Trust as a Source of Long-Term Adoption of

E-government

A thesis submitted for the degree of Doctor of Philosophy

By

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ABSTRACT

Significant attempts have been made by national governments to provide services and information on the Internet via information and communication technologies. However, the accomplishment of these efforts strongly depends on how the targeted users, such as citizens, trust, use and adopt such services. As a consequence, a common interest in understanding the adoption and diffusion of electronic government has emerged in both developed and developing countries. Several impediments could prevent citizens from adopting e-government services such as trust, which consider as one of the major barriers. Many citizens are reluctant to adopt e-government services due to lack of trust, and this concern are not without merit. Citizens' confidence in government and technology is a salient inducer to the wide distribution of e-government adoption. Several studies that have focused on the adoption of e-government services have suggested that trust is a cornerstone for long-term e-government adoption. Therefore, this study aims to break down the complicated concept of trust to understand the factors that build citizens' trust and the influence of citizens' trust on the behavioural intention to use and adopt e-government services in the Kingdom of Saudi Arabia. This study focuses on understanding the impact of trust, trustworthiness and social influence on citizens' willingness to use and adopt e-government services. In addition, it propose a model of trust that comprised of trustworthiness of government agencies, trust in the Internet, trust propensity, trust in e-government and social influence. To fulfil this aim, a quantitative research approach was employed to explore the role of citizen's trust in e-government in Saudi Arabia, using a survey. This phase was followed by a qualitative research approach using semi-structured interviews to achieve deep understanding of any outstanding results from the conducted survey. From the data analysis, it is evident that all the exogenous variables—government ability, government benevolence and integrity, trust in Internet, trust propensity and social influence—were found to significantly affect citizens' trust in e-government services. In addition, citizens' trust in e-government and social influence were found to be significant predictors of

Abdulaziz Albesher

citizens' behavioural intentions to use e-government services. This study contributes by providing a conceptual model that is useful for studying citizen's trust and usage behavioural of e-government services in Saudi Arabia.

Abdulaziz Albesher

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DECLARATION

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Abdulaziz Albesher

ABBREVIATIONS

IS	Information System
IT	Information Technology
ICT	Information Communication Technology
E-government	Electronic Government
E-commerce	Electronic Commerce
E-services	Electronic Services
G2C	Government to Citizens
G2B	Government to Businesses
G2G	Government to Government
G2E	Government to Employees
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behaviour
DOI	Diffusion of Innovation
TAM	Technology Acceptance Model
UTAUT	Unified Theory of Acceptance and use of Technology
Ab	Ability
B	Benevolence
I	Integrity
TP	Trust Propensity
TI	Trust in the Internet
TOE	Trust in e-government services
SI	Social Influence
BI	Behavioural Intention

Abdulaziz Albesher

TABLE OF CONTENTS

Abdulaziz Albesher

Abdulaziz Albesher

Abdulaziz Albesher

Abdulaziz Albesher

LIST OF TABLES

Abdulaziz Albesher

Abdulaziz Albesher

LIST OF FIGURES

Abdulaziz Albesher

Chapter 1: Introduction

1.1. Introduction and Background

In the late 1990s, governments around the world began implementing e-government initiatives at different local and national levels (Torres, Pina and Acerete, 2005). However, the performance and scope of these e-government initiatives varied depending on the governments' political and financial commitments (Alomari, Sandhu and Woods, 2014; Taipale, 2013; Grant and Chau, 2006; Wimmer, 2006; Torres, Pina and Royo, 2005; Kaylor, Deshazo and Van Eck, 2002).

Country	Region	EGDI 2014	Rank 2014	Change in Rank (2012-2014)
Republic of Korea	Asia	0.9462	1	-
Australia	Oceania	0.9103	2	+ 10
Singapore	Asia	0.9076	3	- 7
France	Europe	0.8938	4	+ 2
Netherlands	Europe	0.8897	5	- 3
Angola	Middle Africa	0.2970	140	+ 2
Bhutan	Southern Asia	0.2829	143	+ 9

Abdulaziz Albesher

Tanzania	Eastern Africa	0.2764	146	- 7
Bangladesh	Southern Asia	0.2757	148	+ 2
Yemen	Western Asia	0.2720	150	+ 17

Table 1.1: World E-government development index (EGDI) in 2014, Source (UN, 2014)

The evolution of the scope and concept of e-government has positively reflected, as a consequence, on the definition of e-government. E-government is viewed as the use of information and communication technology (ICT) to transform the way governments interact with citizens and government itself, instead of the humble view of e-government as a simple provision of services and information (Scherer and Wimmer, 2014; Lfstedt, 2007).

In addition, Holden et al. (2003) mentioned that e-government is not able only to provide services and information using the Internet, but it also provides the opportunity to conduct and complete financial transactions and increase citizens' participation in decision-making and policy development. Many remarkable benefits for citizens, businesses and even governments can be gained from using e-government (Bwalya, 2009; Jaeger and Thompson, 2003). E-government is recognised as a key enabler to reducing cost and time required to complete transactions and eliminate distance boundaries (Hamner and Al-Qahtani, 2009; Norris, 2001).

Torres et al. (2005) stated that e-government is also capable of enhancing citizens' relationship with government socially, economically and politically, which contributes to strengthening the socioeconomic fabric within that society (Martin and Byrne, 2003). For example, e-government permits the user to have

Abdulaziz Albesher

24/7 accesses to e-services throughout the year (Norris, 2010b; Hutton, 2003), which eradicates the imposed working hours and space limitations in the government buildings (Danielsson and Danielsson, 2005)(World Bank, 2015). Rose and Grant (2010) mentioned that e-government initiatives allow many businesses and citizens to have direct contact with authorities and civil servants in widely scattered areas. From a general view, e-government is "the use of ICTs (information and communications technology), and particularly the Internet, as a tool to achieve better government" (World Bank, 2015).

The evolution of the strategic roles of information technology (IT) in e-government initiatives improved the way governments are governing and shifted the government towards modernisation by the appropriate use of e-government systems (Grant and Chau, 2006). E-government also contributes to empowering citizens' participation and improving business processes in several government agencies and departments (Mahmood, Osmani and Sivarajah, 2014).

The recognised evolution in e-commerce have put more pressure on those governments implementing e-government initiatives because citizens' expectations have increased for similar high quality e-services in terms of interactions and completing services online (Grönlund, 2001). For example, banking, shopping or carrying out other business online have made users expect similar e-services with fast responses from the government.

According to Lofstedt (2012), e-government is still in its infancy. Some governments still rely upon ill-equipped structures to handle the e-services, contradicting users' expectations for the government to equal the high level structures routinely found in e-commerce (Curtin, Sommer and Vis-Sommer, 2003).

Moving towards more electronic governance requires cooperation between different government departments and integration of several business processes.

Such governmental integrations could be vertical within a certain government agency/department or horizontal between different government agencies/departments (Layne and Lee, 2001).

E-government systems can enhance and facilitate the interaction between government and citizens', businesses, employees and government itself, by using modern ICTs (Alenazi et al., 2014; Al-Sobhi, 2011; Kanaan, 2009).

Such system allows citizens and non-state actors to benefit from online public service delivery and improve their engagement in public policy decision-making. As citizens are the primary beneficiaries of e-government services this study focused mainly on the citizens' level (individual-level) (Alenazi et al., 2014; Bélanger and Carter, 2008).

Internet technology has created an opportunity to modernize communication methods in public sector with more citizen-centric services and programs and policies that offer better integration across different government departments and agencies (Weerakkody and Dhillon, 2008; Newman, Raine and Skelcher, 2001; Rose and Grant, 2010). Accountability, confidentiality and the safety of citizens' personal information are some of citizens' main concerns (Rose and Grant, 2010).

Although successful implementation of e-government has been achieved by several countries, most were focusing more on enabling front office processes of e-government services without significant achievements or improvements in efficiency (Weerakkody and Dhillon, 2008; Weerakkody and Dhillon, 2008; Irani, Elliman and Jackson, 2007; Irani, Elliman and Jackson, 2007). Electronic transformation was mainly motivated by the desire to offer more effective and efficient government services, save time and costs, and enhance the accessibility and transparency of government services (Weerakkody et al., 2012).

According to Brooks et al. (2008), accuracy, transparency and reliability of interactions with the e-government service providers help improve citizens' acceptance and trust of such services. In contrast, citizens' trust will decline if government officials or employees act in a fraudulent way.

Many recent researchers have identified trust as a key enabler and top priority in the development of e-government services (Wimmer et al., 2015; Mahmood et al., 2014; Abu-Shanab and Al-Azzam, 2012; Bannister and Connolly, 2011; Soliman et al., 2006; Parent et al., 2005).

In general, this claim can be justified for two main reasons. First, the direction of the transformation of public services towards virtual interactions with government generated some concern regarding the associated risk, mainly because of the sensitivity of the transmitted personal information. This includes concerns related to the ability of unauthorized people to access, store or modify personal information or the possibility it could be intercepted by third parties (Lim *et al.*, 2012; Horst, Kuttschreuter and Gutteling, 2007). Trust in government and their capabilities in such situation can help in vanishing these concerns especially in the present of uncertainty of the e-procedure.

Second, since the government holds a monopoly on e-government services, citizens' trust became pivotal, especially regarding the integrity and technological infrastructure of government agencies, as such characteristics assist in determining trust in e-services and improve citizens' willingness to accept and keep using e-government services (Teo, Srivastava and Jiang, 2008). In contrast, the lack of ability of government agencies to deliver inclusive e-government services via the Internet could weaken citizens' relationships with e-government and decrease public trust in the abilities of the public sector (Tan, Benbasat and Cenfetelli, 2008; Welch, Hinnant and Moon, 2005; West, 2004).

Abdulaziz Albesher

The role of trust in adopting e-government services and research motivations will be discussed more in the next section.

1.2. The role of trust in adopting e-government (research motivations)

Although there is no doubt about the advantages of e-government, achieving successful adoption remains tricky (Al-Shafi and Weerakkody, 2010; Bwalya, 2009; Srivastava and Teo, 2005). Several studies have identified trust as a salient key for understanding citizens' acceptance of e-government (e.g., (Lim *et al.*, 2012; Colesca, 2009; Bélanger and Carter, 2008; Tan, Benbasat and Cenfetelli, 2008; Horst, Kuttschreuter and Gutteling, 2007; Carter and Bélanger, 2005), but few studies have focused only how citizens' trust is generated and the implications of citizens' trust in use intention and adoption of e-government services.

Moreover, most of the previous studies in e-government conceptualised trust as a unidimensional factor (Horst, Kuttschreuter and Gutteling, 2007; Carter and Bélanger, 2005; Reddick, 2005; Reffat, 2003), although it has been acknowledged as a multidimensional concept because several factors underpin this concept (Lim *et al.*, 2012; Bélanger and Carter, 2008; McKnight, Choudhury and Kacmar, 2002; Doney, Cannon and Mullen, 1998).

Gilbert and Balestrini (2004) stated that if government agencies can successfully implement trust relationships with citizens, assure the security of citizens' personal and financial transactions and provide up-to-date and accurate information, citizens' willingness to use e-government services will be guaranteed. Moreover, Warkentin et al. (2002) and Tan and Theon (2001) stated

that successful adoption of e-government cannot be fulfilled without the existence of trust among the users.

Trust is also a significant driver in using the Internet, whether to provide services and establish interactions between parties or market and improve the reputation of the provider (Silverhart, 2004). Moreover, trust in the Internet has been recognised as a main driver of e-services adoption (Carter and Bélanger, 2005; Pavlou, 2003; Zucker, 1986).

Dutton et al. (2005) argued that the level of accountability and citizens' confidence that government agencies will not misuse their personal information helps to increase citizens' trust in e-government. Although the use of technology can improve control in these e-government services, technology by itself is not enough to engender trust. More efforts need to be made to ease such concerns (e.g., enhance users' perceptions of the provider's trustworthiness) (Gefen and Reychav, 2014; Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995).

Over the last few years, several researchers in e-government have focused on investigating the relationship between citizens' confidence, use, trust and adoption of e-government services (Taipale, 2013; Morgeson, VanAmburg and Mithas, 2011; Bélanger and Carter, 2009; Shafi and Weerakkody, 2009; Carter and Weerakkody, 2008; Colesca and Dobrica, 2008; Welch, Hinnant and Moon, 2005; Gilbert, Balestrini and Littleboy, 2004). Nevertheless, a significant lack of empirical evidence still persists (Mahmood, Osmani and Sivarajah, 2014; Venkatesh, Sykes and Venkatraman, 2013; Al-Shafi and Weerakkody, 2010; Bélanger and Carter, 2008).

In addition, research that explores the factors that empower citizens' adoption of e-government services empirically in developing countries, especially in the Arab world and the Kingdom of Saudi Arabia, is scarce (Alomari, Sandhu and Woods,

2014; Al-Rashidi, 2013; Alateyah, Crowder and Wills, 2013a; Al-Sobhi, 2011; Al-Shafi and Weerakkody, 2010; Alshawi and Alalwany, 2009; AlAwadhi and Morris, 2008).

Saudi Arabia is one of the rich developing countries that located in Western Asia. The government of Saudi Arabia believed that implementing a comprehensive e-government system and transforming to an information society would add huge benefits to the Saudi national economy. Therefore, the Saudi Ministry of Communications and Information Technology (MCIT) was assigned by the Saudi government to establish the national e-government programme in 2003. In 2005, the Saudi e-government programme 'Yasser' was established by a cooperation of three government authorities, which are Ministry of Communications and Information Technology Commission, Ministry of Finance and the Communication and Information Technology Commission (CITC) (Saudi E-Government Program, 2014). Table 1.2 show the change in rank and index value of E-government development (EGDI) in Saudi Arabia.

Index	Country	Index value in 2014	2012 Rank	2014 Rank	Change in Rank
E-government development index (EGDI)	Saudi Arabia	0.6900	41	36	+ 5

Table 1.2: Saudi Arabia E-government development index (EGDI) 2012-2014, Source (UN, 2014)

Abdulaziz Albesher

The rank of Saudi Arabia has been increased from 41 in 2012 to 36 in 2014. The Saudi high ranks of EGDI are related to their high literacy rates, high Gross Domestic product (GDP), small population and the respective effort that been made by the Saudi government to implement and develop a national online portal to offer citizens with an advance and effortless accessibility of government information and e-services. However, the ambition of the Saudi government and their keen desire to become an advance information society remained immense. Therefore, this study aimed to contribute in helping the Saudi society to become an advance information society by focusing in understanding the role of citizens' trust.

E-government system does not limits the information, interaction and services to citizens, but it extend their benefits to serve businesses, employees and the government it self. Thus, different types of interactions with government can be identified such as government-to-citizen (G2C), government-to-business (G2B), government-to-government (G2G) and government-to-employee (G2E). However, citizens have been considered as the main beneficiaries of government services and mentioned that facilitating the interaction with governments was essentially intended to serve citizens (Ni and Ho, 2005; Kanaan, 2009; Al-Sobhi, 2011; Alenazi et al., 2014). Therefore, this study focused on citizens' adoption of government e-services through understanding the impact of trust.

Although in the last few years the number of Internet users in the Kingdom of Saudi Arabia has grown dramatically (from 13% in 2005 to about 63.7% at the end of 2014, about 19.6 million Internet users) (CITC, 2014), lack of adoption of e-government services in Saudi Arabia persists (Al-Hujran *et al.*, 2015; Alateyah, Crowder and Wills, 2013a; Al-Sobhi and Weerakkody, 2010; Hamner and Al-Qahtani, 2009).

In addition, number of researchers mentioned that one of the main challenges that hinders the development of the e-government programme in Saudi Arabia is the shortage of empirical studies in the country, as it contribute in finding solutions for this specific context (Al-Sobhi, 2011; Al-Fakhri *et al.*, 2009; Kolsaker *et al.*, 2007).

Trust has been identified as a key enabler for understanding the use and adoption in different information systems researches (IS). In e-government, recent researches also recognised trust as a salient predictor of e-government services adoption (Wimmer et al., 2015; Mahmood et al., 2014; Albesher and Brooks, 2014; Abu-Shanab and Al-Azzam, 2012). This brings the question what are the constructs that generate citizens' trust in e-government services and what are the implications on the e-government services adoption.

Therefore, this study will focus on understanding the factors that impact citizens' trust in e-government and the role of citizens' trust in the use intention and adoption of e-government services empirically in developing countries, such in Saudi Arabia. This will be discussed in more details in Chapters 2 and 3.

1.3. Aim and objectives

The primary aim of this study is to understand how citizens' trust is generated and the role of citizens' trust in their use intention and adoption of electronic government services in developing countries, specifically Saudi Arabia. Therefore, several objectives need to be achieved to reach the research goal.

- Review the e-government literature comprehensively and critically.

- Review the literature on trust inclusively and analytically.

- Identify the role of citizens' trust in an e-government context.

- Investigate a range of theoretical models that can be used to examine individuals' perception towards the use and adoption of e-government services.

- Develop an appropriate conceptual model to examine the role of citizens' trust in the use intention and adoption of e-government in Saudi Arabia and justify the hypotheses development.

- Conduct a quantitative empirical study to test the study's conceptual model and hypotheses using a survey questionnaire in Saudi Arabia.

- Conduct a qualitative empirical study to verify and explain the findings of the previous empirical quantitative study.

- Discuss the findings of the quantitative and qualitative studies critically and comprehensively.

- Address contributions that help governments achieve best practices' in promoting the adoption of e-government services and performing better e-governance by understanding the impact of different trust dimensions.

1.4. Research Approach

To fulfill the aim and objectives of this study, several methodology approaches have been reviewed to identify the most suitable and appropriate approach for

Abdulaziz Albesher

this thesis (see Chapter 4). For this research, sequential mixed methods were found to be the most appropriate to fulfill and address the aim of this study, because it helps to expand the knowledge and findings of one method by performing another method. Moreover, the explanatory sequential mixed methods design offers the most advantages in addressing the purpose of this research (Chapter 4).

Therefore, after identifying the factors affecting citizens' trust and use intention of e-government services from the literature (Chapter 2) and justifying the hypotheses development (Chapter 3), the study model will be examined empirically. The sequential explanatory mixed methods design starts by conducting a primarily quantitative empirical study (Chapter 5) that will result in centered and rich data. This will be followed by a qualitative empirical study that supplements, verifies and explains the results from the previous primarily quantitative empirical study (Chapter 6). The findings of both studies (quantitative and qualitative) will be discussed comprehensively and critically in a discussion chapter (Chapter 7).

1.5. Thesis Outline

The sequence and description of the chapters in this thesis will be summarised as follows.

Chapter one

This chapter introduces the scope and area of this research. Moreover, it highlights the motivations for carrying out this research, the aim and objectives, and the structure of the thesis.

Chapter Two

The literature review is presented in this chapter. This includes showing global and local perspectives on the emergence of e-government services and the relevant role of ICT. In addition, it describes the definition, related advantages, categories and challenges of e-government, the context of the study (Kingdom of Saudi Arabia) and the current state of its e-government system. It also discusses the concept of trust and the role of trust in e-government services.

Chapter Three

This chapter discusses the key elements that emerged from the literature review (Chapter 2) and justifies the hypotheses development of this research. It also discusses the formation of the research model that will be examined and revised accordingly in the following chapters.

Chapter Four

This chapter describes the adopted research methodology. The chapter begins by reviewing different research methods and paradigms and illustrates the research plan. Then it discusses and justifies the data collection methods and the way data will be analysed in the later chapters.

Chapter Five

This chapter shows the findings of the quantitative empirical data by using a survey questionnaire. It includes a comprehensive examination of the factors discussed in Chapter 3 and depicts the results gained from the analysis.

Chapter Six

This chapter describes the findings of the qualitative empirical study. It shows the results gained from the interviews with the participants involved previously in the quantitative study. This qualitative study is used to verify and explain the results obtained from the previous quantitative study.

Chapter Seven

This chapter critically discusses the key findings of the quantitative and qualitative empirical studies (Chapters 5 and 6). In addition, this chapter revises the proposed study model depicted in chapter 3 based on the key findings of the quantitative and the qualitative studies.

Chapter Eight

The practical implications and academic contributions of the study will be highlighted in this chapter. In addition, this chapter will discuss the limitations of the research and will make recommendations for future research. Figure 1.1 illustrates the structure of this thesis.
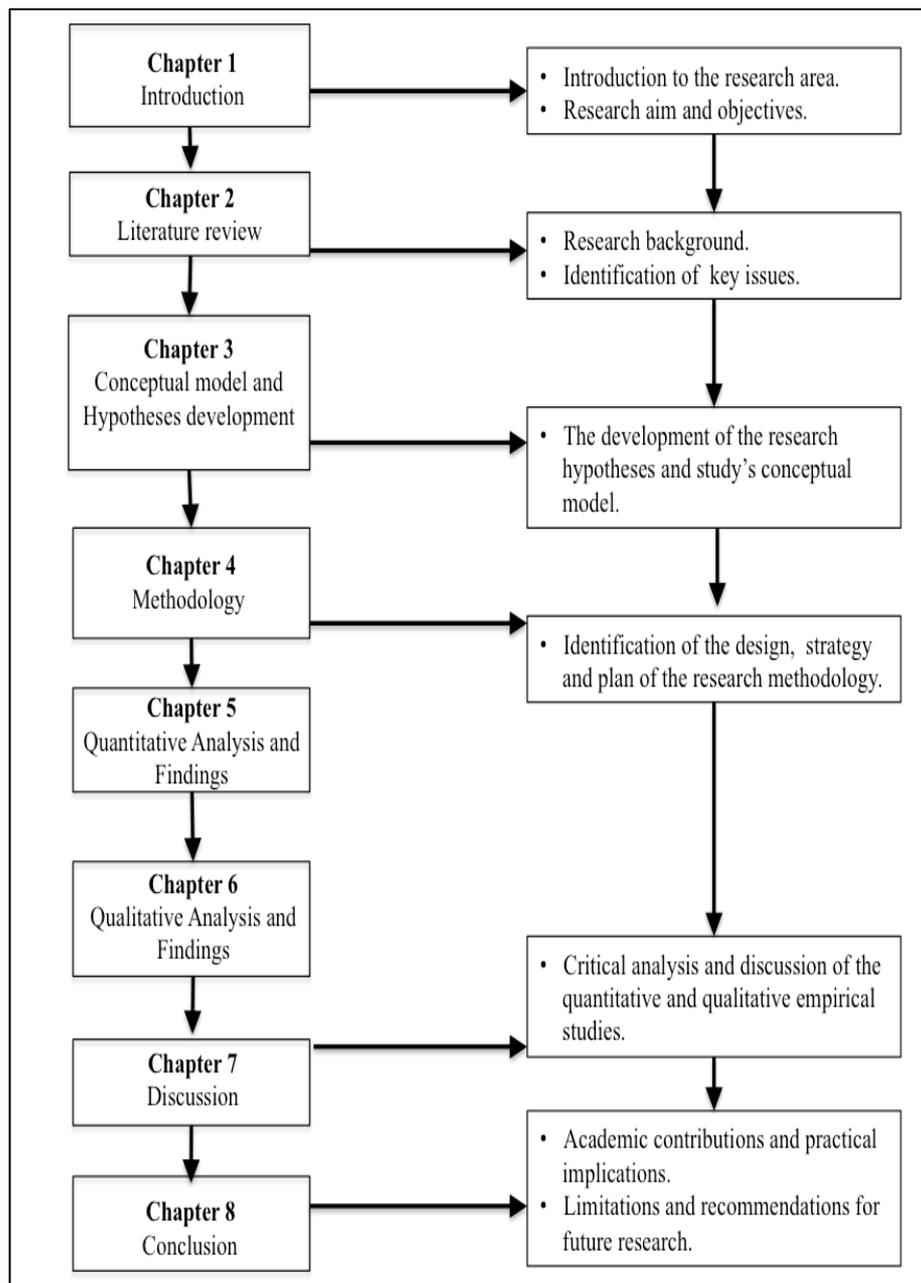
Figure 1.1: Thesis Outline

Abdulaziz Albesher

1.6. Summary

This chapter provided a brief background to the context of e-government and its related advantages. This was followed by demonstrating the relevant motivations and drivers for conducting such a study. After that, the aim and objectives of this study were presented. In addition, the adopted research approach was briefly described and justified. The research outline was also explained by showing the sequence of the chapters in the thesis and briefly describing each chapter in the thesis. Finally, a chart that includes the research outline will provide a visual presentation of the thesis. The next chapter will review the relevant e-government literature (Chapter 2).

Chapter 2: Literature Review

2.1. Introduction

This chapter provides a wide and in-depth review of the current and previous literature related to this study focus and interest. This includes reviewing different literature perspectives of e-government in both developed and developing countries. In addition, the chapter highlights the significant drivers of e-government service adoption at the individual level. Therefore, it starts by discussing the revolution in ICT (information and communication technology) and how it is connected closely to e-government.

This is followed by reviewing different definitions of e-government and discussing the related advantages of using such e-government systems. Thereafter, the chapter describes the main categories of e-government. In section 2.6, this study highlights the challenges associated with e-government service adoption. The next section discusses the way that the concept of trust is conceptualised from different perspectives and the associated problems and vitality of this concept.

Then, section 2.8 reviews the perceptions of trust in government, followed by reviewing the role of trust in e-government with citizens at the centre. After that, the chapter will provide some information on the research context (the Kingdom of Saudi Arabia) and its e-government programme. Finally, in section 2.11 the key findings of the literature review will be highlighted.

2.2. ICT (information and communications technology) and E-government

The introduction of ICT (Information and Communication Technology) has had an impact on the various roles and functions of governments (Palanisamy, 2004). Akman et al. (2002) noted that, throughout the 1990s, ICT proliferation impacted a number of different aspects of life, including the day-to-day lives of people and the relationship between citizens and their country's government. Such changes have resulted in new types of government being introduced, such as that of e-government (Kanaan, 2009).

Owing to the development and maturation of e-commerce, e-government systems have been designed and implemented, and are now regarded as a new stream of technology that can be utilised in the public sector (Eyob, 2004). The progression and development of e-government is essentially related to the prevalence of the "information age" (Bwalya, 2009; Tian and Tainfield, 2003).

E-government as a concept was first devised in the early 1990s (Ho, 2002), which is believed to have stemmed from city government's making use of modern-day technologies, including email, the Internet and listserv when providing citizens with information and end-to-end services.

Im and Seo (2005) claim that the e-government concept was first introduced in the United States of America. After this time, the late 1990s witnessed various governments investing much time and effort into providing online services and information for access and use by both citizens and organisations (Chen and Gant, 2002).

In much the same way as other concepts introduced throughout the early phases of the internet age, e-government has undergone a great deal of change and progression; nonetheless, with the implementation and subsequent development of e-government

throughout recent years, public sector organisations have, on a global scale, come to acknowledge the value of providing services online, which improves efficiency, accessibility and effectiveness. Thus, it contributed to transforming government interactions from traditional to smart online interactions not only with citizens but also with other stakeholders, such as businesses, employees and government itself (Al-Rashidi, 2013; Affisco and Soliman, 2006).

Importantly, it has been expected that, when citizens used the Internet and began to accept, learn and experience good e-services (electronic service) provided by the private sector, they similarly expect the same high quality and standards from the e-services provided by government agencies. In this vein, many studies have emphasised that e-government has outlined its plan to follow in the footsteps of the private sector by providing more transparent and efficient services through online mediums to citizens and organisations (Al-Shafi and Weerakkody, 2009; Sahraoui, 2007).

In terms of improvement, e-government has induced two main advantages to the traditional government interactions: First, it allowed the transformation of government internal processes from traditional paperwork to more advanced systematic e-processes across different departments. This provides citizens, organisations and government itself with a number of benefits, such as enhancing accountability, transparency and responsiveness of government agencies and helps in saving time and costs.

As a consequence, citizens and businesses requirements are better fulfilled and they positioned to reap advantages through their role not only as consumers of government services but also as providers of government goods, thus meaning the presence of a two-way interaction. Furthermore, governments are seen to benefit through decreasing operational costs through enhancing the overall competence and proficiency of internal functions. Second, the communication between governments and citizens has been improved which results in a positive impact on citizens by

enhancing the overall interactivity with the government and making the interaction more responsive, faster and smoother (Atallah, 2001; Norris, 2010a).

There are various differences between e-government's internal and external objectives, the former of which focus on processes whilst the latter directs attention towards services. When adopting a front-office standpoint, the e-government external objective focuses more on the provision of government services in an effective and efficient way, such as through the application of ICT in such a way that fulfils the requirements and wants of the public. E-government internal objectives, from a back-office standpoint, on the other hand, tend to centre on governmental functions, which can induce cost savings through ensuring activities associated with government administration are carried out with good levels of efficiency (Backus, 2001; Tohidi, 2011).

E-government involves a significant range of activities, such as the collection, handling, distribution, utilisation and sharing of information, with all activities delivered through ICT (Choudrie and Weerrakody, 2007). Such elements facilitate enhanced government service provision amongst citizens. This view is similarly held by Akman et al. (2005), who states that ICT has adopted a valuable role in changing the ways in which public services are provided, by adopting a framework more concerned with personal requirements than bureaucratic ones.

On a global scale, governments have adopted a number of activities and programmes in an effort to deliver information and services through online mediums (Kanaan, 2009; Sharma and Gupta, 2004; Beynon-Davies and Williams, 2003; Janssen, Rotthier and Snijkers, 2003; Atherton, 2002; Gouscos, Mentzas and Georgiadis, 2001). Globally, governments are seeking to implement key change in regard to how ICT is used in order to fulfil interactive working among and between local government agencies, and to ensure convenient, effective and innovative ways for both organisations and citizens to interact and communicate with the government through the acquisition of online services (Kamal and Themistocleous, 2008; Ebrahim, Irani and Al Shawi, 2003; Melitski, 2003).

Abdulaziz Albesher

In this same vein, Lect and Grosseck (2005) show that, with regards to worldwide expansion, ICT has induced many new developments and effects across a variety of countries, such as in Europe, the US and South East Asia. Such effects include the significant change in the ways in which government entities are structured, as well as economic movement changes and communication developments overall. Importantly, ICT has allowed distance to be overcome in the completion of many activities and transactions.

Moreover, ICT has played a key role in economic and social development (Hanna, 2011). ICT has also facilitated complete, all-inclusive development across all domains of the state (Hanna, 2011). Comparably, it has been further noted that ICT has the potential to increase individuals' involvement, empower social communication, and expose and facilitate government services (Selwyn, 2004).

During more recent times, governments across the globe have come to acknowledge the value associated with ICT in terms of providing organisations, citizens and government agencies with services, as well as improvements in internal communication (Mahmood, Osmani and Sivarajah, 2014). Furthermore, one of the key global and local initiatives of public administration was seen to be reliant on the correct application of ICT; the initiation of delivering e-government services was recognised as the most successful employment of this technology (Bwalya, 2009).

A number of academics, including Stoltzfus (2005), emphasise e-government as being a global phenomenon, with a number of countries across the world seeking to implement such a system. The rationale behind this decision may stem from external global pressures and internal citizens-centred administration, meaning the development and design of a comprehensive of e-government system is critical to the promotion of improved governance rather than optional (Shareef et al., 2011; Gupta and Jana, 2003). Accordingly, one of the key elements of the new e-government system is that it is able to improve the relationship between the governments and its citizens, including its stakeholders generally.

Abdulaziz Albesher

E-government may be described in various ways, such as through integrated service delivery, one-stop shops and transparent government systems (Bannister, 2005). However, both e-commerce and e-government are centred on Internet technology (Carter and Belanger 2004b; Al-Shehry et al., 2006; Alomari et al., 2014), which has been developed in such a way so as to enable information, goods and services to be exchanged among different stakeholders.

ICT history (analysed by Kraemer and King (2003)) as seen through the surveying of approximately 3 decades' worth of US literature, suggest that despite the overemphasis and suggestion that ICT-driven government would induce significant change, little has been seem to actually change. Regardless, however, this ambition remains clear amongst government agencies. This will be discussed in more in sections 2.8 and 2.9.

Number of academics suggests that e-government is a technological innovation, and is keen to shift to a new entrepreneurial culture rather than maintaining the unaccountable and inefficient bureaucracy of past times (Blackstone et al., 2005; Rocheleau, 2007). Further, ICT in the public domain not only enhances ineffectiveness but also results in valuable and sometimes pivotal organisational change and enhancements in democratic participation, by improving citizens engagement in different government decisions (Bannister and Connolly, 2011; Torres, Pina and Acerete, 2005; Heintze and Bretschneider, 2000). The next section will clarify different definitions of e-government.

2.3. Definition of E-government

Several names have been used by different countries to refer to the e-government system, such as 'electronic government' in the UK, 'electronic service delivery' in Hong Kong, and 'government online' in Singapore. Regardless of the variety of

synonyms that are used to refer to the terminology of e-government, they all describe the ability to communicate and seek services and information from government via the Internet (Bose, 2004).

Although several definitions of e-government can be found in the literature, no standard definition has been completely agreed (Al-Rashidi, 2013; Tohidi, 2011; Stanforth, 2006). The reason behind this is due to the diversity of e-government perspectives, such as legal, technical, commercial, social, and administrative, and because e-government is still considered as a new phenomenon (Norris, 2010a; Yildiz, 2007; Scholl, 2003).

Newell et al. (1967) stated, "Wherever there are phenomena, there can be a science to describe and explain those phenomena". In the e-government literature, many researchers' attempted to define e-government based on their own perspectives (e.g. (Shareef et al., 2011; Tohidi, 2011; Almarabeh and AbuAli, 2010). Therefore, the Information Technology (IT) perspective defines e-government differently compared with other perspectives such as politics, economics, etc. Nevertheless, in general it is commonly agreed that e-government is a method or tool that allows government to provide information and services, using information and communication technology (ICT), to citizens, organisations, and employees (Yanqing, 2011; Al-Azri, Al-Salti and Al-Karaghouli, 2010; Bhuiyan, 2010).

Srivastava and Teo (2009) describe e-government as a tool that uses information and communication technology (ICT) to continuously transform and enhance public services for different stakeholders, such as business organisations, citizens, and employees. In addition, e-government defined by Muir and Oppenheim (2002) as, the use of the Internet and other online digital means to deliver government services and information.

According to O'Donnell et al. (2003), e-government is a radical change of government management style, from traditional to modern, to meet the growing

Abdulaziz Albesher

demands and needs of different stakeholders. Ho (2002a) mentioned that in the late 1980s, the first government attempts to reinvent government procedures was to improve the way of serving governments' customers. Some researchers described e-government as providing government services via Internet using a single point of access, which is similar to a "one-stop shopping" style on e-commerce (Willoughby, Gómez and Lozano, 2010; Sagheb-Tehrani, 2009).

Silcock (2001) stated that the leaders in different governments believed in the potential and benefits of the Internet more than the associated risk, which results in bringing e-government systems to reality. Table 2.1 shows more definitions of e-government from different perspectives:

Authors	Definitions
World Bank (2015)	The use of ICT to shift and enhance government relationship with other government agencies, citizens, and business organisations.
Kumar et al. (2007)	E-government is extremely shifting the government's style in managing information to improve the delivery of services to different members of society

	(ex. Citizens and businesses).
Coleman (2006)	E-government is the combination of e-administration and e-democracy to achieve a balanced e-government system, this require the mixture of electronic based services and the encouragement of participatory elements.
Bhatnagar (2004)	Providing and delivering information and services to businesses and citizens for the purpose of increasing accountability and transparency, and reducing time, cost and corruption.
Seifert (2003)	"the process through which service delivery, constituency, governance and participation can be maximized continuously through internet, media and other technology with the purpose of smoothen the relationships that exist between government and other stakeholders".
	Four main government activities and functions can be found in e-government: e-democracy (improve citizen's participation in democratic activities by

Cook et al. (2002)	using ICTs), e-services (delivery and sharing government services electronically), e-commerce (transact online for goods and services), and e-management (enhance government internal and external management and communication structures by using the ICTs).
Muir and Oppenheim (2002)	Utilising technology to provide enhanced services to employees, citizens, and businesses.
West (2001)	The use of the Internet or other online means to share and deliver government services and information.

Table 2.1: Definitions of E-government.

Based on the previous definitions of e-government, this study defines e-government as a strategic tool that uses modern ICTs to facilitate stakeholders' (citizens, businesses and employees) interactions with government for the sake of benefiting from government services and information.

The optimum use of e-government is to be able to fulfill the gap between the government and ordinary citizens, in terms of communication and interaction, and also allow many governments around the world to improve their management philosophy. Moreover, it helps to promote citizens involvement, in a collaborative way, in policy or decision making. This can overcome the negative image of

Abdulaziz Albesher

governments as a bureaucratic mammoth that is based on a complicated set of structures, which leads to barriers and impediments to access\provision services and information (Coleman, 2006). In addition, the full utilising of e-government results in improving the transparency of activities conducted in public services delivery, reduce corruptions, and time and cost savings for citizens, businesses, and even governments itself (Colesca and Dobrica, 2008).

Based on the recognised benefits associated with the proper use of e-government, governments around the world began to depend on e-government as a key tool to interact with its stakeholders. This also explains the strategic shift and common interest of most governments in conducting day-to-day activities using the Internet (Bwalya, 2009; Zhu and He, 2002).

2.4. Advantages of using E-government

The use of e-government provides many benefits to both governments and different stakeholders (citizens, businesses, employees, and other government agencies and departments) who deal with the government (Rokhman, 2011). Such an e-government system can facilitate the complexity of government procedures and fulfill the need to perform business process reengineering in some cases (Apostolou *et al.*, 2011; Fedorowicz, Gogan and Culnan, 2010; Obi and Iwasaki, 2010).

