisations*, *3*(4), 378-394.

Datta, P & Chatterjee, S . (2008). The economics and psychology of consumer trust in intermediaries in electronic markets: the EM-Trust Framework. European *Journal of Information Systems, 17*(1), 12–28.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly,* 319-340.

De Vaus, D. A. (2002). *Surveys in social research*. Psychology Press. 5th edition, Allen & Unwin, Crows Nest, Australia, 379.

Deakins, E. & Dillon, S. (2002). E-government in New Zealand: the local authority perspective. *The International Journal of Public Sector Management*, *15*(5), 375-398.

DeVellis, R. F. (1991). *Scale Development: theory and applications (Applied Social Research Methods Series, Vol. 26)*. Newbury Park: Sage.

Dillon, S., Deakins, E., & Chen, W. J. (2006). E-local government in New Zealand: The shifting policymaker view. *The Electronic Journal of e-Government*, *4*(1), 9-18.

Dombrowski, L., Hayes, G. R., Mazmanian, M., & Voida, A. (2014). E-government intermediaries and the challenges of access and trust. *ACM Transactions on Computer Human Interaction*, *21*(2), 13.

Dwivedi, Y. K., & Weerakkody, V. (2007). Examining the factors affecting the adoption of broadband in the Kingdom of Saudi Arabia. *Electronic Government International*, *4*(1), 43–58.

Ebbers, W. E., Pieterson, W. J., & Noordman, H. N. (2008). Electronic government: Rethinking channel management strategies. *Government Information Quarterly*, *25*(2), 181-201.

El-Haddadeh, R., Weerakkody, V., & Al-Shafi, S. (2013). Understanding the challenges and complexities influencing the implementation and institutionalisation of electronic services in the public sector. *Journal of Information and Management*, *50*(4), 135–143.

El-Sofany, H. F., Al-Tourki, T., Al-Sadoon, A., & Al-Howimel, H. (2012). E-government in Saudi Arabia: barriers, challenges and its role of development. *E-government*, *48*(5).

Erumban, A. A., & De Jong, S. B. (2006). Cross-country differences in ICT adoption: A consequence of Culture?. *Journal of World Business*, *41*(4), 302-314.

Eynon, R., & Dutton, W. H. (2007). Barriers to networked governments: evidence from Europe 1. *Prometheus*, *25*(3), 225-242.

Faaeq, Munadil K. (2014). *Factors affecting continued usage intention of electronic government among public servants in Iraq* (PhD thesis, Universiti Utara Malaysia).

Fairchild, A. J., & MacKinnon, D. P. (2009). A general model for testing mediation and moderation effects. *Prevention Science, 10*(2), 87-99.

Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: a perceived risk facets perspective. *International journal of human-computer studies*, *59*(4), 451-474.

Fink, A. (2003). *How to sample in surveys*. Sage Publications. 2nd ed. The Survey Kit, volume 7. Thousand Oaks: Sage Publications.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Addison-Wesley.

Floropoulos, J., Spathis, C., Halvatzis, D., & Tsipouridou, M. (2010). Measuring the success of the Greek taxation information system. *International Journal of Information Management*, *30*(1), 47-56.

Foley, J., & Gallery, K. (2012). An investigative study of promoting awareness and increasing registration of PAYE anytime in the Border Midlands West Region in Ireland. In *Proceedings of the 12th European Conference on e-Government* (227). Academic Conferences Limited.

Foon, Y. S., & Fah, B. C. Y. (2011). Internet banking adoption in Kuala Lumpur: an application of Utaut model. *International Journal of Business and Management*, 6(4), 161.

Fornell, C., & Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing research*, 440-452.

Forno, R., & Feinbloom, W. (2001). Inside risks: a question of trust and value. *Communications of the ACM*, *44*(6), 120.

Fu, J., Farn, C., & Chao, W., (2006). Acceptance of electronic tax filing: A study of tax payer intentions. *Information and Management*, *43* (1), 109 – 126.

Fulk, J., & Boyd, B. (1991). Emerging theories of communication and organizations. *Journal of Management*, *17*(2), 407–446.

Fulk, J., Steinfield, C. W., Schmitz, J., & Power, J. G. (1987). A social information processing model of media use in organizations. *Communication Research*, *14*(5), 529–552.

Gallant, L. M., Culnan, M. J., & McLoughlin, P. (2007). Why People e-File (or Don't e-File) Their income taxes. In *System Sciences, 2007. HICSS 2007. 40th Annual Hawaii International Conference on* (pp. 107-107). IEEE.

Ganesan, S. (1994). Determinants of long-term orientation in buyer-seller relationships. *Journal of Marketing*, *58* (2), 1-19.

Garland, R. (1991). The mid-point on a rating scale: Is it desirable. *Marketing bulletin*, *2*(1), 66-70.

Gay, L. R., Mills, G. E. & Airasian, P. (2009). *Educational research: Competencies for analysis and applications* (9th ed.). Upper Saddle River, NJ: Pearson.

Geetika, P. (2007). Strategic Marketing of E-Government for Technology Adoption Facilitation. Available online at: www.csisigegov.org/critical_pdf/6_51-60.pdf . Accessed on 22/05/2010.

Gefen, D. (2002). Reflections on the dimensions of trust and trustworthiness among online consumers. *ACM Sigmis Database*, *33*(3), 38-53.

Gefen, D., & Heart, T. H. (2006). On the need to include national culture as a central issue in e-commerce trust beliefs. *Journal of Global Information Management (JGIM)*, *14*(4), 1-30.

Gefen, D., & Pavlou, P. A. (2012). The boundaries of trust and risk: The quadratic moderating role of institutional structures. *Information Systems Research*, *23*(3-2), 940-959.

Gefen, D., & Straub, D. W. (2003). Managing user trust in B2C e-services. *E-service Journal*, *2*(2), 7-24.

Gefen, D., Rao, V. S., & Tractinsky, N. (2003). The conceptualization of trust, risk, and their relationships in e-commerce. In *Proc. 36th Hawaii Int. Conf. on System science (HICSS)*.

Gefen, D., Warkentin, M., Pavlou, P., & Rose, G. (2002). Egovernment adoption. In: Americas Conference on Information Systems, *AMCIS 2002 Proceedings*, 83, Dallas, Texas.

Giaglis, G. M., Klein, S., & O'Keefe, R. M. (2002). The role of intermediaries in electronic marketplaces: developing a contingency model. *Information Systems Journal*, *12*(3), 231-246.

Gilbert, D., & Balestrini, P. (2004). Barriers and Benefits in the Adoption of E-Government. *The International Journal of Public Sector Management*, *17*(4), 286-301.

Gilbert, D., Balestrini, P. & Littleboy, D. (2004). Barriers and benefits in the adoption of e- government. *The International Journal of Public Sector Management*, *17*(4), 286-301. doi:10.1108/09513550410539794

Global Information Technology Report (2015). Available online at: http://reports.weforum.org/global-information-technology-report-2015/

Golubeva, A. & Merkuryeva, I. (2006). Demand for online government services: case studies from St. Petersburg. *Information Polity*, *11*(4), 241.

Graafland-Essers, I., & Ettedgui, E. (2003). *Benchmarking e-Government in Europe and the US* (No. 1733). Rand Corporation.

Griffin, D., & Halpin, E. (2002). Local government: A digital intermediary for the information age?. *Information Polity*, *7*(4), 217-230.

Grob, A. (1995). A structural model of environmental attitudes and behaviour.*Journal of Environmental Psychology*, *15*(3), 209-220.

Gupta, B., Dasgupta, S. & Gupta, A. (2008). Adoption of ICT in a government organization in a developing country: an empirical study. *Journal of Strategic Information Systems*, *17*(2),140-154.

Ha, S., & Stoel, L. (2009). Consumer e-shopping acceptance: Antecedents in a technology acceptance model. *Journal of Business Research*, *62*(5), 565-571.