The improvements in the way governments interact and communicate with their stakeholders can be credited to the appropriate utilisation of e-government and best employment of the associated advantages related to the use of such electronic systems (Alshawi and Alalwany, 2009; Warkentin *et al.*, 2002). E-government is considered as an evolutionary system, which requires a high budget to be developed. However, in the long-term a huge amount of money, time and effort may be saved (Kohlborn et al., 2010). In addition, the use of e-government improves citizens' participation, accountability and transparency in government transactions (Mohammad, Almarabeh and Ali, 2009). Table 2.2 summarises some of the most significant advantages of using e-government:

Abdulaziz Albesher

Advantage	Description	Reference
Accessibility	E-government uses ICTs to facilitate the accessibility of government services and this allow citizens to access government e-services from anywhere in anytime in a fast and convenient method.	(Carter and Bélanger, 2005; Halchin, 2004; Doty and Erdelez, 2002; Silcock, 2001).
Availability	Increase the availability of government services by allowing different stakeholders to have 24/7 accesses to government services over the year.	(Norris, 2010b; Rose and Grant, 2010; Shareef *et al.*, 2009).
Accountability	Offer the ability to track and monitor transactions within a government agency or department. This help to promote the accountability and responsiveness of the responsible government	(Welch, Hinnant and Moon, 2005; West, 2004; Wong and Welch, 2004; Chadwick and May, 2003; Snellen, 2002).

	department.	
Save time and cost	The use of offered electronic methods results in costs reduction and time saving. The use of e-government help to avoid the use of traditional manual methods and decrease the need to physical attendance to government agencies or departments.	(Al-Shafi and Weerakkody, 2010; Huang and Bwoma, 2003).
Improve efficiency	Facilitate the interaction and communication with the government and make it more efficient, simple and effective. This improves the relationship between the government and its citizens, and increase users' satisfaction.	(Lee, Tan and Trimi, 2005; Reddick, 2005; Fang, 2002).
One stop shop	The interaction can be conduct through a single portal provided by the government. The ordinary	(Bannister, 2005; Moon, 2002; Wimmer and Tambouris, 2002; Layne and Lee, 2001).

	citizen no longer need to know where to go to apply for a government service, he\she can transact with government and apply for any service from one place.	
Reduce corruption	Systemise the complexity in administrating the business processes to increase transparency, eliminate corruption and provide services equitably for all citizens.	(Al-Rashidi, 2013; Al-Shafi, 2009).
Improve equitability	The use of e-government to serve every member in the society fairly with the same information and services.	(Weerakkody, El-Haddadeh and Al-Shafi, 2011; Silcock, 2001).

Table 2.2: Related advantages of using e-government.

The appropriate employment of e-government can eliminate government bureaucracy and increase the accuracy, efficiency and smoothness of the workflow within government agencies and departments (Zampou and Pramatari, 2011; Al Nagi and

Abdulaziz Albesher

Hamdan, 2009). Providing government e-services in one governmental portal (a one-stop shop) contributes to facilitating accessibility and helps to conduct the work in a more effective way. In addition, it reduces the need to physically visit government locations and assists in saving cost, effort, space and time. In the next section the main categories of e-government in serving the public will be discussed.

2.5. Categories of E-government

From the above definitions of e-government it can be realised that, in general, e-government is government's use of information and communication technologies (ICTs) to provide information and services to different stakeholders. Although citizens are the main beneficiaries of government services, an e-government system does not limit the interaction, information, and services to citizens. E-government is positioned to serve citizens, businesses, employees and other government agencies (Alenazi et al., 2014; Al-Sobhi, 2011; Kanaan, 2009). Therefore, the next section will clarify the different relations of e-government with the four main actors (see table 2.3), in order to develop a better understanding of e-government categories.

Category	Abbreviation
Government to Citizen	G2C
Government to Business	G2B

Abdulaziz Albesher

Government to Government	G2G
Government to Employee	G2E

Table 2.3: The main categories of e-government.

2.5.1. Government to Citizens (G2C)

In general, the relationships between government and citizens are included in the category of government to citizens (G2C). This includes all interactions and communications between governments and citizens using the e-government system (Lee and Rao, 2005; Torres, Pina and Acerete, 2005). The relationship between government and citizens is considered to be the most significant relationship\category in e-government (Al-Rashidi, 2013).

Furthermore, some researchers mentioned that facilitating the interaction between governments and citizens is the primary goal of e-government (Ni and Ho, 2005). In such relations, governments constantly attempt to provide the citizens with services and information in the most convenient and instant way (Rowley, 2011; Al Nagi and Hamdan, 2009; Evans and Yen, 2006).

This type of e-government initiative intends to post and offer all information and services required by citizens in one place. Moreover, it grants citizens 24/7 access to government online services (Norris, 2010b; Rose and Grant, 2010; Shareef et al., 2009; Curtin, 2006).

Abdulaziz Albesher

By interacting and communicating with the government using these e-services, citizens can save time, cost, and effort when completing government transactions, for example, paying a traffic ticket, or renewing a passport (Reinwald and Kraemmergaard, 2012; Sagheb-Tehrani, 2009; Reddick, 2005; Carter and Belanger, 2004a). In addition, e-government initiatives have had a role in improving citizens' awareness and education, and involvement in decision making such as the use of e-voting (Evans and Yen, 2006).

2.5.2. Government to Business (G2B)

All relationships between governments and businesses (private sector) are included in the category of government to business (G2B) (Rowley, 2011; Al Nagi and Hamdan, 2009; Sagheb-Tehrani, 2009). The G2B category includes the activities offered by the public sector to the private sector via the Internet (Rowley, 2011; Evans and Yen, 2006; Lee, Tan and Trimi, 2005).

Several mutual transactions between governments and the private sector can be conducted in the category of G2B, for example exchanging notes and distributing rules, policies, and regulations (Evans and Yen, 2005; Torres, Pina and Royo, 2005). G2B aims to handle and provide the main services needed by the private sector in the most convenient way, such as registering business information, renewing licences and tax payments (Al Nagi and Hamdan, 2009; Fang, 2002).

This type of relationship between the public and private sectors helps to develop small and medium-sized enterprises and improve business quality (Seifert, 2003). Moreover, it helps to simplify procedures, reduce costs, and enhance the interactions between government and business by using ICT (Chaijenkij and Corbitt, 2008). It also supports the private sector to conduct better online business by allowing private sector businesses to have precise and up-to-date information that enhances decision making (Evans and Yen, 2006).

Abdulaziz Albesher

2.5.3. Government to Government (G2G)

The government to government (G2G) category is considered as the backbone of the e-government system (Yong, 2005; Seifert, 2003). These types of relationships are able to improve the effectiveness and efficiency of e-services by permitting different government agencies and departments to share knowledge, resources, databases, and exchange services (Lee, Tan and Trimi, 2005; Maluf and Bell, 2005; Torres, Pina and Royo, 2005).

In addition, the use of G2G service delivery provides the ability to speed up the communication between public agencies, reduce costs, eliminating redundancy and improve the criteria when taking strategic decisions (Klischewski, 2011; Suh, Park and Jeon, 2010; Evans and Yen, 2005).

Government to government service delivery (G2G) requires a high level of collaboration as these government agencies and departments become more dependent on each other to share knowledge and information (Hamza *et al.*, 2011; Carter and Bélanger, 2005; Reddick, 2004). The outcome of such collaboration between different public agencies will result in greater efficiency, reliability and transparency of e-government services (Hamza *et al.*, 2011; Flak and Nordheim, 2006).

2.5.4. Government to Employee (G2E)

The government to employee (G2E) category involves the interaction and communication between the government and its employees (Chourabi and Mellouli, 2011; Al Nagi and Hamdan, 2009; Ndou, 2004).

Abdulaziz Albesher

The use of G2E service delivery allows the public sector to improve internal processes and reduce administration costs. According to Seifert and Petersen (2002), government to employee (G2E) is considered a sub-set of the government to government (G2G) category that is positioned to enhance day to day operations and overcome bureaucracy in transacting with citizens.

G2E interactions facilitate the way governments provide\share training, knowledge and information with their employees to complete services (Carbo and Williams, 2004). In addition, G2E helps to enhance business processes by providing employees with e-mail addresses, e-learning sessions and the ability to monitor their tasks online (Al-Rashidi, 2013; Ndou, 2004; Sharma and Gupta, 2004). Figure 2.1 illustrates the four main dimensions of e-government interaction.
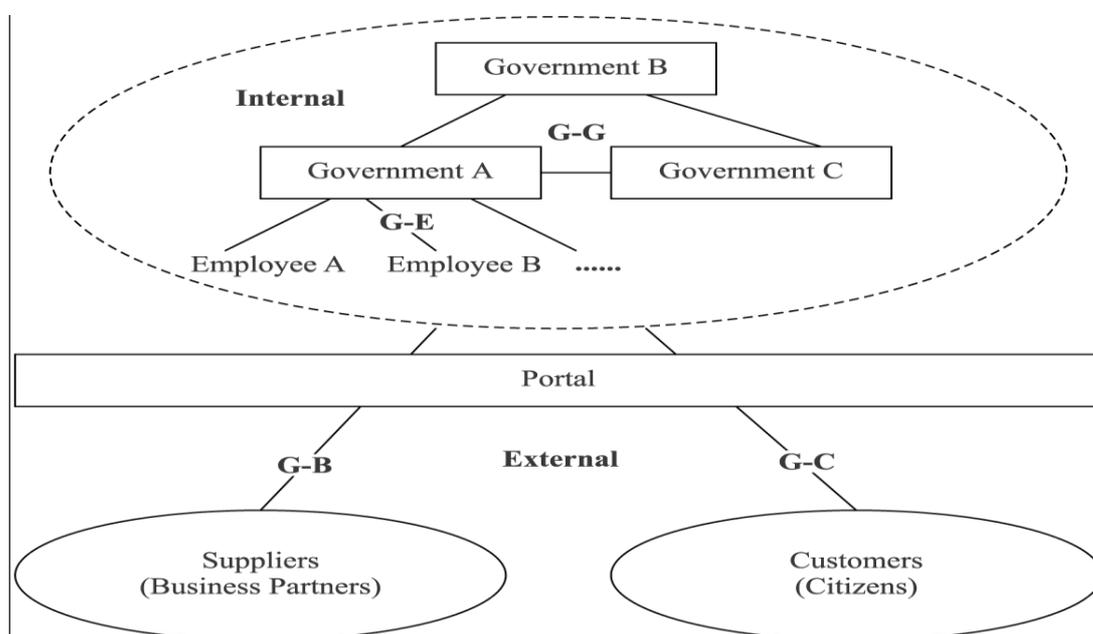
Figure 2.1: The four main dimensions of e-government interaction (Source: (Siau and Long, 2005)).

Abdulaziz Albesher

2.6. Challenges in E-government Adoption

In the 21st century, production and enhancement of computer processing and speed capabilities have contributed to economic development. In addition, information technology (IT) developments have introduced a number of changes and improvements across society. Such developments have also created new opportunities in a more competitive environment for business domains and the public sector (Chin, Wafa, Syed Azizi Wafa Syed Khalid and Ooi, 2009).

There has been much recognition that e-government initiatives may be due to the need to develop the government's processes and operational efficiencies at both national and local levels, in addition ensuring both stakeholders and citizens are provided with accessibility (Juell-Skielse and Perjons, 2009). Sharma (2004) state that, since the mid-1990s, governments in most countries have been implementing new measures to facilitate online provision of information and services.

Previously, the use of a closed door policy was the dominant managerial style in the public sector. However, nowadays many governments have made huge changes and improvements to their strategies in order to become more citizen-focused (Alshawi and Alalwany, 2009; Mosse and Whitley, 2009; Wang, Bretschneider and Gant, 2005). Moreover, some researchers mentioned that the core of using e-government systems is to ensure citizens' satisfaction regarding the provided services (Al-Shafi and Weerakkody, 2010; Bakry, 2004).

It is recognised that people may be disinclined to utilise and adopt e-government services owing to citizens' concerns about the safety and confidentiality of their information when completing an online transaction (Al-Sobhi, 2011; Al-Shafi and Weerakkody, 2010; Colesca, 2009; Bélanger and Carter, 2008; Carter and Bélanger, 2005). Such issues are not without merit: in contrast to more conventional government interactions, e-government services are new and innovative, and are also held as being impersonal due to being conducted via the internet (Pavlou, 2003).

Abdulaziz Albesher

In consideration of the significant degree of ambiguity surrounding the open technological infrastructure, namely the Internet, people seek reassurance that their online interactions with the government will be secure (Pavlou, 2003). Although e-government provides a number of key benefits, including enhanced levels of government transparency, accountability and responsiveness, it remains the situation that e-services will only be adopted if people consider them trustworthy and reliable (Caldwell and Hansen, 2010; Bélanger and Carter, 2008; Belanger, Hiller and Smith, 2002; McKnight, Choudhury and Kacmar, 2002).

As identified by several research, trust is a fundamental aspect of a relationship, particularly when risks or uncertainty can be identified (Akkaya, Wolf and Krcmar, 2010; Colquitt, Scott and LePine, 2007; Pavlou, 2003; Siau and Shen, 2003; Warkentin *et al.*, 2002; Mayer, Davis and Schoorman, 1995).

Previous research has examined the role played by trust in the domain of e-commerce (e.g., (Van Slyke, Bélanger and Comunale, 2004; Gefen, Karahanna and Straub, 2003; Belanger, Hiller and Smith, 2002; Gefen, 2002b; McKnight and Chervany, 2001; Hoffman, Novak and Schlosser, 2000; Jarvenpaa, Tractinsky and Saarinen, 1999). In addition, lack of trust is frequently recognized as an adoption obstacle in the context of e-government (Mahmood, Osmani and Sivarajah, 2014; Dashti, Benbasat and Burton-Jones, 2010; Colesca, 2009; Carter and Bélanger, 2005; Welch, Hinnant and Moon, 2005; Warkentin *et al.*, 2002).

Nevertheless, studies are only now starting to examine, from an empirical standpoint, the role of trust in the implementation, use and adoption of e-government (Albesher and Brooks, 2014; Abu-Shanab and Al-Azzam, 2012; Carter et al., 2011; Lee, Kim and Ahn, 2011; Dashti, Benbasat and Burton-Jones, 2010; Lee and Rao, 2009; Bélanger and Carter, 2008; Tan, Benbasat and Cenfetelli, 2008; Horst, Kuttschreuter and Gutteling, 2007). Furthermore, various research have incorporated trust in wider adoption models, including the diffusion of innovation theory (DOI) and the technology acceptance model (TAM) (Pavlou, 2003; Gefen, 2002c; Warkentin et al.,

2002); regardless, however, very few have considered the implications of trust and trustworthiness on the use and adoption of e-government (Bélanger and Carter, 2008).

2.7. Conceptualising Trust

When defining the concept of 'trust', the majority of definitions are seen to come from particular areas, including linguistics, mathematical representations, philosophy, psychology and sociology (Omari and Omari, 2006). This indicate that trust is regarded as a topic receiving a wealth of attention from past and during recent times from various areas of human activities, inducing interesting outcomes of scholarship on trust, as well as various conceptualisations.

Throughout the past several decades, there has been much academic emphasis placed on trust. Of those who have examined this field, there are a number of anthropologists (Ekeh, 1974), economists (Zucker, 1986), organisational behaviour scientists (Kramer, 1999), political scientists (Barber, 1983), psychologists (Deutsch, 1962) and sociologists (Gambetta, 1988). Markedly, it has been considered the underpinning for social order (Lewicki, McAllister and Bies, 1998) and has also been recognised as having an impact on not only interorganisational relationships but also interpersonal ones (Zaheer, McEvily and Perrone, 1998).

In the same vein, across the IS (Information Systems) arena, there has been much emphasis placed on trust, which has expanded and developed into electronically intermediated and virtual environments (e.g. (Bannister and Connolly, 2011; Cyr *et al.*, 2005; Briggs, Simpson and De Angeli, 2004; Pavlou and Gefen, 2004; Sillence *et al.*, 2004; Gefen, Karahanna and Straub, 2003). In the domain of electronic commerce, there has been much trust literature, such as the studies carried out by (Connolly and Bannister, 2007a; Connolly and Bannister, 2007b; Cheung and Lee, 2000).

Abdulaziz Albesher

In the literature so far, there are a number of writers that recognise trust by adopting the standpoint of an individual's willingness to trust in others. Of the earliest theorists examining trust is Rotter (1967, p. 651), who recognises interpersonal trust, as a concept, as 'an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon'. Despite the idea that such a definition seems to imply that the writer considers trust for a particular reason, it remains that this approach centres on a generalised trust of others—almost similar to a personality characteristic, which an individual might apply in various situations. For instance, within this scale, it is common to recognise items such as, 'Parents usually can be relied upon to keep their promises', for example (Mayer, Davis and Schoorman, 1995).

Unquestionably, trust is pivotal, which is a view echoed by Gambetta (1988), who defines trust as being of exceptional importance, particularly owing to its absence or presence significantly impacting what is done and what can be done (Chin et al., 2009). Essentially, as recognised by Earle and Cvetkovich (1995), trust should be recognised as a streamlining approach facilitating people in adapting to complicated social environment, and accordingly benefiting from a greater number of opportunities. Moreover, it is also stated by Gambetta (1988) that trust is especially pertinent in situations where ambiguity or uncertainty is prevalent with regard to people's actions, either unknown or unknowable (Sztompka, 1999).

Several researchers recognise trust as a critical aspect of relationships when risk or uncertainty is identifiable (Akkaya et al., 2010; Bélanger and Carter, 2008; Colquitt et al., 2007; Pavlou, 2003; Siau and Shen, 2003; Warkentin et al., 2002; Mayer et al., 1995), as it impact trustor's willingness to rely on the trustee. In contrast, users' perceived risk decreases when trust is present (Akkaya et al., 2010; Bélanger and Carter, 2008).

Two main aspects compose perceived risk, which are behavioural uncertainty and environmental uncertainty. The former arises because the provider of the e-service may behave in an opportunistic manner by taking advantage of the impersonal nature

Abdulaziz Albesher

of the online environment, while the latter exists because of the unpredictable nature of Internet-based technology that is uncontrollable by the users (Pavlou, 2003). However, this study will mainly focus in understanding trust and its implications on e-government.

In this vein, McKnight and Chervany (2001) identify that trust-related behaviours involve a number of elements, including completing transactions, accepting influence, making informal agreements and sharing information, among parties. Other trust-associated behaviours might be recognised in regards to risk-taking, less monitoring and the delegation of tasks, for example (Lines et al., 2005; Whitener et al., 1998). Accordingly, conducting such behaviours provides a trustor with an evaluation and recognition of the trustee's trustworthiness (Dashti, Benbasat and Burton-Jones, 2010).

Across the literature, trust has undergone much examination, with definitions provided in various research. Belanger and Carter (2008) carried out a study centred on the trust of users in regards to e-government services. In this context, it relates to trust in an unfamiliar party or individual. McKnight et al. (2002) mentioned that initial trust is necessary in a relationship where the individual—in this study, the citizen—lacks meaningful information or credible data relating to the e-service provider or how such a process may be carried out.

During the early stages of establishing relationships, any available information is used to obtain insights used to examine and evaluate the trustworthiness of the trustee, this includes the perceptions of the government agency or the website (Bélanger and Carter, 2008; McKnight, Choudhury and Kacmar, 2002). Throughout preliminary encounters, trust is recognised as being based on a trustor's assumptions about the trustee characteristics, certain traits of the trustor and institutional factors (Bélanger and Carter, 2008; Grazioli and Jarvenpaa, 2000). In addition, a number of examples from trust literature have made the suggestion that the affect-centred trust sources have the capacity to enhance greater cognition-centred resources, for example integrity and ability (Colquitt, Scott and LePine, 2007; Lee and Turban, 2001; Flores

Abdulaziz Albesher

and Solomon, 1998; Lewicki, McAllister and Bies, 1998; Rousseau *et al.*, 1998; Mayer, Davis and Schoorman, 1995; Shapiro, 1987; Lewis and Weigert, 1985).

2.7.1. Problems and Importance of Trust

Fukuyama (1995) suggested that the most universal cultural characteristic impacting the ability of a country to compete is recognised by the degree of cooperative behaviour and level of trust, as based on shared norms. In specific with regards to e-government and public sector, trust is recognised as a complicated context, inducing various challenges. As acknowledged previously, one obstacle is that there is much literature on trust with consideration to the concept from a number of different perspectives as wide-ranging as computer science through to anthropology.

As a result, such discussions of trust need to clearly define the concept being adopted. One further challenge is that trust relationships can be witnessed in a number of forms, such as trust amongst individuals and trust between businesses. As a result, trust, as a concept, may have various inferences and, therefore, in e-government discussion it is important to clarify the meaning of 'trust' used in the study (Bannister and Connolly, 2011). This will be discussed in more details in sections 2.8 and 2.9.

However, when the statement is made that people do not trust the government, this does not necessarily imply that personal risk is the issue; it is more likely that the government's competence to supply, manage and maintain services may be in question. For instance, a citizen might suggest that the government cannot be trusted to manage health services or provide services electronically. Importantly, this is clearly different to when personal financial information, for example, could be viewed by others and be subjected to threats, which is more considers as concerns over data disclosure.

Abdulaziz Albesher

2.7.2. **Empowering Trust**

To governments, public servants and politicians, there are a number of mechanisms and factors of great interest, which result in citizens' trust in public administrations and their government, and accordingly becoming involved in trusting behaviours.

Regardless of the definitions adopted with regards to trust, however, it is essential to focus on the underpinnings of trust, namely those elements that can result in trusting behaviours and trust beliefs. There has been a wealth of research performed examining these antecedents of trust (e.g. (Lippert and Swiercz, 2005; Wang and Emurian, 2005; Briggs et al., 2004; Gefen et al., 2003; Shankar, Urban and Sultan, 2002; Mayer et al., 1995).

Trust antecedents are also impacted in regard to whether or not risk, power and competence in a transaction are asymmetric or symmetric. In general, trust need to be mutual between parties. However, in the case of citizens transacting with government, the required level and nature of trust held by citizens and the government will vary, meaning that the situation is never symmetric.

In trust literature, there is no complete agreement on the elements that impact or create a trust response (Bannister and Connolly, 2011). Several scholars identified trust as a dependent variable that is influenced by the trustworthiness of the trustee and suggests that the trustworthiness perception is based on various perceptions of the trustor's characteristics (Lee and Turban, 2001; Covello, 1992; Barber, 1983).

Abdulaziz Albesher

Moreover, several efforts have been directed towards identifying such specific characteristics (for example, (Peters et al., 1997; Mayer et al., 1995; Butler, 1991). Although consensus is lacking upon the exact set of these characteristics, it remains that there are some common and shared themes of these trustworthiness characteristics.

2.8. Trust in Government

Citizens' trust and assessment of government trustworthiness is a different concept from interpersonal trust and its associated trust antecedents. To some degree, this highlights the difference between the interests of administrative science, politics, IS (information systems) and the generic worldview.

A number of academics and other observers recognise government trust as experiencing decline in the long term, in contexts such as Europe and the US (Bovens and Wille, 2008; Scharpf, 1999; Nye Jr, 1997). However, the view that government trust is declining in the long term has also been contested by various authors (Cook and Gronke, 2005). Government trust has a fluctuated characteristic, meaning there is a kind of flexibility. Accordingly, this induces an unstable situation, which could mean it will arise and fall again over time.

However, although the concept of government trust shows some correspondence with more generalised concepts of trust, there are key differences in not only the definition of trust but also the ways in which it is measured, especially in IS research (Bannister and Connolly, 2011).

For instance, Barnes and Gill (2000) defined trust in the government as the degree of confidence held by citizens in regards to their government and its capacity and likelihood to act well in consideration to the public.

Abdulaziz Albesher

Although this is similar to the definition provided by Bélanger and Carter (2008), who emphasise that government trust can be explained as 'one's perceptions regarding the integrity and ability of the agency providing the service', there are some differences. On the other hand, other academics posited different conceptualisations of trust in government (e.g. Blind, (2007) and Van de Walle and Bouckaert (2003)) and described it as 'congruence between citizens' preference and the perceived actual functioning of government' (Van de Walle and Bouckaert, 2003, p. 337).

In the context of this research, however, the definition of trust in the government is explained as group or individual perceptions regarding the perceived and expectations of the ability, benevolence and integrity of the government agency delivering the service, which generates the agency's trustworthiness. This is recognised as the most suitable definition for this study, as it serves the aim of this study and been agreed by several researchers (Bélanger and Carter, 2008; Colquitt et al., 2007; McKnight et al., 2002; Lee and Turban, 2001; Beccerra and Gupta, 1999; Jarvenpaa et al., 1998; McKnight et al., 1998; Ganesan and Hess, 1997; Mayer et al., 1995; Rotter, 1971).

Gefen et al. (2005) mentioned that the adoption of a technology is greatly influenced by the degree of trust in the agency providing the service. The initiatives of e-government require a prior citizens confidence in government agencies, in terms of the technical capabilities and astuteness to implement, provide and maintain transactions using such electronic systems. This type of citizen believes in the ability of government agencies to provide services online, considerably contribute on the diffusion and adoption of e-government.

In addition, citizen's trust and acceptance of e-government services can be improved based on the integrity of the e-service provider and the ability to carry out the interactions in a non-fraudulent and honest way (Paravastu et al., 2014; Colquitt et al., 2007). In contrast, citizens' opposition and distrust of e-government services will emerge when the government agency or the employees are not fulfilling their promises and acting in a dishonest way.

Abdulaziz Albesher

Borrowing from e-commerce studies, the trust in government concepts is commonly examined through consideration of consumer perceptions of the reputation of an organisation. Reputation may be recognised as the degree to which consumers hold the view that a business operates with integrity and shows concern for its consumer base (Jarvenpaa et al., 1999; Doney et al., 1998).

Organisations possessing a sound reputation are recognised as being unwilling to risk their reputational assets, such as by pursuing opportunistic behaviours (De Ruyter et al., 2001; Smith and Barclay, 1997; Chiles and McMackin, 1996).

Given that technology facilitates the advanced analysis and fast collection of data, e-government service users might want to only become involved in transactions that will ensure their data are protected and respected. It is essential that the government agencies show a kind of benevolence norm and reassure citizens that society will benefit through the use of e-government services, and that they will not use such a system for the purpose of monitoring (Bélanger and Carter, 2008).

In this way, e-government literature can be seen as centrally focusing on e-government rather than the government as a whole (e.g. (Tolbert and Mossberger, 2006; Carter and Bélanger, 2005; Dutton et al., 2005; Welch et al., 2005; Warkentin et al., 2002). Studies in this regard have been mainly centred on gaining insight into the ways in which e-government services can be improved so as to improve the degree of utilisation and adoption of government services by citizens (Bannister and Connolly, 2011).

The specific subject area of e-government has been selected owing to the clear lack of trust in the government as a hindrance and obstacle to utilising and adopting e-government services (Mahmood et al., 2014; Bannister and Connolly, 2011; Dashti, Benbasat and Burton-Jones, 2010; Colesca, 2009; Bélanger and Carter, 2008; Carter, 2008; Tan et al., 2008; Horst, Kuttschreuter and Gutteling, 2007; Carter and Bélanger, 2005; Gefen et al., 2005; Lee and Rao, 2005; Gefen et al., 2002). Accordingly, this

Abdulaziz Albesher

research examines the role of citizens' trust in e-government, from the individual's view of the government as being trustworthy, or not.

2.9. Trust in E-government Services (The Role of Trust in E-Government Adoption)

In specific consideration to the government, various definitions and concepts have been publicised in regard to 'trust'; therefore, questions are often posed in regard to achievability and semantics when various professionals—including politicians, public servants and scholars—communicate the idea of trust through the use and adoption of e-government services.

Moon and Norris (2005) suggest that e-government has one pivotal driver of change, which is management innovativeness. It is considered that this element may prove useful in achieving positive e-government outcomes if utilised both strategically and resourcefully.

Moon and Norris (2005) recognise eight different outcomes associated with e-government; these may be associated with efficiency in regards to increased revenue and decreased overheads. Importantly, increase in public trust is not referred to as one of the outcomes.

Moreover, across different levels of government, different questions are posed with regards to trust, meaning 'trust in government' could refer to any number of authorities, ministries or bodies, or even public servants, politicians and institutions. As a result, if a question was to be posed on whether or not the government is trustworthy, answers would differ depending on the interpretation of the question (Bannister and Connolly, 2011).

Abdulaziz Albesher

Governance mechanisms do, however, have a number of strengths in terms of diminishing and circumventing risk, and accordingly facilitating positive trust in its e-services.

Nevertheless, it needs to be recognised that highly structured controls could ultimately remove the need for trust, and therefore might restrict the progression and development of trust (Macaulay, 1963). As a result, the trust sought by the adoption of such governance mechanisms may actually be destroyed by them; in actuality, the application of highly structured controls could ultimately possess negative implications, thus mean vanishing trust.

Aside from the ICT domain, studies carried out in regard to public administration overall (e.g. (Bouckaert and Van de Walle, 2003; Van de Walle and Bouckaert, 2003)) suggest that citizen trust in traditional government could be restored and is positioned as a pivotal aspect in public sector modernisation (Bannister and Connolly, 2011).

Moreover, the suggestion has been made that there are various trust targets, with the organisation that provides the service, the mechanism through which it is provided (trust in Internet), and with a variety of other elements encouraging individuals to trust (Colquitt et al., 2007; Tan and Thoen, 2001).

Importantly, it can be stated that trust in e-government services is made up of various traditional views of trust in a particular agency (Government agency's trustworthiness), as well as trust in the suitability of the facilitating technology (trust in technology), and other influencing factors on citizen's trust on e-government services; such as citizens' trust propensity and social influence (Paravastu et al., 2014; Bélanger and Carter, 2008; Colquitt et al., 2007; Carter and Bélanger, 2005; Pavlou, 2003). Importantly, it can also be seen that, when relating the various concepts of e-governance with maintainable advantage, it would be valuable to review the various aspects of trust, trustworthiness and distrust (Caldwell and Hansen, 2010).

Citizens' willingness to use and adopt e-government services have been recognised as a critical target for implementing e-government services (Shareef et al., 2009; Evans and Yen, 2006). Although it can be observed that there is a substantial growth of e-government implementation and development worldwide, there is no clear evidence that these provided e-services will be embraced by citizens of both developed and developing countries (Carter and Bélanger, 2005). This also confirms that the success, diffusion and acceptance of e-government services are mainly based on citizens' willingness to adopt such e-services (Mahmood et al., 2014).

Many researchers have identified trust as a successful key for promoting the use and adoption of e-government services (Wimmer et al., 2015; Mahmood et al., 2014; Akkaya et al., 2010; Bavec, 2006; Srivastava and Teo, 2005). Accordingly, different developed and developing countries around the world gave trust issues a priority in their research (Albesher and Brooks, 2014; Abu-Shanab and Al-Azzam, 2012; Akkaya et al., 2010; Codagnone and Wimmer, 2007).

In addition, Alshafi and Weerakkody (2010) argued that trust does have an influential role in citizens' use of e-government services. Likewise, Osman et al., (2011) mentioned that the adoption of e-government services is significantly impacted by the amount of trust and other trust constructs. Belanger and Carter (2008) suggested that citizens' trust in the e-government service provider does affect the adoption of e-government services.

In a similar way, Carter and Belanger (2005) also identified trust as a vital predictor of the use and adoption of e-government services. In addition, Srivastava and Teo (2009) conducted a similar study in Singapore and found that trust in government and technology are significant predictors of citizens' adoption of e-government services. The next section will provide an overview of the research context (Kingdom of Saudi Arabia) and the current state of their e-government programme.

Abdulaziz Albesher

2.10. The research context: Saudi and its e-government programme

2.10.1. Saudi Arabia

Saudi Arabia, officially named as the Kingdom of Saudi Arabia (KSA), occupies a land area of approximately 2,150,000 km^2 (830,000 square miles) in the Western Asia and is considered as the second largest country in the Arab world. The Arabian Peninsula consists of Saudi Arabia, United Arab Emirates (UAE), Qatar, Kuwait, Bahrain, and Oman. Saudi Arabia constitutes the bulk of the Arabian Peninsula (four-fifths) (CDSI, 2013).

Moreover, it is the only country surrounded by both Red sea coast and Arabian Gulf coast. Saudi Arabia bordered is from the southeast by Oman, from the north by Jordan and Iraq, from the south by Yemen, from the east by United Arab Emirates, Qatar, Bahrain, Kuwait and the Red sea coast. Saudi Arabia formally consists of thirteen administrative regions: Riyadh, Makkah, Eastern Province, Madinah, Qasim, Al-Jouf, Northern Borders region, Hail, Tabouk, Asir, Al-Baha, Najran and Jezan (CDSI, 2013).

Several provinces and centres are divided under each region and dependant on its region's Emirate in term of governance and management (MEP, 2013). The location of Saudi Arabia in the world map and its different provinces are illustrated in Figure 2.2. The capital city of Saudi Arabia is Riyadh, located in the center of the country. The region that is beside the Red sea coast is called the "Hejaz" region. The two holy Islamic mosques AlMasjid AlHaram in Mekka and AlMasjid AlNabawi in Medina are located in the Hejaz region. Therefore, Saudi Arabia is sometimes referenced as "the Land of the Two Holy Mosques". Arabic is the first and dominant spoken language in Saudi Arabia and English is the second. In urban areas, educated people

use English more frequently in their communications. The religion of Islam shapes the constitution of Saudi Arabia and the way the Saudi regime rules (MEP, 2013).

Figure 2.2: The location of Saudi Arabia and different provinces.

The World Bank (2015) released a recent report on world development indicators and showed that the population of Saudi Arabia is approximately 29,369,428 (twenty-nine millions) with a population growth rate of 2.21%. However, the population rate still consider small compared with the large occupied geography.

The population of Saudi Arabia includes about 20 million Saudis nationals and 9 millions foreigners residents (non-Saudi). In terms of gender, males constitute 55.6 percent of the total Saudi population, whereas females constitute 44.4 percent of the total population (CDSI, 2013). Saudi Arabia has a young population, as approximately 51% of the Saudi population is less than 25 years. Regarding the age structure, 32.4% of the population is between the age of 0-14 years, 64.8% between the age of 15-64 years and 2.8% between the age of 65 years and over (Murphy, 2012).

Although the great distance between the main cities of Saudi Arabia (Riyadh, Jeddah and Dammam) contributed in hindering the level of communication and collaboration between local authorities in some cases, adopting an inclusive e-government system can help to overcome such issues, improve the degree of integration and guarantee instant online interaction (Alomari et al., 2014).

2.10.2. E-government in Saudi Arabia

In Saudi Arabia, a number of e-government initiatives have been set up, due to the extraordinary government ambition to provide government services electronically. E-government has the ability to enhance public sector accountability and provide citizens with a decent level of prosperity and welfare. The Saudi public sector has invested around 4.71Bn SAR ($1.2Bn), so far, to establish a reliable infrastructure, applications and support e-government readiness.

Abdulaziz Albesher

'Yasser' is a national project in Saudi Arabia that manages the implementation of the country's e-government programme. This project is one of several initiatives that are dedicated to the enhancement and development of e-services for Saudi citizens (Saudi E-Government Program, 2014). The Yasser programme mentions four main objectives behind the importance of launching e-government services "(1) Raising the public sector's productivity and efficiency, (2) Providing better and more easy-to-use services for individual and business customers, (3) Increasing return on investment (ROI), and (4) Providing the required information in a timely and highly accurate fashion" (Saudi E-Government Program, 2014).

E-government provides immense advantages to developed and developing countries, especially when the country is vast in term of its geographical size and population, such as with Saudi Arabia (CDSI, 2013). It helps to decrease the need to visit different government agencies and departments in order to access government services or complete transactions. For example, some government transactions may require travelling to one of the capital cities to access a central government department which adds more costs and consumes more time (Alateyah, Crowder and Wills, 2013a; Al-Shafi and Weerakkody, 2010; AlAwadhi and Morris, 2008).

The Saudi government initiatives, in general, aim to provide a comprehensive e-government system that facilitate interaction with the government and exploits the Internet to complete e-government services at local and national levels. Moreover, this will increase the cooperation between the public and private sectors to support, manage and ensure e-readiness of the provided e-services (Al-Sobhi and Weerakkody, 2010).

However, although the Kingdom of Saudi Arabia expressed enthusiasm for the digital economy and wider IT community, it requires citizens' engagement to activate the electronic communications and adopt the IT systems.

Abdulaziz Albesher

The last few years has seen a dramatic growth in the number of Internet users in Saudi Arabia (from 13% in 2005 to about 63.7% at the end of 2014, about 19.6 million Internet user) (CITC, 2014), but the lack of utilizing and adopting these e-government services remains exist (Al-Hujran et al., 2015; Alateyah, Crowder and Wills, 2013b; Al-Sobhi and Weerakkody, 2010; Hamner and Al-Qahtani, 2009).
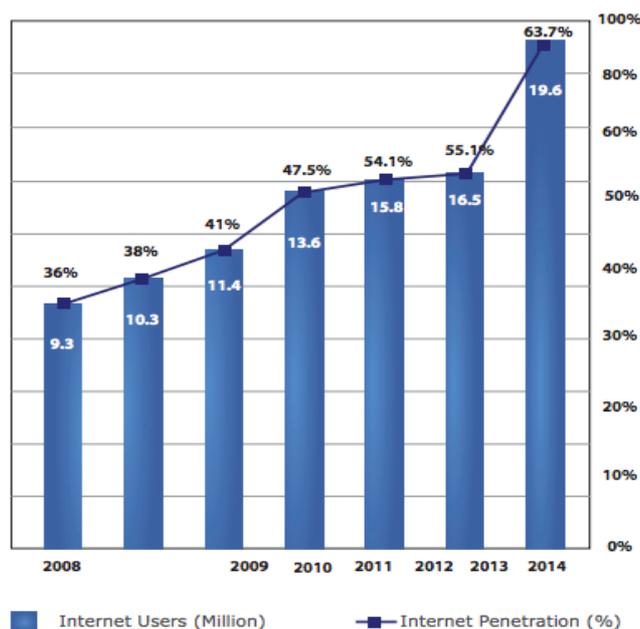
Figure 2.3: Growth of Internet users in Saudi Arabia.
Source: (CITC, 2014).

Moreover, it has been recognised that one of the main challenges that hinders the development of the e-government programme in Saudi Arabia is the shortage of empirical studies in the country, as such studies contribute in testing assumptions in the practice to find the best solutions that fits the context of Saudi Arabia (Al-Sobhi, 2011; Al-Fakhri et al., 2009; Kolsaker et al., 2007). Empirical studies help to provide a better understanding to the contextual differences and responding properly to dynamics of situations in this country.