Hair, J. F., & Black, W. C. Babin. BJ, & Anderson, RE (2010). Multivariate Data Analysis. (Seventh ed.). New Jersey: Pearson Prentice Hall.

Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). Research methods for business. *Education & Training*, *49*(4), 336-337.

Hair, J. J., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2014). A primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). London: SAGE Publications Ltd.

Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2013). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage Publications.

Harby, F. A., Qahwaji, R., & Kamala, M. (2012). End-Users' Acceptance of Biometrics Authentication to Secure E-Commerce within the Context of Saudi Culture: Applying the UTAUT Model. *Globalization, Technology Diffusion and Gender Disparity: Social Impacts of ICTs: Social Impacts of ICTs*, 225-246.

223

Heeks, R. (2002). Information systems and developing countries: Failure, success, and local improvisations. *The information society*, *18*(2), 101-112.

Heeks, R. (2003). *Most egovernment-for-development projects fail: how can risks be reduced?*. Manchester: *Institute for Development Policy and Management*, University of Manchester. Available online at:

http://idpm.man.ac.uk/publications/wp/igov/index.shtml.

Heeks, R. (2005). E-government as a Carrier of Context. *Journal of Public Policy*, *25*(1), 51-74.

Heeks, R., & Bailur, S. (2007). Analyzing e-government research: Perspectives, philosophies, theories, methods, and practice. *Government information quarterly*, *24*(2), 243-265.

Heeks, R., & Stanforth, C. (2007). Understanding e-Government project trajectories from an actor-network perspective. *European Journal of Information Systems*, *16*(2), 165-177.

Hejazi, S. R., Zarei, B., & Mozaffari, M. M. (2013). Factors affecting the acceptance of Internet and e-business technologies (IEBT): case of technology-based spin-offs. *International Review,1*(3),9-28.

Hill, S., & Troshani, I. (2010). Factors influencing the adoption of personalisation mobile services: empirical evidence from young Australians.*International Journal of Mobile Communications*, *8*(2), 150-168.

Hofstede, G. (1980). *Culture's Consequences: International Differences in Work Related Values*. Beverly Hills: Sage Publications.

Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations (2nd ed.). Thousand Oaks, Calif: Sage Publications.

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: software of the mind: intercultural cooperation and its importance for survival*: McGraw-Hill Professional.

Hong, I. B., & Cha, H. S. (2013). The mediating role of consumer trust in an online merchant in predicting purchase intention. *International Journal of Information Management*, *33*(6), 927–939. doi:10.1016/j.ijinfomgt.2013.08.007

Horst, M., Kuttschreuter, M., & Gutteling, J. (2007). Perceived usefulness, personal experiences, risk perception and trust as determinants of adoption of e-government services in the Netherlands. *Computers in Human Behavior 23*(4),1838-1852.

Horton, R. P., Buck, T., Waterson, P. E., & Clegg, C. W. (2001). Explaining intranet use with the technology acceptance model. *Journal of information technology*, *16*(4), 237-249.

Howells, J. (2006). Intermediation and the role of intermediaries in innovation. *Research policy*, *35*(5), 715-728.

Hsin Chang, H., & Wen Chen, S. (2008). The impact of online store environment cues on purchase intention: Trust and perceived risk as a mediator. *Online information review*, *32*(6), 818-841.

Hsu, T-H., Wang, Y-S., & Wen, S-C. (2006). Using the decomposed theory of planned behavior to analyse consumer behavioral intention towards mobile text message coupons. *Journal of Targeting, Measurement & Analysis for Marketing*, *14*(4), 309-324.

Huang, Z. & Bwoma, P. O. (2003). An overview of critical issues of E-government. *Issues of Information Systems*, *4*(1), 164-170.

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic management journal*, *20*(2), 195-204.

Hung, S.-Y., Chang, C.-M., & Kuo, S.-R. (2013). User acceptance of mobile e-government services: An empirical study. *Government Information Quarterly*, *30*(1), 33–44.

Hung, S.-Y., Chang, C.-M., & Yu, T.-J. (2006). Determinants of user acceptance of the e-Government services: The case of online tax filing and payment system. *Government Information Quarterly*, *23*(1), 97–122.

Iacobucci, D., Saldanha, N., & Deng, X. (2007). A meditation on mediation: Evidence that structural equations models perform better than regressions. *Journal of Consumer Psychology*, *17*(2), 139-153.

Internet Crime Complaint Center (ICCC). (2014). Internet Crime Report. Available online at: http://www.ic3.gov/media/annualreport/2013_IC3Report.pdf.

Irani, Z., Dwivedi, Y. K., & Williams, M. D. (2009). Understanding consumer adoption of broadband: an extension of the technology acceptance model. *Journal of the Operational Research Society*, *60*(10), 1322-1334.

Irani, Z., Love, P. E., & Jones, S. (2008). Learning lessons from evaluating eGovernment: Reflective case experiences that support transformational government. *The Journal of Strategic Information Systems*, *17*(2), 155-164.

Internet World Sates (IWS). (2014). Internet Usage Statistics: The Internet Big Picture. Available online at: http://www.Internetworldstats.com/stats.htm.

Jaeger, P. T., & Thompson, K. M. (2003). E-government around the world: Lessons, challenges, and future directions. *Government Information Quarterly*, *20*(4), 389-394.

James, J. (2003). Sustainable Internet Access for the Rural Poor? Elements of an Emerging Indian Model, *Futures*, 35(5), 461-472.

Janssen, M., & Klievink, B. (2009). The role of intermediaries in the multi-channel services delivery strategies. *International Journal of Electronic Government Research*, *5*(3), 36–46.

Jarvenpaa, S.L., Tractinsky, N., & Vitale, M. (2000). Consumer trust in an Internet store. *Information Technology and Management, 1*(1), 45–71.

227

Kannan, V. R., Tan, K. C., Handfield, R. B., & Ghosh, S. (1999). Tools and techniques of quality management: an empirical investigation of their impact on performance. *Quality Management Journal*, *6*(3), 34.

Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS quarterly*, 183-213.

Ke, W. & Wei, K. (2004). Successful e-government in Singapore. *Communications of the ACM*, *47*(6), 95-99.

Kenny, D. A., & Little, T. D. (2011). Methodology in the Social Sciences (3ed.). New York: The Guilford press.

Kerlinger, F. N. (1973). *Foundations of behavioral research: Educational, psychological and sociological inquiry*. Holt Rinehart and Winston.

Kesharwani, A., & Singh Bisht, S. (2012). The impact of trust and perceived risk on Internet banking adoption in India: An extension of technology acceptance model. *International Journal of Bank Marketing*, *30*(4), 303-322.

Khan, G. F., Moon, J., Rhee, C., & Rho, J. J. (2010). E-government skills identification and development: Toward a staged-based user-centric approach for developing countries. *Asia Pacific Journal of Information Systems*, *20*(1), 1-31.

228

Khan, G. F., Moon, J., Swar, B., Zo, H., & Rho, J.J.(2012). E-government service use intentions in Afghanistan: Technology adoption and the digital divide in a war-torn country. *Information Development, 28*(4), 281-299.

Kharade, J. & Sharma , G. (2013). Study of Status of ICT Use and Awareness in E-Governance : A Case of Pune Division, *Indian Journal of Applied Research 3*(4), 243–245.

Khasawneh, R., Rabayah, W., & Abu-Shanab, E. (2013). E-Government acceptance factors: trust and risk. In *The 6th International Conference on Information Technology (ICIT 2013)* (pp. 8-10).

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision support systems*, *44*(2), 544-564.

Kim, K. K., & Prabhakar, B. (2004). Initial trust and the adoption of B2C e-commerce: The case of Internet banking. *ACM sigmis database*, *35*(2), 50-64.

Koller, M. (1988). Risk as a Determinant of Trust. *Basic and Applied Social Psychology*, *9*(4), 265–76.

Kransberg, M. & Davenport, W. (1972) Technology and Culture: An Anthology. New York: Meridian

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educ Psychol Meas*.

Kuisma, T., Laukkanen, T., & Hiltunen, M. (2007). Mapping the reasons for resistance to Internet banking: A means-end approach. *International Journal of Information Management*, 27(2), 75-85.

Kumar, R., & Best, M. L. (2006). Impact and sustainability of e-government services in developing countries: Lessons learned from Tamil Nadu, India. *The Information Society*, *22*(1), 1-12.

Kumar, V., Mukerji, B., Butt, I., & Persaud, A. (2007). Factors for successful e-government adoption: a conceptual framework. *The electronic journal of e-Government*, *5*(1), 63-76.

Lamblin, M. & Siweris, E. (2014). Thematic Programme Capitalisation: Analysis report on E-government services. Available online at: http://www.interreg4c.eu/fileadmin/User_Upload/PDFs/CAPITALISATION/Report/E-government_services.pdf

Laudon, K., & Laudon, J. (2009). Management Information System (11th ed.). USA: Prentice Hall, New Jersey.

Lee, J., Kim, H. J., & Ahn, M. J. (2011). The willingness of e-Government service adoption by business users: The role of offline service quality and trust in technology. *Government Information Quarterly*, *28*(2), 222–230.

Lee, M.K.O., & Turban, E. (2001). A trust model for consumer Internet shopping. *International Journal of Electronic Commerce, 6* (1), 75–91.

Littler, D., & Melanthiou, D. (2006). Consumer perceptions of risk and uncertainty and the implications for behavior towards innovative retail services: The case of Internet Banking. *Journal of Retailing and Consumer Services*, *13*(6), 431-443.

Loch K D, Straub D W & Kamel S. 2003. Diffusing the Internet in the Arab world: The role of social norms and technological culturation. *Engineering Management*, IEEE Transactions, *50*(1), 45-63.

Lu, H. P., Hsu, C. L., & Hsu, H. Y. (2005). An empirical study of the effect of perceived risk upon intention to use online applications. *Information Management and Computer Security*, *13*(2), 106-120.

Luhmann, N. (2000). Familiarity, confidence, trust: Problems and alternatives. *Trust: Making and breaking cooperative relations*, *6*(1), 94-107.

Luo, X. (2002). Trust production and privacy concerns on the Internet: A framework based on relationship marketing and social exchange theory. *Industrial Marketing Management*, *31*(2), 111-118.

Mahadeo, J. D. (2009). Towards an understanding of the factors influencing the acceptance and diffusion of e-government services. *Electronic Journal of e-government*, *7*(4), 391-402.

Maibach, E. (1993). Social marketing for the environment: Using information campaigns to promote environmental awareness and behavior change. *Health Promotion International, 8*(3), 209–224.

231

Masrom, M., & Hussein, R. (2008). User acceptance of information technology: Understanding theories and model. Venton Publishing, Kuala Lumpur, Malaysia.

Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behaviour. *Information Systems Research*, *2*(3), 173-91.

Mathieson, K., Peacock, E. & Chin, W. (2001). Extending the technology acceptance model: The influence of perceived user resources. *Database for Advances in Information Systems*, *32*(3), 86.

Mayer, R.C., Davis, J.H., & Schoorman, F.D. (1995). An integrative model of organizational trust. *Academy of Management Review, 20*(3), 709–734.

Meftah, M., Gharleghi, B., & Samadi, B. (2015). Adoption of E-Government among Bahraini Citizens. *Asian Social Science*, *11*(4), 141.

Mellor, N. (2006). E-citizen: Developing research-based marketing communications to increase awareness and take-up of local authority e-channels. In B. Gunter (Ed.), *Aslib proceedings* (Vol. 58, No. 5, pp. 436-446). Emerald Group Publishing Limited.

Ministry of Information and Communication Technology, KSA. (MICT). (2015) Available online at: http://www.mcit.gov.sa/en/Pages/default.aspx

Millard, J. (2007) European e-government 2005-2007. Available online at: http://www.epractice.eu/files/download/awards/ResearchReport2007.pdf.

232

Mohammad, H., Almarabeh, T. & Abu Ali, A. (2009). E-government in Jordan. *European Journal of Scientific Research*, *35*(2), 188-197

Ministry of Higher Education (MOHE). (2014), *Higher Education Statistics Centre*, Saudi Arabia. Available online at: http://www.mohe.gov.sa/ar/Ministry/Deputy-Ministry-for-Planning-and-Information-affairs/HESC/Ehsaat/Pages/default.aspx

Moon, J. W. & Kim, Y. G. (2001). Extending the TAM for a World-Wide-Web context. *Information and Management*, *38*(4), 217-230.

Morris, M. G. & Venkatesh, V. (2000) Age differences in technology adoption decisions: Implications for a changing work force. *Personnel Psychology*, *53*(2) 375-403.

Myers, M. D., & Tan, F. B. (2003). Beyond models of national culture in information systems research. *Advanced topics in global information management*, *2(1)*, 14-29.

Myron, D. (2004). Stolen names, big numbers as companies battle fraudsters and identity thieves, consumers' trust is harder to earn. *American Demographics*, *26*(7), 36-38.

Nadi, I. A., & Drew, S. (2014). The Influence of Perceived Characteristics of eGovernment Transactions. In *The International Conference on Computing Technology and Information Management* (pp. 72-85). The Society of Digital Information and Wireless Communication.

233

Norris, D. F., & Moon, M. J. (2005). Advancing e- government at the grassroots: tortoise or hare?. *Public administration review, 65*(1), 64-75.

O'Donovan, J., Jones, R. E., Marusich, L. R., Teng, Y., Gonzalez, C., & Höllerer, T. (2013). A Model-based Evaluation of Trust and Situation Awareness in the Diner's Dilemma Game. In *Proceedings of the 22th Behavior Representation in Modeling & Simulation (BRIMS) Conference* (pp. 11-14).

Osborne, J. W. (2010). Correlation and other measures of association. In G. R. Hancock & R. O. Mueller (Eds.), *The Reviewer's Guide to Quantitative Methods in the Social Sciences* (pp. 55-70). New York, NY: Routledge

Ovais Ahmad, M., Markkula, J., & Oivo, M. (2013). Factors affecting e-government adoption in Pakistan: a citizen's perspective. *Transforming Government: People, Process and Policy*, *7*(2), 225-239.

Paganini, P. (2014). "2015 Security Predictions: The Rise of Hacking Campaigns". InfoSec Institute. Available online at: http://www.infosecinstitute.com/

Pallant, J. (2013). *SPSS survival manual*. McGraw-Hill International. (Version 21), Allen and Unwin, Crows Nest.

Parasuraman, R., Sheridan, T. B., & Wickens, C. D. (2008). Situation awareness, mental workload, and trust in automation: Viable, empirically supported cognitive engineering constructs. *Journal of Cognitive Engineering and Decision Making*, *2*(2), 140-160.

234

Park, R. (2008). Measuring factors that influence the success of E-government initiatives. In *Hawaii International Conference on System Sciences, Proceedings of the 41st Annual* (pp. 218-218). IEEE.

Pascual, A. & Miller, S. (2014). Identity Fraud Report: Card Data Breaches and Inadequate Consumer Password Habits Fuel Disturbing Fraud Trends. *Javelin Strategy & Research*. Available online at: https://www.javelinstrategy.com

Patel, H., & Jacobson, D. (2008). Factors Influencing Citizen Adoption of E-Government: A Review and Critical Assessment. In *ECIS* (pp. 1058-1069).

Pavlou, P. & Fygenson, M. (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior. *MIS Quarterly*, *30*(1), 115- 142.

Pavlou, P., & Gefen, D. (2004). Building effective online marketplaces with institution-based trust. *Information Systems Research 15*(1), 37–59.

Pavlou, P., (2003). Consumer acceptance of electronic commerce: integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce*, *7*(3), 69–103.