Based on the literature discussed in this chapter, trust can be a key for understanding citizens' adoption of e-government services in Saudi Arabia, this require

Abdulaziz Albesher

understanding how citizens' trust in Saudi Arabia is generated and what are the implications of their trust on the use intention and adoption of e-government services.

In Saudi Arabia, citizens mainly trust in the justice and legislation system of Saudi authorities, but the case always related to the procedures of execution and fulfillment. E-government provides a great advantage to promote government internal and external business processes and facilitate citizens' interaction with different government agencies. As a result, the use of e-government systems should enhance citizens' satisfaction. This brings up the question of do Saudi citizens' trust in e-government services and what are the implications of their trust on the use and adoption of e-government services in Saudi Arabia.

Over the last few years, researchers began to shift their focus to understand and investigate the relationship between citizens' trust, confidence, use, and adoption of e-government services (Taipale, 2013; Morgeson et al., 2011; Bélanger and Carter, 2009; Shafi and Weerakkody, 2009; Carter and Weerakkody, 2008; Colesca and Dobrica, 2008; Welch, Hinnant and Moon, 2005; Gilbert et al., 2004). Nevertheless, a lack of empirical evidence still exists (Mahmood, Osmani and Sivarajah, 2014; Venkatesh, Sykes and Venkatraman, 2013; Al-Shafi and Weerakkody, 2010; Bélanger and Carter, 2008). In addition, to date there has been little research exploring the factors that determine citizens' adoption of e-government services in developing countries, especially in the Arab world and in Saudi Arabia (Alomari et al., 2014; Al-Rashidi, 2013; Alateyah et al., 2013a; Al-Sobhi, 2011; Al-Shafi and Weerakkody, 2010; Alshawi and Alalwany, 2009; AlAwadhi and Morris, 2008). Chapter 3, will discussed the study conceptual model and justify hypotheses development.

2.11. Summary

The aim of this chapter is to assess the current state of e-government research and clearly identify the research gap by reviewing relevant literature. As has been shown in this chapter the definition of e-government is contested between various authors, as

Abdulaziz Albesher

each one defines it according to his\her research area and perspective. However, in general most definitions commonly agreed that e-government is a strategic tool that uses technology to provide e-services to different stakeholders such as citizens, business, employees and government itself. The advantages associated with using e-government for both governments and different stakeholders were reviewed in section 2.4. In addition, the assorted challenges related to e-government adoption were highlighted in section 2.6.

Based on the literature review conducted in this chapter the concept of trust was crucially identified as pivotal in several areas, including IS research. In the context of e-government, trust was also acknowledged as a key enabling concept for the use and adoption of e-government services. However, there exists a lack and shortage of empirical evidence of this issue in the e-government context from a citizen focus. Moreover, very few, if any, studies focused precisely on breaking down this complicated concept to understand the implications and effects of each dimension. The research context of this study was also identified (Saudi Arabia) in section 2.10, by providing different demographic information and other relevant information. Moreover, the current state of the e-government programme in Saudi Arabia was discussed along with the role of citizens' trust in the use and adoption of e-government in that context. The next chapter (Chapter 3) will discuss and justify the formation of the study's conceptual model, which will help to recognize the role of citizens' trust in the use and adoption of e-government in the Saudi Arabian context.

Chapter 3: Conceptual Model & Hypotheses Development

3.1. Introduction

This chapter develops an initial conceptual model for understanding the role of trust in e-government adoption and usage. Previous literature in information systems (IS) and e-government showed the need to explore the impact of trust in e-government adoption, as been discussed in Chapter 2. The individual level was the dominant interest for most e-government studies due to the importance of the individual's level in the field of e-government systems (Carter et al., 2011; Lee, Kim and Ahn, 2011; Shareef et al., 2011; Colesca, 2009; Carter and Weerakkody, 2008; Carter and Bélanger, 2005). Several e-government studies highlighted the importance of trust in adoption of e-government and showed the need to understand the role of this complicated factor in more detail.

Therefore, this chapter will propose a structure for a study model to show various constructs and their influence on citizens' adoption and usage of e-government services. The proposed conceptual model will be used to guide the empirical study, starting from the empirical data collection and analysis, and ending up by establishing a comprehensive overview of the relationship between trust and adoption of e-government in a Saudi context. The main consideration is to allow the model to examine the role of trust in e-government adoption from the citizens' perspective.

Many studies in information systems (IS) use a theoretical background to build their arguments and to provide a theoretical model that explains the effect of the proposed factors on citizens' adoption of e-government services (Carter et al., 2011; Shareef et al., 2011; Al-Shafi and Weerakkody, 2010; AlAwadhi and Morris, 2008; Carter and Weerakkody, 2008; Carter and Bélanger, 2005).

Abdulaziz Albesher

It is essential to consider users' acceptance and adoption of technology in any information technology (IT) project because determining the success or failure of any IT project is mainly based on the users' attitudes towards use and adoption of new technologies (Al-Sobhi, 2011; Succi and Walter, 1999; Pinto and Mantel Jr, 1990). Users' acceptance of technology can refer to an individual's initial decision to interact with the technology (Venkatesh et al., 2003). Thus, several IS theories and models can be used to examine users' adoption of technology.

To fulfill the aim of this study, an explanatory model of trust in e-government adoption will be developed. The model identifies seven fundamental factors that influence citizens' intention to use e-government: the government's ability, the government's benevolence, the government's integrity, trust propensity, trust in the Internet, social influence, and trust of e-government. The model uses the theory of reasoned action (TRA) as a guiding framework. This theory is a popular behavioural model used to predict human behaviour (Ajzen and Fishbein, 1972).

This chapter will discuss the factors of technology trust and adoption that might explain citizens' usage intentions and adoption of e-government services in Saudi Arabia, based on e-government literature. This will be followed by discussing the effect of demographic variables on citizens' trust in e-government services. Finally, a conceptual model will be used to map the discussed constructs in this chapter and to form the basis for the empirical studies in Chapters 5 and 6.

3.2. Trust, Trust in e-Government and Model Formation

Trust has been defined by different studies according to their specific perspective. Trust is defined by psychologists as a tendency to trust others (Rotter, 1971). Sociologists define trust as a characteristic of the institutional environment. Social psychologists define trust as a cognition or acquired knowledge about the trustee (Rempel, Holmes and Zanna, 1985). McKnight et al. (2002) stated that even variants between these definitions exist, including in a great deal of IS research.

Several studies have proposed different types of trust (McKnight, Cummings and Chervany, 1998; Mayer, Davis and Schoorman, 1995; Butler, 1991). Moreover, composite definitions of trust were developed by some research to overcome confusion about and proliferation of trust types (Doney, Cannon and Mullen, 1998; McKnight, Cummings and Chervany, 1998; Mayer, Davis and Schoorman, 1995; Kee and Knox, 1970). For example, a set of five trust-related constructs was defined by (Kee and Knox, 1970): situational factors, dispositional factors, subjective trust, perceptions of others and behavioural trust.

In addition, Mayer et al. (1995) in his study included perceptions of trustworthiness, propensity to trust and trust (willingness to be vulnerable to another). According to McKnight (2002), most trust models usually include a mixture of trusting propensity, perceptions and intentions/willingness.

The definition of "trust" is so broad (Williamson, 1993) and confusing (Shapiro, 1987) that it almost defies careful definition (Gambetta, 2000; McKnight, Cummings and Chervany, 1998). Numerous studies have explored and defined trust differently. Due to the complexity of the trust construct and the diversity of the provided definitions, this study preferred to use a well-respected and referenced definition,

Abdulaziz Albesher

which is the one provided by Rotter (1971), who defined trust as the ability to rely upon the promise of an individual or group (another party).

This definition proposes that an individual's experiences of negative or positive promises affect his/her level of trust reinforcement (Rotter, 1971). Thus, different individuals would develop such reinforcement based on his/her expectations. Different studies of trust have used Rotter's definition (e.g., (Bélanger and Carter, 2008; Gefen, Karahanna and Straub, 2003; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995; Zucker, 1986; Johnson-George and Swap, 1982)).

Firsthand knowledge or experience with other parties will not be the key in the case of initial trust between parties, using the contemporary wave of ICT. Rather, an individual's propensity to trust, perceptions of trustworthiness and trust in the medium will construct that individual's beliefs and attitudes to trust another party without firsthand knowledge (McKnight, Choudhury and Kacmar, 2002; McKnight, Cummings and Chervany, 1998; Mayer, Davis and Schoorman, 1995).

The effect of users' trust in an e-government service is our focus in the current study. Usually, initial trust refers to trust in an unknown, new or unfamiliar trustee. Hence, the lack or absence of credible and meaningful knowledge about the e-service provider empowers the role of citizens' initial trust before the engagement in that relationship (Bélanger and Carter, 2008; McKnight, Choudhury and Kacmar, 2002).

In such relationships, people use any possible information they have to determine the trustworthiness of the trustee (ex. perceptions of the website or the government agency) (McKnight, Choudhury and Kacmar, 2002). Nevertheless, during an initial relationship over technology, trust mainly builds based on the assumptions made about the traits of the trustee (government trustworthiness), trust in the used technological medium (the Internet) and the characteristics of the trustor (trust propensity) (Bélanger and Carter, 2008; Grazioli and Jarvenpaa, 2000).

Abdulaziz Albesher

This study identifies five fundamental constructs that can influence citizens' trust in e-government services: (1) perceptions of trustworthiness, which refers to an individual's beliefs about the trustee's ability, benevolence, and integrity (Mayer, Davis and Schoorman, 1995); (2) trust in the Internet; (3) trust propensity; (4) trust in e-government services; and (5) social influence. In addition, this study identifies citizens' trust in e-government services and social influence as impacting constructs in citizens' intentions to use e-government services. These constructs can demonstrate and show the role of citizens' trust in the use and adoption of e-government services in Saudi Arabia.

Several research streams were used to structure the proposed model for this study: (1) government trustworthiness (McKnight, Choudhury and Kacmar, 2002; Lee and Turban, 2001; McKnight, Cummings and Chervany, 1998; Mayer, Davis and Schoorman, 1995); (2) trust in e-government (Bélanger and Carter, 2008; Carter and Bélanger, 2005; Mayer, Davis and Schoorman, 1995); (3) trust propensity (Bélanger and Carter, 2008; Gefen, Karahanna and Straub, 2003; McKnight, Choudhury and Kacmar, 2002; McKnight, Cummings and Chervany, 1998; Mayer, Davis and Schoorman, 1995); (4) trust in the Internet (Lee, Kim and Ahn, 2011; Sang and Lee, 2009; Bélanger and Carter, 2008; Carter and Weerakkody, 2008; Carter, 2008; Gefen et al., 2002); (5) social influence (Carter et al., 2011; Al-Shafi and Weerakkody, 2010; Pavlou and Fygenson, 2006; Lu, Yao and Yu, 2005; Venkatesh et al., 2003); and (6) behavioural intention (Susanto et al., 2013; Zhou, 2011; Shin et al., 2010; Bélanger and Carter, 2008; Teo, Srivastava and Jiang, 2008; Pavlou and Fygenson, 2006; Carter and Bélanger, 2005; Gefen et al., 2005; Venkatesh et al., 2003). These constructs have been found strongly connected and interrelated to each other. Table 3.1 will demonstrate the relationship between the constructs of the conceptual model.

Abdulaziz Albesher

Independent Factor	Dependent Factor	References
Ability	Trust	(Paravastu, Gefen and Creason, 2014; Colquitt, Scott and LePine, 2007; Gefen, Karahanna and Straub, 2003; Gefen, 2002a; Gefen, 2002c; McKnight, Choudhury and Kacmar, 2002; McKnight, Cummings and Chervany, 1998)
Benevolence	Trust	(Colquitt, Scott and LePine, 2007; Mayer, Davis and Schoorman, 1995)
Integrity	Trust	(Paravastu, Gefen and Creason, 2014; Caldwell and Hansen, 2010; Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995)
Trust Propensity	Trust	(Zhou, 2011; Colesca, 2009; Bélanger and Carter, 2008; Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Kramer, 1999; Mayer, Davis and Schoorman, 1995)
Trust in the Internet	Trust	(Lee, Kim and Ahn, 2011; Sang and Lee, 2009; Carter and Weerakkody, 2008; Carter, 2008; Gefen

		et al., 2002)
Social Influence	Trust & Use behaviouralal intention	(Carter et al., 2011; Al-Shafi and Weerakkody, 2010; Pavlou and Fygenson, 2006; Lu, Yao and Yu, 2005)
Trust	Use behavioural intention	(Susanto et al., 2013; Zhou, 2011; Shin et al., 2010; Bélanger and Carter, 2008; Teo, Srivastava and Jiang, 2008; Pavlou and Fygenson, 2006; Carter and Bélanger, 2005; Gefen et al., 2005)

Table 3.1: The relationship between the constructs of the conceptual model.

"Government trustworthiness" is related to the characteristics and actions of a governmental agency (trustee) that help to assess their trustworthy. Three main characteristics of a trustee need to be examined to determine the trustworthiness of a trustee: ability, benevolence and integrity (Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995).

"Ability" refers to the group of skills, competencies and characteristics that enable a government agency to influence different stakeholders within some specific domain (Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995).

"Benevolence" is the extent to which a trustee (government agency) is believed to want to do good for the trustor (citizen), apart from any profit motives (Colquitt, Scott and LePine, 2007; Mayer, Davis and Schoorman, 1995).

"Integrity" is the extent to which a trustee (government agency) is believed to adhere to ethical principles and sound morals, with synonyms including promise fulfillment, justice, consistency and fairness (Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002).

"Trust propensity" refers to personal traits or the general tendency to be willing to depend on others (Gefen, Karahanna and Straub, 2003; McKnight, Choudhury and Kacmar, 2002; McKnight, Cummings and Chervany, 1998; Mayer, Davis and Schoorman, 1995).

"Trust in the Internet" can be defined as the belief that the Internet is a reliable medium capable of providing secure transactions and precise information (Bélanger and Carter, 2008).

"Social influence" is the degree to which an individual's perceives that people who are deemed important to him/her believe he/she should trust or use a new system (Venkatesh et al., 2003).

"Behavioural intention to use" refers to a user's acceptance and intention to use a specific system or service (Venkatesh et al., 2003). The next sections (sections 3.3 and 3.4) will review different technology adoption models in IS. In addition, they will explain the theory of reasoned action (TRA), why this theory was adopted as a guiding framework and the synthesis of the constructs in the proposed conceptual model and justify the model formation.

3.3. Theoretical Background

3.3.1. Technology Acceptance Model (TAM)

Technology acceptance model (TAM) was established based on the Theory of reasoned action (TRA) by Davis (1989). This model consists of two main believes that assumed to impact individual's acceptance to use a system, which are: (1) perceived ease of use (PEOU) and (2) perceived usefulness (PU). Perceived ease of use (PEOU) defined as "referring to the degree to which a person believes that using a particular system would be free from effort"; and perceived usefulness (PU) defined as "the degree to which a person believes that using a particular system would enhance his/her job performance" (Davis 1989 p 320). The model assumed that both perceived usefulness (PU) and perceived ease of use (PEOU) are influencing users' attitude where users' intention to use is influenced by the perceived usefulness and users' attitude.

TAM is a powerful and reliable model that helps in predicting individuals' adoption of a new system in several contexts (Bélanger and Carter, 2008; King and He, 2006 UTAUT thesis). In addition, TAM is consider as a simple and well-established model that not only determining the factors influencing users' acceptance of a technology, but it also help in determining the reasons why a system was not been accepted by the users' (Davis et al, 1989). Moreover, TAM provides the practitioners and researchers with the ability to determine the influence of the external factors on internal attitudes, beliefs and intentions (Davis et al, 1989). According to Davis (1989), users' intention to use a technology will increase when perceived ease of use (PEOU) and perceived usefulness (PU) are high.

3.3.2. Diffusion of Innovation (DOI)

Diffusion of innovation (DOI) has been introduced first by Rogers in the 1960s to study the dissemination of innovation to society. DOI (also named as innovation diffusion theory (IDT)) went through a number of development stages until the best model reached by Rogers (1995). DOI suggests that individual's adoption of innovation can be classified into five categories on the basis of their innovativeness or according to the time they first begin using the new idea: innovators, early adopters, early majority, late majority, and laggards.

According to Rogers, innovation attributes can affect on the rate of individual's innovation adoption. These attributes are relative advantage, compatibility, complexity, trialability and observability. Moon and Benbasat (1991) developed the DOI model further and provided new constructs to tied up better in IS research and improve the ability to measure users' perceptions of IT innovations. These constructs are compatibility, visibility, ease of use, voluntariness of use, result demonstrability, relative advantage, image and trialability.

3.3.3. Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) was introduced by Venkatesh et al. (2003) to predict users' acceptance of new technology. Different models have been used to synthesis and reach a unified view of users' technology acceptance. Eight models were reviewed, compared and integrated to develop the UTAUT model (Venkatesh et al., 2003). These models are Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Technology Acceptance Model

(TAM), Diffusion of Innovation (DOI), combined TAM – TPB (C-TAM-TPB), the Motivational Model (MM), Social Cognitive Theory (SCT) and the Model of PC Utilization (MPCU).

According to Venkatesh et al. (2003), UTAUT model aims to provide further prediction of individuals' behaviours that could not be achieved and explained by using a single model. Each of the aforementioned models that used to develop the UTAUT has a number of independent variables, which used to develop the variables of UTAUT to predict users' adoption and use. Venkatesh et al. (2003) have found four significant constructs to have a direct impact on users' acceptance and usage behaviour. These constructs are social influence, performance expectancy, effort expectancy and facilitating conditions. Social influence, performance expectancy and effort expectancy proposed to have a direct affect on individuals' behavioural intention and facilitating conditions assumed to have a direct affect on use behaviour. Moderating variables also have been considered in UTAUT model that impact users' behavioural intention and use. These variables are age, gender, experience and voluntariness of use.

3.3.4. Theory of Reasoned Action (TRA)

The theory of reasoned action (TRA) has been recognised by several empirical studies as a constantly useful model for explaining a user's usage intentions and behaviours. This model compares favorably with alternative models such as the technology acceptance model (TAM) (McKnight, Choudhury and Kacmar, 2002; Venkatesh, 1999).

TRA is one of the earliest models developed in the social psychology field that used the impact of attitude to explain individuals' behaviour. The theory contributed to explanations regarding attitude and behaviour. It suggested that behaviour is affected

by attitude either directly or indirectly and that attitude could be a unidimensional factor or a multidimensional factor.

Fishbein and Ajzen began their work on these concepts in the 1950s. Their work focused in the prediction of behaviour in laboratory and applied settings. The theory of reasoned action was introduced in 1967, but it was developed, refined, and tested over the next few years. Fishbein and Ajzen integrated a diverse group of theories and research lines to serve their approach, including balance theory, theories of attribution, the theory of cognitive dissonance, learning theories and expectancy-value theories. Their aim was to develop a theory that would be able to explain, predict and influence human behaviour (Ajzen and Fishbein, 1980).

According to Ajzen and Fishbein (1980), TRA is a very general model that is suitable for studying and explaining different human behaviours, such as computer usage behaviour. The theory of reasoned action has been acknowledged as being successful in explaining and predicting models of behaviour across different domains and recognized as a well-researched intention model (Fishbein and Ajzen, 1975).

Core Assumptions of the Theory of Reasoned Action (TRA)

The assumption of this theory is that individuals are rational and they will use the information that is available to them in a systematic way to take action. Thus, the implications of individuals' actions are considered before the decision to engage or not engage in a given behaviour is made (Ajzen and Fishbein, 1980). The theory of reasoned action suggested that behavioural intentions are the most significant determinants of individual's behaviour. According to TRA, an individual's intention to perform a behaviour is based on the combination of the individual's attitude towards performance of the behaviour and subjective norms.

Abdulaziz Albesher

Limitations of the Theory of Reasoned Action

According to Ajzen (1985), the theory of reasoned action was limited by what is called correspondence. Thus, the theory will not be able to predict specific behaviour, attitude and intention unless the individual agreed on context, target, action, time frame and specificity (Sheppard, Hartwick and Warshaw, 1988). The greatest limitation of the theory related to the assumption that behaviour is controlled by volition. In other words, the theory can only be applied to behaviour that is consciously thought out in advance. Habitual actions, irrational decisions or any non-conscious behaviour cannot be explained by this theory.

Context	Description	Target	References
Citizens' adoption of e-government services	The TRA model was used as a guiding framework to identify factors impacting citizens' decisions to communicate with the government using e-services.	Citizens	(Bélanger and Carter, 2008)
Developing and validating trust measures for e-commerce	The study used TRA as a guiding framework to determine individuals' trust in a Web vendor.	Individuals	(McKnight, Choudhury and Kacmar, 2002)
Adoption of	TRA has been	Organizations'	(Moore and

Abdulaziz Albesher

information technology by end users	adopted in this study as a theoretical base to understand factors influencing users' decisions to adopt information technology at organisations. This study recommended TRA as a strong model that is useful for understanding the influencing factors of technology utilization.	employees	Benbasat, 1996)
Explain employees' intentions and predict work behaviour	This study used TRA to predict employees' intentions and behaviour toward punctuality and to engage in altruistic acts. This study concluded that TRA is a superior model for explaining employees' intentions.	Employee	(Becker, Randall and Riegel, 1995)

Table 3.2: Examples of studies using Theory of Reasoned Action (TRA).

Abdulaziz Albesher

3.4. The Formation of the Conceptual Model

Social and cultural values in the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980; Ajzen, 1991) affect the beliefs, attitudes and adoption of e-government services. A citizens' behavioural intention to accept, learn and use e-government services is based on his/her beliefs and attitudes towards an e-government system. Hence, to stimulate an e-government adoption framework, it is vitally important to understand citizens' behavioural and attitudinal aspects (Shareef et al., 2011).

Most countries are in the early stages of implementing a comprehensive e-government systems. E-government is a contemporary innovative system with a very short history. These innovative e-government services need to be used and adopted by citizens. Using TRA and TPB, it can be realized that citizens' beliefs and attitudes towards this system will be vital to understanding their acceptance and adoption intentions (Limayem, Hirt and Cheung, 2007).

Several theoretical models have been developed to explain the impact of different factors in technology acceptance and communication, such as TRA, TAM, DOI and UTAUT (Rogers, 2010; Lu et al., 2008; Igbaria, Guimaraes and Davis, 1995; Moore and Benbasat, 1991; Davis, 1989). Among these theoretical models, TRA was found relatively supportive for understanding IT adoption behaviour, especially in Europe and the United States (Bélanger and Carter, 2008; Pavlou, Tan and Gefen, 2003; McKnight, Choudhury and Kacmar, 2002; Jarvenpaa, Tractinsky and Saarinen, 1999; McKnight, Cummings and Chervany, 1998).

However, to examine other aspects and consider cultural differences, the original model needed to be revised (Lu et al., 2008). Igbaria et al. (1995) indicate the need to conduct more research guided by the theory and supported by empirical evidence to examine the factors affecting the user's acceptance and adoption of technology.

Abdulaziz Albesher

Therefore, this study explored factors influencing citizens' trust and adoption of new e-government services in Saudi Arabia and introduced a conceptual model (guided by TRA as a framework) to explore the role of citizens' trust and the consequent impact on adoption intentions in Saudi Arabia.

This study proposes an explanatory model of trust in e-government adoption. The model identifies five fundamental constructs that impact intention, directly or indirectly (see Figure 3.1), to use e-government services. Figure 3.1 explores the specific formation of the conceptual model and avoids the vagueness of discussing the formation of the broad trust concept.

These five constructs are the government's trustworthiness, trust in the Internet, trust propensity, trust in e-government and social influence. The government's trustworthiness consists of three main constructs: ability, benevolence and integrity. This combination is based on Mayer's et al. (1995) findings.

Government ability, benevolence and integrity were chose in this study to form and represent the government's trustworthiness because it suits the aim of this study and were found as a well acknowledged trusting beliefs in the literature (Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; McKnight, Cummings and Chervany, 1998; Mayer, Davis and Schoorman, 1995). Each of these constructs of the government's trustworthiness are proposed to be more highly correlated with each other than other constructs in the proposed model, representing a type of convergent validity.

Ajzen and Fishbein's (1972) theory of reasoned action (TRA) has been used as a guiding framework for the proposed model of this study as it has been for several other studies (Bélanger and Carter, 2008; McKnight, Choudhury and Kacmar, 2002; McKnight, Cummings and Chervany, 1998; Igbaria, Guimaraes and Davis, 1995).

Abdulaziz Albesher

As mentioned previously, TRA is a popular behavioural model that helps to understand and predict human behaviour. The TRA model states that beliefs and attitudes influence intentions and that intentions influence an individual's actions (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1972). The relationship between trust and a user's behaviour has been explored using TRA in several studies (Bélanger and Carter, 2008; Gefen, Karahanna and Straub, 2003; Pavlou, Tan and Gefen, 2003; McKnight, Choudhury and Kacmar, 2002; Jarvenpaa, Tractinsky and Saarinen, 1999). In IS literature, the intention to use has been found to be a robust predictor of a system's actual usage (Al-Sobhi, 2011; Al-Ghaith, Sanzogni and Sandhu, 2010; Al-Shafi and Weerakkody, 2010; Bélanger and Carter, 2008; Venkatesh *et al.*, 2003; Chau and Hu, 2001).

Related to this study, the focus is to measure behavioural intention to use an e-government service. As recommended in TRA, we explore several beliefs that may directly or indirectly influence intentions to use e-government service: the government's ability, the government's benevolence, the government's integrity, trust in the Internet, trust propensity, trust in e-government services and social influence.

Following McKnight et al. (1998), McKnight et al. (2002) and Bélanger and Carter (2008), these trust constructs were integrated within the broad framework of the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975) (see Figure 3.1). The theory posits that beliefs lead to attitudes and attitudes lead to behavioural intentions.

By applying the concept of TRA, we find that this study posits that trusting beliefs (perceptions of a specific government agency) lead to trusting attitudes (willingness to rely upon and engage with e-government services), which then results in behavioural intentions (intention to adopt e-government services) and consequently results in the use behaviour (the actual use of a specific e-government service). We further posit that a citizen's trust propensity (disposition to trust) and social influence are antecedents to a trusting attitude. The next section will discuss each construct of the proposed model in more detail.

Abdulaziz Albesher
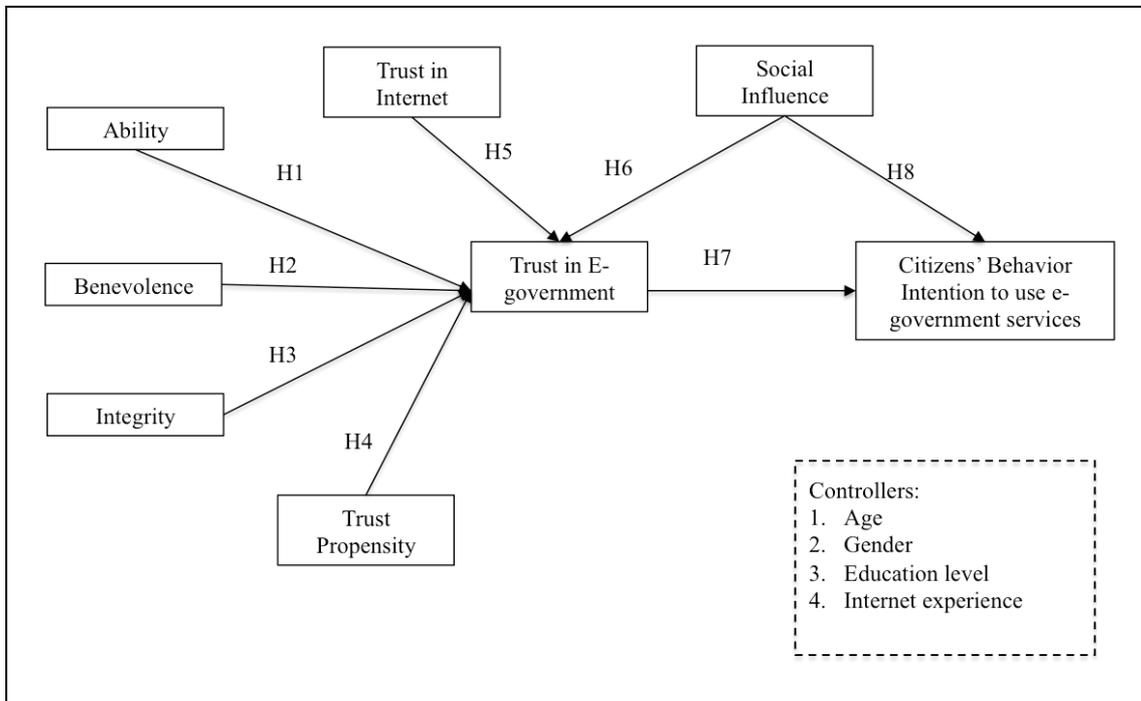
Figure 3.1: E-government Trust conceptual model

3.5. Conceptual Research Model and Hypotheses

3.5.1. Trustworthiness

The distinction between trust and trustworthiness can be summarized thus: Trustworthiness addresses the perceived attributes of the trusted party that are important to the trustor. Usually, these attributes are beliefs about the ability, benevolence and integrity of the trusted party. This definition has been broadly adopted by management information systems (MIS) research, which defines trust as the intention of the trusting party to rely on the trusted party (Gefen, Karahanna and Straub, 2003; McKnight, Choudhury and Kacmar, 2002) based on the assessments of one's trustworthiness (Paravastu, Gefen and Creason, 2014; Kim and Prabhakar, 2004; McKnight, Choudhury and Kacmar, 2002). Interpersonal trust and trustworthiness are enabling and determining aspects of social and business relationships (Gambetta, 1988), including business and social interactions on the Internet (Gefen and Reychav, 2014; Pavlou and Gefen, 2004; Gefen, Karahanna and Straub, 2003; Gefen, 2002c; McKnight, Choudhury and Kacmar, 2002; Ridings, Gefen and Arinze, 2002; Torkzadeh and Dhillon, 2002).

Many researchers have studied the influence of perceived trustworthiness on building trust. As indicated earlier in section 3.4, ability, benevolence and integrity are consistently related to trust in most studies and thus are included in the present study model. These three factors encompass and represent different dimensions of the concept of trustworthiness (Paravastu, Gefen and Creason, 2014; Carter and Bélanger, 2005).

3.5.1.1. Ability

Abdulaziz Albesher

As one of the primary beliefs that compose trustworthiness, ability is a key determinant of trust (Paravastu, Gefen and Creason, 2014; Gefen, Karahanna and Straub, 2003; Gefen, 2002a; Gefen, 2002c; McKnight, Choudhury and Kacmar, 2002; McKnight, Cummings and Chervany, 1998). Ability is that group of skills, competencies and characteristics that enable a party to have influence within some specific domain. The domain of ability is specific because the trustee may be highly competent in some technical area, affording that person trust with tasks related to that area (Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995). Ability is a key predictor of trustworthiness and one of the commonly discussed components of trustworthiness (Paravastu, Gefen and Creason, 2014; Caldwell and Hansen, 2010; Colquitt, Scott and LePine, 2007).

Ability or competence is one of the trust bases that captures the "can-do" component of trustworthiness by determining whether the trustee has the knowledge, skills and abilities to act in an appropriate fashion (Colquitt, Scott and LePine, 2007). In the present context, it relates to the ability of a government agency to provide effective electronic services.

Several theorists have discussed similar constructs as affecting trust using several synonyms. Lee and Turban (2001), Good (2000), Mayer (1995), Cook and Wall (1980), Deutsch (1960), Jones, James, and Bruni (1975), and Sitkin and Roth (1993) all considered ability an essential element of trust. Others (e.g., (Caldwell and Hansen, 2010; Mishra, 1996; Butler, 1991; Butler Jr and Cantrell, 1984; Lieberman, 1983; Rosen and Jerdee, 1977; Kee and Knox, 1970)) used "competence" to define a similar construct. Most previous studies identify ability as a key element that structures the trustworthiness of a trustee. Therefore, the following hypothesis is proposed.

H1. The perceived ability of a government agency will have a significant influence on trust in e-government services.

Abdulaziz Albesher

3.5.1.2. Benevolence

Benevolence is the extent to which a trustee is believed to want to do good to the trustor, separate from any profit motives (Colquitt, Scott and LePine, 2007; Mayer, Davis and Schoorman, 1995). Benevolence represents the perception of a trustee's positive orientation toward the trustor (for instance, the trustee's motivation to act and care about the trustor's interests) (McKnight, Choudhury and Kacmar, 2002).

Lind (2001) suggested that benevolence indicates that the trustee has some caring and supportiveness tendencies toward the trustor that contribute to develop a sense of positive affect on the trustor. According to Colquitt (2007), the "will-do" component of trustworthiness is captured by benevolence because it describes whether the trustee will be willing to use his/her abilities and skills to satisfy the trustor.

Several researchers have included perceived benevolence as a basis of trust. Moreover, benevolence is heavily involved in the assessment of trustworthiness because high benevolence in a relationship would result in great motivation to rely on the trustee. For this study, benevolence captures citizens' beliefs about whether a government agency is willing to provide them with useful e-government services.

The term "benevolence" has been used by several authors in analyses of trust, especially when focusing on the trustor's relationships (Colquitt, Scott and LePine, 2007; Mayer and Gavin, 2005; Gefen, 2002b; Jarvenpaa, Knoll and Leidner, 1998; Larzelere and Huston, 1980).

Other researchers (e.g., (Frost, Stimpson and Maughan, 1978)) used constructs such as altruism or supportiveness in their trust study, which is similar to benevolence. Thus, all these researchers used benevolence as defined in our model or a construct similar to it. Consequently, the following hypothesis is proposed.

H2. The perceived benevolence of a government agency will have a significant influence on trust in e-government services.

3.5.1.3. Integrity

Integrity, defined as the extent to which a trustee is believed to adhere to ethical principles and sound morals, has synonyms that include promise fulfillment, justice, consistency and fairness (Colquitt et al., 2007; McKnight et al., 2002). Mcknight et al. (2002) defined integrity as a trustee's honesty and ability of promise keeping. Integrity is a rational reason to trust someone because it represents a kind of long-term predictability of the trustee's moral and fairness characteristics that can help individuals cope, especially in cases of uncertainty (Lind, 2001).

The relationship between trust and integrity is related to a trustor's perception that the trustee adheres to a set of acceptable principles for the trustor (Mayer et al., 1995; McFall, 1987). According to McFall (1987), both trustees' adherence and trustors' acceptance of principles are important in integrity, because the trustee might not consider to have integrity if any shortage in these two is shown.

Several issues affect the degree to which the trustee is judged to have integrity, such as believing that the trustee has a strong sense of justice, the trustee's congruence of his/her words and actions and the consistency of the trustee's past actions (Mayer, Davis and Schoorman, 1995). In addition, the perceived level of integrity in the evaluation of trustworthiness is more important than the reasons behind forming this perception.

Therefore, in this study, integrity is defined as the extent to which a government agency is believed to adhere to morals and a set of ethical principles accepted by citizens. Several studies have discussed integrity or very similar constructs as an

Abdulaziz Albesher

important trust factor (Paravastu, Gefen and Creason, 2014; Caldwell and Hansen, 2010; Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995; Lieberman, 1983). Thus, the inclusion of integrity in this study is sensible and well grounded in previous studies of trust. As a consequence, the following hypothesis is proposed.

H3. The perceived integrity of a government agency will have a significant influence on trust in e-government services.

3.5.2. Trust Propensity

Trust propensity refers to personal traits or the general tendency to be willing to depend on others (Gefen, Karahanna and Straub, 2003; McKnight, Choudhury and Kacmar, 2002; McKnight, Cummings and Chervany, 1998; Mayer, Davis and Schoorman, 1995). Often, trust decisions are made before enough time has passed to gather data on trustworthiness. Trust usually depends not only on previous experience but also on dispositional factors that affect trust, such as personality (Kee and Knox, 1970).

Several scholars have referred this personality-based effect as trust propensity (Zhou, 2011; Colesca, 2009; Colquitt, Scott and LePine, 2007; Mayer, Davis and Schoorman, 1995), dispositional trust (Bélanger and Carter, 2008; McKnight, Choudhury and Kacmar, 2002; Kramer, 1999) and generalised trust (Stack, Trust and London, 1978). Trust propensity is one of the antecedents most relevant to trust, especially in cases in which the actors are not familiar with one another (Bigley and Pearce, 1998; McKnight, Cummings and Chervany, 1998).

The trustor usually relies on trustworthiness attributes to decide whether or how much to trust, whereas trust propensity is a personality-based trait that also contributes to

Abdulaziz Albesher

trust (Lee and Turban, 2001). According to Hofstede (1980), the inherent propensity to trust varies between people depending on cultural background, developmental experiences and personality types. An individual's propensity impacts the level of trust one has for a trustee before the data are available about that party (Mayer, Davis and Schoorman, 1995).

Colquitt (2007) noted that trust propensity retains an impact on trust even if trustworthiness has been determined because it works as a filter that alters the interpretations of the trustor's actions. In addition, the gathered information on trustworthiness is used only to create the reasons for trust without constituting actual trust (Lewis and Weigert, 1985). Trust propensity deals with the lifelong socialised tendency to believe that trusting in others will bring better results (Bannister and Connolly, 2011; Warkentin *et al.*, 2002; McKnight, Cummings and Chervany, 1998; Rotter, 1971).

Thus, trust propensity affects trust even if the information about trustworthiness is already assessed (Bélanger and Carter, 2008; Colquitt, Scott and LePine, 2007; Mayer, Davis and Schoorman, 1995). Although there is a growth in the number of e-government initiatives, e-government is still in its early stages. Citizens have just started to realise the consequences and benefits of completing government transactions online (Albesher and Brooks, 2014; Bélanger and Carter, 2008). Therefore, a citizen's general propensity to trust will have an influence on e-government adoption through its impact on that citizen's trust in e-government services. Given this context, the following hypothesis is proposed.

H4. Citizen's trust propensity will have a significant influence on trust in e-government services.

3.5.3. Trust in the Internet

Trust in the Internet can be defined as the belief that the Internet is a reliable medium that is capable of providing secure transactions and precise information (Bélanger and Carter, 2008). Trust in Internet technology is consistently recognised as a fundamental factor in e-services use and adoption (Carter and Bélanger, 2005; Welch, Hinnant and Moon, 2005; McKnight, Choudhury and Kacmar, 2002; Warkentin *et al.*, 2002).

Once a remote distance and non-physical interaction mode like the Internet takes its place between parties, trust becomes an essential element that needs to be measured and defined (Carter and Weerakkody, 2008). It is not enough to persuade the users to use e-services; the user's trust in the e-enabler (Internet) is a significant key to predicting the adoption of e-government services (Sang and Lee, 2009; Carter and Weerakkody, 2008; Carter, 2008; Gefen *et al.*, 2002). Trust in e-government services ultimately rests on the degree of trust in Internet technology, owing to the idea that offline users would be new to e-government services as well as their concerns about security and reliability (Lee, Kim and Ahn, 2011).

Trust in the Internet is commonly referred to as institution-based trust and may be described as the views of a person regarding the institutional environment comprised of regulations and structures that improve the perceived safety of an environment (McKnight, Choudhury and Kacmar, 2002). As Shapiro (1987) pointed out, institution-based trust is essentially trust in the Internet, meaning trust in the performance structures, safety nets and security measures of this electronic medium. Importantly, the use of e-government rests upon citizens' perceptions that the Internet is a dependable channel with the capacity to deliver precise and correct data and guarantee secure transactions (Bélanger and Carter, 2008).

This type of trust has been widely adopted by e-government and e-commerce research (Carter and Bélanger, 2005; Welch, Hinnant and Moon, 2005; McKnight, Choudhury and Kacmar, 2002; Warkentin et al., 2002). In addition, several scholars have

Abdulaziz Albesher

suggested the need to consider citizens' trust in the reliability of the enabling technology (trust in the Internet), especially when studying citizens' trust in e-government (Al-Sobhi, 2011; Lee, Kim and Ahn, 2011; Colesca, 2009; Carter and Bélanger, 2005; Pavlou, 2003). Given these arguments, hypothesis 5 is proposed.

H5. Trust in the Internet will have a significant influence on citizens' trust in e-government services.

3.5.4. Social influence

Social influence is the degree to which an individual perceives that people who are deemed important to him/her believe he/she should trust or use a new system (Venkatesh et al., 2003). Social influence is a very important and influential factor that affects many aspects of citizens' decisions (Al-Shafi and Weerakkody, 2010; Venkatesh et al., 2003).

According to Venkatesh et al. (2003), social influence is represented as social factors in a model of personal computer utilization (MPCU), as an image in innovation diffusion theory (IDT) and as subjective norms in TRA, TPB and TAM2. Social influence includes the notion that an individual's behaviour is influenced by the belief that other people will view him/her in a certain way as a result of using the technology (Carter et al., 2011; Venkatesh et al., 2003).

A citizen's decision may be affected by family members', friends' and colleagues' perspectives towards technology and e-services (Irani, Dwivedi and Williams, 2009; Tan and Teo, 2000). Several scholars in information systems (such as Al-Shafi and Weerakkody, 2010; Pavlou and Fygenson, 2006; Lu et al., 2005) have identified social influence as a significant predictor of a user's behaviour to use a system.

Abdulaziz Albesher

In addition, several e-government studies have investigated social influence as a significant predictor of citizens' trust or intention to use (Al-Sobhi, 2011; Carter et al., 2011; AlAwadhi and Morris, 2008; Horst, Kuttschreuter and Gutteling, 2007; Hung, Chang and Yu, 2006). In general, most people are more likely to take advantage of the recommended option (for example, using e-government services), especially if other individuals around them whom they respect or admire benefit from and avail themselves of these services. The current study defined social influence as the influence of important people (family, friends or colleagues) on a citizen's trust and intention to use e-government services.

Venkatesh and Brown (2001, p 75) stated that "social influence is exerted through messages and signals that help to form perceptions of a product or activity". Such messages and signals are needed for marketing online government services because they contain explicit and implicit notions that motivate citizens to trust, use and adopt e-government services (Al-Sobhi, 2011; Carter et al., 2011; Al-Shafi and Weerakkody, 2010). Given this context, hypotheses 6 and 7 are proposed.

H6. Social influence will have a significant influence on citizens' trust in e-government services.

H7. Social influence will have a significant influence on citizens' behavioural intentions to use e-government services.

3.5.5. Trust in e-Government and Usage Intention

"Behavioural intention to use" refers to a user's acceptance and intention to use a specific system or service (Venkatesh et al., 2003). Trust in e-government services can be defined as an individual's or group's willingness to be vulnerable and rely upon the promises of the government agency that provides the e-services (Bélanger and

Carter, 2008; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995; Rotter, 1971).

The presence or absence of trust can have a strong bearing, in many cases, on what we can do or what we choose to do. According to Zhou (2011), perceived risk and uncertainty can be mitigated by trust, which also has the ability to promote usage intention. Several previous studies have identified trust as a significant construct in influencing the behaviour of usage intention (Susanto et al., 2013; Zhou, 2011; Shin et al., 2010; Bélanger and Carter, 2008).

Gefen and Warkentin (2002) argued that trust has a positive influence on the intention to use electronic government services. In addition, many studies have highlighted the importance of trust in the acceptance and adoption of new technologies and have identified trust as an important predictor factor of a user's intention to use e-services (Susanto et al., 2013; Al-Sobhi, 2011; Bélanger and Carter, 2008; Pavlou and Fygenson, 2006; Carter and Bélanger, 2005; Gefen et al., 2005). These arguments form the premise of hypothesis 8, as follows:

H8. Trust in e-government will have a significant influence on citizens' behavioural intention to use e-government services.

3.6. Demographic Variables (Control Variables of this Study)

Control variables or moderating variables are the variables (factors) that are likely to affect the study's results. For example, the significance of the suggested factors should not be affected by citizens' age or education. Therefore, to verify the effect of the control variables, we need to add them to the analysis to understand their effects. As suggested by several scholars (e.g. (Venkatesh et al., 2013; Al-Shafi and

Abdulaziz Albesher

Weerakkody, 2010; Bélanger and Carter, 2009)), several control variables were included in this study as follows.

3.6.1. Age

Several IS research studies have broadly studied the impact of age differences (Taipale, 2013; Venkatesh, Sykes and Venkatraman, 2013; Belanger and Carter, 2006; Morris and Venkatesh, 2000). Age differences are considered a vital barrier that significantly contribute directly or indirectly to users' adoption of a new system or one of the e-government services (Venkatesh et al., 2013; Al-Sobhi, 2011; Morris and Venkatesh, 2000). Previous research has shown that older people, in general, are more likely to avoid unfamiliar tasks and resist change in both social interactions and working environments (Sharit and Czaja, 1994; Myers and Conner, 1992). Avgerou and Walsham (2001) found that in developing countries, younger people prefer to interact and use ICT more than older people do.

In ICT studies, it has been found that older people do not prefer computer interactions in general, thus resulting in limited training and computer knowledge (Igbaria and Parasuraman, 1989). Moreover, Van Dijk and Hacker (2003) argued that lack of interaction with computers creates a type of computer fear, especially in rural areas; they also found that older people are more likely to be affected by this computer fear. Correspondingly, Gilbert et al. (2004) used age differences to assess the mechanism for e-government and found that younger people are more likely to adopt e-government services than older people. In a similar study in Saudi Arabia, Al-Ghaith et al. (2010) found that the youngest group (15-25 years old) was the most likely group to adopt e-government services. Therefore, this study suggests that age is an important predictor for understanding trust in e-government services at the individual level (citizens).

Abdulaziz Albesher

3.6.2. Gender

Previous studies have revealed that gender has an extensive effect on use and technology adoption (Venkatesh et al., 2013; Venkatesh et al., 2003; Gefen and Straub, 1997). Male users tended to be more likely to use and adopt ICTs than female users (Morris and Venkatesh, 2000). Gefen et al. (1997) showed that female users are often slower than male users in learning to use technology, which indicates that even the perceptions of technology differ based on gender differences. Moreover, in developing countries (Avgerou and Walsham, 2001), it appears that male users tend to use ICTs more frequently than female users.

Several studies have investigated the impact of gender differences in adoption and attitudes towards e-government services (Taipale, 2013; Al-Shafi and Weerakkody, 2010; Bélanger and Carter, 2009; Colesca and Dobrica, 2008; van Dijk et al., 2007; Choudrie and Papazafeiropoulou, 2006). For example, a study by Choudrie and Papazafeiropoulou (2006) in the UK found that male users were more willing than female users to use e-government services.

From earlier studies, gender has been identified as an effective predictor of public e-services use. However, it is been suggested that although male and female attitudes differ towards technology, the increased number of females online users eliminates this argument (Belanger and Carter, 2006; Mossberger, Tolbert and Stansbury, 2003). Therefore, this study will investigate and explore the role of gender differences in trust in e-government services.

3.6.3. Education Level

Various IS scholars have identified education level as the most important driver. It has been emphasised that education level is consistently seen as one of the major challenges that affects an individual's attitude towards technology (Taipale, 2013; Venkatesh, Sykes and Venkatraman, 2013; Al-Shafi and Weerakkody, 2010; Belanger and Carter, 2006). Previous research has suggested a strong relationship between education level and usage, such that people with higher levels of education are more likely to use computers than people with lower education levels (Brown and Venkatesh, 2005; Morris and Venkatesh, 2000; Van Dijk, 1999).

Similarly, the adoption of new innovations has been found to be higher in people with higher educational levels (Dwivedi and Lal, 2007; Rogers Everett, 1995; Burgess, 1986). Moreover, in the context of e-government, education level has been demonstrated as a powerful predictor, such that the higher the education level, the more positive the attitude and adoption rates (Taipale, 2013; Venkatesh, Sykes and Venkatraman, 2013; Al-Shafi and Weerakkody, 2010; Bélanger and Carter, 2009; Colesca and Dobrica, 2008). Accordingly, education level appears to be a vital predictor for the use and adoption of different technologies and particularly for e-government services. Therefore, this study aims to understand the effect an individual's education level has on trust in e-government services.

3.6.4. Internet Experience

During the development of information systems, antecedent Internet experience has been suggested as a significant predictor of the acceptance and adoption of new e-services (Jaruwachirathanakul and Fink, 2005; Karjaluoto, Mattila and Pento, 2002; Schumacher and Morahan-Martin, 2001). Karjaluoto et al. (2002) and Trocchia and Janda (2000) assumed that the Internet experience factor may divide users, since

Abdulaziz Albesher

people with greater Internet experience may be more willing to trust and adopt e-services than people with less Internet experience. Some may argue that positive Internet experiences with e-government services or even with Internet merchants may increase an individual's trust in new e-government services. However, negative perceptions or experiences with e-government services may decrease trust in such services and consequently affect adoption of any new e-government services (Lee, Kim and Ahn, 2011).

Van Dijk (1999) mentioned that an unpleasant initial experience might discourage an individual's trust and use of computers, and the same concept can be used in the case of trusting a new e-government service. The nature of e-government services requires a boost of trust to increase citizens' adoption of these services (Al-Sobhi, 2011). Therefore, Internet experience may play a critical role in empowering citizens' trust in e-government services. With this in mind, the role of Internet experience will be explored in this study.

Hypothesis Number	Research Hypothesis
H1	The perceived ability of a government agency will have a significant influence on trust in e-government services.
H2	The perceived benevolence of a government agency will have a significant influence on trust in e-government services.
H3	The perceived integrity of a government agency will have a significant influence on trust in e-government services.
H4	Citizen's trust propensity will have a significant influence on trust in e-government services.
H5	Trust in the Internet will have a significant influence on citizens' trust in e-government services.
H6	Social influence will have a significant influence on citizens' trust in e-government services.
H7	Social influence will have a significant influence on citizens' behavioural intentions to use e-government services.
H8	Trust in e-government will have a significant influence on citizens' behavioural intention to use e-government services.

Table 3.3: Summary of the research hypotheses

Abdulaziz Albesher

3.7. Summary

This chapter explored the conceptual model and hypotheses of the study. The chapter has described the important role of trust to determine citizens' usage intention and adoption of e-government services in Saudi Arabia. In addition, the chapter has explained the mapping of the different constructs in the conceptual model.

Six constructs have been identified as influencing citizens' trust in e-government services (government agencies' ability, government agencies' benevolence, government agencies' integrity, citizens' trust propensity, trust in the Internet, and social influence). Moreover, two constructs have been defined as influencing citizens' usage intention towards e-government services (citizens' trust in e-government services and social influence). The demographic variables (age, gender, education level and Internet experience) that could have a further impact on citizens' trust and usage intentions are also considered in this research. The four demographic variables (age, gender, education level and Internet experience) will be used to control the dependent variable of that "trust in e-government".

Therefore, this study has generated eight hypotheses to explore and explain the effect of the proposed constructs on citizens' trust and usage intention of e-government services in Saudi Arabia. The conceptual model developed in this chapter aims to understand the effect of different dimensions of trust and the effect of the proposed constructs on citizens' trust, use and adoption of e-government services. The following methodology chapter (Chapter 4) will explain the adopted methodology for achieving the study's aim.

Abdulaziz Albesher

Chapter 4: Methodology

4.1. Introduction

In this chapter, a number of key paradigms of research approaches will be reviewed to identify the appropriate research approach for this study. Moreover, this review will determine an appropriate research design, research plan, manner of data collection and data analysis. This chapter discusses research methods used in information systems research in general and in e-government research with citizens in particular.

In addition, it discusses the development of the measurement instruments (survey and interview), the process and approach to data collection, and the tests used to examine the reliability and validity of the used measures. These measures (items) were developed to test the related hypotheses of the factors identified (in chapter 3).

Since the explanatory sequential mixed methods approach was adopted for this study, two main phases will be discussed in this chapter. Phase 1 will focus on the quantitative empirical study (with a quantitative tendency), and phase 2 will focus on the relevant qualitative empirical study. Different tests used in this study can be categorised as tests associated with data preparation, tests associated with measures preparation and tests associated with constructs preparation.

4.2. Understanding Research Philosophical Paradigms

Positivism and interpretivism are two key philosophical structures commonly used in research (Lewis, Thornhill and Saunders, 2007, p. 102). The former is concerned with determining the main patterns or links related to a phenomenon that is being studied. Positivism is frequently coupled with confirmatory research that endeavors to confirm predefined relationship between factors (Hair et al., 2010). Moreover, positivism is usually associated with quantitative approaches, such as experiments, survey and questionnaires. This study follows a positivism philosophy.

Comparably, interpretivism argues that neither statistical patterns nor correlations can be completely comprehended or understood alone; accordingly, people's meanings or values need to be understood as well (such as people's actions that ultimately may affect such patterns). This interpretivist approach is usually connected with exploratory research that endeavors to distinguish the nature of relationships between factors (Hair et al., 2010). Interpretivism is frequently associated with qualitative approaches that are usually known as unstructured methods (such as studies that use observation of participants or in-depth interviews) (Blaikie, 2000). The essential contrasts between the research paradigms and their associated assumptions are summarised in Table 4.1.

Assumption	Question	Positivism	Interpretivism
Ontology	What is the nature of reality?	Reality is singular, objective, and separate from the researcher. (Objectivism)	Reality is subjective and inseparable from the researcher. (Constructionism)
Epistemology	What do we accept as valid knowledge?	Knowledge is solely based on observable facts outside of the human mind.	Knowledge is determined by people rather than by objective external factors.
Methodology	How to achieve the research objectives?	• Confirmatory • Deductive approach • Theory testing • Cause and effect • Quantitative approach • Statistical analysis	• Exploratory research • Inductive approach • Theory generation • Qualitative approach • Observation of individuals' interpretations of the phenomenon

Table 4.1 Research Paradigm and Assumptions.
Source: Developed from (Creswell, 2013; Bryman, 2012; Lewis, Thornhill and Saunders, 2007)

A set of assumptions essentially characterise the research, such as ontological, epistemological, and methodological. These assumptions help to establish the

Abdulaziz Albesher

importance of the research outcomes (Creswell, 2013; Lewis, Thornhill and Saunders, 2007).

The ontological component of the study is concerned with the nature of reality and asks, "What is the nature from reality?" ((Collis and Hussey, 2013), p. 49). Two schools endeavour to answer this inquiry, objectivism (realism) and constructivism (Bryman and Bell, 2015). Objectivism holds that reality is a phenomenon that exists independent of people, while constructionism advocates for reality as a phenomenon that exists as a consequence of people's interactions (Bryman and Bell, 2015; Creswell, 2013).

The epistemology clarifies what is included as adequate information in a particular study (Saunders, Lewis, & Thornhill, 2007). Two schools of thought propose distinctive positions on epistemology, specifically, positivism and interpretivism (Collis and Hussey, 2013; Saunders et al., 2011). Positivism is associated with deductive theory verification (Abbas Tashakkori and Charles Teddlie, 1998), that is testing hypotheses to confirm the causal relationships based on suggestions in the literature (Bryman and Bell, 2015). In contrast, interpretivism is associated with the observation of social phenomena by using individual interpretation (Bryman and Bell, 2015). This contradicts the idea of 'phenomena quantification' ((Cassel, 1994), p. 4).

Therefore, scholars study and observe the characteristics of the phenomena to identify any current causal relationships by using interpretation and observation of the phenomena's progression (Creswell, 2013). Interpretivists accept that the researcher's interpretation is in regard to different phenomena, which is mainly based on the researcher's lived experience (Weber, 2004).

Abdulaziz Albesher

4.3. Quantitative, Qualitative, and Mixed Methods Approach

4.3.1. Quantitative vs. Qualitative

Creswell (2013) defined quantitative research as "*a means for testing objective theories by examining the relationship among variables. These variables in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures*" (p. 4). In quantitative studies, theories are tested deductively using the present knowledge to develop and create hypothetical relationships and proposed results, all of which help in the discovery of scientific results.

In contrast, qualitative research can be characterized as "*a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected in the participant's setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data*" (Creswell, 2013, p. 4). The main differences between qualitative and quantitative studies are outlined in Table 4.2.

Qualitative Research	Quantitative Research
- Associated with interpretivism - Used to explore new phenomena - Inductive approach - Hypotheses are developed at the stage of data collection. - In-depth orientation with a smaller sample size - Not viewed as scientific - Criticised as biased by researcher's interpretation, lacking results that can be generalized, and being a difficult method to repeat	- Associated with positivism - Used to confirm or reject theories - Deductive approach - Hypotheses are set before the stage of data collection to describe a causal relationship. - Uses statistical analysis with a relatively larger sample size - More linked to scientific research - Criticised for utilising artificial precision in data analysis and disregarding the complexity of the social world

Table 4.2 A Comparison of Qualitative and Qualitative Research Methods.
Source: (Bryman and Bell, 2015; Creswell, 2013; Payne and Payne, 2004)

In mixed methods research, both quantitative and qualitative approaches are used to research a phenomenon. Creswell (2013, p. 4) stated that mixed methods "*involves philosophical assumptions, the use of quantitative and qualitative approaches, and the mixing of both approaches in a study*".

Johnson et al., (2007, p. 123) said that "*Mixed methods research is the type of research in which a researcher or team of researchers combines elements of quantitative and qualitative research approaches (e.g., use of quantitative and qualitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration*".

Abdulaziz Albesher

The degree of utilizing quantitative and qualitative approaches in mixed methods research vary based on the level of their use ((Johnson, Onwuegbuzie and Turner, 2007), p. 123). Mixed methods research could be purely qualitative, purely quantitative, or totally mixed (see Figure 4.1). In addition, a researcher may believe that a quantitatively dominant method is the most suitable approach for the study but decides to also use a qualitative approach to provide extra value to the research. On the other hand, a researcher may believe that using a qualitative dominant method may fit the research better, but additional benefits could be gained by adding quantitative data.
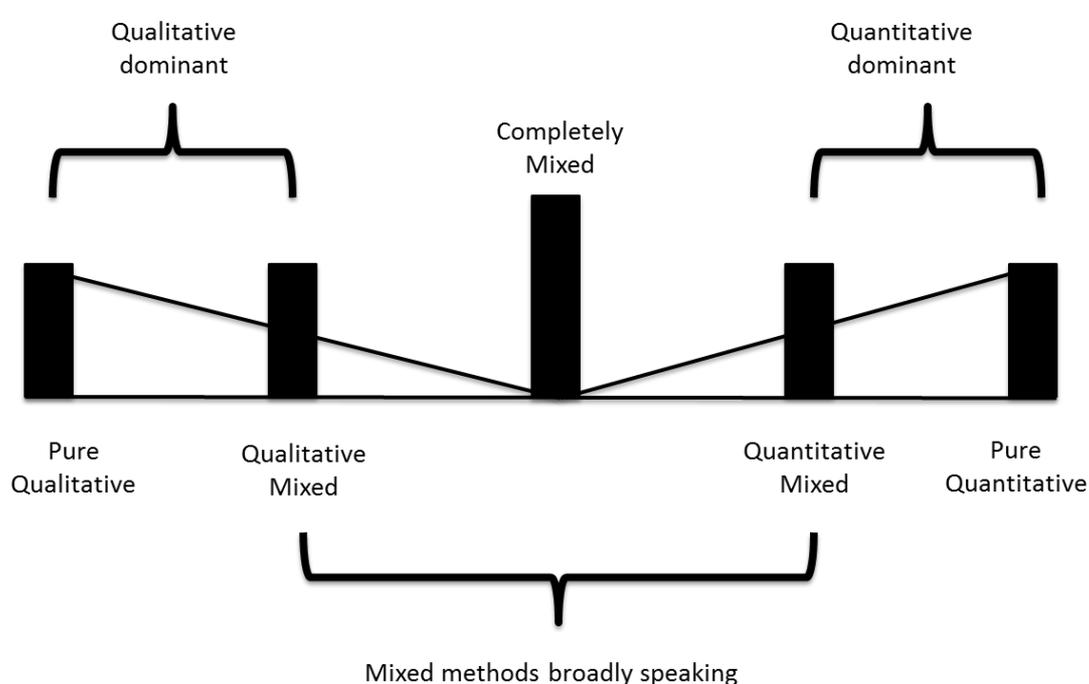
Figure 4.1: The three main research paradigms, including subtypes of mixed methods research. Source: Johnson et al. (2007)

4.3.2. Mixed methods

Mixing both quantitative and qualitative approaches can result in a stronger study, compared to using only one approach (Creswell and Clark, 2007). Although both single-methodology (quantitative and qualitative) approaches have strengths and weaknesses, mixing both techniques in a mixed methods approach can increase the validity of the research (Nau, 1995).

Jick (1979) also highlighted that a cross-validation tool helps generate new ideas and provides comparable data. Moreover, the triangulation technique is considered by several researchers as a mixture of methodologies that aims to examine the same phenomenon, this provides extra validation of the results and helps to overcome the weakness of using a single method (Patton, 1990).

Mingers (2001) suggested that the results of the study will be more accurate and will provide more in-depth information if several approaches are used to test the same phenomena. This view is further supported by Cornford and Smithson (2006), who suggest that the combination of qualitative and quantitative analyses should be viewed as complementary toolkits, with each comprised of numerous instruments that may be significant to a certain situation.

Eisenhardt (1989) noted that mixing quantitative and qualitative approaches provides two main benefits. First, it increases the potential for creativity in the study. Second, it increases the validity and certainty of the associated findings. Mixed methods research helps avoid restricting the researcher to a single option and provides multiple approaches to answer research questions. Furthermore, it offers the chance to gather a variety of data on the same issue and uses the benefits of each approach to overcome the drawbacks of the other approach. This helps increase the degree of validity and reliability of the obtained results (Creswell, 2013; Blaikie, 2000).

Abdulaziz Albesher

4.3.3. Strategies Associated with the Mixed Methods Approach

No less understood than either the qualitative or quantitative approaches are those that include gathering and analysing both types of data in a single study. The idea of combining diverse methods most likely started in 1959, when Campbell and Fiske utilised multiple methods to study the validity of psychological characteristics (Creswell, 2013). They urged others to utilize their "multimethod matrix" to examine and collect data using multiple approaches in a particular study.

This encouraged others to combine multiple methods and connect different techniques in field methods, for example, mixing observations and interviews (qualitative data) with a traditional survey (quantitative data) (Sieber, 1973).

Several scholars recognised that all methods do have limitations, but the inherent biases in any single method could cancel or avoid the biases of other methods. Triangulating data sources is a technique that looks for convergence across quantitative and qualitative approaches (Jick, 1979). Based on the first concept of triangulation, new reasons have emerged for combining different types of data. For instance, the outcomes from one approach can assist or illuminate the other approach (Greene, Caracelli and Graham, 1989).

On the other hand, one approach can be nested inside another to give insight into diverse levels of investigation and analysis (Tashakkori and Teddlie, 2010; Abbas Tashakkori and Charles Teddlie, 1998). Alternatively, the mixed methods approach can serve a transformative reason to promote and change underestimated groups, such as individuals who are poor or disabled and ethnic/racial minorities (Creswell, 2013).

These reasons behind mixing methods have driven scholars worldwide to create a group of procedures for mixed methods strategies that take into account the various terms in the literature, such as combined, convergence, multimethod, and integrated

Abdulaziz Albesher

(Creswell *et al.*, 2003), and to develop the required procedures for research (Tashakkori and Teddlie, 2010). Table 4.3 shows different types of mixed method designs. According to Creswell (2013), there are three main design strategies in mixed methods techniques.

- Sequential procedures, in which the findings of one method are expanded by applying another method to seek better elaboration. The first way to apply the sequential procedure is to start with a qualitative method for exploratory purposes and then to use a quantitative method to follow up with a large sample to generalize the results to a population. On the other hand, the quantitative method could be the first method used to test theories or concepts and then would be followed up with a qualitative method to provide in-depth details by testing a few cases or individuals.

- Concurrent procedures are the process of converging qualitative and quantitative data to allow the researcher to provide a comprehensive analysis of the research problem. Using this procedure, the researcher starts the process by collecting both forms of data at the same time. The researcher then integrates the information into the interpretation of the overall results. In addition, one form of data is nested by the researcher in another to collect more data that helps answer different questions or analyse diverse levels of an organisation.

- Transformative procedures is the approach in which the researcher uses a theoretical lens as a general viewpoint that contains both qualitative and quantitative data. Frameworks for the interested topics, approaches for collecting data, and anticipated results of the study can all be provided by

using this theoretical lens. Moreover, concurrent or sequential procedures could be the data collection method in this theoretical lens.

Design Type	Implementation	Priority	Stage of Integration	Theoretical Perspective
Sequential Explanatory	Quantitative followed by qualitative	Usually quantitative; can be qualitative or equal	Interpretation phase	May be present
Sequential Exploratory	Qualitative followed by quantitative	Usually qualitative; can be quantitative or equal	Interpretation phase	May be present
Sequential transformative	Either quantitative followed by qualitative or qualitative followed by quantitative	Quantitative, qualitative, or equal	Interpretation phase	Definitely present (i.e., conceptual framework, advocacy, empowerment)
Concurrent triangulation	Concurrent collection of quantitative and qualitative data	Preferably equal; can be quantitative or qualitative	Interpretation phase or analysis phase	May be present
Concurrent nested	Concurrent collection of quantitative and qualitative data	Quantitative or qualitative	Analysis phase	May be present
Concurrent transformative	Concurrent collection of quantitative and qualitative data	Quantitative, qualitative, or equal	Usually analysis phase; can be during interpretation phase	Definitely present (i.e., conceptual framework, advocacy, empowerment)

Table 4.3: Types of mixed method designs.
Source: ((Creswell et al., 2003), p. 224)

4.3.4. **Mixed-methods Sequential Explanatory Design**

Two distinct phases are included in the mixed-methods sequential explanatory design, the quantitative phase followed by the qualitative phase (Creswell, 2013; Ivankova, Creswell and Stick, 2006). The study begins by collecting and analysing the quantitative data (often numeric). Then the researcher collects and analyses the qualitative data (often text), which helps explain the quantitative results obtained in phase one. The qualitative phase is developed based on the quantitative phase, and both phases are linked in the study by an intermediate stage.

The rationale for this is that only a general understanding of the research problem can be obtained from analysing quantitative data, so the qualitative data analysis can help confirm, refine and explain the obtained statistical results by exploring participants' views in more depth (Creswell, 2013; Ivankova, Creswell and Stick, 2006; Abbas Tashakkori and Charles Teddlie, 1998). Several scholars have discussed the strengths and weaknesses of using mixed-methods design (Creswell, 2013; Creswell and Clark, 2007; Moghaddam, Walker and Harre, 2003; Greene and Caracelli, 1997).

This approach creates the opportunity for a straightforward exploration of the quantitative results in more detail. According to Morse (1991), this design is especially useful when unexpected findings emerge from conducting a quantitative study.

This design does one main limitation, which is the time required to conduct the data collection and data analysis of both approaches (Bryman, 2012). However, given that this thesis study will have sufficient time to do both, the sequential mixed method design will be used in this study.

Abdulaziz Albesher

4.3.5. Characteristics of Sequential Explanatory Design

One of the most straightforward designs among the main mixed methods designs is the sequential explanatory design (Creswell, 2013; Creswell et al., 2003). This design begins with collecting and analysing the quantitative data followed by collecting and analysing the qualitative data. In this design, the quantitative data is given priority, and both quantitative and qualitative approaches are integrated into the interpretation phase of the research, (see Figure 4.2).

Sequential design can be implemented with or without the guidance of a specific theoretical perspective. The reason for using the qualitative results in the sequential explanatory design is to help interpret and explain the findings of the mainly quantitative study. The importance of the qualitative results is well recognised, especially when unexpected results occur from the primarily quantitative study (Morse, 1991). In such cases, the surprising results can be examined in more detail by collecting relevant qualitative data.

Alternatively, the initial phase of research may use the quantitative study to characterise certain traits of individuals that are related to the research question. The results of the quantitative findings can be used to guide the primarily qualitative study to choose appropriate participants for the sampling. In the case of this design, the qualitative data collection and analysis are given priority.

One of the main benefits and strengths of this design is its straightforward nature. The steps and implementation procedures in this design are clear and easy to understand. Moreover, the design features facilitate the reporting and describing processes. The reporting process can be detailed in two different analysis phases, and then the results can be combined in a final discussion (Creswell, 2013; Creswell et al., 2003). The sequential explanatory design is a significant method, especially when the researcher wants to explore more results of his/her quantitative findings. In addition, using this

Abdulaziz Albesher

design can assist the quantitative researcher in comfortably implementing a qualitative data collection and analysis. Therefore, it provides the researcher who is unfamiliar with such qualitative techniques with an effective introduction to the qualitative research approach.

The length of time required to complete the data collection and analysis of both phases is considered the main weakness of this design, especially when the two phases (quantitative and qualitative) are given the same priority. Therefore, applying equal priority in a sequential explanatory design may be more appropriate for a research team than for an individual study (Creswell, 2013).
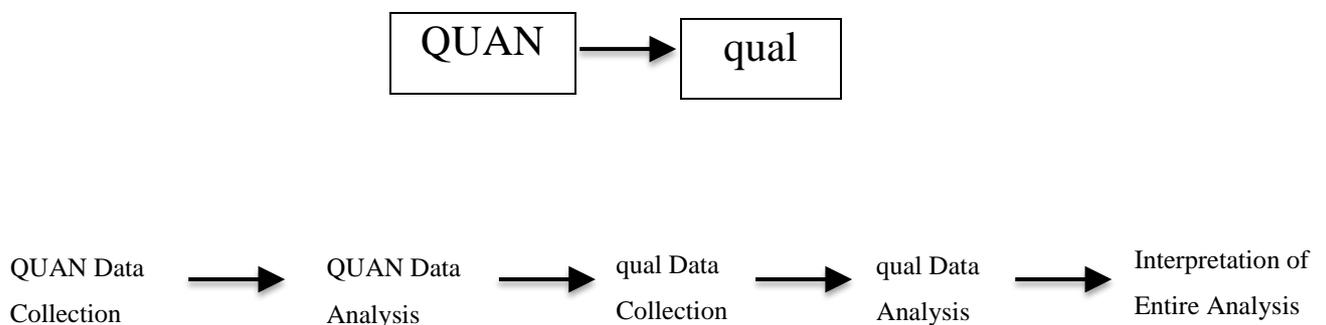
Figure 4.2: Outline of the explanatory sequential mixed methods design

Abdulaziz Albesher

4.4. Research Strategies and Designs

4.4.1. Research Design

As discussed earlier, positivism and interpretivism are the two dominant key research paradigms. The method chosen for collecting and interpreting data are influenced by the research paradigm, since the study could be pure quantitative, pure qualitative, or a mixed of both approaches.

According to Bechara and Ven (2011), the mixed methods approach is highly recommended for understanding a phenomenon in more depth. Many information systems scholars have suggested positivist research as the most applied paradigm, while interpretivism is viewed as a less frequently used paradigm (Chen and Hirschheim, 2004; Weber, 2004).

Based on the previous discussion, this study will use the mixed methods approach to gain better benefits, overcome the weakness of using a single approach and to provide more balanced and detailed view of the results (Bryman and Bell, 2015; Creswell, 2013; Bryman, 2012). The researcher decided to adopt explanatory a sequential mixed-method approach by placing more weight on the quantitative method. This is because more empirical evidences and studies are needed in the area of trust in electronic government in general (Lee, Kim and Ahn, 2011; Al-Sobhi and Weerakkody, 2010; Bélanger and Carter, 2008; Horst, Kuttschreuter and Gutteling, 2007). More specifically, there is a notable lack of quantitative studies in the area of trust in electronic government in Saudi Arabia (Alateyah, Crowder and Wills, 2013b; AlAwadhi and Morris, 2008). The qualitative study will be conducted after analysis of the quantitative study to assist in interpreting and explaining the findings of the primarily quantitative study.

4.4.2. Research Plan

The sequence and steps adopted for this study are shown in Figure 4.3. Phase one begins with the literature review, followed by the proposed conceptual model to explain e-government, trust, and the role of trust in e-government adoption.
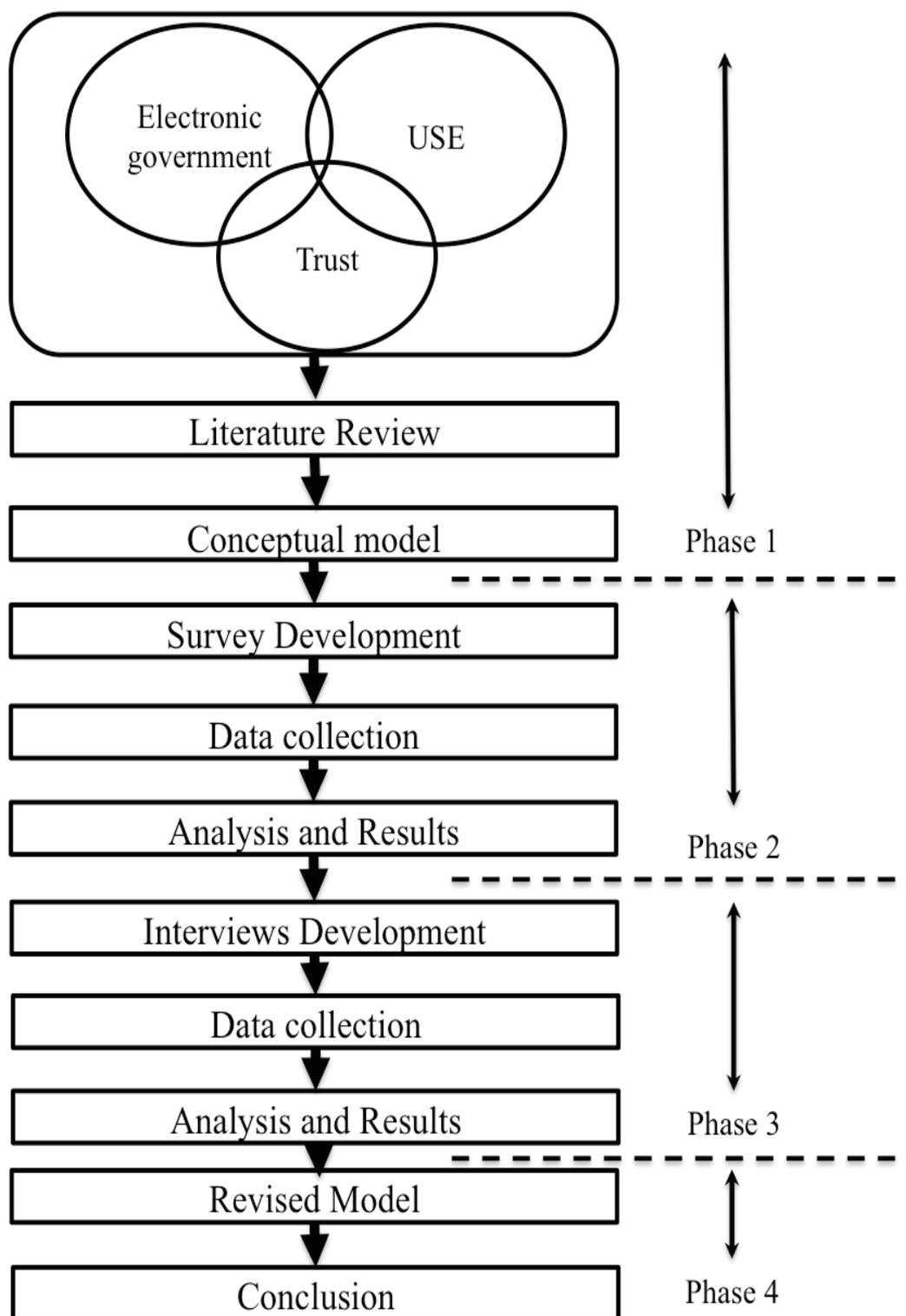
Figure 4.3: Research plan for study on trust in e-government

Abdulaziz Albesher

After reviewing e-government literature, a proposed conceptual model has been provided to understand the role of trust in e-government adoption at the individual level. The second phase begins by developing and preparing a survey to collect the quantitative data. The survey targets Internet users among Saudi citizens to gather empirical data for the quantitative study. However, later in this chapter, several sections will dedicated to describe the measure's development in more details for both the quantitative and qualitative studies. After collecting and analysing the empirical quantitative data, the findings will be used to develop interviews to collect qualitative empirical data. The main aim of the qualitative study is to validate and confirm the survey's findings. Next, the findings of both the quantitative and qualitative studies will be discussed in the final phase and a revised model will emerge as a result. More details of each stage will be provided in the next sections.