Phang, C. W., Sutanto, J., Kankanhalli, a., Li, Y., Tan, B. Y., & Teo, H. (2006). Senior Citizens' Acceptance of Information Systems: A Study in the Context of e-Government Services. *Transactions on Engineering Management*, *53*(4), 555–569.

Pi, S. M., Liao, H. L., & Chen, H. M. (2012). Factors that affect consumers' trust and continuous adoption of online financial services. *International Journal of Business and Management*, *7*(9), p108.

Pickett-Baker, J., & Ozaki, R. (2008). Pro-environmental products: marketing influence on consumer purchase decision. *Journal of consumer marketing*, *25*(5), 281-293.

Pinto, J., & Mantel, S. (1990). The causes of project failure. *Transactions on Engineering Management*, *37*(4), 269–276.

Pósfai, M., & Féjer, A. (2008). The eHungary Programme 2.0. *Innovation: the European Journal of Social Science Research*, *21*(4), 407-415.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods*, *40*(3), 879-891.

Prima, S. & Ibrahim, R. (2011). Citizen awareness to e-government services for information personalization. *International Journal of Innovative Computing*, *1*(1), 1-14.

Rana, N. Dwivedi, Y. & Williams, M. (2014). A Review and Weight Analysis of the Predictors and Linkages in Electronic Government Adoption Research. *International Journal of Indian Culture and Business Management, 8*(2), 139-158.

Rao, V. (2004). Symbolic Public Goods and the Coordination of Collective Action: A Comparison of Community Based Development in Indonesia and India. *World Bank, Development Research Group, Washington, DC Processed*.

Reddick, C. G. (2005) Citizen interaction with e-government: From the streets to servers? *Government Information Quarterly*, *22*(1), 38-57.

Reddick, C. G., & Turner, M. (2012). Channel choice and public service delivery in Canada: Comparing e-government to traditional service delivery. *Government Information Quarterly*, *29*(1), 1-11.

Rehman, M., & Esichaikul, V. (2011). Factors influencing the adoption of e-government in Pakistan. In *E-Business and E-Government (ICEE), 2011 International Conference on* (pp. 1-4). IEEE.

Rehman, M., Esichaikul, V., & Kamal, M. (2012). Factors influencing e-government adoption in Pakistan. *Transforming Government: People, Process and Policy*, 6(3), 258–282.

Ringle, C. M., Sarstedt, M., & Straub, D. (2012). A critical look at the use of PLS-SEM in MIS Quarterly. *MIS Quarterly (MISQ)*, *36*(1).

Rogers, E.M. (1995), Diffusion of Innovations, 4th ed., *The Free Press*, New York, NY.

Rotter, J. B. (1967). A new scale for the measurement of interpersonal trust. *Journal of personality*, *35*(4), 651-665.

Salam, a. F., Rao, H. R., & Pegels, C. C. (2003). Consumer-perceived risk in e-commerce transactions. *Communications of the ACM*, *46*(12), 325.

Sang, S., & Lee, J. (2009). E-government adoption in ASEAN: the case of Cambodia. *Internet Research*, *19*(5), 517–534.

Sarkar, M. B., Butler, B., & Steinfield, C. (1995). Intermediaries and Cybermediaries : A Continuing Role for Mediating Players in the Electronic Marketplace, *Journal of Business Research,* 1(3), 1–14.

Sarkar, M. B., Butler, B., & Steinfield. C. (1996). Intermediaries and Cybermediaries:A Continuing Role for Mediating Players in the Electronic Marketplace. *Journal of computer Mediated communication*, *1*(3), 1-14.

Sarkar, M., Butler, B., & Steinfield, C. (1998). Cybermediaries in electronic marketspace: toward theory building. *Journal of Business Research*, *41*(3), 215-221.

Sathye, M. (1999). Adoption of Internet banking by Australian consumers: an empirical investigationt. *International Journal of Bank Marketing, 17*(7), 324 - 334.

Saudi Arabian General Investment Authority (SAGIA). (2016). Database. Kingdom of Saudi Arabia, Riyadh. Available online at:

https://www.sagia.gov.sa/Investment-climate/Some-Things-You-Need-To-Know-/Investment-Incentives/

Saxena, K. B. C. (2005). Towards excellence in e-governance. *International Journal of Public Sector Management*, *18*(6), 498-513.

238

Schaupp, L. C., Carter, L., & Hobbs, J. (2010, January). Electronic tax filing: the impact of reputation and security on adoption. In *System Sciences (HICSS), 2010 43rd Hawaii International Conference on* (pp. 1-10). IEEE.

Schaupp, L. C., & Carter, L. (2010). The impact of trust, risk and optimism bias on E-file adoption. *Information Systems Frontiers, 12*(3), 299-309.

Schaupp, L. C., Carter, L., & McBride, M. E. (2010). E-file adoption: A study of US taxpayers' intentions. *Computers in Human Behavior, 26*(4), 636-644.

Schlenker, B. R., Helm, B., & Tedeschi, J. T. (1973). The effects of personality and situational variables on behavioral trust. *Journal of Personality and Social Psychology*, *25*(3), 419.

Schlosser, A. E., White, T. B., & Lloyd, S. M. (2006). Converting web site visitors into buyers: how web site investment increases consumer trusting beliefs and online purchase intentions. *Journal of Marketing*, *70*(2), 133-148.

Schwartz, S. H. (2003). A proposal for measuring value orientations across nations. *Questionnaire Package of the European Social Survey*, 259-290.

Sein, M. K. (2011). The "I" between G and C: e-Government intermediaries in developing countries. *The Electronic Journal of Information Systems in Developing Countries*, *48*(1), 1-14.

Sein, M. K., Ahmad, I. D., & Harindranath, G. (2008). Sustaining ICT for development projects: the case of Grameenphone CIC. *Emerging Markets in Telecommunications.* Telektronikk, *104*(2).

Sekaran, U. (2003). *Research Methods for Business: A Skill Building Approach*. *John Willey and Sons, New York*.

Sekaran, U., & Bougie, R. (2011). *Research methods for business: A skill building approach.* (5th ed). New Delhi: John Wiley & Sons.

Shajari, M., & Ismail, Z. (2011). Key factors influencing the adoption of e-government in Iran. In *Information and Computing (ICIC), 2011 Fourth International Conference on* (pp. 457-460). IEEE.

Shannak, R. O. (2013). The Difficulties and Possibilities of E-Government: The Case of Jordan. *Journal of Management Research*, *5*(2), 189–204.

Shapiro, S.P. (1987). The social control of impersonal trust. *American Journal of Sociology*. *93*(3), 623–658.

Shareef, M. A., Kumar, V., Kumar, U., & Dwivedi, Y. K. (2011). e-Government Adoption Model (GAM): Differing service maturity levels. Government Information Quarterly, *28*(1), 17–35.

Sharifi, H., & Zarei, B. (2004). An adaptive approach for implementing e-government in IR Iran. *Journal of Government Information*, *30*(5), 600-619.

Shih, Y., & Fang, K. (2004). The use of a decomposed theory of planned behavior to study Internet banking in Taiwan. *Internet Research*, *14*(3), 213-223.

Sipior, J. C., Ward, B. T., & Connolly, R. (2011). The digital divide and t-government in the United States: Using the technology acceptance model to understand usage. *European Journal of Information Systems*, *20*(3), 308-328.

Sorrentino, M., & Niehaves, B. (2010). Intermediaries in E-Inclusion: A literature review. In *System Sciences (HICSS), 2010 43rd Hawaii International Conference on* (pp. 1-10). IEEE. doi:10.1109/HICSS.2010.239

Sproull, N. D. (2004). *Handbook of research methods: A guide for practitioners and Students in the social sciences* (3rd Ed.). New Jersey: The Scarecrow Press.