4.5. The Adopted Strategy for Data Collection in this Research

4.5.1. Questionnaire Development

In Chapter 3, the study's conceptual model has been presented and discussed. To test the conceptual model and the role of citizens' trust in the use and adoption of e-government, a questionnaire survey was developed to gather the quantitative empirical data. A questionnaire survey is the most appropriate and realistic technique to collect data for the quantitative empirical research from large numbers of the population (Al-Shafi and Weerakkody, 2010; Dwivedi and Lal, 2007; Flavián and Guinalíu, 2006).

According to Bryman (2012), a questionnaire is a cost effective method and can be distributed easily to different locations at the same time. The development of the

survey was carried out based on the literature review in Chapter 2 and the conceptual model presented in Chapter 3.

In the survey, to collect data randomly, a self completion approach was adopted. Therefore, great effort has been made to ensure that participants can easily understand the information provided in the survey (Bryman and Bell, 2015; Creswell, 2013; Bryman, 2012).

A brief cover letter is attached to the questionnaire to provide the respondents with a better understanding of the purpose and nature of the study because e-government is a relatively new concept in developing countries. In addition, ethical approval was obtained for this study before commencing the process of data collection by completing the required procedures of the department of computer sciences at Brunel University (see Appendix C). The respondents have been informed that no names will be disclosed and their responses will be treated confidentially. The information provided in this survey will be solely used for academic purposes. Moreover, all participants have been informed that their participation in this questionnaire is completely voluntary and they can withdraw from the study at any time.

The questionnaire has been well organised to ensure the accuracy and clarity of the questions. The final version of the questionnaire can be found in Appendix A. Two main types of questions are included in the survey. The first is designed to capture the respondents' profiles, and the second type includes the questions that are used to measure the factors of each hypothesis. The survey questions are divided as follow: (1) multiple choice questions for the demographic variables with a single answer such as age, gender, education level, and Internet experiences; and (2) close-ended questions using a five-point Likert scale (1-5) with end points of "strongly agree" and "strongly disagree" to address respondents' reflection of each question (see Appendix A).

The items used to measure each factor are listed in Table 4.4. The sources of the adopted items are also listed in Table 4.4 along with the code name of each item. The initial version of the questionnaire was discussed and reviewed with two academic members interested in the area of e-government and a key person in e-government strategy development in Saudi Arabia. The comments and notes they provided were taken into consideration.

Because this study aims to explore and understand the role of citizens' trust in the adoption of e-government services in Saudi Arabia, it began by conducting a pilot study of 40 participants, randomly selected, to avoid unclear wording in the instrument and to make revisions accordingly. Although the content of the questionnaire was validated by the majority of the respondents, minor changes were made to the final questionnaire design based upon the received feedback. Once the survey was refined, it was distributed randomly in July 2013 for two months. In this study, anyone benefiting from Saudi Arabian government services in general could participate in the survey.

The questionnaire surveys were distributed to Saudi Arabian citizens living in different cities. Various methods were used to disseminate the questionnaire (such as handing it out in public places, recruiting professional questionnaire collectors to help distribute the survey, using social networks and emails). The convenient sampling approach was adopted to distribute the questionnaire. Moreover, the questionnaires were randomly distributed to ensure collecting unbiased data from the targeted population. One thousand questionnaires were distributed randomly, and 835 questionnaires were received from the respondents (response rate of 83.5%). In all, 570 of the received questionnaires were found to be completed and consequently could be used in the data analysis.

Both English and Arabic versions of the questionnaire were distributed to benefit citizens who were not conversant in English. The items of each construct used in this survey were adopted from different researchers (Bélanger and Carter, 2008; Carter

and Bélanger, 2005; Venkatesh *et al.*, 2003; Mayer and Davis, 1999) and modified accordingly to meet the aim of this study (see Table 4.4).

Construct	Code	Item	Source
Ability	Ab1	Government agencies are very capable of performing their job.	(Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Lee and Turban, 2001; Mayer and Davis, 1999)
	Ab2	Government agencies are known to be successful at the things they try to do.	
	Ab3	Government agencies have much knowledge about the work that needs done.	
	Ab4	I feel very confident about Government agencies' skills.	
	Ab5	Government agencies have sufficient expertise and resources to provide services.	
Benevolence	B1	Government agencies are very concerned with my welfare.	(Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Mayer and Davis, 1999)
	B2	My needs and desires are very important to government agencies.	
	B3	Government agencies would not knowingly do anything to hurt me.	
	B4	Government agencies really look out for what is important to me.	
	B5	Government agencies will go out of their way to help me.	

Integrity	I1	Government agencies have a strong sense of justice.	(Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Mayer and Davis, 1999)
	I2	I never have to wonder whether government agencies will stick to their word.	
	I3	Government agencies try hard to be fair in dealing with citizens.	
	I4	Government agencies act sincerely in dealing with citizens.	
	I5	Sound principles seem to guide government agencies' behavior.	
Trust on E-government	TOE1	I expect that e-government services will not take advantages of me.	(Colesca, 2009; Bélanger and Carter, 2008; Van Slyke, Bélanger and Comunale, 2004; Gefen, 2000)
	TOE2	I believe that e-government services are trustworthy.	
	TOE3	I believe that e-government services will not act in a way that harms me.	
	TOE4	I trust e-government services.	
Trust Propensity	TP1	I generally do trust other people.	(Bélanger and Carter, 2008; Lee and Turban, 2001; Gefen, 2000)
	TP2	I generally have faith in humanity.	
	TP3	I feel that people are generally reliable.	
	TP4	I generally trust other people unless they give me reason not to.	

Trust in Internet	TI1	The internet has enough safeguards to make me feel comfortable using it to interact with the e-government services.	(Bélanger and Carter, 2008; Carter and Bélanger, 2005)
	TI2	I feel assured that legal and technological structures adequately protect me from problems on the Internet.	
	TI3	I feel secure sending sensitive information across the internet.	
	TI4	In general, the internet is now a robust and safe environment in which to transact services with the e-government.	
Behavioural Intention	BI1	Assuming I have access to e-government services, I intend to use it.	(Bélanger and Carter, 2008; Carter and Bélanger, 2005; Van Slyke, Bélanger and Comunale, 2004; Pavlou, 2003; Venkatesh *et al.*, 2003)
	BI2	I would interact with e-government services over the web.	
	BI3	I would use e-government to obtain services and information.	
	BI4	I would not hesitate to provide information to the e-government.	
Social Influence	SI1	People who are important to me think that I should use e-government services.	(Carter and Bélanger, 2005; Van Slyke, Bélanger and Comunale, 2004; Venkatesh *et al.*, 2003)
	SI2	I would use e-government services if my friends used them.	

	SI3	Interacting with e-government over the web enhances a person's social status.	
	SI4	People who use e-government to obtain services have more prestige than those who do not.	

Table 4.4: Constructs, items and sources of each construct used in the research

4.5.2. Sample Size

To test the study model in the most realistic and practical way, the study conducted a survey (self-administered questionnaire) to involve a wide diversity of citizens living in different communities. However, the issue of generalisability still persists. That is, a researcher may obtain results with a small sample that do not generalise or are no representative of other samples. Thus, the scientific value of the study will decrease if the results do not generalise to other samples. What, then, is the required number of cases or participants? Different scholars recommended different guidelines to identify the required number of cases in multiple regression.

Stevens (2012) stated that approximately 15 participants are needed for each predictor in social science research. Tabachnick and Fidell (2007, p. 123) provided a formula to calculate the required sample size based on the number of independent variables that the researcher aims to use: $N > 50 + 8m$ (where m = number of independent variables). For example, 90 cases will be required if the study has five independent variables. However, if the dependent variable is skewed, more cases will be required (Pallant, 2013). Kline (2011) suggested that for structural equation modeling (SEM), a minimum of 200 responses is considered a good sample size (Shareef et al., 2011).

Abdulaziz Albesher

Therefore, in this study, 1000 questionnaire surveys were disseminated among Saudi citizens to fulfil the statistical specifications and meet the required target. The process of data collection started in July 2013 and lasted for two months. In all, 835 questionnaire surveys were received from the respondents (response rate of 83.5%). The process of filtering and preparing the data took around 1 month, as it is critical process to insure the reflection and accuracy of data. Some of the received survey questionnaires were removed because they were uncompleted or being answered improperly (for example selecting the same choice for all the questions). After discarding the invalid or incomplete survey questionnaires, 570 of the returned questionnaires were found to be useful in the data analysis.

The researcher used the Survey Monkey website to develop a web-based survey. According to Creswell (2013), Web-based surveys provide researchers with speed and functionality and can be used to manage data collection. In addition, there was a limited use of hard copies for the convenience of some respondents. The specific methods used in this study to distribute the questionnaire were:

- distributed by the researcher himself;
- 10 professional survey collectors were voluntary recruited to distribute and collect the survey data in different cities (Riyadh, Jeddah, and Dammam), (214 questionnaires were collected);
- several public locations in different cities were used to distribute the study survey such as universities and cafe shops, (176 questionnaire were collected); and
- using social networks and emails, (445 questionnaire were collected).

4.5.3. Questionnaire Translation

Lewis et al. (2007, p. 375) stated that "*translating questions and associated instructions into another language requires care, especially if your translated or target questionnaire is to be decoded and answered by respondents in the way you intended*". In this study, we cannot ignore the fact that the first language in Saudi Arabia is Arabic, even if some of the targeted respondents have good English fluency. Thus, the survey questionnaire was provided in two languages, Arabic and English.

According to Lewis et al. (2007, p. 377), close attention must be paid to "*the precise meaning of individual words, informal expression, grammar and syntax, and experiential meanings*" in the translation process.

To meet this adequacy and accuracy requirements, the translation process was conducted in two phases. First, the questionnaire was translated by the researcher into Arabic language. Then, the Arabic version was translated back into English by a professional translation service located in Saudi Arabia. Then, the researcher asked two Saudi academic members (PhD holders) to assist him in examining the three versions and to evaluate how closely the two English versions were to each other. After that, minor amendments took place in the Arabic version, which was then sent back again to the professional translation office.

The new English version has satisfied both the researcher and the two participating academic members. By doing this, the best accuracy and adequacy in the translation process were covered by the researcher to achieve the highest reliable results. The English and Arabic versions can be found in Appendix A and B, respectively.

4.5.4. Questionnaire Instrument Validation

Instrument validity is considered a critical stage to confirm the data's representation of the real world (Dwivedi, Choudrie and Brinkman, 2006; Straub, Boudreau and Gefen, 2004). Different forms can be used to determine instrument validation such as content validity, construct validity and reliability (Dwivedi, Choudrie and Brinkman, 2006; Straub, Boudreau and Gefen, 2004).

Straub et al. (2004, p 68) defined these forms thus: (1) content validity refers to "*the degree to which items in an instrument reflect the content universe to which the instrument will be generalised. This validity is generally established through literature reviews and experts judges or plans*"; (2) construct validity is "*one of a number of subtypes of validity that focuses on the extent to which a given test/instrumentation is an effective measure of a theoretical construct*"; and (3) reliability refers to "*the extent to which a variable or set of variables is consistent in what it is intended to measure*". Therefore, considering the use of multiple stages of the instrument's validity will help ensure highly realistic and consistent outcomes (Straub, Boudreau and Gefen, 2004).

In this study, the validity of the survey questionnaire was determined by discussing and reviewing the questionnaire with two academic members interested and experts in the area of e-government. Moreover, a key person in e-government strategy development in Saudi Arabia was involved in this stage. The comments and notes they provided were taken into consideration to achieve content validity. To test the construct validity, especially construct measures (items), a pilot study was conducted. A pilot study aims to test constructs' consistency by testing the internal consistency of the adopted scale and determining whether it is suitable for the main data collection.

Abdulaziz Albesher

4.5.5. Pilot Study

In this study, a pilot test was conducted with 40 participants in Saudi Arabia. The sample was randomly selected and the questionnaires were completed in the presence of the researcher. The aim was to ensure that the questionnaire is understood, gather participants' feedback, avoid unclear wording in the instrument, calculate the time required to complete the questionnaire and finally make revisions accordingly. Although, the majority of the respondents validated the content of the questionnaire, minor changes were made to the final questionnaire design based upon the received feedback.

Two main question categories were used in the survey: (1) multiple choice questions to capture the age, gender, education level, and Internet experiences of the respondent; (2) close-ended questions using a five-point Likert scale (1-5) with end points of "strongly agree" and "strongly disagree" to address the respondent's answer of each question; and (3) an optional text box to ask if the respondent would be interested in taking part in a following-up interview. The text-box was used in the main data collection (see Appendix A).

4.5.5.1. Mixed positively and negatively worded questions

The main point raised by almost all the participants is the confusion and frustration of using mixed positively and negatively worded questions. Although such a mix of items is theoretically appropriate (Churchill Jr, 1979; Likert, 1932), in practice, it brings confusion and frustration to the participants and does not guarantee prevention of nay-saying or yea-saying tendencies. In addition, this questionnaire is a self-completion questionnaire, so such confusion may lead to inaccurate responses.

Participants' frustration or confusion could adversely affect the quality and quantity of the data collected in the main quantitative empirical study. For this reason, the researcher decided to convert the negatively worded statements to positive connotations, and the questionnaire has been amended accordingly (Hair *et al.*, 2010) (see Appendix A).

4.5.5.2. Reliability of the Pilot Study

Table 4.5 shows the reliability results of the conducted pilot study using Chronbach's Alpha.

Construct	Number of items	Cronbach's alpha	Type
Ability	5	0.847	High Reliability
Benevolence	5	0.806	High Reliability
Integrity	5	0.891	High Reliability
Trust on E-government	4	0.888	High Reliability
Trust propensity	4	0.746	High Reliability
Trust in Internet	4	0.868	High Reliability
Behavior intention	4	0.929	Excellent Reliability

Abdulaziz Albesher

Social influence	4	0.744	High Reliability

Table 4.5: The internal consistency of each construct

Internal consistency is used to confirm that a set of items used to measure a construct has a high level of homogeneity (Hair et al., 2010; Peter, 1979).

Internal consistency, or construct reliability, is used to evaluate the extent to which proposed items of a certain construct are able to represent this construct by obtaining the required information (DeVellis, 2003). Cronbach's Alpha is a common test that is used to assess the internal consistency of a measurement scale (Bryman and Cramer, 2011; Hair et al., 2010; Cronbach, 1951). A high value of Cronbach's alpha implies that the construct is internally consistent and the measures reflect the same content of this construct. Bryman and Cramer (2011), Hair et al. (2010) and Nunnally (1978) suggested that (0.7) is the acceptable cut-off point.

Hinton et al. (2004) suggested four scale points to predict the degree of construct reliability: (0.90 and above) excellent reliability, (0.70- 0.90) high reliability, (0.50-0.70) high moderate reliability and (0.50 and below) low reliability. Table 4.5 shows that the internal reliability of the study constructs varies between (.744) and (.929).

Therefore, we can assume that the constructs and measures used in this study are reliable, do not suffer from lack of internal consistency and can be used to collect the main quantitative data (Hinton, Brownlow and McMurray, 2004; Straub, Boudreau and Gefen, 2004).

4.6. The Procedure of Data Analysis

4.6.1. Quantitative Data Analysis

This section will discuss the process of data analysis of the main quantitative empirical data. The study used two softwares, Statistical Package for Social Science (SPSS) and AMOS, to analyse the quantitative empirical data and to ensure high accuracy of the analysis results.

The analysis started by eliminating the unusable responses and checking the outliers (as part of the initial data screening) and the type of sample distribution, using SPSS Statistics 20. Figure 4.4 shows the steps that were followed in preparing data, measures and constructs (factors).
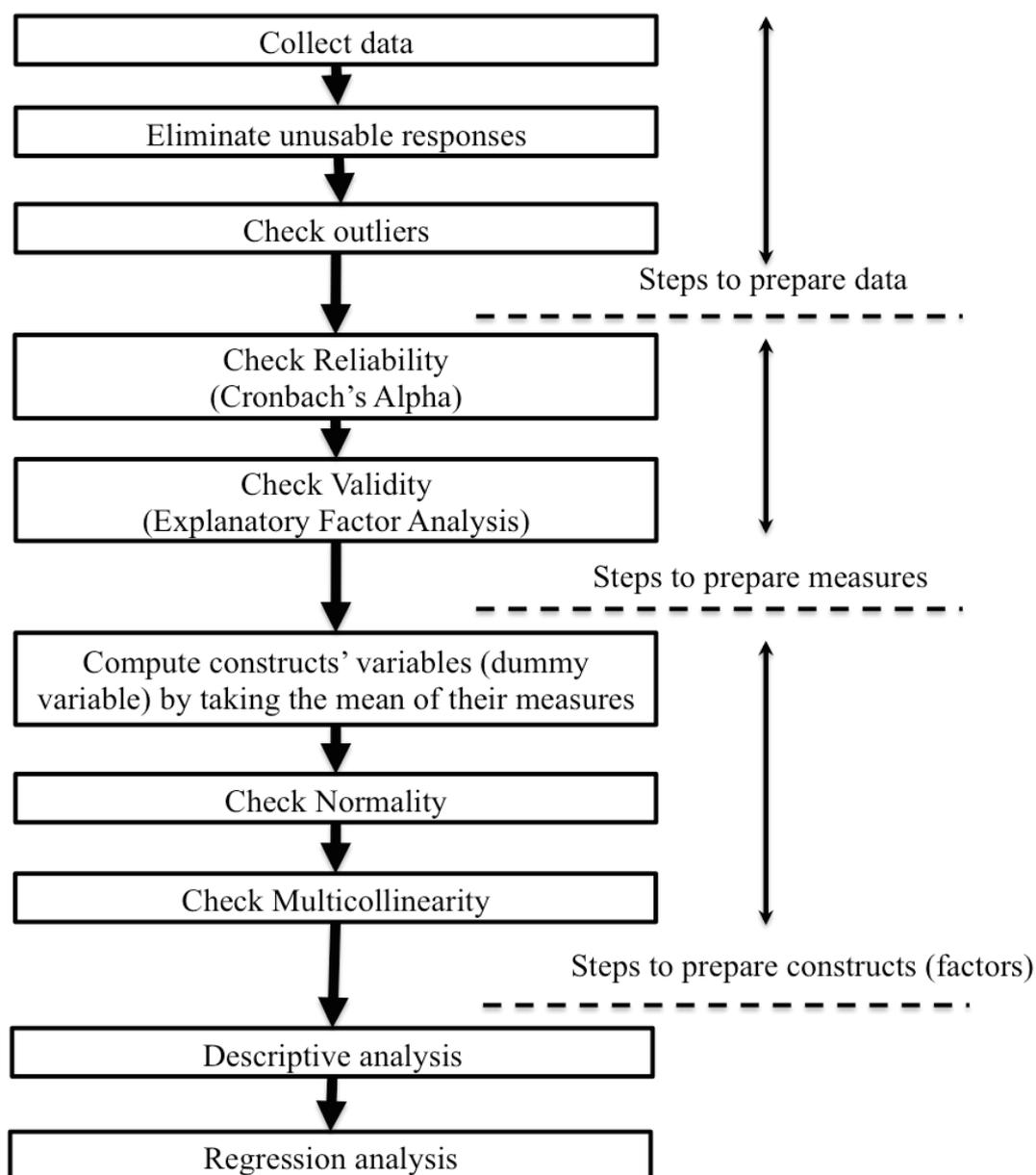
Figure 4.4: Steps of data screening in preparation for descriptive and regression analysis.

There was no evidence of outliers in the dataset, and all the absolute univariate kurtosis and skewness indexes were between +1.0 and -1.0, well within the range for normal distribution (Kline, 2011) (see Table 4.6).

Next, a reliability assessment was carried out using Cronbach's alpha to ensure that the variables in each construct were internally consistent. The reliability coefficients for the research constructs were internally consistent and above the commonly accepted level of 0.7 (Bryman and Cramer, 2011; Nunnally, 1975).

AMOS version 18 was then used to test the proposed conceptual model by applying structure equation modelling (SEM) procedures. We started with confirmatory factor analysis (CFA) to build a measurement model and check the model fit. In addition, CFA was used to provide more useful information in testing the convergent and discriminant validity of the scales. Standardised factor loadings, construct reliability and average variance extracted are three ad hoc tests recommended by Hair et al. (2010) and Anderson and Gerbing (1988) to assess convergent validity.

After that, the structural model could be built to examine the proposed casual paths in between research constructs—in other words, the path model test. This practice is useful to assess whether the proposed conceptual model provides an acceptable fit to the empirical data (Hair et al., 2010).

Each test will be discussed in the next sections. In addition, more details of the quantitative data analysis and findings can be found in Chapter 5.

Test Name	Description	Threshold
Outliers	Significant distortion of the statistical tests may occur if some responses are vary greatly in magnitude more than the rest. (Hair et al., 2010, p. 48).	Variable (factor) standardised residual values should vary between ±4 (Hair et al., 2010, p. 48).
Reliability Test (Cronbach's alpha)	Examine whether a set of measures used to represent a certain factor is highly intercorrelated (DeVellis, 2003).	The value 0.7 has been suggested as the acceptable cut-off point (Bryman and Cramer, 2011; Hair *et al.*, 2010; Nunnally, 1978).
Validity Test (Exploratory Factor Analysis (EFA))	Identify the less significant measurement items of a certain factor and extract these measurement items to add more accuracy.	Factor loading should be above 0.45 (Pallant, 2013; Straub, Boudreau and Gefen, 2004). Principal component analysis with varimax rotation is used.
Normality	Check whether a construct (factor) follows a normal distribution (Hair *et al.*, 2010).	Value should fall between ± 1 for skewness and kurtosis (Kline, 2011; Hair *et al.*, 2010).
Multicollinearity	Testing the correlation between independent	Correlation coefficient should be less than 0.9

	variables because statistics and the regression coefficient are affected if high correlation occurred ((Hair et al., 2010), p. 165)	between variables ((Hair et al., 2010), p. 200).

Table 4.6: Required tests to prepare data for analysis

4.6.1.1. Multiple Regression Analysis

Regression analysis can be defined as a statistical technique that explores the relationship between the dependent and independent variables (Pallant, 2010). Multiple regression analysis is a statistical technique used to explore the relationship between a single dependent variable and several independent (predictor) variables (Hair et al., 2010). Multiple regression analysis uses the independent variables that have known values to predict the single dependent value selected by the researcher.

Applying multiple regression analysis can provide useful information about the model as a whole. It allows the researcher to test whether adding a variable over the already included variables could enhance the predictability of the model.

The utilisation and findings of using multiple regression analysis in this study can be found in Chapter 5.

4.6.1.2. STRUCTURAL EQUATION MODELLING (SEM)

Structural equation modeling (SEM) is a set of statistical models used to explain the relationships among multiple variables (see Figure 4.5). It begins by constructing a series of equations, similar to a series of multiple regression equations, to examine the structure of interrelationships. All the relationships among constructs (the independent and dependent variables) are depicted through these equations. Constructs (latent factors) are unobservable and are represented by multiple variables (similar to items representing a construct in factor analysis).

Hair et al. (2010, p. 634) stated, "*So far each multivariate technique has been classified either as a dependence or interdependence technique. SEM can be thought of as a unique combination of both types of techniques because SEM's foundation lies in two familiar multivariate techniques: factor analysis and multiple regression analysis*". The AMOS software was used to calculate structural equation modeling in this study.

Phase 1: MEASURMENT MODEL

The measurement model is a SEM model that (1) specifies the indicators (items) for each construct and (2) allows the assessment of construct validity (Hair et al., 2010).

Abdulaziz Albesher
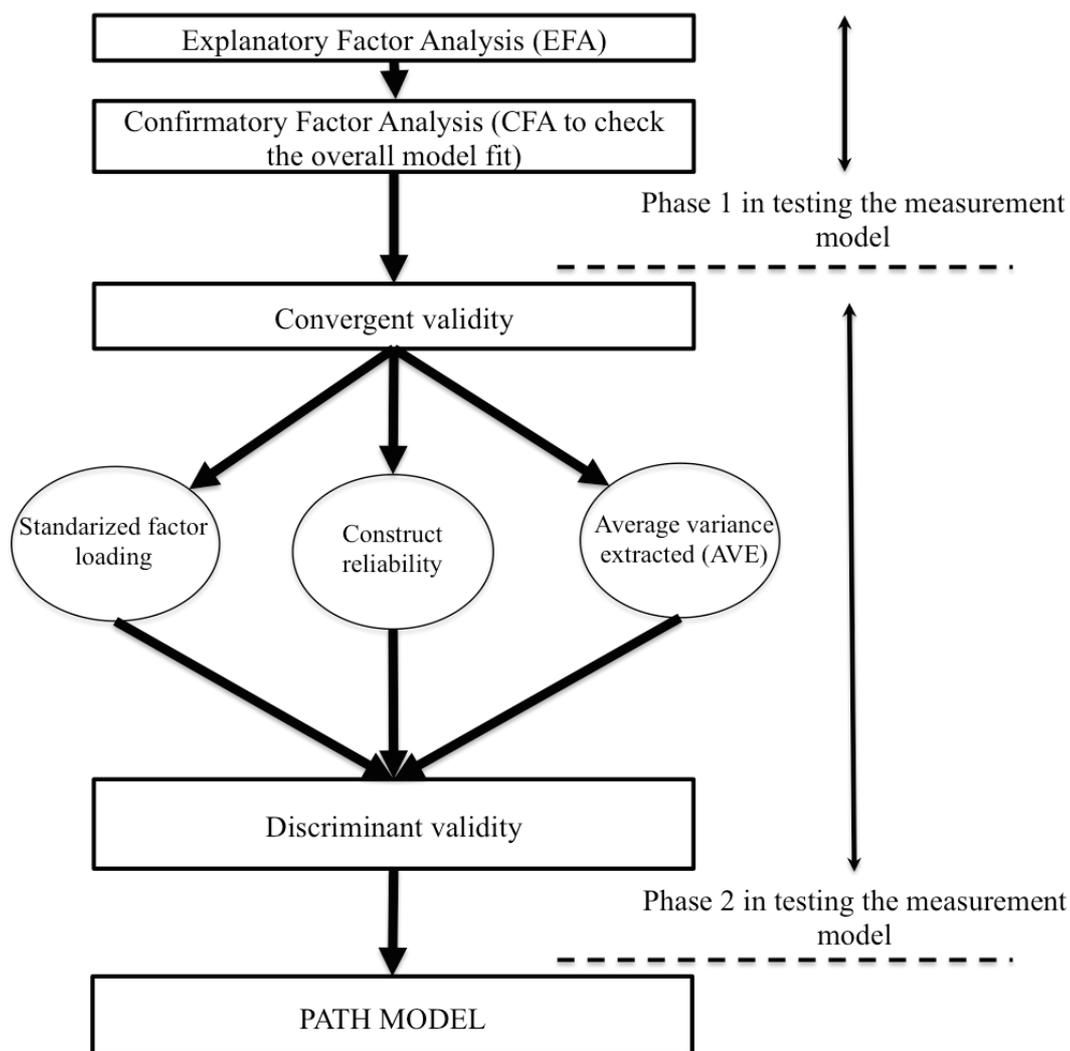
Figure 4.5: Main steps used in structural equation modeling (SEM)

Assessing Measurement Model Validity

Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) is used to test and confirm a specified relationship by applying a multivariate technique. CFA is the opposite of exploratory factor analysis (EFA) (table 4.6). A CFA measurement model is used to evaluate the model fit and test convergent and discriminant validity of each construct. Each construct is allowed to correlate freely with other constructs but without specifying causal relationships between the constructs (latent variables). Confirmatory factor analysis provides a range of information that is useful in assessing the overall model fit and testing convergent and discriminant validity of the scales. These tests will be described further in the next sections.

Assessing Overall Fit

The following indices and standards are used to assess model fit: goodness-of-fit index (GFI) and normed fit index (NFI) should be at or greater than 0.90 (Hair *et al.*, 2010; Hoyle, 1995); adjusted goodness-of-fit index (AGFI) should be at or greater than 0.80 (Gefen, 2000; Chin and Todd, 1995; Segars and Grover, 1993); Tucker–Lewis index (TLI, equivalent to the non-normed fit index) shows a good model fit if the value is 0.95 or above (Hair *et al.*, 2010; Hu and Bentler, 1999); comparative fit index (CFI) shows a great model fit if the value is 0.90 or above (Hair *et al.*, 2010; Jiang and Klein, 1999; Hoyle, 1995; Bentler and Bonett, 1980); and root mean square error of approximation (RMSEA) is lower than 0.08 for a good fit and lower than 0.05 for an excellent fit (Browne and Cudeck, 1992).

Abdulaziz Albesher

According to Steiger and Lind (1980), RMSEA is used to measure the discrepancy per degree of freedom, and CFI is identified as a steady descriptive fit (Gerbing and Anderson, 1992).

The CFI, GFI, and TLI are mainly used to compare the absolute fit of a specified model to the absolute fit of the independent model.

Convergent validity

Convergent validity means that the indicators (items) of a certain construct should converge or share a high proportion of variance in common (Hair *et al.*, 2010). Anderson and Gerbing (1988) suggested three ad hoc tests to evaluate convergent validity empirically.

1. Standardised factor loading

For most SEM programs, the default option is the maximum likelihood estimates, including AMOS and LISREL.

The issue with unstandardised loadings is that they offer limited diagnostic information other than statistical significance and directionality. Thus, standardised loadings are examined instead because they are useful and required to calculate the estimates of reliability and discriminant validity. Hair et al. (2010) suggested that the minimum threshold of the standardised factor loadings (regression weights) should be 0.5.

Abdulaziz Albesher

2. Construct reliability

Construct reliability is also an indicator of convergent validity. The rule of thumb is the reliability estimates should be .07 or above to show good reliability. In addition, 0.70 is considered the minimum threshold for construct reliability; however, this rule is not applicable to exploratory research. A construct with high reliability means that internal consistency exists and indicates that all used measures consistently represent the same latent construct.

3. Average variance extracted (AVE)

Variance extracted from the item is the square of standardised factor loading that represents how much variation in an item is explained by the latent factor. In CFA, the average variance extracted (AVE) is a summary indicator of convergence. AVE is calculated as the mean variance extracted for the items loading on a construct (Fornell and Larcker, 1981). Average variance extracted (AVE) of 0.5 or higher is considered a good rule of thumb to suggest adequate convergence (Hair *et al.*, 2010).

Discriminant validity

Discriminant validity is the extent to which a construct is truly distinct from other constructs. Thus, high discriminant validity provides evidence that a construct is unique and captures some phenomena other measures do not. Hair et al. (2010) and Anderson and Gerbing (1988) suggested a rigorous test to assess discriminant validity. They suggest comparing the squared correlation estimates of any two constructs (latent variables) with the average variance extracted (AVE) values of these two constructs. The AVE estimates should be greater than the squared correlation estimates.

Abdulaziz Albesher

Phase 2: PATH MODEL (Structural Model)

The structural model is used to conceptually represent the structural relationships between constructs. Usually it is depicted by a visual diagram (Hair *et al.*, 2010). The structural model links the hypothesized model's constructs with a set of one or more dependence relationships. According to Hair et al. (2010), the structural model is useful to demonstrate the interrelationships of variables between constructs. The structural parameter estimate (path model) is the empirical representation of the structural relationship between any two constructs.

More discussion, analysis and the visual representation of Phase 1 and 2 of the structural equation modeling can be found in Chapter 5 section 5.6.2.

4.6.2. Qualitative Data Collection and Analysis

The qualitative study is the second stage of the explanatory sequential mixed methods. The qualitative study has been conducted after analysis of the quantitative study to assist in interpreting and explaining the findings of the primarily quantitative study. Thus, the qualitative study will be used to explain, validate and provide more details about the quantitative study findings.

Bogdan and Biklen (1998) define qualitative data analysis as breaking, organising and managing the data into units and patterns to discover what can be learned, what is important and what to tell others. According to Hennink et al. (2010), rigorous and scientific interpretation of the data can be obtained by using qualitative data analysis.

In this study, face-to-face interviews were adopted to collect the qualitative empirical data. All interview questions were based on the previously conducted survey, because this process is mainly used to explain further the quantitative findings (Appendix D). The interview questions were discussed, reviewed and validated by two practitioners and researchers (PhD holders) who are experts in the area of e-government as well as the research supervisor. Accordingly, minor wording amendments were made to the final version of the interview questions (Appendix D).

In addition, appropriate ethical approval was obtained for this study before commencing with data collection (see Appendix F). Twenty-five participants were involved in the interview procedure. All participants were randomly selected and contacted via their email addresses. The text box located at the end of the survey gave respondents the option to add their email addresses if they were interested in participating in such a follow-up interview (see Appendix A).

4.6.2.1. Interviews

Interviews are considered the main and most effective tool to collect data in qualitative research (Denzin and Lincoln, 2008). An in-depth interview strategy was adopted in this study to conduct the qualitative empirical study. In this study, interviews represent the supplemental study that validates and supports the findings of the main quantitative empirical study. The degree of structure varies in qualitative interviews, as it can be structured, semi-structured or unstructured (Yin, 2013).

A semi-structured interview is a qualitative research method used widely in social sciences research. Wengraf (2001, p. 5) stated that "*Semi-structured interviews are designed to have a number of interviewer questions prepared in advance but such prepared questions are designed to be sufficiently open that the subsequent questions*

of the interviewer can't be planned in advance but must be improvised in a careful and theorized way".

Structured interviews rely upon a set of rigorous questions that prevents the interviewee from diverting. In contrast, a semi-structured interview allows new discussion and ideas to be raised based on what the interviewee says. Therefore, all the participants in this study were interviewed using semi-structured interviews (Bryman and Bell, 2011). Each interview lasted for about forty-five minutes. All the interviews were conducted between March and June 2014. More details of the qualitative data analysis and findings can be found in Chapter 6.

4.7. Summary and Conclusion

Different paradigms of research approaches have been discussed in this chapter. The study plan and related applied procedures to collect and analyse the data have also been discussed. The research methodology was designed to understand the role of citizens' trust on their intention to use and adopt e-government services in Saudi Arabia. In addition, it has been argued that the mixed methods approach is the most appropriate technique to answer the questions of this thesis.

For this study, 570 participants were involved in the quantitative phase, after elimination of invalid and incomplete responses to avoid any effect on the quality of data analysis. Moreover, the chapter discussed the tests that are required to prepare the data, measures, and variables. This increases the level of confidence in the analysis results because it confirms that the data are clean and the assigned items adequately measure the assigned-to construct, confirm the reliability and validity of the constructs, and show the overall model fit. Following on, the chapter discussed the second phase of this study, focusing on the qualitative empirical study and the applied procedures in this phase. This phase aims to understand and explain the results of the quantitative empirical data. In the qualitative phase, 25 participants were involved in the interviews. All participants were chosen randomly and were contacted via their email addresses, as specified at the end of the survey.

Further details of and description and analysis of the quantitative empirical data were also detailed in Chapter 5. In addition, the details and analyses of the qualitative empirical data can be found in Chapter 6. Chapter 7 will discuss the findings of both the quantitative and qualitative studies.

Chapter 5: Survey Findings

5.1. Introduction

In this chapter the analysis of the quantitative empirical data will be discussed. A survey questionnaire was designed to collect the quantitative empirical data (as explained in chapter 4). From the participants' responses, 570 survey questionnaires were found of sufficient quality to be used in the data analysis. The analysis of data will help to understand the role of citizens' trust on the adoption and the intention to use e-government services in Saudi Arabia.

Thirty five measurement items were used to represent eight constructs: government ability (Ab), government benevolence (B), government integrity (I), citizen's trust propensity (TP), trust in Internet (TI), trust in e-government (TOE), social influence (SI), and behavioural intention (BI). Six constructs were independent variables Ab, B, I, TP, TI, and SI and two constructs were dependent variables TOE and BI.

As described in chapter 4, this chapter begins by describing respondents' profile followed by some descriptive statistics. Then, it presents the results of testing the constructs validity using exploratory factor analysis (EFA), eigenvalue test, reliability test and multicollinearity (correlation). After that, it shows testing the research model using regression analysis and structural equation modelling (SEM).

In regression analysis the hierarchical regression analysis will be applied in two separate steps (Step A and B) to test the research model (as described in section 4.1.1). To test the research model using SEM AMOS 18 was used (see section 4.6.1). It starts by developing and assessing the measurement model using confirmatory factor analysis (CFA), then developing and assessing the structural model (path model).

Abdulaziz Albesher

5.2. Descriptive Statistics

5.2.1. Response Rate

In this study out of 1000 questionnaires distributed, 835 responses were received. From those 835 responses, 570 responses were found valid and completed. Therefore these 570 complete and usable responses were used in the quantitative data analysis. The study response rate is considered a very good response rate for IS research, as it scored a total response rate of (83.5%). The sample show a confidence interval of 3.7% at 95% confidence level. The next section will represent the descriptive background of the involved respondents.

5.2.2. Respondents Profile

The respondents profile has been divided into four sections based on respondents' demographics such as age, gender, education level, and Internet experience. Firstly, in terms of age the majority of respondents, 38.8%, were between the ages of 30 and 44, followed by 22.3% between 25 and 29. Next, 22.1% were between 18 and 24 years and 10.5% were found between the age of 45 and 54. Additionally, 2.8% of respondents were younger than 18 and 3.5% were over 54 years old (Table 5.1). It was expected to have the majority of respondents' ages less than 44 years, because Saudi Arabia has a young population (approximately 51% of the Saudi population is less than 25 years) (Murphy, 2012).

Age	Frequency	Percentage
<18	16	2.8
18-24	126	22.1
25-29	127	22.3
30-44	221	38.8
45-54	60	10.5
>= 55	20	3.5

Table 5.1: Respondents' age

Secondly, with regards to the respondents' gender, females comprise 29.8% of the respondents sample, leaving 70.1% of the respondents as males (see Table 5.2).

Gender	Frequency	Percentage
Male	400	70.1
Female	170	29.8

Table 5.2: Respondents' gender

Abdulaziz Albesher

Thirdly, in terms of education level, the results revealed that more than half (58.0%) of respondents were holding bachelor degree. Respondents with postgraduate degrees (master's and PhD) constituted 23.9% of the respondents' sample. Respondents holding diploma constituted a total of 5.8%. Moreover, 10.9% of the respondents were holding High school qualification whilst the remaining 1.3% of respondents were less than High school qualification (Table 5.3).

Education	Frequency	Percentage
< High school	14	1.3
High school	66	10.9
Diploma	39	5.8
Bachelor	316	58.0
Postgraduate	135	23.9

Table 5.3: Respondents' education level

Fourthly, in terms of Internet experience, the results reveal that the majority of respondents (60.2%) have more than 4 years Internet experience. This was followed by respondents with 3-4 years of Internet experience, constituting 25.3% of the respondents' sample. In contrast, respondents with 1-2 years of Internet experience,

Abdulaziz Albesher

constituted 9.6% of the total sample. Finally, the groups with the least Internet experience (1-6 months and 7-11 months) together constituted (4.9%) of the total respondents.

Internet Experience	Frequency	Percentage
1-6 months	2	0.4
7-11 months	34	4.5
1-2 years	61	9.6
3-4 years	144	25.3
> 4 years	329	60.2

Table 5.4: Respondents' Internet experience.

Table 5.5 describes participants' decisions towards the main research factors proposed as influencing e-government adoption. These factors were identified in the literature and the survey data under eight key factors: Ability (Ab), Benevolence (B), Integrity (I), Trust in e-government (TOE), Trust propensity (TP), Trust in Internet (TI), Behaviour Intention (BI) and Social Influence (SI).

Abdulaziz Albesher

Factors	Description	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Ab1	Government agencies are very capable of performing their job.	11.7%	28.6%	30.1%	24.9%	4.7%
Ab2	Government agencies are known to be successful at the things they try to do.	16.6%	34.8%	25.8%	18.6%	4.1%
Ab3	Government agencies have much knowledge about the work that needs done.	13.7%	25.8%	29%	23.2%	8.3%
Ab4	I feel very confident about Government agencies' skills.	27.1%	37.3%	21.5%	11.3%	2.8%
Ab5	Government agencies have sufficient expertise and resources to provide services.	19%	27.5%	26.4%	20.5%	6.6%
B1	Government agencies are very concerned with my welfare.	39%	26.6%	22.6%	9.8%	2.1%
B2	My needs and desires are very important to government agencies	27.1%	26%	25.1%	14.7%	7.2%
B3	Government agencies would not knowingly do anything to hurt me.	9.4%	12.8%	26.2%	29.6%	22%
B4	Government agencies really look out for what is important to me.	21.7%	30%	29.2%	15.6%	3.6%
B5	Government agencies will go out of their way to help me.	36.9%	26.4%	21.7%	11.7%	3.4%
I1	Government agencies have a strong sense of justice.	27.3%	29.6%	27.3	13%	2.8%
I2	I never have to wonder whether government agencies will stick to their word.	36%	26.8%	19.2%	14.5%	3.6%
I3	Government agencies try hard to be fair in dealing with citizens.	37.9%	26.6%	19.2%	13.9%	2.4%
I4	Government agencies act sincerely in dealing with citizens.	25.4%	29.6%	26.2%	14.9%	4.0%

Abdulaziz Albesher

I5	Sound principles seem to guide government agencies' behavior.	23.0%	26.4%	29.2%	13.9%	7.5%
TOE1	I expect that e-government services will not take advantages of me.	8.1%	10.0%	22.2%	35.8%	23.9%
TOE2	I believe that e-government services are trustworthy.	6.0%	12.3%	25.8%	34.2%	21.7%
TOE3	I believe that e-government services will not act in a way that harms me.	4.7%	8.1%	23.5%	37.7%	26.0%
TOE4	I trust e-government services.	7.7%	11.3%	24.4%	34.9%	21.7%
TP1	I generally do trust other people.	5.5%	12.1%	37.5%	35.1%	9.8%
TP2	I generally have faith in humanity.	3.4%	1.3%	10.5%	38.6%	46.2%
TP3	I feel that people are generally reliable.	4.0%	10.2%	36.2%	40.0%	9.6%
TP4	I generally trust other people unless they give me reason not to.	3.4%	7.7%	16.8%	44.8%	27.3%
TI1	The internet has enough safeguards to make me feel comfortable using it to interact with the e-government services.	8.1%	13.4%	26.8%	36.4%	15.3%
TI2	I feel assured that legal and technological structures adequately protect me from problems on the Internet.	13.7%	20.2%	29.6%	28.2%	8.3%
TI3	I feel secure sending sensitive information across the Internet.	14.1%	25.3%	25.3%	26.6%	8.7%
TI4	In general, the internet is now a robust and safe environment in which to transact services with the e-government.	6.2%	17.1%	28.3%	35.2%	13.2%
BI1	Assuming I have access to e-government services, I intend to use it.	1.3%	7.0%	16.8%	45.6%	29.3%
BI2	I would interact with e-government services over the web.	1.7%	6.6%	13.6%	45.2%	32.9%
BI3	I would use e-government to obtain services and information.	1.9%	6.6%	12.7%	45.5%	33.3%
BI4	I would not hesitate to provide information to the e-government.	3.4%	5.9%	14.5%	45.2%	31.0%

Abdulaziz Albesher

SI1	People who are important to me think that I should use e-government services.	2.8%	11.2%	36.1%	38.2%	11.7%
SI2	I would use e-government services if my friends used them.	8.9%	18.2%	31.6%	31.5%	9.8%
SI3	Interacting with e-government over the web enhances a person's social status.	9.6%	15.3%	34.3%	28.4%	12.4%
SI4	People who use e-government to obtain services have more prestige than those who do not.	13.7%	20.2%	36.0%	20.1%	10.0%

Table 5.5: Survey responses summary

5.2.3. Descriptive Statistics

Table 5.6 presents the means and standard deviations of the 8 constructs' items related to this study. All the descriptive statistics are based on scores obtained from the participants. A five-point Likert scale was used with end points of "strongly agree" (5) and "strongly disagree" (1). As summarised in table 5.6, the mean of respondents' scores for Government Ability varys between 2.86 and 2.25. Descriptive statistics show that these scores are low moderate. Respondents' scores for Government Benevolence ranged from 2.09 to 2.50, which is also low moderate. Government Integrity scores ranged from 2.17 to 2.57. Concerning Trust on E-government respondents' scores ranged from 3.72 to 3.52, which indicates that the scale is reasonably high. Trust propensity ranged between 4.23 and 3.33, which is considered in descriptive statistics as high scores. For Trust in Internet, the scores ranged from 3.37 to 2.91. The means of respondents' scores for Behaviour Intention range from 4.03 to 3.95, indicating that the scale is high. Finally, respondents' scores for Social influence ranged from 3.44 to 2.93.

Factors	Mean	Std. Deviation	Factors	Mean	Std. Deviation
Ability			**Trust Propensity**		
Ab1	2.82	1.077	**TP1**	3.33	.987
Ab2	2.59	1.094	**TP2**	4.23	.931
Ab3	2.86	1.163	**TP3**	3.41	.927
Ab4	2.25	1.065	**TP4**	3.84	1.016
Ab5	2.68	1.184			
Benevolence			**Trust in Internet**		
B1	2.09	1.090	**TI1**	3.37	1.134
B2	2.49	1.231	**TI2**	2.97	1.164
B3	3.42	1.228	**TI3**	2.91	1.192
B4	2.50	1.101	**TI4**	3.32	1.091
B5	2.18	1.152			
Integrity			**Behavioural Intention**		
I1	2.34	1.097	**BI1**	3.95	.917
I2	2.23	1.185	**BI2**	4.03	.931
I3	2.17	1.150	**BI3**	4.03	.934
I4	2.42	1.136	**BI4**	3.95	.989
I5	2.57	1.199			
Trust on E-government			**Social Influence**		
TOE1	3.58	1.188	**SI1**	3.44	.922

TOE2	3.54	1.131	**SI2**	3.16	1.096
TOE3	3.72	1.077	**SI3**	3.18	1.124
TOE4	3.52	1.166	**SI4**	2.93	1.156
Notes: Std. Deviation = Standard Deviation **** Five-point Likert scale was used. Where Respondents' scores range from 1 to 5,** **1 = Strongly Disagree and 5 = Strongly Agree**					

Table 5.6: Descriptive Statistics

5.3. Construct Validity

5.3.1. Exploratory Factor Analysis (EFA)

Factor analysis is significant test to investigate and confirm the distinctions between the key factors. Factors analysis is a test that essentially focuses on data reduction, by reducing and combining items into a similar set of factors or constructs (Pallant, 2013). In addition, factor analysis is concerned with clustering and loading all similar items under a one construct. Related to this study, all the items for government Ability, government Benevolence, government Integrity, Trust Propensity, Trust on E-government, Trust in Internet, Social Influence, and Behaviour Intention were added to segregate the items for each construct. In the factor analysis, principal component analysis (PCA) was used with varimax rotation method to verify constructs' validity (Pallant, 2013).

Table 5.7 shows the factor loading of all the added items. Almost all the items loaded above (0.40), which meets the minimum recommended threshold in IS research (Pallant, 2013; Straub, Boudreau and Gefen, 2004). In addition, no cross loading have been found for items above (0.40).

Rotated Component Matrix^a

Items	Component						
	Benevolence & Integrity	Behavioural Intention	Trust on E-government	Trust in Internet	Ability	Trust Propensity	Social Influence
I4	.805						
I3	.781						
B4	.757						
I1	.755						
B1	.736						
I2	.706						
I5	.692						
B5	.648						
B2	.640						
B3	.516						
BI3		.879					
BI2		.861					
BI4		.800					
BI1		.797					
TOE3			.792				
TOE1			.785				
TOE2			.744				
TOE4			.721				
TI3				.841			
TI1				.784			
TI2				.768			
TI4				.765			
Ab2					.772		
Ab1					.729		

Ab3					.709		
Ab5					.595		
TP4						.792	
TP3						.791	
TP1						.734	
TP2						.658	
SI3							.833
SI4							.810
SI2							.658
Extraction Method: Principal Component Analysis.							
Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 7 iterations.							

Table 5.7: The results of the exploratory factor analysis (EFA)

First, as shown in the rotated component matrix, Benevolence and Integrity items have loaded together as one factor and named as "Benevolence & Integrity" (see section 2.3.2). The coefficients for this factor varied between (.805) and (.516). Secondly Behaviour Intention, all four items loaded in the same factor "Behaviour Intention". The coefficient estimates for this factor varied between (.879) and (.797). Thirdly Trust in E-government, all the five items of Trust in E-government loaded together under the factor "Trust in E-government" (see table 5.7). The coefficient estimates of this factor varied between (.792) and (.721). Then Trust in Internet, all four items of Trust in Internet loaded together under "Trust in Internet" factor. The coefficients estimates of this factor varies between (.841) and (.765).

In regards to the Ability factor, four items out of five of the Ability factor loaded together under "Ability" (see table 5.7). Apart from that, item Ab4 has been excluded due to the high cross loading and therefore it will be excluded from any further

analysis (Pallant, 2013; Straub, Boudreau and Gefen, 2004; Churchill Jr, 1979). The coefficients estimates of this factor varied between (.772) and (.595). Then the Trust Propensity factor, all four items of Trust Propensity loaded together under "Trust Propensity" factor. The coefficients estimates for this factor varied between (.792) and (0.658). Finally regarding the factor of Social Influence, three items out of four retained and loaded properly under the factor "Social Influence". Item SI1 loaded below 0.4, which is the minimum recommended threshold, and therefore SI1 has been excluded from any further analysis (Dwivedi *et al.*, 2010; Straub, Boudreau and Gefen, 2004). The coefficients estimates for this factor varied between (.833) and (.658).

Construct validity were assessed through the factor analysis by running principle components analysis (PCA) with varimax rotation. Table 5.7shows that all items loaded properly in their constructs, loaded with no less than (0.40) and without any cross loading above (0.40). Therefore, it appears that the used instruments (items) for each factor are representative and valid. Moreover, based on the results of the exploratory factor analysis (EFA) the factors are ready for the next phase of data analysis (Pallant, 2013; Dwivedi, Choudrie and Brinkman, 2006; Straub, Gefen and Boudreau, 2005).

Justification to combine Benevolence and Integrity

The items for Benevolence and Integrity have loaded all together, notwithstanding they have been identified separately by judges and sorters. According to Moore and Benbasat (1991), "this may mean that, while conceptually different, they are being viewed identically by respondents, of that there is a casual relationship between the two".

Abdulaziz Albesher

Mayer et al. (1995) concluded that trustworthiness (based on propensity) can explain trust between two parties before any relationship between them has developed. However, when a relationship starts to develop, the trustor may be able to acquire data on the trustee's integrity through observation and third-party sources, with little direct interaction. They suggest that integrity will be important to format trust in the early stage of the relationship, as there is little information about the trustee's benevolence toward the trustor.

When the relationship begins to develop, interactions with the trustee will help the trustor to obtain greater insight about the trustee's benevolence, subsequently the trust will grow due to the relative impact of benevolence. Therefore, Mayer et al. (1995) concluded that "the development of the relationship is likely to alter the relative importance of the factors of trustworthiness".

5.3.2. Eigenvalues Test

The eigenvalue of a factor demonstrates the total amount of all variance explained by that factor ((Pallant, 2010), page 184).

According to Hinton (2007), factors greater than 1 are included in the factor analysis test. From table 5.8, all components emerged to be above 1 and with a cumulative total of 66.849% of the variance.

The KMO and Bartlett's test was significant (p <0.001) and scored a satisfactory value of 0.910, which indicates that the correlation matrix was far from the identity matrix (Hair *et al.*, 2010; Andy Field, 2009) (see Table 5.9).

Abdulaziz Albesher

Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.984	30.256	30.256	9.984	30.256	30.256	5.845	17.712	17.712
2	3.990	12.091	42.347	3.990	12.091	42.347	3.413	10.344	28.056
3	2.086	6.321	48.668	2.086	6.321	48.668	2.962	8.975	37.031
4	1.787	5.415	54.083	1.787	5.415	54.083	2.944	8.922	45.953
5	1.636	4.958	59.041	1.636	4.958	59.041	2.473	7.494	53.447
6	1.311	3.972	63.013	1.311	3.972	63.013	2.379	7.209	60.656
7	1.266	3.836	66.849	1.266	3.836	66.849	2.044	6.193	66.849
Extraction Method: Principal Component Analysis.								

Table 5.8: Results of the Eigenvalues test and Total Variance Explained

KMO and Bartlett's Test	
Kaiser-Meyer-Oklin Measure of Sampling Adequacy.	.910
Bartlett's Test of Sphericity	10239.390
Degree of Freedom	528
Sig.	.000

Table 5.9: Results of KMO and Bartlett's Test

5.4. Reliability test

Internal consistency is a significant test to confirm that the set of items used to measure a construct (factor) are exhibit/have a high level of homogeneity (Hair *et al.*,

Abdulaziz Albesher

2010; Peter, 1979). Internal consistency or the data reliability, is to evaluate to which extent the proposed items of a certain construct are obtaining the required information (DeVellis, 2003). One of the most common tests to examine the internal consistency of measurement scale is Cronbach's Alpha (Wang, Ellinger and Jim Wu, 2013; Hair *et al.*, 2010; Cronbach, 1951).

A high Cronbach's Alpha value for all constructs implies that they are internally consistent and measure the same content of the construct. Nunnally (1978) suggested 0.7 as the acceptable cut-off point. In addition, Hair et al (2010), and Bryman and Cramer (2011) suggest that the theoretical accepted threshold for Cronbach's Alpha is (0.70) or above. According to Hinton et al., (2004), there are four different points of reliability: excellent reliability ranges (0.90 and above), high reliability (0.70- 0.90), high moderate reliability (0.50-0.70) and low reliability (0.50 and below). The results of the reliability analysis for each construct are illustrated in Table 5.10.

Construct	Code	Item	Number of Items	Cronbach's alpha (α)	Type
Ability	Ab1	Government agencies are very capable of performing their job.	4	0.809	High Reliability
	Ab2	Government agencies are known to be successful at the things they try to do.			
	Ab3	Government agencies have much knowledge about the work that needs done.			
	Ab5	Government agencies have sufficient expertise and resources to provide services.			
Benevolence & Integrity	B1	Government agencies are very concerned with my welfare.			
	B2	My needs and desires are very important to government agencies.			
	B3	Government agencies			

		would not knowingly do anything to hurt me.	10	0.910	Excellent Reliability
	B4	Government agencies really look out for what is important to me.			
	B5	Government agencies will go out of their way to help me.			
	I1	Government agencies have a strong sense of justice.			
	I2	I never have to wonder whether government agencies will stick to their word.			
	I3	Government agencies try hard to be fair in dealing with citizens.			
	I4	Government agencies act sincerely in dealing with citizens.			
	I5	Sound principles seem to guide government agencies' behavior.			
Trust on E-government	TOE1	I expect that e-government services will not take advantages of me.	4	0.888	High Reliability
	TOE2	I believe that e-government services are trustworthy.			
	TOE3	I believe that e-government services will not act in a way that harms me.			
	TOE4	I trust e-government services.			
Trust Propensity	TP1	I generally do trust other people.	4	0.746	High Reliability
	TP2	I generally have faith in humanity.			
	TP3	I feel that people are generally reliable.			
	TP4	I generally trust other people unless they give me reason not to.			
Trust in	TI1	The internet has enough			

Abdulaziz Albesher

Internet		safeguards to make me feel comfortable using it to interact with the e-government services.	4	0.868	High Reliability
	TI2	I feel assured that legal and technological structures adequately protect me from problems on the Internet.			
	TI3	I feel secure sending sensitive information across the internet.			
	TI4	In general, the internet is now a robust and safe environment in which to transact services with the e-government.			
Behavioural Intention	BI1	Assuming I have access to e-government services, I intend to use it.	4	0.929	Excellent Reliability
	BI2	I would interact with e-government services over the web.			
	BI3	I would use e-government to obtain services and information.			
	BI4	I would not hesitate to provide information to the e-government.			
Social Influence	SI2	I would use e-government services if my friends used them.	3	0.732	High Reliability
	SI3	Interacting with e-government over the web enhances a person's social status.			
	SI4	People who use e-government to obtain services have more prestige than those who do not.			

Table 5.10: Results of reliability test and construct internal consistency using Chronbach's Alpha

Abdulaziz Albesher

Table 5.10 illustrates Cronbach's coefficient values that were estimated to test the internal consistency of the measures. Cronbach's results varied between (0.732) for the construct of Social influence and (0.929) for the Behaviour intention constructs. The reliability test revealed an excellent internal consistency for Behaviour Intention (0.929), Benevolence and Integrity (0.910). In addition, Ability, Trust on E-government, Trust propensity and Trust in Internet possessed a high reliability with Cronbach's values (.809), (0.888), (0.746) and (0.868), respectively. The high Conbach's Alpha value of a construct indicates a high reliability in measuring that construct (Field, 2013; Dwivedi, Choudrie and Brinkman, 2006).

As described previously, the internal consistency of each construct was measured using Cronbach's Alpha and showed high values of Cronbach's Alpha, which indicate a great reliability of the used constructs. Table 5.10 shows the findings of the reliability test and shows that all the values of Cronbach's alpha in the study are reliable and internally consisted.

Ultimately, by the end of these two stages, the findings from both reliability test and exploratory factor analysis confirm the internal consistency of the used measurements (items) and confirm the validity of the constructs.

5.5. Multicollinearity (Correlation)

Multicollinearity refers to the existing relationship between the independent variables (Hair et al., 2010). Examining multicollinearity is important for regression analysis, because the existence of multicollinearity in the regression model reduces the ability to predict (Myers, 1990).

Abdulaziz Albesher

Bryman (2012, p. 339) stated "*Exploring relationships between variables means searching for evidence that the variation in one variable coincides with variation in another variable*". Several techniques can be used to estimate the relationships between variables. This study used bivariate analysis to examine multicollinearity. Bivariate analysis is used to explore the relationship between two variables, this analysis is conducted by testing two variables at a time.

Values from −1 to +1 can only take in the Pearson correlation coefficients (r) (Pallant, 2013). The strength of the relation can be determined based on the size of the absolute value. Negative or positive correlation is indicated by the sign located at the front of the number.

Table 5.11 shows the recommended guidelines, suggested by Cohen (2013), to interpret coefficient values between 0 and 1. No relationship between two variables can be determined if the correlation is 0. On the other hand, the correlation of 1 or −1 indicates that the value of one variable can be known by determining the value of the other variable, which shows a perfect correlation. According to Hair et al. (2010), multicollinearity exists when a correlation of r=0.9 or above exists between two independent variables. The correlation coefficients of this study falls between (0.758) and (0.098), which indicates that this study does not suffer from multicollinearity (see table 5.12).

Value of Pearson correlation	The size of the Value of Pearson correlation
r=.10 to .29 or r= −.10 to −.29	Small
r=.30 to .49 or r= −.30 to −.4.9	Medium
r=.50 to 1.0 or r= −.50 to −1.0	Large

Table 5.11: guidelines to interpret the values of correlation coefficients

Abdulaziz Albesher

		Ab	B	I	TOE	TP	TI	BI	SI
Ab	Pearson Correlation	1	.617**	.642**	.418**	.019	.285**	.234**	.257**
	Sig. (2-tailed)		.000	.000	.000	.664	.000	.000	.000
	N	570	570	570	570	570	570	570	570
B	Pearson Correlation	.617**	1	.758**	.452**	.065	.322**	.295**	.258**
	Sig. (2-tailed)	.000		.000	.000	.137	.000	.000	.000
	N	570	570	570	570	570	570	570	570
I	Pearson Correlation	.642**	.758**	1	.456**	.009	.303**	.234**	.303**
	Sig. (2-tailed)	.000	.000		.000	.839	.000	.000	.000
	N	570	570	570	570	570	570	570	570
TOE	Pearson Correlation	.418**	.452**	.456**	1	.171**	.440**	.539**	.330**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000
	N	570	570	570	570	570	570	570	570
TP	Pearson Correlation	.019	.065	.009	.171**	1	.178**	.256**	.098*
	Sig. (2-tailed)	.664	.137	.839	.000		.000	.000	.024
	N	570	570	570	570	570	570	570	570
TI	Pearson Correlation	.285**	.322**	.303**	.440**	.178**	1	.464**	.354**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000
	N	570	570	570	570	570	570	570	570
BI	Pearson Correlation	.234**	.295**	.234**	.539**	.256**	.464**	1	.442**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	570	570	570	570	570	570	570	570
SI	Pearson Correlation	.257**	.258**	.303**	.330**	.098*	.354**	.442**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.024	.000	.000	
	N	570	570	570	570	570	570	570	570

Table 5.12: The values of correlation coefficients for this study

5.6. Testing the Research Model

5.6.1. Regression Analysis

Regression analysis can be defined as a statistical technique that explores the relationship between dependent and independent variables (Pallant, 2013). Multiple regression analysis is a statistical technique used to explore the relationship between a

Abdulaziz Albesher

single dependent variable and several independent (predictor) variables (Hair et al., 2010).

Multiple regression analysis uses the independent variables that have known values to predict the value of a single dependent variable. In this study, multiple linear regression analysis was adopted to assess the study's conceptual model (see figure 5.1), by using hierarchical regression analysis.

The process of the regression analysis will be divided into two main steps, A and B. Each step will focus on a certain part of the model, to examine the existence of relationship between independent variables and a single dependent variable. This will be described in more details in the next section.
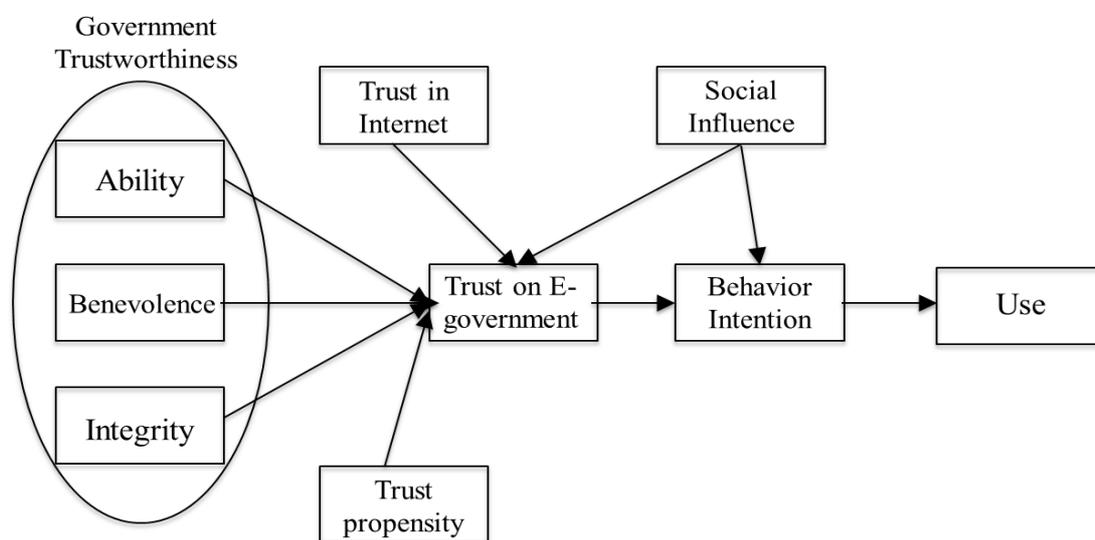
Figure 5.1: Trust in e-government conceptual model

5.6.1.1. Hierarchical Regression Analysis

Hierarchical regression analysis (or sequential regression) is simply a multiple linear regression using groups of variables that are applied sequentially to assess the effect of each added group on the dependent variable (Pallant, 2013).

The researcher enters each independent variable into the equation based on a specified order to assess what it adds, after controlling the previous variables, to the prediction of the dependent variable. Each block is assessed in terms of its relevant contribution. In addition, the overall model is assessed after entering all groups of variables (blocks) to evaluate the predictive ability of the dependent variable.

In this study, it is important that the significance of the independent variables are not affected by the controller variables (age, gender, education level, and Internet experience) when predicting the dependent variable. Thus, the analysis will start by regression of the controller variables on the dependent variable as the first block, followed by the second block that regresses the independent and controller variables on the dependent variable. This practice will help to determine the significant improvement of adding the independent variables in predicting the dependent variable.

Step A of the regression analysis

The first step concerns the analysis of the impact of Government Trustworthiness (Government Ability and Government Benevolence and Integrity), Trust Propensity, Trust in Internet, and Social Influence on Trust on E-government (Figure 5.2). More specifically, in this step the regression analysis focuses on testing whether

Abdulaziz Albesher

Government Ability, Government Benevolence and Integrity, Trust propensity, Trust in Internet and Social Influence help to predict citizens' Trust on E-government services.
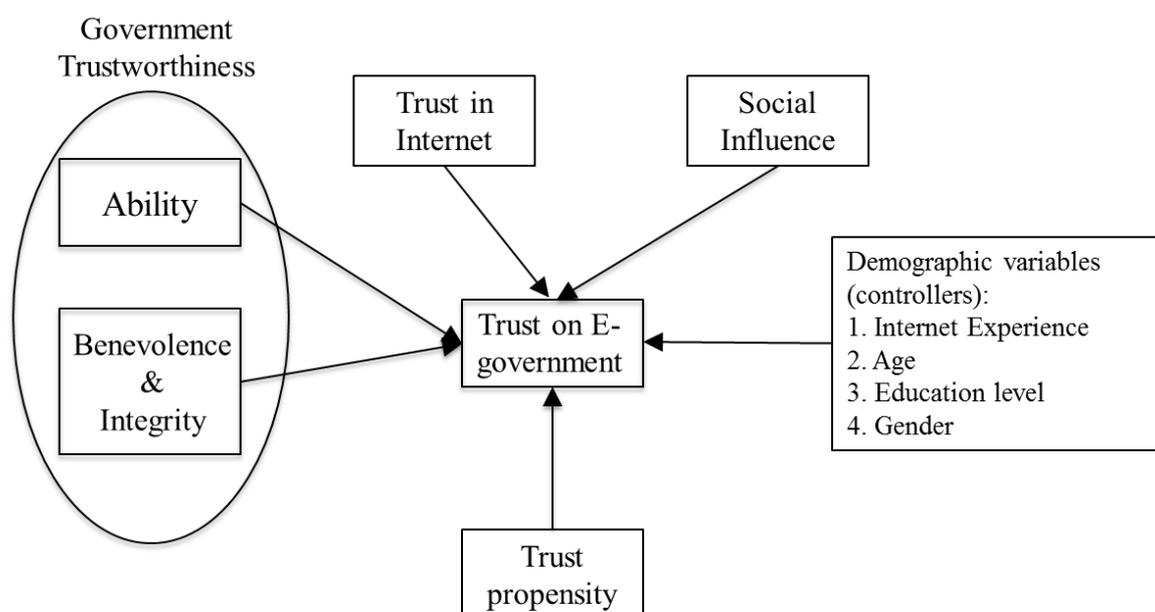
Figure 5.2: Step A of the regression analysis (Government Ability, Government Benevolence and Integrity, Trust propensity, Trust in Internet and Social Influence on citizens' Trust on E-government services)

The hierarchical regression analysis was used to consider the effect of the controller variables (age, gender, education level and Internet experience) on the regression results (i.e. the results still valid regardless of the controllers).

The hierarchical regression analysis will be performed using SPSS software in two stages. First, by calculating the model significance for the controllers only (demographic variables) on the dependent variable. Then, to recalculate the model significance for both controllers and independent variables as a separate model. This

process will allow the SPSS software to demonstrate whether any difference between the controllers' model and the combined model exists (Pallant, 2010).

In this step, Trust on E-government was added in the dependent variable box in the linear regression procedure (of SPSS software) and the controller variables (age, gender, education level and Internet experience) were added in 'Block 1' box of the independent. Then, Ability, Benevolence and Integrity, Trust propensity, Trust in Internet and Social Influence were added in 'Block 2' box as the independent variables.

Table 5.16 summarises the results of the hierarchal regression analysis, showing it in two separate models. Model 1 shows the results of the regression analysis for the effect of age, gender, education level and Internet experience (controller variables) on the Trust on E-government (dependent variable). The results in Model 2 demonstrate the effect of the combined model that includes both controllers and independent variables (Ability (Ab), Benevolence and Integrity (B&I), Trust Propensity (TP), Trust in Internet (TI), and Social Influence (SI)) on Trust on E-government (TOE) when applying the regression analysis.

Model Summary[c]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.152[a]	.023	.016	.97916	.023	3.115	4	525	.015	
2	.607[b]	**.368**	.357	.79114	.345	56.837	5	520	.000	1.915

a. Predictors: (Constant), Internet experience, Age , Education, Gender

b. Predictors: (Constant), Internet experience, Age , Education, Gender, SI, TP, Ab, TI, B_and_I

c. Dependent Variable: TOE

Table 5.13: Summary of the model fit

Abdulaziz Albesher

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.945	4	2.986	3.115	.015[a]
	Residual	503.344	565	.959		
	Total	515.289	569			
2	Regression	189.818	9	21.091	33.697	.000[b]
	Residual	325.470	560	.626		
	Total	515.289	569			

a. Predictors: (Constant), Internet experience, Age , Education, Gender

b. Predictors: (Constant) Age, Gender, Education, Internet experience, SI, TP, Ab, TI, B_and_I

c. Dependent Variable: TOE

Table 5.14: Summary of ANOVA test in step A

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.379	.328		10.296	.000					
	Age	.000	.041	.000	.007	.995	.039	.000	.000	.920	1.087
	Gender	-.208	.098	-.095	-2.116	.035	-.097	-.092	-.091	.922	1.084
	Education	.127	.048	.119	2.641	.009	.120	.115	.114	.922	1.084
	Internet experience	-.006	.052	-.005	-.108	.914	.044	-.005	-.005	.882	1.134
2	(Constant)	.770	.337		2.284	.023					

Age	.019	.034	.021	.559	.576	.039	.025	.019	.883	1.132
Gender	-.243	.080	-.111	-3.039	.002	-.097	-.132	-.106	.911	1.097
Education	.039	.039	.036	.982	.326	.120	.043	.034	.903	1.107
Internet experience	.011	.043	.010	.253	.801	.044	.011	.009	.857	1.167
Ab	.160	.054	.143	2.942	.003	.417	.128	.103	.515	1.943
B_and_I	.315	.056	.274	5.579	.000	.483	.238	.194	.501	1.995
TP	.123	.048	.091	2.554	.011	.169	.111	.089	.956	1.046
TI	.249	.040	.244	6.193	.000	.439	.262	.216	.781	1.281
SI	.138	.047	.113	2.952	.003	.330	.128	.103	.827	1.209

a. Predictors: (Constant), Internet experience, Age , Education, Gender
b. Predictors: (Constant) Age, Gender, Education, Internet experience, SI, TP, Ab, TI, B_and_I
c. Dependent Variable: TOE

*Significant at the 0.05 level, **significant at the 0.01 and ***significant at the 0.001 level

Table 5.15: Regression coefficients estimates

Dependent variable: Trust on E-government (TOE)		Model 1 (controllers only)				Model 2 (controllers and independent variables)			
		N = 570				N = 570			
		β	$\beta_{standardized}$	t	Sig.	β	$\beta_{standardized}$	t	Sig.
(Constant)		3.379		10.296	**.000***	.770		2.284	**.023***
Controllers	Age	.000	.000	.007	.995	.019	.021	.559	.576
	Gender	-.208	-.095	-2.116	**.035***	-.243	-.111	-3.039	**.002****
	Education Level	.127	.119	2.641	**.009****	.039	.036	.982	.326
	Internet Experience	-.006	-.005	-.108	.914	.011	.010	.253	.801

Abdulaziz Albesher

Independent variables										
	Ab						.160	.143	2.942	**.003****
	B_and_I						.315	.274	5.579	**.000*****
	TP						.123	.091	2.554	**.011***
	TI						.249	.244	6.193	**.000*****
	SI						.138	.113	2.952	**.003****
Model summary	F	3.115					33.697			
	Model Sig.	**.015***					**.000*****			
	R	.152					.607			
	R^2	.023					**.368**			
	Adjusted R^2	.016					.357			
	R^2 Change	.023					.345			
	VIF Maximum	1.134					1.995			

*Significant at the 0.05 level, **significant at the 0.01 and ***significant at the 0.001 level

Table 5.16: Summary of step A regression analysis

The results of the regression analysis in step A show that both models (model 1 and 2) are significant with (P <.001). The R^2 suggest that the independent variables (Ability, Benevolence and Integrity, Trust Propensity, Trust in Internet, and Social Influence) are able to explain an additional 37% (0.368 x 100) of the variance to understand Trust on E-government, after controlling the effect of age, gender, education, and Internet experience.

Based on the suggestions of Myers (1990) and Hair et al (2010, p.200), there is no sign of multicolinearity as all VIF (Variance Inflation Factor) values are below 10 (VIF < 10) and vary between (1.995) and (1.046).

In addition, table 5.16 shows that all the predictors (independent variables) were found to be significant. The weight of beta is positioned in Government Benevolence and Integrity is (β = .315) which indicates that it is the strongest predictor factor of Trust on E-government services. The second influential factor that explains Trust on E-government is Trust in Internet (β = .249), followed by Government Ability (β = .160), Social Influence (β = .138), then Trust Propensity (β = .123), respectively. In addition, the results from the controllers show that only respondents' gender is related to Trust on E-government after adding the independent variables. Surprisingly, the respondents' education level did not appear as having significant influence on Trust on E-government in Model 2. Therefore, the results of the hierarchical regression analysis support the hypotheses H1, (H2&H3), H4, H5 and H6.

Step B of the regression analysis

Step A of the regression analysis focused on the factors that affect citizens' Trust on E-government (TOE). In Step B, the regression analysis concerns the impact of Trust on E-government (TOE), and Social Influence (SI) on citizens' Behaviour Intention (BI) to use e-government services, after controlling for the effects of Age, Gender, Education level, and Internet experience (figure 5.3).