Srite, M., Karahanna, E. (2006). The role of espoused national cultural values in technology acceptance. *MIS Quarterly,* 30, 679-704

Straub, D., Boudreau, M. C., & Gefen, D. (2004). Validation guidelines for IS positivist research. *The Communications of the Association for Information Systems*, *13*(1), 63.

Succi, M. J., & Walter, Z. D. (1999). Theory of user acceptance of information technologies: an examination of health care professionals. In *Systems Sciences, 1999. HICSS-32. Proceedings of the 32nd Annual Hawaii International Conference on* (pp. 7-pp). IEEE.

Sun, H., & Xiao, X. (2006). User acceptance of virtual technologies. *Encyclopedia of virtual communities and technologies*, 468-473.

Suryaningsih, I. B., Hadiwidjojo, D., Rohman, F., & Sumiati, S. (2014). A Theoretical Framework: The Role of Trust and Perceived Risks in Purchased Decision. *Research in Business and Management*, *1*(2), 103.

Tabachnick, B. G., & Fidell, L. S. (2001). Using multivariate statistics (4th ed.). New York: Harper & Row.

Tan, M., & Teo, T. S. (2000). Factors influencing the adoption of Internet banking. *Journal of the AIS*, *1*(1), 5.

Yao-Hua Tan, W. T. (2000). Toward a generic model of trust for electronic commerce. *International Journal of Electronic Commerce*, *5*(2), 61-74.

Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information systems research*, *6*(2), 144-176.

Teece, D. J. (1980). The diffusion of an administrative innovation. *Management science*, *26*(5), 464-470.

Teng, Y., Jones, R., Marusich, L., O'Donovan, J., Gonzalez, C., & Hollerer, T. (2013). Trust and situation awareness in a 3-player diner's dilemma game. In *Cognitive Methods in Situation Awareness and Decision Support (CogSIMA), 2013 IEEE International Multi-Disciplinary Conference on* (pp. 9-15). IEEE.

Teo, T. S., & Liu, J. (2007). Consumer trust in e-commerce in the United States, Singapore and China. *Omega*, *35*(1), 22-38.

Teo, T. S., Srivastava, S. C., & Jiang, L. (2008). Trust and electronic government success: An empirical study. *Journal of Management Information Systems*, *25*(3), 99-132.

Thomas, J.C. & Streib, G. (2003). The new face of government: citizen-initiated contacts in the era of e-government. *Journal of Public Administration Research & Theory*, 13(1), 83-102.

Thompson S.H. Teo, T.S.H & Liu, J . (2007). Consumer trust in e-commerce in the United States, Singapore and China. *Omega*, *35*(1), 22-38.

Tolbert, C. J. & Mossberger, K. (2006). The Effects of E Government on Trust and Confidence in Government. *Public Administration Review*, *66*(3), 354-369.

Torres, L., Pina, V., & Royo, S. (2005). E-government and the transformation of public administrations in EU countries: Beyond NPM or just a second wave of reforms? *Online Information Review*, *29*(5), 531-553.

U.N. World Economic Situation and Prospects Report. (2015). World Economic Situation and Prospects 2015. Available online at: http://www.un.org/en/development/desa/policy/wesp/wesp_archive/2015wesp_full_en.pdf

United Nations Department of Economic and Social Affairs (UNDESA). (2014). United Nations E-Government Survey 2014: E-Government for the People. New York: Department of Economic and Social Affairs. Available online at: http://unpan1.un.org/intradoc/groups/public/documents/un/unpan048065.pdf.

Van der Kleij, R. (2007). Overcoming distance in virtual teams: effects of communication media, experience, and time pressure on distributed teamwork. (PhD thesis, Delft University of Technology).

Van der Meer, A., & Van Winden, W. (2003). E-governance in cities: a comparison of urban information and communication technology policies.*Regional Studies*, *37*(4), 407-419.

Van Slyke, C., Belanger, F., & Comunale, C. L. (2004). Factors influencing the adoption of web-based shopping: the impact of trust. *ACM Sigmis Database*, *35*(2), 32-49.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science, 46*(2), 186-204.

Venkatesh, V. & Morris, M.G. (2000). Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior. *MIS Quarterly*, 24, 115–139.

Venkatesh, V. & Bala, H. (2008). Technology Acceptance Model 3 and a Research Agenda on Interventions. *Decision Science*, *39*(2), 273-312.

Venkatesh, V., & Brown, S. A. (2001). A longitudinal investigation of personal computers in homes: adoption determinants and emerging challenges. *MIS quarterly*, 71-102.

Venkatesh, V., Brown, S.A., Maruping, L.M. & Bala, H. (2008). Predicting Different Conceptualizations of System Use: The Competing Roles of Behavioral Intention, Facilitating Conditions, and Behavioral Expectation. *MIS Quarterly*, *32*(3), 483-502.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly*, *36*(1), 157-178.

Verdegem, P., & Verleye, G. (2009). User-centered E-Government in practice: A comprehensive model for measuring user satisfaction. *Government Information Quarterly*, *26*(3), 487-497.

Wahid, F., Sein, M.K. & Furuholt, B. (2011). Religious Organizations as Intermediaries in the Indonesian Context. In the *Proceedings of the11th Conference on Social Implications of Computing in Developing Countries.* Kathmandu, Nepal, May.

Wang, F., & Chen, Y. (2012). From potential users to actual users: Use of e-government service by Chinese migrant farmer workers. *Government Infor- mation Quarterly*, *29*(1), 98–111.

Wang, H. I., & Yang, H. L. (2005). The role of personality traits in UTAUT model under online stocking. *Contemporary Management Research*, *1*(1), 69-82.

Wang, Y.-S. (2003). The Adoption of Electronic Tax Filing Systems: An Empirical Study. *Government Information Quarterly*, *20*(4), 333-352.

Wangpipatwong, S., Chutimaskul, W., & Papasratorn, B. (2008). Understanding citizen's continuance intention to use e-government website: A composite view of technology acceptance model and computer self-efficacy. *The electronic journal of e-government*, *6*(1), 55-64.

Ward, B. T., Connolly, R., & Hackney, R. (2011). E-Government awareness among the techno-disadvantaged in the United States. European, *Mediterranean & Middle Eastern Conference on Information Systems*, 2011 (EMCIS 2011), Athens, Greece.

Warkentin, M., Gefen, D., Pavlou, P. a., & Rose, G. M. (2002). Encouraging Citizen Adoption of e-Government by Building Trust. *Electronic Markets*, *12*(3), 157–162.

Weerakkody, V., El-Haddadeh, R., Al-Sobhi, F., Shareef, M. A., & Dwivedi, Y. K. (2013). Examining the influence of intermediaries in facilitating e-government adoption: An empirical investigation. *International Journal of Information Management*, *33*(5), 716-725.

Weerakkody, V., Jones, S., & Olsen, E. (2007). E-government: a comparison of strategies in local authorities in the UK and Norway. *International Journal of Electronic Business*, *5*(2), 141-159.

Welch, E.W., Hinnant, C.C., & Moon, M.J. (2005). Linking citizen satisfaction with e-government and trust in government. *Journal of Public Administration Research and Theory*, *15*(3), 371–391.

Wetzels, M., Odekerken-Schroder, G., & Van Oppen, C. (2009), Using PLS path modeling for assessing hierarchical construct models: *Guidelines and empirical illustration. Mis Quarterly, 33*(1), 177.

Whitson, T. L., & Davis, L. (2001). Best practices in electronic government: comprehensive electronic information dissemination for science and technology. *Government Information Quarterly*, *18*(2), 79-91.

Wu, Y. L., Tao, Y. H., & Yang, P. C. (2007). Using UTAUT to explore the behavior of 3G mobile communication users. In *Industrial Engineering and Engineering Management, 2007 IEEE International Conference on* (pp. 199-203). IEEE.

Yildiz, M. (2007). E-government research: Reviewing the literature, limitations, and ways forward. *Government Information Quarterly*, *24*(3), 646-665.

Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of consumer research*, *37*(2), 197-206. Available online at: http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/4143/279443600001.pdf?sequence=1

Zikmund, W., Babin, B., Carr, J., & Griffin, M. (2012). *Business research methods*. Cengage Learning.

Survey Questionnaire English Version

Questionnaire No: ☐ ☐ ☐ ☐

Dear Respondents,

I am a doctoral candidate from Othman Yeop Abdullah Graduate School of Business (OYA) at University Utara Malaysia (UUM), conducting a survey on users' perspectives about electronic government services in Saudi Arabia. An example of an electronic government service would be renewing your driving license with the Traffic department online or through an e-government intermediary. I would appreciate if you could spend some time and thought in completing this survey. Your responses will be considered confidential and used purely for only academic research purposes. There is no right or wrong answer. You will be able to complete it easily within less than 10 minutes. Thank you for your willingness to participate in this study.

Thank you for your assistance

Doctorate of Business Administration (DBA) program / OYA
Universiti Utara Malaysia.
Researcher e-mail address: mjklfd@gmail.com
Mujahed Khalid Fahad

Section A: Personal Information

Please tick the following appropriate box (✓) about yourself status.

1. **Your Gender:**   1. ☐ Male   2. ☐ Female

2. **Your Age:**
   1.☐ ≤ 22.   2.☐ 23 -35.   3.☐ 36- 45.   4.☐ 46-55.   5.☐ ≥ 56.

3. **Your Marital status:**
   1. ☐Single.   2. ☐ Married.

4. **Your Education level:**
   1.☐ Bachelor.   2.☐ Masters.   3.☐ PhD.
   4.☐ Others (please specify) ....

5. **Your total monthly income in SR:**
   1.☐ ≤ SR5000   2.☐ SR5001 - 10000   3.☐ SR10001 - 15000
   4.☐ SR15001 - SR20000   5.☐ SR20001 - SR25000   6.☐ ≥ SR25001

6. **Have you ever used e-government services such as paying bills online or renewing your driving license with the Traffic department online?**
   1.☐ Yes   2.☐ No

   If your answer is YES, please proceed to next question (Question # 10).

If your answer is NO, please tick (✓) why you do not use e-government services?   1.☐ No idea about e-government services   2.☐ No internet facilities 3.☐ Using the e-government services is risky   4.☐ Using the e-government services is difficult   5.☐ Others (please specify) ....   **Thank you for your time.**

7. **Please state the frequency of your internet usage to gather information about or from the government:**
   1.☐ Everyday   2.☐ Several times a week
   3.☐ Several times a month   4.☐ Once a month.   5.☐ Never.

8. **Please state the frequency of your internet usage to complete e-government services (renew your driving license, pay required fees, etc.):**

1.☐ Everyday   2.☐ Several times a week

3.☐ Several times a month   4.☐ Once a month   5.☐ Never

9. **Please state the percentage of your government transaction:**

1.☐ All e-government services that I need

2.☐ Some e-government services that I need

3.☐ Few of e-government services that I need

10. **Please state the type of your government transaction:**

1.☐ Renew my driving license   2.☐ Renew my passport

3.☐ Pay required fees   4.☐ Others (please specify) ....

Section B: The factors that affect e-government services in Saudi

Please rate the following statements on a scale of 1 – 5:

strongly disagree	disagree	neutral	agree	strongly agree
1	**2**	**3**	**4**	**5**

No.	Section C: Statements	1	2	3	4	5
1.0	**Intention to Use E-Government Services**					
IU 1	I intend to use the government services website in future					
IU 2	I intend to use the government services website directly					
IU 3	I will recommend others to use e-government services directly					
IU 4	Interacting with the government over the Web is something that I would do					
IU 5	I would use the Web for gathering government information					
IU 6	I would not hesitate to provide information to the government website					

2.0	Perceived Risk to Use E-Government Services	1	2	3	4	5
PR1	The decision of whether to use e-government services is risky					
PR2	In general, I believe using the government services over the internet is risky					
PR3	I feel that the risks outweigh the benefits of using an the government services website					
PR4	Using the online government services is not secure to send sensitive information					
PR5	Using the online government services through the intermediaries is not secure to send sensitive information					

3.0	**E-Government Service Awareness**	1	2	3	4	5
EA1	I receive enough information about e-government services					
EA2	I receive enough information about the benefits of e-government services					
EA3	I receive enough information about how to use e-government services					
EA4	The government promotes awareness about e-government services provided through the Internet					
EA5	Nowadays, government services are available on the Internet					
EA6	The e-government intermediary's offices promote awareness about e-government services					

4.0	**Trust in Internet**	1	2	3	4	5
TI 1	The internet has enough safeguards to make me feel comfortable interacting with the government services website					
TI 2	I feel assured that legal and technological structures adequately protect me from problems on the internet					
TI 3	I would feel secure sending sensitive information across the e-internet					
TI 4	In general, the internet is now a robust and safe environment in which to transact with the government services online					

5.0	**Trust in E-Government Intermediary**	1	2	3	4	5
TEI1	I think I can trust intermediary organisations					
TEI2	In my opinion, intermediary organisations are trustworthy					
TEI3	The intermediaries have enough safeguards (passwords, secure computers etc.) to make me feel comfortable using it to interact with the government services online					
TEI4	I am not concerned that the information I submit through the intermediaries could be misused					

6.0	**Social Influence**	1	2	3	4	5
SI 1	People who are important to me think that I should use the e-government services facilities					
SI 2	People who influence my behaviour think I should use the e-government services					
SI 3	I would use the e-government services if my friends used them					
SI 4	In general, my friends have supported the use of government services online					
SI 5	People who are important to me think that using the e-government services is a good idea					

Please, use this space to write any comments you wish to make.

……………………………………………………………………
You have completed the survey. Thank you for your participation

Survey Questionnaire Arabic Version

بسم الله الرحمن الرحيم

الإستبانة

رقم الإستبانة: ☐☐☐

جامعة اوتارا الماليزية

Othman Yeop Abdullah Graduate School of Business

Universiti Utara Malaysia

السلام عليكم

أخواني أعضاء هيئة التدريس،

الإستبيان المرفق هو جزء رئيسي من أطروحة الدكتوراه التي أقوم حالياً بإعدادها في كلية إدارة الأعمال في جامعة اوتارا بمملكة ماليزيا تحت عنوان العوامل المؤثرة على إستخدام الخدمات الحكومية الإلكترونية من وجهة نظر أعضاء هيئة التدريس بالجامعات السعودية.

ومن أمثلة تلك الخدمات الحكومية الإلكترونية هو تجديد جواز السفر عبر الإنترنت أو من خلال المكاتب الحكومية للخدمات الإلكترونية. وسيكون التعامل مع ردودكم بسرية تامة، واستخدامها فقط لغرض البحث العلمي. علما أنه بإمكانك إستكمال هذه الإستبانة بسهولة خلال 5 دقائق.

شاكرا لكم المشاركة في هذه الدراسة.

المهندس/ مجـاهد بن خـالد بن فـهد

جامعة اوتارا الماليزية

البريد الالكتروني للباحث: mjklfd@gmail.com

252

أ ـ الجزء الاول: المعلومات الشخصية

يرجى وضع علامة (✓) في المربع المناسب:

1. الجنس: ☐ ذكر ☐ أنثى

2. العمر: ☐ أقل من 22 ☐ 23-35 ☐ 36-45 ☐ 46-55 ☐ أكبر من 56

3. الحالة الاجتماعية: ☐ أعزب ☐ متزوج

4. المستوى التعليمي: ☐ بكالوريوس ☐ ماجستير ☐ دكتوراه ☐ اخرى (يرجى التحديد)...