Abdulaziz Albesher
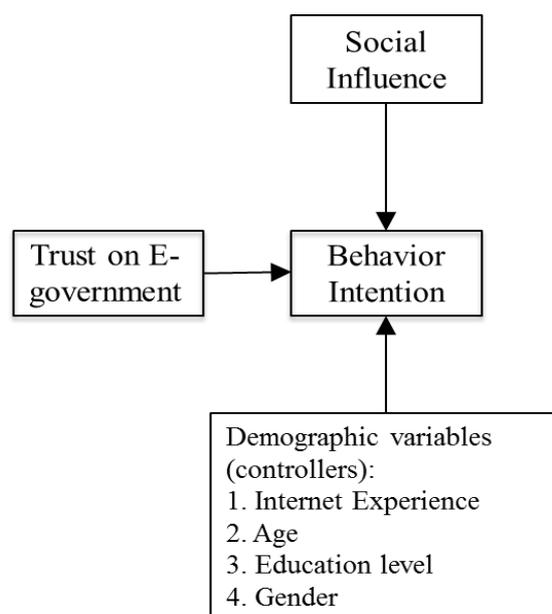
Figure 5.3: Step B of the regression analysis (Trust on E-government and Social Influence on citizens' Behaviour intention to use E-government services)

In step B the same hierarchical regression technique was employed as in step A. Model 1 represent the results of controllers' (age, gender, education level and Internet experience) effect on the dependent variable (Behaviour Intention). In addition, the effect of both controllers and independent variables (Trust on E-government (TOE), and Social Influence (SI)) on citizen's Behaviour Intention (BI) to use the E-government services are represented in Model 2 of the regression analysis.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.232[a]	.054	.041	.84098	.054	4.193	7	517	.000	
2	.632[b]	.399	.388	.67157	.345	147.873	2	515	.000	2.001

a. Predictors: (Constant), Age, Gender, Education, Internet experience

b. Predictors: (Constant), Age, Gender, Education, Internet experience, SI, TOE

c. Dependent Variable: BI

Table 5.17: Summary of the model fit

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.757	7	2.965	4.193	.000[a]
	Residual	365.650	557	.707		
	Total	386.407	564			
2	Regression	154.140	9	17.127	37.974	.000[b]
	Residual	232.268	555	.451		
	Total	386.407	564			

a. Predictors: (Constant), Age, Gender, Education level, Internet experience

b. Predictors: (Constant), Age, Gender, Education level, Internet experience, SI, TOE

c. Dependent Variable: BI

Table 5.18: Summary of ANOVA test in step B

Abdulaziz Albesher

Coefficients^a

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1 (Constant)	3.294	.548		6.006	.000		
Age	-.021	.038	-.027	-.559	.576	.920	1.087
Gender	-.173	.085	-.091	-2.029	.043	.922	1.084
Education	.128	.042	.138	3.093	.002	.922	1.084
Internet experience	.086	.047	.087	1.831	.068	.882	1.134
2 (Constant)	1.253	.454		2.759	.006		
Age	-.027	.030	-.034	-.907	.365	.919	1.088
Gender	-.102	.069	-.053	-1.482	.139	.913	1.095
Education	.052	.033	.056	1.569	.117	.906	1.104
Internet experience	.106	.037	.107	2.832	.005	.880	1.136
SI	.303	.039	.287	7.806	.000	.873	1.146
TOE	.377	.032	.432	11.721	.000	.884	1.132

a. Dependent Variable: BI

Table 5.19: Regression coefficients estimates

Dependent variable: Behaviour Intention (BI)	Model 1 (controllers only)				Model 2 (controllers and independent variables)			
	N = 570				N = 570			
	β	β_{standardized}	t	Sig.	β	β_{standardized}	t	Sig.
(Constant)	3.350		11.921	**.000*****	1.178		4.556	**.000*****
Controllers — Age	-.016	-.020	-.456	.649	-.021	-.026	-.734	.463
Controllers — Gender	-.188	-.099	-2.228	**.026***	-.115	-.061	-1.702	.089
Controllers — Education	.130	.140	3.156	**.002****	.055	.059	1.644	.101

	level								
	Internet Experience	.096	.097	2.141	**.033***	. 112	.113	3.114	**.002****
Independent variables	TOE					.365	.421	11.535	**.000****
	SI					.319	.302	8.331	**.000****
Model summary	F	4.193				37.974			
	Model Sig.	**.000****				**.000****			
	R	.232				.632			
	R^2	.054				.399			
	Adjusted R^2	.041				.388			
	R^2 Change	.054				.345			
	VIF Maximum	1.134				1.146			

*Significant at the 0.05 level, **significant at the 0.01 and ***significant at the 0.001 level

Table 5.20: Summary of step B regression analysis

The results of the regression analysis in step B show the significance of the model ($P < .001$). The result of the R^2 indicates that the independent variables (Trust on E-government, and Social Influence) are able to explain an additional 40% (.399 x 100) of the variance in the prediction of citizens' Behavior Intention (BI) to use e-government services, after controlling for the effects of age, gender, education level, and Internet experience. Based on the recommendations of Hair et al (2010, p.200) and Myers (1990), there is no sign of multicolinearity as all the VIF values are below 10 (VIF < 10), and VIF values vary between (1.146) and (1.084).

In addition, all the predictors (independent variables) were found to be significant and so to predict citizens' Behaviour Intention (BI) to use e-government services. The weight of beta positioned Trust on E-government ($\beta = .365$) as the most influential factor on citizens' Behavior Intention to use E-government services. The second

Abdulaziz Albesher

influential factor that impacts citizens' Behaviour Intention is Social Influence (β = .319). In addition, the results of the controller variables suggest that the Internet Experience is related to citizen's Behavior Intention to use E-government services. Therefore, the results of the hierarchical regression analysis support the hypotheses H7 and H8.

5.6.2. Structural Equation Modeling (SEM)

Structural equation modelling (SEM) helps to perform the analysis for the whole conceptual model at once by conducting a series of equations, similar to a series of multiple regression equations, to examine the structure of interrelationships. This step will increase the accuracy and credibility of the survey findings.

Testing the measurement model helps to define the relationships among constructs and specify the nature of each construct. In addition, there are no restrictions in terms of correlation as all the constructs are independent and able to correlate freely with the other constructs. Regarding the measured items (indicators), they are not permitted to load on more than one construct.

In this study AMOS 18 was used to test the proposed conceptual model by applying Structure Equation Modeling (SEM) procedures. The analysis starts by conducting the confirmatory factor analysis (CFA) to build a measurement model and to check its fit.

The next step is to build the structural model to examine the proposed casual paths (testing the path model) in between research constructs. This practice is useful to determine whether the proposed conceptual model provides an acceptable fit to the empirical data.

CFA is also used to provide more useful information to test the convergent and discriminant validity of the scales. To test the convergent validity, Standardized factor loadings, Construct reliability and Average variance extracted (AVE) are the three recommended ad hoc tests that used to examine the convergent validity (Hair *et al.*, 2010; Anderson and Gerbing, 1988), as described in the next section.

5.6.2.1. Measurement model (Confirmatory Factor Analysis (CFA))

The CFA measurement model was built to evaluate the overall model fit and to test the convergent and discriminant validity of each construct. Each construct is allowed to correlate freely with other constructs but without specifying causal relationships between the constructs (latent variables). Confirmatory factor analysis provides a range of information useful in testing convergent and discriminant validity of the scales. Empirically convergent validity is evaluated with three ad hoc tests (as recommended by Hair (2010) and Anderson and Gerbing (1988)), which are standardized factor loadings, construct reliability and average variance extracted (AVE).

Assessing the Model Overall Fit

Several indices and standards were applied to assess the model fit. In addition, the assessment of these indices and standards are based on the following suggestions: goodness-of-fit index (GFI) and normed fit index (NFI) should be at or greater than 0.90 (Hoyle, 1995), adjusted goodness-of-fit index (AGFI) should be at or greater than 0.80 (Gefen, 2000; Chin and Todd, 1995; Segars and Grover, 1993), index of fit

Abdulaziz Albesher

(IFI), Tucker–Lewis index (TLI, equivalent to the non-normed fit index) requires a value of 0.95 or above (Hu and Bentler, 1999), comparative fit index (CFI) should be at or greater than 0.90 (Jiang and Klein, 1999; Hoyle, 1995; Bentler and Bonett, 1980), and root mean square error of approximation (RMSEA) lower than 0.08 for a good fit and lower than 0.05 for an excellent fit (Browne and Cudeck, 1992).

According to Steiger and Lind (1980) RMSEA is used to measure the discrepancy per degree of freedom. Gerbing and Anderson (1992) showed that CFI is frequently identified as a steady descriptive of the model fit. In addition, to compare the absolute fit of a specified model to the absolute fit of the independent model three fits are recommended to be used, which are the CFI, TLI and the GFI.

Jaccard and Wan (1996) recommended applying at least three fit tests to assess the overall model fit. However, it was decided to report more indices results to increase the reliability and accuracy of measurement model fits.

In this study, the value of chi-squared (χ^2) is equal to 842.54 with 405 degrees of freedom and a probability value of less than 0.001. However, Chi-square χ^2 and p-value test of absolute model fit are over-sensitive to sample size. Therefore, the study also used χ^2 over degrees of freedom, because it is considered as an adequate measurement. The χ^2 over degrees of freedom is recommend to be within the range of 1 and 3 (Gefen, 2000; Chin and Todd, 1995), while the ratio for this study meets this recommendation, scoring CMIN/DF = 2.080.

The model fit indices of the measurement model show a good overall model fits. The results of these fits are as follow GFI = 0.907, AGFI = 0.887, IFI = 0.954, TLI = 0.947, CFI = 0.954, and RMSEA = 0.044.

Abdulaziz Albesher

Convergent Validity

Standardized factor loadings (or standardized regression weights as called in AMOS) are indicative of the level of association between indicators (scale items) and a single latent variable. The parameters of standardised estimates are constrained to range between -1.0 and +1.0, and therefore its interpreted and reported by most researchers. All factor loading estimates exceeded the minimum common threshold of 0.5 (Hair *et al.*, 2010), except SI2 and B3. The standardised loading for SI2 is 0.47, which is 0.03 less than the minimum preferable threshold for the loading estimates and therefore the researcher decided to keep SI2 and drop B3 (standardised loading 0.4) as recommended by Hair et al., (2010, p.727).

The standardised loading estimates for Ability range between 0.65 and 0.78, Benevolence and Integrity range between 0.534 and 0.82, Trust propensity range between 0.643 and 0.75, Trust in Internet between from 0.768 and 0.862, Trust on E-government between from 0.640 and 0.896, Social Influence between from 0.47 and 0.848, and Behaviour Intention between from 0.762 and 0.949 (see table 5.21). Therefore, the loading estimates in this study are statistically significant and confirm that all loadings in the measurement model are highly significant.

In addition, the modification indices were tested to estimate how each item is associated with other constructs. The indicator TP2 was found to be sharing a high residual variance in associating with other constructs. Therefore, as the trust propensity (TP) construct has four items, it was decided to drop the item with the lowest loading as this should not cause a problem to the construct validity and would improve the model fit (Hair *et al.*, 2010).

Construct reliability, similar to Cronbach's alpha, is carried out to ensure that the variables in each construct are internally consistent, using Cronbach's alpha. The reliability coefficients for the study constructs are ranged between 0.74 and 0.929 (see

Abdulaziz Albesher

table 5.21). Therefore, the constructs of this study are internally consistent and above the commonly accepted estimate of 0.70 (Hair *et al.*, 2010; Nunnally, 1975).

Average variance extracted (AVE) is used to measure the explained variation by the latent variables to random measurement error (Netemeyer, Johnston and Burton, 1990). Estimates of average variance extracted (AVE) with 0.5 or higher is considered a good rule of thumb (Hair *et al.*, 2010; Fornell and Larcker, 1981). The estimates for this study ranged from 0.5 to 0.77, which exceed the suggested minimum threshold (table 5.21). Therefore, based on the results of the previous three ad hoc tests, all the results verified the convergent validity of the scales in the measurement model. Table 5.21 shows the results of the standardized factor loadings, construct reliability, and average variance extracted (AVE).

Construct items	Std. loading	Construct reliability	AVE
Ability			
Ab1	0.705		
Ab2	0.77		
Ab3	0.76		
Ab5	0.651	0.813	0.522
Benevolence and Integrity			
B1	0.684		
B2	0.632		
B4	0.762		
B5	0.534		
I1	0.821		
I2	0.724	0.909	0.53

Abdulaziz Albesher

I3	0.78		
I4	0.833		
I5	0.737		
Trust Propensity			
TP1	0.643		
TP3	0.75		
TP4	0.701	0.740	0.5
Trust in Internet			
TI1	0.77		
TI2	0.79		
TI3	0.78		
TI4	0.862	0.877	0.641
Trust on E-government			
TOE1	0.64		
TOE2	0.894		
TOE3	0.81		
TOE4	0.896	0.887	0.667
Social Influence			
SI2	0.5		
SI3	0.848		
SI4	0.78	0.753	0.517
Behavioural Intention			
BI1	0.861		
BI2	0.949	0.929	0.766

BI3	0.917		
BI4	0.762		

Table 5.21: Show Standardized factor loadings, construct reliability, and average variance extracted of this study

Discriminant Validity

Discriminant validity estimates the distinction extent of a construct from other constructs. Hair (2010) and Anderson and Gerbing (1988) suggested a rigorous test to assess the discriminant validity, by comparing the squared of correlation estimates of any two constructs (latent variables) with the average variance extracted (AVE) values of these two constructs. The variance extracted estimates should be greater than the squared correlation estimates. The results for this study revealed no issues with discriminant validity, see Table 5.22. Therefore, it can be stated that the results of the measurement CFA model provides acceptable convergent and discriminant validity of the scales.

	Ab	B_and _I	TP	TI	SI	TOE	BI
Ab	1.00	0.52	0.001	0.09	0.07	0.25	0.06
B_and_I	0.72***	1.00	0.002	0.13	0.10	0.29	0.07
TP	0.04	0.05	1.00	0.05	0.006	0.03	0.09
TI	0.29***	0.36***	0.22***	1.00	0.12	0.27	0.25
SI	0.26***	0.31***	0.08	0.35***	1.00	0.11	0.16
TOE	0.50***	0.54***	0.18***	0.52***	0.33***	1.00	0.36
BI	0.25***	0.27***	0.30***	0.50***	0.39***	0.60***	1.00

Significance level: * = .05, ** = .01, ***= .001

Note: Values below the diagonal are correlation estimates among constructs, diagonal elements are construct variance, and values above the diagonal are squared correlations.

Table 5.22: Construct correlation matrix (standardized).

5.6.2.2. The structural model (testing the path model)

Abdulaziz Albesher

Evaluating the validity of the structural model is considered as the last stage of the decision process. It works by conducting a comparison between the CFA model fit and the structural model fit. This comparison helps to determine the degree to which the specified relationships in the structural model decreases model fit compared to the CFA model.

The value of χ^2 cannot be lower in a recursive structural model than the one obtained in the CFA model, because no more relationships between constructs can be included in the structural model over those in the CFA measurement model. Therefore, it can be concluded that a lack of validity exists in the structural theory if the fit of structural model are substantially worse than the one in the CFA model (Hair *et al.*, 2010; Anderson and Gerbing, 1992).

The descriptive fit indices and standards are used to compare the structural model to the CFA model, typically the measurement model, in an attempt to demonstrate the adequacy of the proposed model. The wide discrepancy of the overall fit between the two models indicates a greater value of the descriptive statistics. Thus, a structural model was built to assess whether the specified relationships in the research model have an acceptable model fit and to examine the empirical quantitative data set.

In this study, the value of chi-squared (χ^2) in the structural model equals 1245.054 with 537 degrees of freedom and a probability value of less than 0.001. In addition, the χ^2 over degrees of freedom is recommend to be within the range of 1 and 3 (Gefen, 2000; Chin and Todd, 1995), and the ratio of this study meet this recommendation and scored CMIN/DF = 2.319.

Abdulaziz Albesher

Fit Index	Retention Model (CFA)	Revised model with direct effect (Structural model)
χ^2	842.54	1245.054
Degree of freedom	405	537
Probability level	< 0.001	< 0.001
χ^2/df	2.080	2.319
GFI	0.907	0.882
AGFI	0.887	0.861
IFI	0.954	0.927
TLI	0.947	0.919
CFI	0.954	0.927
RMSEA	0.044	0.050

Table 5.23: comparing the retention model to the structural model

The overall model fit revealed a good fit (GFI = 0.882, AGFI = 0.861, IFI = 0.927, TLI = 0.919, CFI = 0.927, RMSEA = 0.050 and CMIN/DF = 2.319). Moreover, by comparing the model fits of the CFA measurement model and the structural model, no great differences between the two models exist (table 5.23). After the validity of the structural model has been confirmed, the individual path coefficients can be assessed.

By examining the individual path coefficients the regression weights revealed that Age and Education level do not exert significant effect on either Trust on E-government services or Behaviour Intention. The Gender of the respondents was found to have a significant negative impact on Trust on E-government services, which indicates that females tend to trust in e-government services more than males.

Furthermore, Internet experience was found as a positive significant predictor of citizens' behavioural intention to use e-government services in Saudi Arabia. Figure 5.4 depicts the individual path coefficients and explained variance of each individual relationship.
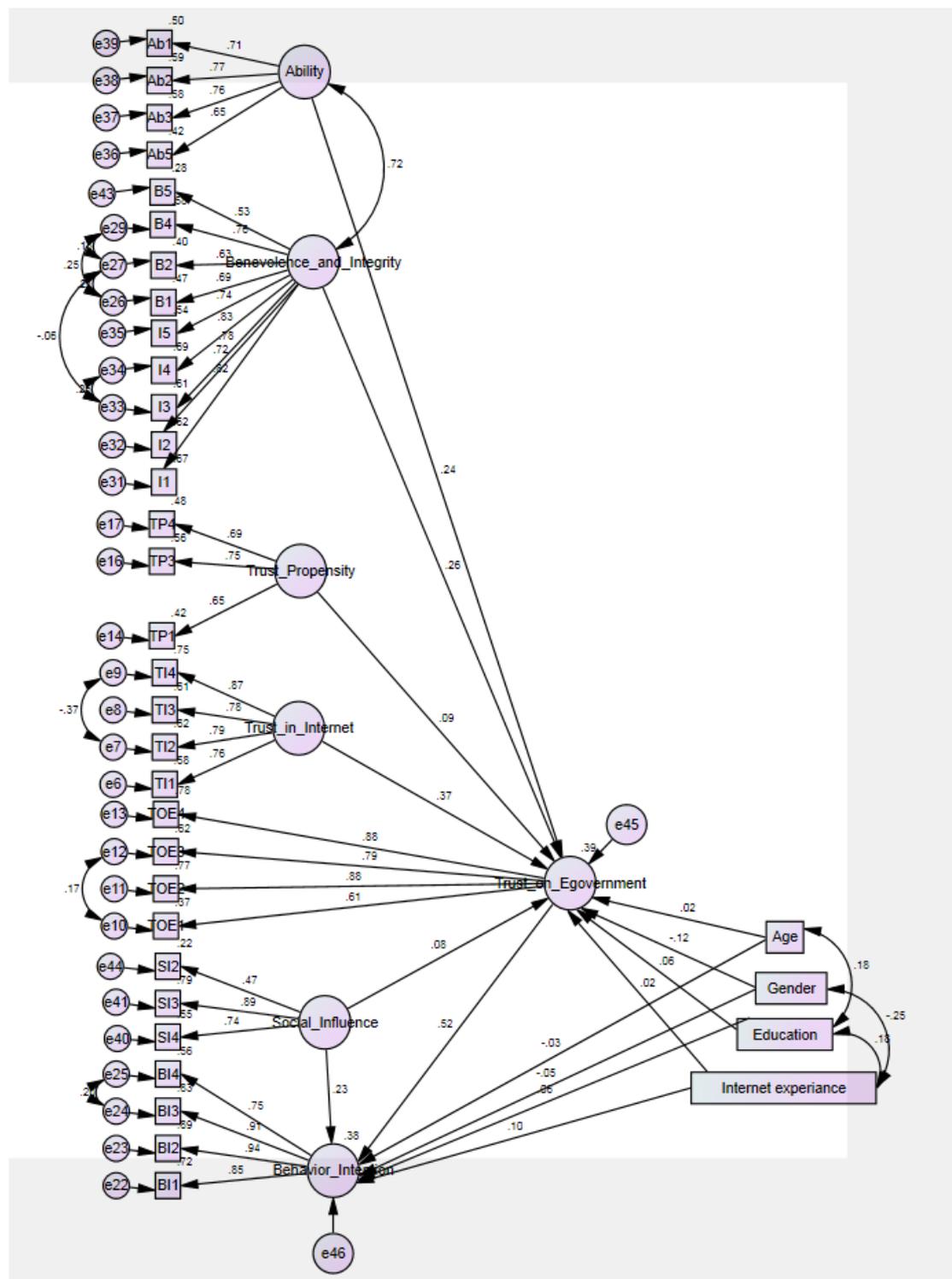
Figure 5.4: The standardised estimates and squared multiple correlations of the study's conceptual model (using AMOS)

Government Ability (Ab), government benevolence and integrity (B&I), Trust propensity (TP), Trust in Internet (TI) and social influence (SI) were found to positively impact on citizens' trust in e-government services (TOE) (figure 5.5). The weight of beta positioned in trust in Internet is (β = .287) with a significant probability value of p <0.001, indicates that it is the best predictor factor of citizens' trust in e-government services (TOE). This followed by the second highest weight of beta (β = .217) for both government ability (Ab) and government benevolence and integrity (B&I) with significant p <0.001. These are followed by social influence (β = .118) and trust propensity (β = .090) with a significant (p <0.05).

Moreover, trust in e-government services (TOE) and social influence (SI) were found to positively impact citizens' behaviour intention to use e-government services. The weight of beta positioned in trust in e-government services is (β = .527) and (β = .332) for social influence with a significant p <0.001.

In addition, the exogenous constructs Ability, Benevolence and Integrity, Trust Propensity, Trust in Internet, and Social Influence explained 39% of the variance of the endogenous construct Trust in E-government services (TOE). Moreover, Social Influence and Trust in E-government services collectively explained 38% of the variance in the endogenous construct Behaviour Intention (BI) to use and adopt e-government services (figure 5.4).

Therefore, all the hypotheses (H1, H2&H3, H4, H5, H6, H7 and H8) proposed in the study's conceptual model were found supported. Table 5.24 summarizes the results of testing the study model.
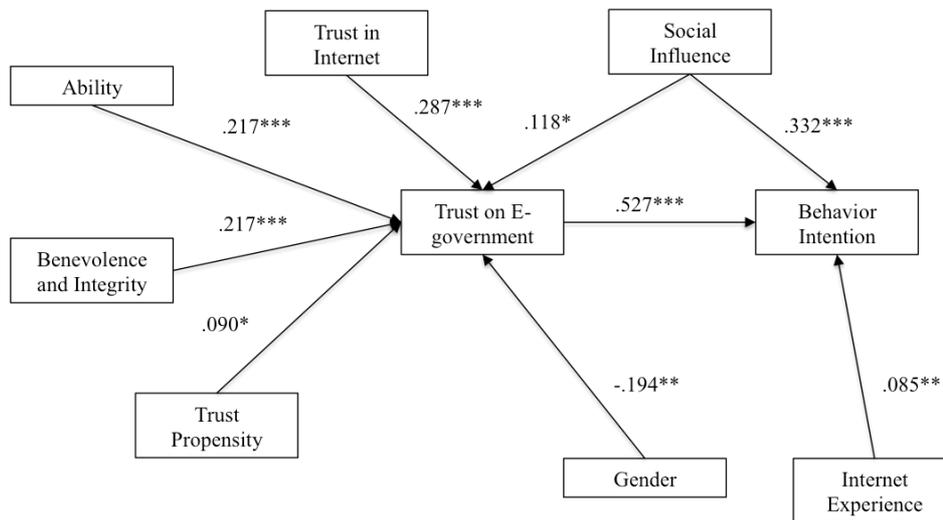
Abdulaziz Albesher

Notes: Only path coefficients with significant relationships are displayed.

* Significant at p <0.05.

** Significant at p <0.01.

*** Significant at p <0.001.

Figure 5.5: Trust on e-government conceptual model, showing only the significant constructs

Hypothesis	Independent variable	Dependent variable	Testing results
H1. The perceived ability of a government agency will have a significant influence on trust in e-government services.	Ability (Ab)	Trust on E-government (TOE)	Supported
H2 & H3. The perceived benevolence and integrity of a government agency will have a significant influence on trust in e-government services.	Benevolence & Integrity (BI & I)	Trust on E-government (TOE)	Supported
H4. Citizen's trust propensity will have a significant influence on trust in e-government services.	Trust Propensity (TP)	Trust on E-government (TOE)	Supported
H5. Trust in the Internet will have a significant influence on citizens' trust in e-government services.	Trust in Internet (TI)	Trust on E-government (TOE)	Supported
H6. Social influence will have a significant influence on citizens' trust in e-government services.	Social Influence (SI)	Trust on E-government (TOE)	Supported
H7. Social influence will have a significant influence on citizens' behavior intention to use e-government services.	Social Influence (SI)	Behaviour Intention (BI)	Supported
H8. Trust in e-government will have a significant influence on citizens' behavior intention to use e-government services.	Trust on E-government (TOE)	Behaviour Intention (BI)	Supported

Table 5.24: Hypotheses outcomes

Abdulaziz Albesher

5.7. **Summary**

This chapter presented the findings of the survey data analysis . The survey was conducted to examine the role of citizen's trust in the adoption and usage intention of e-government services in Saudi Arabia. Several sections were used to show the survey findings.

The analysis started by describing respondents' profile and the survey descriptive statistics. The results of the exploratory factor analysis (EFA) show that nearly all the items loaded above 0.40, which is the minimum recommended threshold in IS research (Pallant, 2013; Dwivedi *et al.*, 2010; Straub, Boudreau and Gefen, 2004), except SI1 which loaded less than 0.40.

In addition, no cross-loadings have been found for the items above (0.40), except for Ab4 and therefore it was excluded from any further analysis (Pallant, 2013; Straub, Boudreau and Gefen, 2004; Churchill Jr, 1979). This test used principal component analysis (PCA) with the varimax rotation method to verify constructs' validity (Pallant, 2010).

In addition, the reliability test confirmed the internal consistency of the used constructs and show that all the Cronbach's alpha values were above the recommended minimum threshold (0.70). Then, the study model was tested using hierarchical regression analysis and structural equation modelling (SEM).

Both suggested that government agencies' ability (Ab), government agencies' benevolence and integrity (B&I), trust propensity (TP), trust in Internet (TI), and social influence significantly predicts citizens' trust in e-government services (TOE).

Abdulaziz Albesher

Moreover, both tests suggested that trust in e-government services (TOE) and social influence (SI) significantly explains citizens' behavioural intention (BI) to use e-government services in the context of Saudi Arabia.

The next Chapter (chapter 7) will discuss the findings of the qualitative study (interview findings). As described in Chapter 4, the qualitative study will be used to explain and confirm the findings of the empirical quantitative study, as described in this chapter.

Chapter 6: Qualitative Analysis and Findings

6.1. Introduction

The aim of this chapter is to validate and test the proposed conceptual model for trust and the adoption of e-government services. This chapter represents the second phase of the sequential mixed-method approach. It aims to understand and explain the results gained from the quantitative analysis in chapter 5.

In the quantitative approach, a survey was conducted to gain different citizens' perspectives regarding trust and adoption of e-government services in Saudi Arabia. After the completion of the quantitative analysis, a qualitative approach was employed using semi-structured interviews. In this study, the qualitative approach will be used to assist with the interpretation of the previously obtained survey findings.

The empirical qualitative data were collected from people who had previously participated in the study survey. Twenty-five interviews were conducted with different participants to collect the qualitative empirical data. The qualitative data was analysed to investigate in depth the role of each independent factor in improving citizens' trust and adoption of e-government services.

As demonstrated in Chapters 2 and 3 of this thesis, the issues of lack and decline of citizens' trust in e-government exists and is considered a worldwide concern. In addition, different studies in e-government acknowledged the absence of empirical evidence and emphasized the need of having appropriate empirical evidence in order to contribute to knowledge in this area.

The chapter begins by discussing the participants' profiles. Then, it investigates in depth the role of each of the identified independent factors from Chapter 3, and

Abdulaziz Albesher

explains the outcomes of the quantitative findings (Chapter 5) from the participant's perspectives.

6.2. Participants' Profiles

The qualitative research method, as described by (Creswell *et al.*, 2003), was employed in this study to understand and confirm citizens' perspectives towards the facts gained from the survey in Chapter 5. Informal and semi structured in-depth interviews were included to fulfil this aim.

Face-to-face interviews were used and facilitated by an interview guide that was developed and used during the process of data collection. The conceptual model and the survey results from the previous quantitative empirical study, drew the frame of reference to provide relevant empirical research questions in preparing the semi-structured interviews. The interviews were evaluated and reviewed by two e-government practitioners and researchers from different professional backgrounds. Thus, the interview guide and questions were modified and revised based on the pilot assessment. For this study, twenty-five interviewees participated in providing the qualitative empirical data. All the interviews were conducted in Saudi Arabia and each interview lasted for about forty-five minutes. In addition, all the interviews were conducted between March and June 2014. Those interviewees had participated previously in the quantitative study. The interviewees were contacted using their email addresses, this was an optional field in the quantitative study to be completed by participants who were interested to participate in the follow-up qualitative study. The characteristics of the interviewees and their demographic backgrounds are shown in table 6.1:

Abdulaziz Albesher

	Demographic background
Age	➢ From 18 to 67 years
Gender	➢ 23 Males ➢ 2 Females
Education	➢ 10 Postgraduate • 3 PhD • 7 Master ➢ 11 Graduate • 9 Bachelor • 2 Diploma ➢ 4 High school or less
Experience	➢ From 3 months to 15 years

Table 6.1: Interviewees' Demographic Background

6.3. The adopted procedure to conduct the interviews

The interviews began by introducing the researcher to the participants. In addition, the researcher provided a brief overview of the study purpose and defined the meaning of some terms used in the study. The participants were also informed that the information will be treated confidentially and will be used only for the purpose of this study. Moreover, the researcher took a step to leverage participant's excitement and enhance the quality of the collected data by describing that the interview is a two-way open communication.

One-to-one interviews were conducted and recorded using a tape recorder. Permission to use a tape recorder sought from the interviewees before engaging in the interview process and data collection. All the interviews were conducted in person to ensure the presence of knowledge and skills of the research filed.

Abdulaziz Albesher

After collecting the data from the interviewees, each interview was transcribed. To ensure the validity of the interviews the transcribed versions were checked by the interviewee to avoid any discrepancies in the answers (Irani *et al.*, 2005).

6.4. Finalising the process of data collection

According to Creswell (2012), after collecting enough data the researcher should stop the process of collecting data and leave. This brings up the question "*when to stop collecting data*" or "*what is the saturation point*" (Dawson, 2007). Glaser and Strauss (2009) posit that the saturation point is reached when no new information is obtained, from continuing the process of data collection, and when there is the belief that everything is covered and completed.

Therefore, the researcher spent as much time as necessary collecting data that will be used to validate and explain the findings of the quantitative empirical study. The process of collecting data stopped when the researcher felt satisfied with the obtained answers and realised that continuing data collection would not add any more value.

6.5. Tools and Analysis approach

According to Yin (2013), the investigators often search for tools or formulas to conduct qualitative data analysis (for example ATLAS.ti, NVivo), as they believe that familiarity with these software will help to produce the required analysis and results. However, although these tools are useful in the data analysis, the data analysis will not be carried out without human consideration and interaction (Yin, 2013).

Abdulaziz Albesher

In this study, Nvivo 10 softeware was used to support the data analysis. In addition, the researcher used a style of rigorous empirical thinking to provide a high sense of consideration and interpretation of the data and to develop an appropriate analytical strategy.

Following such a strategy allowed the researcher to treat the data fairly and helped to demonstrate any alternative interpretations (Yin, 2013). Given this context, this study following a thematic analysis approach to analyse the qualitative empirical data. This includes the process of encoding the qualitative information to identify a particular theme within the information, or could be by using some identified patterns relevant to the research area (Richard E. Boyatzis, 1998). In the next section the analysis and findings of the qualitative empirical data will be discussed.

6.6. Interviews Data Analysis

6.6.1. Government Trustworthiness

The investigation began by demonstrating the interviews' findings related to government trustworthiness. As already mentioned in the literature (chapter 2) and the conceptual model (chapter 3), trustworthiness comprises three main constructs: Ability, Benevolence, and Integrity (McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995). Government benevolence and integrity were merged based on the analysis of the quantitative data in Chapter 5. Therefore, the reason why such a merger occurred and analysis of this new factor will be in the same section.

6.6.1.1. Ability of the Government Agency

Ability is that group of skills, competencies, and characteristics that enable a government agency to have influence on different stakeholders within some specific domain (Mayer, Davis and Schoorman, 1995). From the quantitative analysis, it was found that government ability has a great positive impact on citizens' trust in government e-services. The analysis of results from the interviews also showed that government ability is one of the most important factors that dramatically enhances citizens' trust of e-government. It revealed that almost all the interviewees agreed that government ability has a critical role in citizens' trust of e-government services, especially when considering the skills of civil servants.

Interviewee-17 and interviewee-13 stated respectively "*The ability and efficiency of a government agency definitely increase my confidence in that agency. It can also briefly describe the agency that I am going to deal with, so you may expect delays in transactions or even lose your transaction if the civil servant did not had the required level of skills, efficiency and computer literacy*", and "*If a government agency got the ability to provide and regulate their business procedures correctly, this absolutely will increase my trust in their e-services*".

However, when a government agency lacks ability, delay is highly expected to complete a transaction with this agency regardless of the approach used (ie. traditional or electronic approach).

Interviewee-16 said "*Indeed, the ability of the government agency is important especially if you precise about time. However, lack of ability may results in delays to get your transaction completed whether you used the traditional or the electronic method to submit your request*".

Abdulaziz Albesher

Some interviewees are willing to trust e-services, even if the ability of the provider (government agency) is uncertain, as they believe e-procedures can improve business processes and provide an acceptable level of transparency and accountability.

Interviewee-12 stated "*One of the advantages for trusting more the e-services of a government agency is the ability to limit human interference, except the authorized people. It also helps to set a clear and fixed procedures*".

However, some interviewees based their existing lack of trust in government ability on their previous personal experiences with government agencies (when there was a few decent e-services with complicated and bad procedures). Furthermore, some interviewees put their lack of trust in government ability down to the weakness of skills held by civil servants, as they believe that the civil servants did not have the appropriate training to deal with transactions electronically. Lack of control and supervision were salient for other interviewees, as they believe it could damage their trust in the ability of a government agency. Nevertheless, they believe that engaging e-services in government transactions will have the advantage of overcoming the supervision issues, increase the proficiency of business processes and enhance the flow of government transactions.

6.6.1.2. Government Benevolence and Integrity

Benevolence can be seen as the extent to which a trustee (government agency) is believed to want to do good for the trustor (citizen), apart from any profit motives (Mayer, Davis and Schoorman, 1995). Integrity can be defined as the extent to which a trustee (government agency) is believed to adhere to ethical principles and sound morals, with synonyms including promise fulfillment, justice, consistency and fairness. Integrity is a rational reason to trust someone, as it represents a kind of long-

term predictability of the trustee's moral and fairness characteristics that can help individuals cope especially in case of uncertainty (Lind, 2001).

From the quantitative analysis, we found that most of the participants deemed government benevolence and integrity as significant factors that affect trust in e-government services, and that they were viewed as one construct. Hence, the qualitative analysis used to demonstrate the importance of each one and to understand why these two constructs was combined into a single factor.

The majority of the interviewees shared a perception about the benevolence of the government agency, in that they deem it important to increase citizens' trust in e-government services. It has been understood that the high sense of benevolence in a government agency can persuade citizens to trust more in their e-services. The interviewees relate this point to their expectations that a high sense of benevolence in a government agency will definitely lead this agency to provide the finest quality e-services and recruit the best employees to handle these e-services. Other interviewees linked it to human nature, as when someone is trying to do good things for you without being motivated by profit, it is expected that they will provide it to you in an optimum way.

Interviewee-11 stated "*Indeed it do motivate. Realizing that government agency is always care and try to do good things to their consumers (citizens), this absolutely makes me believe that they will provide best e-communications methods, develop their employees' skills and motivate them to serve the citizens in a good quality*".

In regards to the integrity of a government agency, almost all the interviewees found it was a critical factor in deciding whether or not to trust in a government agency and their e-services. Furthermore, they added that when a government agency does not have an acceptable level of integrity, this will affect the agency's credibility and implies that it may suffer from corruption. If such a case of low integrity exists, then

Abdulaziz Albesher

the agency will need long time to restore citizens' trust in the agency and their e-services.

Interviewee-10 said "*Integrity is critical to trust in a government agency, so if there is no integrity it means that this agency is definitely suffering from corruption and cannot provide the services properly, and this includes e-services*".

Government benevolence and integrity were viewed by the majority of interviewees as synonyms and related to each other. Some believe this perception is more related to the Saudi community and culture. However, other interviewees believe that these two constructs are inextricably linked, as an agency or employee could not be benevolent without having a sense of integrity. Moreover, it was widely perceived that intensive monitoring and supervising may help to enhance the integrity within a government agency, but it cannot increase the benevolence.

Interviewee-14 stated "*I will not be so anxious about the integrity of a government agency when I know that they apply a good supervisory and monitoring systems, and this definitely affects my trust in their e-services*".

6.6.2. Trust Propensity

Trust propensity refers to personal traits or the general tendency to be willing to depend on others or not (Gefen, Karahanna and Straub, 2003; McKnight, Choudhury and Kacmar, 2002; McKnight, Cummings and Chervany, 1998; Mayer, Davis and Schoorman, 1995). From the quantitative analysis, citizens's trust propensity was found to be significant in predicting citizens' trust in e-government services.

In interpreting the qualitative empirical data, a lot of interviewees agreed on the significance of trust propensity affecting trust in e-government services. Trust

Abdulaziz Albesher

propensity was widely acknowledged by several interviewees as a vital factor that helped understand citizens' trust in e-government services and their intention to use these e-services. However, the majority of the interviewees found trust propensity as a great motivator to intention to use e-government services more than trust, especially in the case of using a new e-service.

Interviewee-3 said "*I agree on the effect of this factor on my willingness to trust, but I find it more powerful in uplifting my intention to use e-government services, especially the new e-services*".

Several interviewees linked this perception to the importance of having a personal experience. Personal experience was viewed as a critical element to build individual's trust propensity that consequently assists in enhancing citizens' trust in e-government services. Furthermore, a number of interviewees believed that different former personal experiences were likely to increase propensity to trust in e-government services, even if the experience was with an Internet merchant.

Interviewee-13 stated "*To be precise, I find it positively affecting my intention to use e-government services more than trusting these e-services. My trust will be increased more if I had a good experience with one of their legacy e-services or if I had a positive experience with an Internet merchant*".

6.6.3. Trust in the Internet

Trust in the Internet can be defined as the belief that the Internet is a reliable medium, capable of providing secure transactions and precise information (Bélanger and Carter, 2008).

Abdulaziz Albesher

From the quantitative analysis, citizens' trust in the Internet was found to be significant in understanding citizens' trust in e-government services. Based on the qualitative analysis, the majority of the interviewees shared a similar perception that trust in the Internet is a strong factor in trusting government e-services, as it forms the technological medium that allows the different parties (government and citizens) to interact with each other.

Interviewee-6 said "*I believe it has a great role on my decision to trust in government e-services. To explain, you cannot use or trust any of the e-government services without trusting the Internet, because eventually it is the technology that these e-services built upon it*".

Several interviewees believed that their level of trust in the Internet depends on the party that they are dealing with. Therefore, if the government agency is able to secure transactions and protect citizens' personal information, the level of trust in the Internet will increase and it will not be considered as an issue. The majority of the interviewees were confident in regarding the government's capability of monitoring, protecting and securing citizens' transactions. In addition, they believed that the government would not launch any e-service without having the ability and skills to protect their citizens' information.