5. الدخل الشهري (بالريال):

☐ 10001-15000   ☐ 5001-10000   ☐ 5000≥

☐ 250001 ≤   ☐ 20001-25000   ☐ 15001-20000

6. هل تم التعامل واستخدام الخدمات الحكومية الالكترونية عبر شبكة الانترنت كخدمة تجديد جواز السفر أو دفع الرسوم الحكومية:

☐ نعم ☐ لا

في حالة إجابتك (نعم) يرجى الانتقال الى الجزء التالي (السؤال السابع)

في حالة إجابتك (لا) يرجى تحديد سبب عدم الإفادة من خدمات الحكومة الإلكترونية:
☐ لا أعلم عن الخدمات الحكومية الإلكترونية
☐ ضعف أو عدم توفر خدمة الانترنت
☐ عدم أمان الخدمات الحكومية الإلكترونية
☐ صعوبة استخدام الخدمات الحكومية الالكترونية الإلكترونية
☐ أخرى (يرجى التحديد) : ....

7. يرجى تحديد معدل استخدامك للانترنت في جمع المعلومات المتعلقة بالخدمات الحكومية الإلكترونية

☐ يوميا   ☐ عدة مرات في الاسبوع   ☐ مرة واحدة في شهر   ☐ عدة مرات في الشهر
☐ مرة واحدة في السن   ☐ عدة مرات في السنة   ☐ لا أستخدمه أبدا

8. يرجى تحديد معدل استخدامك للانترنت في تنفيذ المعاملات الحكومية الإلكترونية

☐ يوميا   ☐ عدة مرات في الأسبوع   ☐ مرة واحدة في الشهر
☐ عدة مرات في الشهر   ☐ مرة واحدة في السنة   ☐ عدة مرات في السنة   ☐ لا أستخدمه أبدا

253

9. يرجى تحديد مدى الخدمات الحكومية الإلكترونية التي تستخدمها

☐ جميع الخدمات الإلكترونية التي أحتاجها.

☐ بعض الخدمات الإلكترونية التي احتاجها.

☐ قليل من الخدمات الإلكترونية التي احتاجها.

10. يرجى تحديد أنواع الخدمات الحكومية الإلكترونية التي تستخدمها:

☐ دفع الرسوم الحكومية   ☐ تجديد جواز السفر   ☐ تجديد رخصة القيادة

☐ أخرى (يرجى التحديد).............   ☐ جميع الخدمات

ب- الجزء الثاني: العوامل المؤثرة على استخدام خدمات الحكومة الإلكترونية في السعودية

يرجى وضع علامة (✔) في المربع المناسب على أساس مقياس يتكون من نقاط (1- 5) حيث:

لا أوافق بشدة	لا أوافق	لا أعلم	موافق	موافق بشدة
1	2	3	4	5

1- استخدام الخدمات الحكومية الإلكترونية	1	2	3	4	5
1. أفكر باستخدام الخدمات الحكومية الإلكترونية مستقبلا					
2. أود استخدام الخدمات الحكومية الإلكترونية على الفور					
3. سوف أوصي الآخرين باستخدام الخدمات الحكومية الإلكترونية على الفور					
4. التعامل مع الخدمات الحكومية الإلكترونية هو الشيء الذي أود أن تفعل					
5. أود استخدام الإنترنت لجمع المعلومات عن الخدمات الحكومية الإلكترونية					
6. لن أتردد في تقديم المعلومات إلى موقع الخدمات الحكومية الإلكترونية					

2- المخاطر المدركة عن الخدمات الحكومية الإلكترونية	1	2	3	4	5
1. استخدام خدمات الحكومة الإلكترونية قرار محفوف بالمخاطر					
2. بشكل عام، أعتقد أن استخدام الخدمات الحكومية عبر شبكة الإنترنت هو مخاطرة					
3. أشعر بأن المخاطر من استخدام الموقع الإلكتروني للخدمات الحكومية تفوق الفوائد					
4. استخدام الخدمات الحكومية عبر الإنترنت ليست آمنة لإرسال معلومات شخصية حساسة					
5. استخدام مكاتب الخدمات الإلكترونية الخاصة هو مخاطرة					

3- الوعي بتوفر الخدمات الحكومية الإلكترونية	1	2	3	4	5
1. لدي معلومات كافية عن الخدمات الحكومة الإلكترونية					
2. لقد حصلت على معلومات كافية عن فوائد الخدمات الحكومة الإلكترونية					
3. لدي معلومات كافية عن كيفية استخدام الخدمات الحكومية الإلكترونية					
4. الحكومة تقوم بتوعية المواطنين بخدماتها الإلكترونية عبر شبكة الإنترنت					

254

5	4	3	2	1	
					5. في الوقت الحاضر، الخدمات الحكومية متاحة على شبكة الإنترنت
					6. المكاتب الحكومية للخدمات الإلكترونية تقوم بتوعية المواطنين بالخدمات الحكومية الإلكترونية

5	4	3	2	1	4- الثقة في شبكة الإنترنت
					1. تحتوي شبكة الإنترنت على حماية كافية تجعلني أشعر بالراحة عند التعامل مع موقع الخدمات الحكومية
					2. أنا على يقين بأن الأنظمة القانونية والتكنولوجية تشكل حماية كافية لي من المشاكل على شبكة الإنترنت
					3. أشعر بالأمان في إرسال المعلومات الحساسة عبر شبكة الإنترنت
					4. عموما، الإنترنت الآن بيئة قوية وآمنة لإجراء الخدمات الحكومية على الانترنت

5	4	3	2	1	5- الثقة في مكاتب الخدمات الحكومية الإلكترونية
					1. أعتقد بأنه يمكن الثقة بالمكاتب الحكومية للخدمات الإلكترونية
					2. في رأيي، المكاتب الحكومية للخدمات الإلكترونية جديرة بالثقة
					3. المكاتب الحكومية للخدمات الإلكترونية لديها ما يكفي من الضمانات (مثل كلمة السر، وأجهزة الكمبيوتر الآمنة الخ) يجعلني أشعر بالراحة في استخدامها لإجراء معاملاتي الحكومية على الانترنت
					4. أنا لست قلق من أن يُساء استخدام المعلومات التي أقدمها خلال تعاملي مع المكاتب الحكومية للخدمات الإلكترونية

5	4	3	2	1	6- التأثيرات الاجتماعية
					1. يعتقد الناس المهمين لي أنني يجب أن استخدام الخدمات الحكومية الإلكترونية
					2. يعتقد الناس المؤثرين علي أنه يجب علي استخدام الخدمات الحكومية الإلكترونية
					3. سوف استخدم الخدمات الحكومية الإلكترونية عندما يستخدمها أصدقائي
					4. عموما، يدعم أصدقائي استخدام الخدمات الحكومية الإلكترونية
					5. يعتقد الناس المهمين لي أن استخدام الخدمات الحكومية الإلكترونية فكرة جيدة

الرجاء استخدام الفراغ أدناه لكتابة أي تعليقات ترغب فيها :

………………………………………………………………………………………………………
………………………………………………………………………………………………………

نقدر لكم تعاونكم ولكم منا جزيل الشكر والعرفان

APPENDIX C

Permeations to collect data

OTHMAN YEOP ABDULLAH
GRADUATE SCHOOL OF BUSINESS
Universiti Utara Malaysia
06010 UUM SINTOK
KEDAH DARUL AMAN
MALAYSIA

Tel: 604-928 7101/7113/7130
Faks (Fax): 604-928 7160
Laman Web (Web): www.oyagsb.uum.edu.my

KEDAH AMAN MAKMUR ● BERSAMA MEMACU TRANSFORMASI

UUM/OYAGSB/K-14
10 August 2015

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

LETTER FOR DATA COLLECTION AND RESEARCH WORK

This is to certify that **Alanazi Mujahed Khalid F (Matric No: 91852)** is a bonafied student of Doctor of Philosophy (PhD), Othman Yeop Abdullah Graduate School of Business, Universiti Utara Malaysia. He is conducting a research entitled *"Factors Influencing Intention to use E-Government Services Among the Academic Staff in Saudi Universities"* under the supervision of Assoc. Prof. Dr. Nor Azila Mohd Noor.

In this regard, I hope that you could kindly provide assistance and cooperation for him to successfully complete the research. All the information gathered will be strictly used for academic purposes only.

Your cooperation and assistance is very much appreciated.

Thank you.

"SCHOLARSHIP, VIRTUE, SERVICE"

Yours faithfully,

ROZITA BINTI RAMLI
Assistant Registrar
for Dean
Othman Yeop Abdullah Graduate School of Business

c.c   -   Supervisor
       -    Student's File (91852)

Universiti Pengurusan Terkemuka
The Eminent Management University

بسم الله الرحمن الرحيم

سفارة المملكة العربية السعودية

الملحقية الثقافية

كوالالمبور

إفادة

تفيد الملحقية الثقافية بدولة ماليزيا بأن الطالب/ مجاهد خالد فهد العنزي/ سجل مدني
(1007051004) مبتعث من وزارة التعليم لنيل درجة الدكتوراه في إدارة أعمال من جامعة
أوتارا بماليزيا ويود جمع معلومات لبحثه المعنون:

(Factors Influencing Intention to use E-Government Services among
the Academic Staff in Saudi Universities)

وحسب خطاب مشرفه المؤرخ في 5201/8/10م المرفق صورة لتقديمها لمن يهمه الأمر.
نرجو التعاون معه لما فيه المصلحة العامة.

وأعطيت له هذه الإفادة بناءً على طلبه دون أدنى مسؤولية على الملحقية.

وتقبلوا أطيب تحياتي وتقديري ،،،

الملحق الثقافي في ماليزيا

أ.د. زايد بن عجير الحارثي

APPENDIX D

Permissions to disturbing the questioners in Saudi Arabia

KINGDOM OF SAUDI ARABIA
Ministry Of Education
Princess Nourah bint Abdulrahman University
(048)
Graduate Studies and Scientific Research Vice-Rectorate
Deanship of Scientific Research

المملكة العربية السعودية
وزارة التعليم
جامعة الاميرة نورة بنت عبدالرحمن
(٠٤٨)
وكالة الجامعة للدراسات العليا والبحث العلمي
عمادة البحث العلمي

الموضوع: بشأن تسهيل مهمة الباحث(ة) مجاهد الطزى

تعميــــــم

سعادة عميدة كلية

(علوم الحاسب والمعلومات، العلوم، الإدارة والأعمال، التربية، التصاميم والفنون، اللغات والترجمة، الآداب،

الخدمة الاجتماعية، التمريض، الصيدلة، الصحة وعلوم التأهيل، طب الأسنان، المجتمع، الطب البشري)

السلام عليكم ورحمة الله وبركاته، وبعد

نرفق لسعادتكم صورة من خطاب الملحقية الثقافية السعودية بماليزيا والذي يفيد بأن

الباحث/ مجاهد بن خالد العنزي، بصدد إجراء دراسة لنيل درجة الدكتوراه بجامعة أوتارا

بماليزيا بعنوان: (Influencing Intention To use E-Government Services Factors Among The

Academic Staff In Saudi Universities)

عليه نأمل من سعادتكم التكرم بتسهيل مهمة الباحث أعلاه بتوزيع الاستبيان

الالكتروني التالي:

http://goo.gl/forms/QGEUEqjɛɟjW

على أعضاء هيئة التدريس.

شاكرين لكم حسن تعاونكم

عميدة البحث العلمي.

د. أريج بنت عبد الكريم الخلف.

أفنان الخراشي

الرقم: ٤١٦٢٣٦ .... التاريخ: ١٤٣٦/١١/١٠هـ المشفوعات: .....٦.....

258

بسم الله الرحمن الرحيم

الجامعة الشمالية الماليزية

Othman Yeop Abdullah
Graduate School of Business
Universiti Utara Malaysia

الإستبانة

عزيزي عضو هيئة التدريس،

أنا طالب في برنامج الدكتوراه في كلية إدارة الأعمال في الجامعة الشمالية الماليزية، أقوم حاليا بإجراء دراسة مسحية حول وجهات نظر المواطنين بخصوص استخدام الخدمات الحكومية الإلكترونية في المملكة العربية السعودية ودور مكاتب الخدمات الالكترونية. ومثال على الخدمة الحكومية الالكترونية هو تجديد رخصة قيادك من إدارة المرور عبر الانترنت او من خلال مكاتب الخدمات الإلكترونية الخاصة.

وأكون ممتنا لتعاونكم في اكمال هذا الاستبيان. سيكون التعامل مع ردودكم بسرية تامة وستخدم فقط لأغراض البحث العلمي. وسيكون بإمكانك استكمال هذه الاستبانة بسهولة خلال أقل من 10 دقائق. أشكركم على استعدادكم للمشاركة في هذه الدراسة، مع أطيب التحية.

مجاهد بن خالد بن فهد

الجامعة الماليزية الشمالية

البريد الالكتروني للباحث: mjklfd@gmail.com

259

السلام عليكم ورحمة الله وبركاته ،،،

يهدف هذا الإستبيان إلى عمل دراسة تحليلية حول العوامل المؤثرة على إستخدام الخدمات الحكومية الإلكترونية بالسعودية، والذي يشكل جزءأ اساسياً لأطروحة الدكتوراه بإدارة الأعمال من جامعة اوتارا بماليزيا.

ومن أمثلة تلك الخدمات الحكومية الإلكترونية هو خدمات السجل المدني كتجديد بطاقة الهوية الوطنية من خلال شبكة الإنترنت أو من خلال المكاتب الحكومية للخدمات الإلكترونية الموجودة في بعض المجمعات التجارية.

إن تعبئة الإستبانة لن تستغرق من وقتكم أكثر من 5 دقائق، بينما سيشكل اللبنة الأساسية التي يقوم عليها بحثنا هذا، لذا نود الاجابة على جميع الأسئلة حيث أن المعلومات ستعامل بسرية تامة لغرض البحث العلمي فقط.

رابط الأستبانة:
http://goo.gl/forms/ObSuOx2Iwt

نقدر لكم مساهمتكم وتعاونكم ولكم منا جزيل الشكر والتقدير.

لمزيد من المعلومات يرجى التواصل على العنوان التالي:
المهندس/ مجـاهد بن خـالد بن فـهد الدهمشي
جامعة اوتارا الماليزية
البريد الالكتروني للباحث:
Dr.Eng.Mujahed@gmail.com

جامعة الملك سعود | نظام تواصل

260

يعمم على الكليات والعمادات

السلام عليكم ورحمة اللّه وبركاته ، وبعد

إشارة إلى خطاب الملحقية الثقافية في كوالا لمبور - بدولة ماليزيا - رقم بدون وتاريخ ٢٦ / ١٠ / ١٤٣٦ هـ والمتضمن رغبة الطالب / مجاهد بن خالد العنزي والمبتعث من وزارة التعليم لنيل درجة الدكتوراه في إدارة الأعمال من جامعة أوتارا بدولة ماليزيا والذي يود جمع معلومات لبحثة المعنون :

Factors Influencing Intention to use E-Government Services among the Academemic Staff in Saudi Universities.

وتطبيقة على أعضاء هيئة التدريس بالجامعات السعودية . وذلك من خلال الرابط التالي :

http://goo.gl/forms/QGEUEqjtjW

نامل التكرم بتسهيل مهمة الباحث على أن يباشر بنفسه وفريق العمل بإجراء الدراسة والالتزا بالأمانة العلمية وأخلاقيات البحث العلمية في تطبيق مثل هذه الدراسات وتزويد عمادة البحث العلم بنسخة من الدراسة.

شاكرين تعاونكم وجهودكم ،،،

ولسعادتكم خالص التحية والتقدير

وكيل الجامعة للدراسات العليا والبحث العلمي

عبد الرحمن بن صالح الواصل
١٤٣٦/١١/١٢

APPENDIX E

Saudi's e-government Portal interface