Moreover, interviewees agreed that personal experience could contribute to enhancing users' trust in the Internet, as it is the structural basis in how to use the e-government system. Interviewee-1 stated "*To some extent the Internet consider as a secure approach to communicate in this era, but when it is about transferring personal details it depends more on the party who I am dealing with. In the case of government or bank sectors I will not hesitate to use their e-services, because I believe they built it with the best quality and they're able to protect my sensitive information*".

Abdulaziz Albesher

6.6.4. Social Influence

Social influence is the degree to which an individual perceives the important of others believes on how he/she should use or trust a new system (Venkatesh *et al.*, 2003). From the quantitative analysis social influence was found to be significant in predicting citizens' trust in e-government services and the behavioural intention to use those e-services.

Based on the qualitative analysis, almost all the interviewees agreed on the importance of social influence and considered it as one of the main factors that builds both citizens' trust and intention to use e-government services. Social influence was viewed by several interviewees as one of the main drivers in adopting e-government services, as it used the perceptions and satisfaction of other people to create the individual's perception of a certain e-service. Family and friends were often the most reliable people and their satisfaction with an e-government service can greatly encourage the citizen to use and even trust the e-service. According to some interviewees, the level of a citizen's confidence in his family and friends knowledge can influence their trust more in e-government services.

Interviewee-5 said "*In a normal manner, when I get recommendations or persuasions from my family or friends to use a government e-service I will use if I received a good impression from them. However, regard trusting an e-government service it will depends more in the knowledge of the person who recommended me and to what extent I can rely on his knowledge*".

However, other interviewees believed that even if they received some influence or recommendations from family and friends it would only affect their intention to use those e-government services, as they believe trusting in the e-services requires personal experience apart from family and friends' recommendations. Interviewee-22 stated "*Good family and friends' impression can encourage me to trust, but my personal experience will be critical to take such decision*".

Abdulaziz Albesher

6.6.5. Trust in E-government Services and Behavioural Intention to use

Many interviewees trust in e-government services because they believed that e-procedures and e-services provide a great opportunity to improve business processes within a government agency. This perception was common between the different interviewees and was believed that citizens' trust in e-government services is associated with their intention to use such e-services. In addition, some interviewees believed that trusting and using e-government services can increase the chances of overcoming the bureaucracy, allowing citizens to be involved in decision-making and allowing them to have a role in cultural development.

According to interviewee-21, "*Frankly, my point of view slant towards trusting e-government services. I believe trusting and start using e-government services can contribute in improving the unreliable and deep-rooted business processes within a government agency*". Knowing that transparency and credibility of a government agency can be enhanced by using a technological approach, this greatly motivated several interviewees to trust in e-government services and consequently adopt the use of these e-services.

In addition, understanding the capabilities, facilities and benefits that can be obtained from using an electronic system, for instance an e-government system, significantly encouraged citizens to trust in this electronic system, and boosted their intention to keep using it. The ability to track and monitor citizens' transactions were the most dominant concerns for the majority of the interviewees and most of them believed that trusting and using such e-government systems can help them to overcome most of these concerns. Interviewee-7 said "*In my perspective, trusting and using e-government services have a lot of advantages, such as avoiding intermediation, preventing corruption, and having the ability to track my transactions within a government agency*". Table 6.2 will summarise the main findings and the researcher recommendation of the qualitative study.

Factor	Researcher recommendation	Reasons given
Ability	Significant-High	Lack of ability in a service provider leads to a number of issues, such as invalid transactions, missing transaction data and delay to complete a transaction.
Benevolence & Integrity	Significant-High	High sense of benevolence is responsible for creating perceptions related to the quality of the provided services and the skills of the recruited employees. Others linked the importance of benevolence to human nature, as the willingness to do good things for someone will create a positive perception in this provider. Integrity is closely related and represents the credibility and accountability of the e-service provider.
Trust Propensity	Significant-high Moderate	Trust propensity widely acknowledged as a vital factor in understanding a citizen's trust in e-government services and the intention to use these e-services. Trust propensity was more to be great motivator to use e-government services, especially in the case of using a new e-service.
Trust in the Internet	Significant-High	Ability of government agencies to provide secure transactions and protect citizens' personal information over the Internet are the main

Abdulaziz Albesher

Factor	Researcher recommendation	Reasons given
		critical elements that shape the importance of this factor from participants' perspectives.
Social Influence	Significant-High	Social influence was found to be significant in a citizen's decision to trust. Moreover, it was also found to be significant in predicting a citizen's intention use an e-government service.
Behavioural Intention	Significant-High	Trusting in e-government services significantly helps in increasing a citizen's confidence to use and adopt e-government services. Using such e-services increases the chances in overcoming the bureaucracy of different government agencies. Moreover, in general, trusting in the electronic approach and the expected positively gained outcomes, such as better monitoring and transparency, can greatly motivate citizens to use and adopt e-government services.

Table 6.2: The main findings of the qualitative study

Abdulaziz Albesher

6.7. Summary

This chapter has analysed different citizens' perspectives in trusting e-government services in the Kingdom of Saudi Arabia. The chapter concentrated specifically on the qualitative empirical findings. The qualitative study was employed to validate and confirm the results of the quantitative study in Chapter 5 (Creswell *et al.*, 2003). In addition, this qualitative study helped to provide a great overview and insight to help understand different interviewees' perspectives. The research identified the independent factors as key predictors to estimate a citizen's decision to trust and adopt an e-government service. The findings of this chapter and Chapter 5 will be fully discussed and elaborated in Chapter 7.

For this study, twenty-five interviewees participated in interviews to provide the qualitative empirical data. All the interviewees in this qualitative study had participated previously in the quantitative study. The collected empirical data emphasized that the proposed conceptual model is appropriate to contribute to and meet the aim of this thesis in the context of e-government. As a result, the qualitative findings of this study showed that the factors proposed in the conceptual model have influenced citizens' trust and adoption of e-government services. The next chapter (Chapter 7) will discuss and comment on the results obtained from the quantitative and the qualitative studies, and will consider the literature review listed in Chapter 2.

Chapter 7: Discussion of the Key Findings

7.1. Introduction

This chapter will fully discuss the reported results in chapter 5 and chapter 6. The presented corpus of literature in chapter 2 demonstrated an absence of studies of theoretical models and empirical evidences regarding the role of trust in e-government adoption and usage behavioral.

Although an outstanding effort has been conducted to extend e-government services in Saudi Arabia, the innovation came with a lack of contemporary theoretical comment. Therefore, such concerns have been investigated in this study to contribute towards increasing the use and adoption rates of e-government services in the Saudi context. This study aims to investigate factors affecting citizens' trust and their intention to use e-government services in Saudi Arabia.

The investigation starts by connecting the research objectives of this thesis by using an appropriate methodology approach (sequential mixed methods). The empirical data provided in chapters 5 and 6 have been used to assess the study conceptual model proposed in chapter 3 to achieve the main aim of this study.

Moreover, this chapter seeks to synthesise the literature with the study's empirical findings and to revise the conceptual model presented in chapter 3, based on the factors found to significantly affect citizens' trust to use and adopt e-government services.

As a result, this chapter will end by proposing a revised conceptual model that demonstrates the role of citizens' trust in the adoption of e-government services and usage behavioral. Such a proposed model can be used as a tool for decision-making

Abdulaziz Albesher

when one is considering ways to enhance the use and adoption of e-government services.

7.2. Response Rate

As shown in chapter 5, the distributed questionnaire survey of this study has a response rate of 83.5%. Bryman (2012) and Mangione (1995) consider a study response rate satisfactory if it falls between 95% at the higher end and 5% at the lower end. Therefore, the gained response rate for this study is considered a satisfactory and very acceptable rate.

7.3. Instrument validation

To ensure the validity of the study findings, several instrument validation processes have been used such as pilot study, construct reliability, Eigen values test and exploratory factor analysis. Such instrument validations used to test pre-data collection validity and post-data collection validity (Straub, Boudreau and Gefen, 2004). Moreover, they increase the survey's reliability and thus confidence in the research findings. On the one hand, the pilot study used for the pre-data collection validity can help researchers avoid any misguiding or unclear wording in the instrument and enables them to make any required revisions, as described in chapter 4.

On the other hand, constructs validity and reliability are used to test post-data collection validity. According to Straub et al. (2004), these techniques are the recommended standards of validity in IS research. To examine the internal

Abdulaziz Albesher

consistency of the research constructs, we used Cornbach's coefficient alpha value to assess the measures (Hinton, Brownlow and McMurray, 2004).

Four points were suggested to evaluate construct reliability: (0.90 and above) = excellent, (0.70-0.90) = high, (0.50-0.70) = high moderate, and (0.50 and below) = low (Hinton, Brownlow and McMurray, 2004). The constructs reliability values of this study, as reported in chapter 5, ranged between (0.929) and (0. 732). This indicates that all the construct reliability values possessed values above the minimum recommended level, which is equal or above (0.7) as recommended by Straub et al., (2004). Furthermore, these constructs reliability values ranged between high and excellent scores based on Hinton et al.'s (2004) suggested four points, which demonstrates an appropriate level of internal consistency.

7.4. Response Hypotheses

The results of the quantitative findings in chapter 5 and the results of the qualitative findings in chapter 6 of the conceptual model presented in chapter 3 will be discussed in this section. In chapter 3, the study hypotheses were developed to explore the impact and relationships between the independent factors and the dependent factors towards understanding citizens' trust and intentions to use e-government services. Thus, this section will discuss the role of each independent factor in explaining the dependent factors and the relevant implications.

Next, the results of the demographic variables in citizens' trust in e-government services will be discussed. In addition, significant and non-significant results, based on quantitative and qualitative data analysis of these proposed hypotheses will be reported. In chapter 3, eight hypotheses were proposed for this study. The items of the benevolence construct and integrity construct were loaded together, for this reason we combined them into one construct (Benevolence and Integrity) to test them.

Abdulaziz Albesher

All the study hypotheses—Ability (Ab), Benevolence and Integrity (B&I), Trust Propensity (TP), Trust in Internet (TI), Trust of e-Government (TOE) and Social Influence (SI)—were significantly supported by the results of the obtained data towards explaining citizens' trust and intentions to use e-government services. Moreover, four demographic variables (Age, Gender, Education Level and Internet Experience) were used to control the dependent variable Trust in e-Government.

None of these demographic variables used to control the dependent variable found confounding citizens' trust in e-government services, except respondent's gender. More details of the hypotheses results will be discussed in depth in the following subsections.

7.4.1. Government Agencies' Ability and Trust in e-Government

H1. The perceived ability of a government agency will have a significant influence on trust in e-government services.

Rousseau et al.'s (1998) cross-disciplinary trust review and Mayer et al.'s (1995) integrative model assisted in clarifying the conceptual distinctions among trustworthiness, trust and trust propensity. Understanding traits of the trustee is an approach to determining the trustworthiness of a given party. Moreover, it helps researchers realize why a given party does have a lesser or greater amount of trust in another party (Colquitt, Scott and LePine, 2007; Flores and Solomon, 1998).

Mayer et al. (1995) introduced three factors that conceptualise trustworthiness and treated trust as the most proximal predictors of different behavioral outcomes. Ability is one of the three factors that form trustworthiness. The findings of (Paravastu, Gefen and Creason, 2014; Colquitt, Scott and LePine, 2007; Mayer, Davis and Schoorman,

Abdulaziz Albesher

1995) claimed that perceived ability can help researchers understand trust of a given party. The statistical quantitative findings confirmed this theoretical assumption in the context of e-government, which suggests that the ability of government agencies has a significant positive influence on citizens' trust of e-government services. In addition, the qualitative findings from the interviews show that the ability of government agencies is a significant predictor of citizens' trust in e-government services.

Moreover, the findings of this study revealed the existence of a unique effect of ability on citizens' trust in e-government services, which supports the findings of (Paravastu, Gefen and Creason, 2014; Colquitt, Scott and LePine, 2007; Mayer, Davis and Schoorman, 1995). However, these findings contradict the findings of (Lee and Turban, 2001) when no significant effect of ability appeared on consumers' trust in Internet shopping. The importance of this factor in an e-government context is mainly related to citizens' confidence in civil servants' skills, ability to protect data and quality of the e-government system and services.

Therefore, we recommend that different government agencies in Saudi Arabia show their ability to provide decent e-services, raise the proficiency of business processes and protect citizens' data. These concerns structure the vitality of ability factor as an influential factor for increasing citizens' trust in e-government services.

7.4.2. Government Agencies' Benevolence and Integrity and Trust in e-Government

H2 & H3. The perceived benevolence and integrity of a government agency will have a significant influence on trust in e-government services.

As discussed in Chapter 3, trust in a given party can be predicted by understanding to what extent this party is deemed trustworthy (McKnight, Choudhury and Kacmar,

Abdulaziz Albesher

2002; Mayer, Davis and Schoorman, 1995). Ability, benevolence and integrity are the most common factors used in numerous studies to conceptualize the trustworthiness of a given party (Colquitt, Scott and LePine, 2007; Gefen, Karahanna and Straub, 2003; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995). However, some studies could not demonstrate unique significant effects for benevolence and integrity when predicting trust (Mayer and Gavin, 2005; Jarvenpaa, Tractinsky and Saarinen, 1999).

Moreover, benevolence and integrity may be redundant each other and thus were combined into a single variable in some conceptualizations of trustworthiness (Colquitt, Scott and LePine, 2007). Moore and Benbasar (1991) justified this combination by explaining that even when benevolence and integrity are conceptually different, the respondents saw them as identical. Such combination between benevolence and integrity has been demonstrated in this study and thus were combined into a single variable.

In the analysis of the quantitative data, all the items of benevolence and integrity have been loaded together, even though these two dimensions have been identified separately. According to Moore and Benbasat (1991), 'this may mean that, while conceptually different, they are being viewed identically by respondents, or that there is a casual relationship between the two'. Therefore, the combination of benevolence and integrity in this study could be related to the participants' view of those two dimensions as synonyms and interrelated factors. This shared perception could also be linked to the Saudi community and culture. After combining benevolence and integrity into a single variable, this new variable has been tested. From the quantitative analysis, we found that government benevolence and integrity positively impact citizens' trust in e-government services in Saudi Arabia.

These findings support the findings of (Paravastu, Gefen and Creason, 2014; Colquitt, Scott and LePine, 2007; McKnight, Choudhury and Kacmar, 2002; Lee and Turban, 2001; Mayer, Davis and Schoorman, 1995), in which benevolence and integrity were found to be significant predictors of trust. In addition, the qualitative empirical

Abdulaziz Albesher

findings support the quantitative findings and revealed that government benevolence and integrity positively affect citizens' trust in e-government services.

It is widely expected by different Saudi citizens that a high sense of benevolence in a government agency will definitely lead that agency to provide the highest quality of e-services and to recruit the best employees to handle these e-services. This perception could be linked to human nature, because when someone trying to do 'good things' for another without profitable motivations, it is greatly expected that they will care to provide those services in an optimum way.

Integrity considered as an inspector to identify the equitability of a government agency. Thus, when a government agency does not have an acceptable level of integrity, this will affect the agency's credibility and implies that it may suffer from corruption. If cases of low integrity exist, the agency will need a long time to restore citizens' trust in the agency and their e-services. Integrity is demonstrated through trustees' adherence to honesty and a set of ethical principles accepted by citizens. Therefore, it is advisable for government agencies to convey a clear sense of morals and honesty (Lee and Turban, 2001).

7.4.3. Trust Propensity and Trust in e-Government

H4. Citizen's trust propensity will have a significant influence on trust in e-government services.

Trust propensity refers to personal traits or a general tendency to be willing to depend on others (Gefen, Karahanna and Straub, 2003; McKnight, Choudhury and Kacmar, 2002; Mayer, Davis and Schoorman, 1995). Trust propensity is a personal propensity that government agencies are unable to manipulate. The current study investigated the influence of trust propensity on citizens' trust in e-government services. Several

Abdulaziz Albesher

previous studies found that trust propensity positively impacts trust (Zhou, 2011; Colesca and Dobrica, 2008; Colquitt, Scott and LePine, 2007).

Similarly, the quantitative findings of this study revealed that citizens' trust propensity is a significant predictor of citizens' trust in e-government services. These findings support the findings of (Zhou, 2011; Colesca and Dobrica, 2008; Colquitt, Scott and LePine, 2007; Mayer, Davis and Schoorman, 1995), who found trust propensity to be a vital factor in determining trust. Moreover, the qualitative empirical findings of this study support the quantitative findings and sets out the positive significant impact of citizens' trust propensity to understand citizens' trust in e-government services.

However, some participants in this study found trust propensity more effective on citizens' behavioral intention to use e-government services than citizens' trust in e-government services, especially in the case of using a new e-service. This perception can be linked to the salient role of having a personal experience. Different personal experiences tend to improve citizens' trust propensity to trust in e-government services, even if the experience was with an Internet merchant. The providers of e-government services should be aware of the existence of trust propensity and its impact on other factors.

It is expected that some citizens could be skeptical or reluctant to trust and use government e-services. However, targeting and motivating citizens with lower trust propensity could provide an avenue for increasing citizens' trust and adoption of e-government services.

Incentives can be a key for different agencies to encourage citizens to try e-government services. For instance, an agency could guarantee that using online services would be faster than using the telephone or than face-to-face transactions. Once a citizen has completed a successful online experience, he or she will begin to develop more trust in e-government services.

7.4.4. Trust in Internet and Trust in e-government

H5. Trust in the Internet will have a significant influence on citizens' trust in e-government services.

Trust in Internet can be defined as trust in the reliability of the enabling technology, safety structures and security measures of this electronic channel (Bélanger and Carter, 2008; Carter and Bélanger, 2005; Pavlou, Tan and Gefen, 2003). Several previous studies have reported the importance of trust in the Internet to predict trust (Al-Sobhi, 2011; Colesca, 2009; Bélanger and Carter, 2008; Welch, Hinnant and Moon, 2005), whereas other did not found it to be a significant predictor (Lee, Kim and Ahn, 2011).

Our quantitative empirical findings support the importance of trust in the Internet and found that it positively impacts citizens' trust in e-government services. Moreover, our qualitative empirical findings support this claim and found trust in the Internet to be a key predictor to understanding trust in e-government services in Saudi Arabia. We found that if the government agency is able to secure transactions and protect citizens' personal information, the level of trust in the Internet will increase and consequently citizens' trust in e-government services will increase accordingly.

New users of e-government services over the Internet may face uncertainty about the quality of online services. Concerns about the reliability and security of online transactions always arise among offline business users because they have not used e-government services before, especially in the case of transmitting financial and personal information over the Internet. Government agencies should benefit from the mechanisms of e-commerce vendors in building trust, such as privacy seals and posting security, to increase citizens' trust in e-government services. Government agencies should also use posters at their physical locations and social networks to encourage citizens to trust, and they should emphasize the privacy and security of the employed mechanisms to ensure the reliability of the e-services.

Abdulaziz Albesher

Citizens must be confident about the technological mechanisms that are employed and be certain that they ensure the security and privacy of data transmission over such medium. In addition, citizens' belief that the Internet is a safe and robust environment highly impacts citizens' trust and adoption of e-government services. Once a citizen has a positive experience with these provided services, he or she will start to develop trust in the Internet and the reliability of these e-services which, as a result, can increase citizens' trust in current and future e-government services.

7.4.5. Social Influence, Trust in e-Government, and Behavioral Intention

H6. Social influence will have a significant influence on citizens' trust in e-government services.

H7. Social influence will have a significant influence on citizens' behavior intention to use e-government services.

Social influence is the degree of individual's perceives that people who deemed important to him/her believe he/she should trust or use a new system (Venkatesh *et al.*, 2003). As mentioned in the literature review, several studies identified social influence as a key predictor for trust and behavioral intention to use e-government services (Carter *et al.*, 2011; Al-Shafi and Weerakkody, 2010; AlAwadhi and Morris, 2008). The quantitative findings of this study support this claim and found social influence positively influences both trust in e-government services and behavioral intention to use these e-services.

In addition, our qualitative empirical findings support the study's quantitative findings and found social influence to be a vital construct in determining citizens' trust and behavioral intentions to use e-government services. Social influence has been widely

Abdulaziz Albesher

viewed as one of the main drivers of adoption of e-government services. This construct uses perception and satisfaction of close people to build an individual's perception of a certain e-government service. Family and friends often are the most reliable people and their satisfaction in a government e-service can greatly encourage the individual to use and even to trust in some cases.

However, some influences or recommendations received from family and friends will mainly affect an individual's intention to use these e-government services, since trusting in these e-services will require personal experience in addition to the recommendations from family and friends. In other words, friends, families and close societies are able to affect each other in using and trusting e-government, besides creating positive pressures for further acceptance of e-government services.

Therefore, governments should encourage citizens to inspire their relatives and friends who are still reluctant to trust and adopt the e-government system. In addition, awareness campaigns in newspapers, on televisions and on government agencies websites are more likely to encourage citizens to trust and adopt e-government systems. Thus, government agencies should take advantage of media and social networks as well as individual influences to market and advertise e-government services.

7.4.6. Trust in e-Government and Usage Intention

H8. Trust in e-government will have a significant influence on citizens' behavior intention to use e-government services.

Trust in e-government services can be defined as individual or group willingness to be vulnerable and rely upon the promises of the government agency that provides the e-service (Bélanger and Carter, 2008; McKnight, Choudhury and Kacmar, 2002;

Abdulaziz Albesher

Mayer, Davis and Schoorman, 1995; Rotter, 1971). The presence or absence of trust can have a strong bearing, in many cases, on what we can do or what we choose to do. Moreover, perceived risk and uncertainty can be mitigated by trust, besides promoting the usage intention (Zhou, 2011).

Several previous studies identified trust as a very important construct in influencing the behavior of usage intention (Susanto *et al.*, 2013; Zhou, 2011; Shin *et al.*, 2010; Bélanger and Carter, 2008). The quantitative empirical findings of this study support the importance of trust to predict usage intention. Citizens' trust in e-government services was found to positively impact citizens' intention to use e-government services. In addition, the study's qualitative empirical findings support the significance of this construct to predict citizens' intention to use e-government services.

It is widely believed by Saudi citizens that trusting and using new government e-services and e-procedures can improve the business process within the agency that provides the e-services. This common shared perception encourages citizens to trust and consequently increase their intention to use these e-government services. By nature, trust in the government agency that provides the service is essential to adopting e-government.

Government agencies should emphasise the gained benefits of trusting e-government services because e-services can enhance transparency, accountability and responsiveness within the provider agency. Furthermore, government agencies should demonstrate their desire and ability to provide citizens convenient, secure, and dependable services via several communication channels, including the Internet. The ordinary citizen should recognise his or her role in decision-making and culture development and believes that such e-government services can facilitate communication.

Abdulaziz Albesher

In addition, publicising positive statistics and successful stories of citizens who are satisfied and pleased with these e-services could positively inspire citizens of the competence of government agencies. Such publicity can also enhance the perceptions of non-adopters of the trustworthiness of the agency that provides the e-services. Consequently, this will contribute to decreasing citizens' concerns of the affiliated risks and thus their intentions to use e-government services.

7.4.7. Demographic Variables and Trust in e-Government

7.4.7.1. Age and Trust in e-Government

Analysis of the survey data shows that age has no influence on citizens' trust in e-government services. This result supports the findings of Albesher and Brooks (2014) and Venkatesh et al. (2013) on the use of e-government portals and contradicts the findings of Al-Shafi and Weerakkody (2010), who tested the effect of age differences on the adoption of e-government in Qatar.

This means that differences in citizens' age groups was not a barrier to trust in adopting e-government services. A possible explanation could be related to the successful awareness campaigns launched by different Saudi government agencies and the successful awareness of publicity among different age groups about the ability of government agencies to provide secure, sufficient and decent e-services.

Abdulaziz Albesher

7.4.7.2. Gender and Trust in e-government

The findings of this study suggest that gender has a negative influence on citizens' trust in e-government services. This outcome contradicts the finding of (Dwivedi and Lal, 2007; Belanger and Carter, 2006) and supports the findings of (Venkatesh, Sykes and Venkatraman, 2013; Al-Shafi, 2009), as they found gender to be a predictor of citizens' trust and usage behavioral of e-government. These findings indicate that females are more likely to trust in e-government services, which contradicts the theoretical research on gender that shows males tend to be highly task-oriented.

The recent evolution of high-level education that Saudi women have achieved could contribute to explaining this result. Their high levels of education have changed the role of Saudi women in modern Saudi society and also have heightened their awareness and knowledge of the electronic revolution in both e-government and e-commerce.

7.4.7.3. Education Level and Trust in e-Government

The findings of this study show no significant influence of education level on citizens' trust in e-government services. This result contradicts the findings of (Venkatesh, Sykes and Venkatraman, 2013; Al-Shafi and Weerakkody, 2010; Belanger and Carter, 2006), which identified the importance of education level in trust, use and adoption of new e-government services. Difficulties in accessing groups of different education level are the core significance of this variable, in addition to citizens' level of confidence in agencies' ability to secure and maintain the e-interaction between the parties (Mossberger, Tolbert and Stansbury, 2003). Therefore, our findings can be explained by the extraordinary effort of Saudi government agencies to reach most of its citizens regardless their education levels.

Abdulaziz Albesher

7.4.7.4. Internet Experience and Trust in e-Government

The findings of this study show that Internet experience has no significant impact on citizens' trust in e-government services. This result contradicts the findings of (Al-Sobhi, 2011), who found Internet experience to have an effect on e-government adoption.

However, although this study did not find a significant effect of Internet experience on citizens' trust in e-government services, Internet experience was found to significantly affect behavioral intention to use e-government services. This could be as a result of a set of completely different experiences (like e-shopping) rather than transacting with government agencies. This requires further investigation. In addition, these findings could also indicate that when the ordinary citizen deems the e-service provider (Saudi government agencies) trustworthy, he or she will disregard the impediment of lack of Internet experience and will trust in these e-government services.

Abdulaziz Albesher

Hypotheses number	Hypotheses proposed	Results
H1	The perceived ability of a government agency will have a significant influence on trust in e-government services.	Supported
H2 & H3	The perceived benevolence and integrity of a government agency will have a significant influence on trust in e-government services.	Supported
H4	Citizen's trust propensity will have a significant influence on trust in e-government services.	Supported
H5	Trust in the Internet will have a significant influence on citizens' trust in e-government services.	Supported
H6	Social influence will have a significant influence on citizens' trust in e-government services.	Supported
H7	Social influence will have a significant influence on citizens' behavior intention to use e-government services.	Supported
H8	Trust in e-government will have a significant influence on citizens' behavior intention to use e-government services.	Supported

Table 7.1: Summary Research Hypotheses Results

7.5. Research Model of e-Government Trust and Adoption

The conceptual model presented in Chapter 3 can be revised based on the conducted investigations and analysis in Chapter 5 and Chapter 6. The revised conceptual model has taken into account only the significant influencing factors for Saudi citizens' trust in e-government services in Saudi Arabia. The proposed significant factors in Chapter 3 were examined and tested using different quantitative analyses in Chapter 5.

This step has been followed up by a qualitative validation phase using semi-structured interviews described in Chapter 6. The revised conceptual model aims to illustrate the significant relationships between the proposed factors in the e-government trust and adoption conceptual model (see Figure 7.2).

The results indicate that the proposed independent factors in this research are very important to understanding citizens' trust and use behavioral intention towards e-government services.
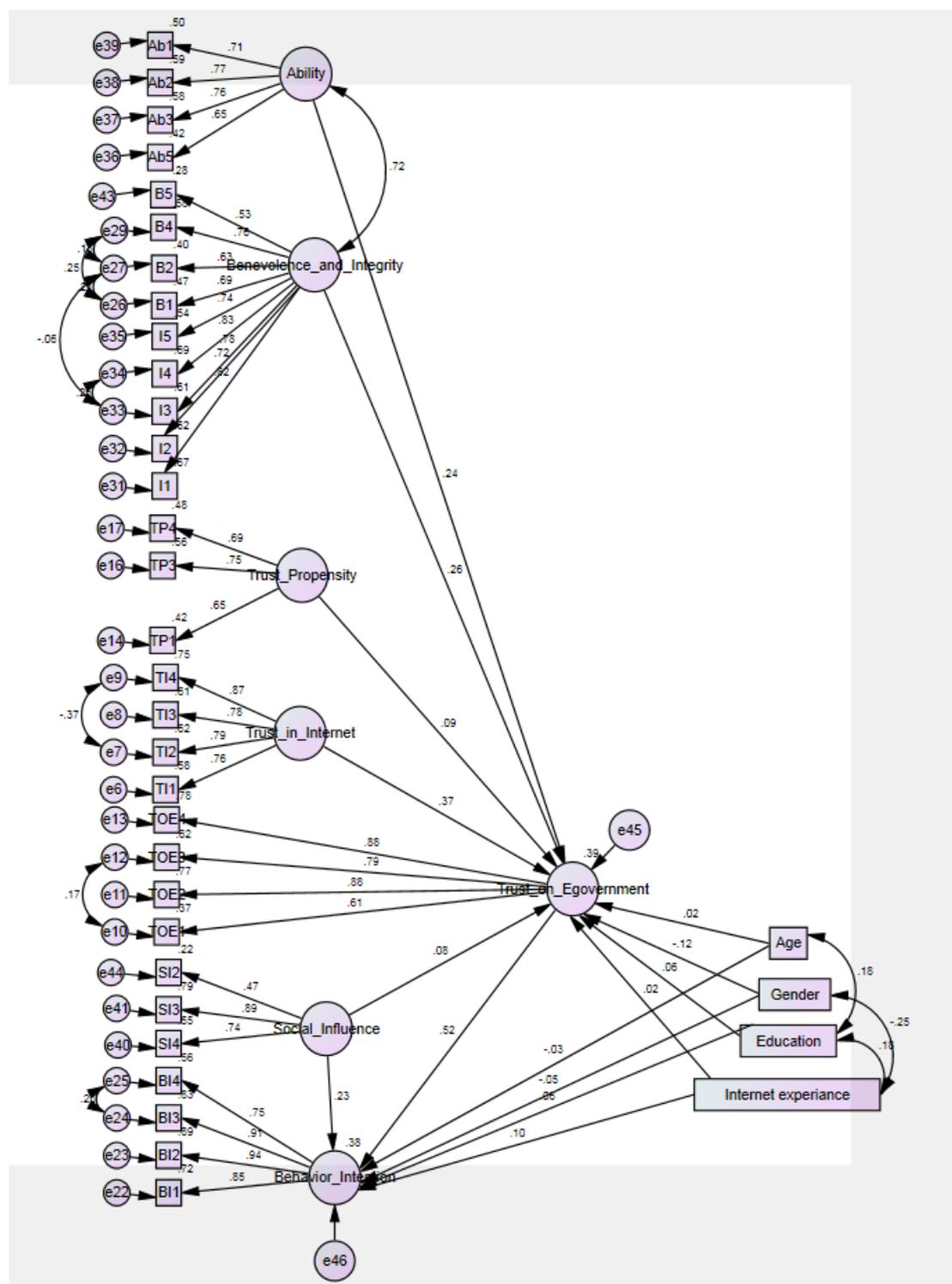
Figure 7.1: Results of the study's conceptual model
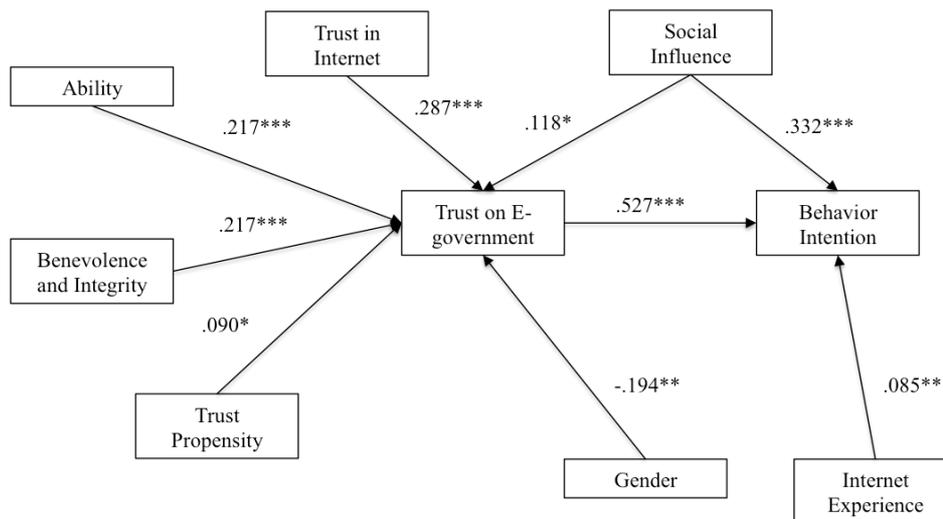
Notes: Only path coefficients with significant relationships are displayed.

* Significant at p <0.05.

** Significant at p <0.01.

*** Significant at p <0.001.

Figure 7.2: The revised conceptual model

7.6. Summary

This chapter focused on holistic discussion resulting examining the factors influencing the use and adoption of e-government services. In doing so, the chapter revisited the conceptual model proposed in Chapter 3 and revised it based on the findings of the quantitative and qualitative empirical studies in Chapters 5 and 6. The discussion started by examining the study response rate and instrument validation.

Next, the chapter discussed the identified factors that affect citizens' trust in and use of e-government services and the effect of demographic variables (Chapter 3) to fill the research gap presented in Chapter 2. A sequential mixed method approach was chosen for this study (Chapter 4). The empirical investigation starts with a quantitative study (chapter 5) and was followed by a qualitative study (Chapter 6).

The findings of the quantitative and qualitative studies were discussed in this chapter. Each factor was mapped to the literature and findings of previous studies about e-government (Chapter 2 and 3). Thus, the chapter ends with a revised model that illustrates the role of citizens' trust in the use and adoption of e-government services. The revised model is based on the validated and significant factors from the conducted quantitative and qualitative empirical studies and those listed previously in the proposed conceptual model of this study in Chapter 3.

Thus, the theory of this study offers an integrative model to understanding the role of citizens' trust in the use and adoption of e-government services. It also confirms the effect of the factors that influence use and adoption in a different context of e-government (e-government in the Saudi context). Moreover, this study shows the role of demographic variables such as age, gender, education level and Internet experience on citizens' trust in e-government services and their intentions to use these e-services. The study concluded that gender and Internet experience contributed significantly to

Abdulaziz Albesher

the trust and use of e-government, whereas age and education level did not. Keeping such results in mind can help increase the number of citizens benefiting from e-government services and leverage their trust and intentions to use such e-services.

Chapter 8: Conclusion

8.1. Introduction

This chapter will provide the conclusion and the lessons learned from this thesis. Therefore, the chapter starts by presenting an overview of the research motivations and the structure of the thesis. In addition, it will discuss how the objectives of this research have been met by each chapter. The main findings of the quantitative and qualitative studies will also be presented. Then the chapter will discuss the theoretical contributions of the thesis and the obtained contributions for the practice. Moreover, the chapter will cover the limitations of this thesis, the researcher's self-reflection and recommendations for future research.

8.2. Research overview

Although many advantages can be obtained from using e-government, achieving successful adoption remains a great challenge (Al-Shafi and Weerakkody, 2010; Bwalya, 2009; Srivastava and Teo, 2005).

Citizens' adoption rate of e-government services has been identified by many studies as the determinant of the failure or success of an e-government system (Al-Sobhi, 2011; Heeks, 2005; Succi and Walter, 1999; Pinto and Mantel Jr, 1990).

Therefore, due the importance of understanding the adoption of e-government, an incremental increase of relevant research can be documented (Taipale, 2013; Morgeson, VanAmburg and Mithas, 2011; Bélanger and Carter, 2009; Shafi and Weerakkody, 2009; Carter and Weerakkody, 2008; Colesca and Dobrica, 2008; Welch, Hinnant and Moon, 2005; Gilbert, Balestrini and Littleboy, 2004).

These studies mainly investigate the relationship between citizens' acceptance, use and trust, and the associated consequences of these concepts on the adoption of e-government services. Despite the number of these researches, a significant lack of empirical evidences persists (Mahmood, Osmani and Sivarajah, 2014; Venkatesh, Sykes and Venkatraman, 2013; Al-Shafi and Weerakkody, 2010; Bélanger and Carter, 2008).

Several studies have identified trust as a salient predictor of citizens' acceptance and adoption of e-government (e.g., (Lim *et al.*, 2012; Colesca, 2009; Bélanger and Carter, 2008; Tan, Benbasat and Cenfetelli, 2008; Horst, Kuttschreuter and Gutteling, 2007; Carter and Bélanger, 2005), but few have solely investigated how citizens' trust is generated and what the implications of citizens' trust are on use intention and adoption of e-government services.

Abdulaziz Albesher

Therefore, this study sheds light on new aspects of trustworthiness and its management in IT adoption, especially in e-government. Moreover, it shows the importance of trustworthiness in generating trust in e-government services based on an assessment of the provider's ability, benevolence and integrity and examines the role of citizens' trust propensity, trust in the Internet and social influence in citizens' trust in e-government services and the impact of this trust on their use intention of e-government services.

Most empirical research did not differentiate between trust (the willingness to depend and rely on another trusted party) and trustworthiness assessments, even though the distinction has been explained by Mayer, Davis and Schoorman (1995).

Moreover, some studies consider trust and trustworthiness synonymous and mix the items of these two constructs (Gefen and Reychav, 2014; Ragowsky, Licker and Gefen, 2008). The concept of trust is not new in information systems research, and several e-commerce studies have explored the role of trust in different cases (Gefen, Karahanna and Straub, 2003; Belanger, Hiller and Smith, 2002; Gefen, 2002c; McKnight, Choudhury and Kacmar, 2002; Lee and Turban, 2001; Hoffman, Novak and Schlosser, 2000; Jarvenpaa, Tractinsky and Saarinen, 1999).

In addition, several researchers have shifted their interest to explore and understand the role of trust in e-government adoption (Taipale, 2013; Bannister and Connolly, 2011; Belanger and Carter, 2006; Carter and Bélanger, 2005; Welch, Hinnant and Moon, 2005; Warkentin *et al.*, 2002). In this study, we investigated the effect of citizens' trust in e-government services in Saudi Arabia, given that several e-government studies have shifted their focus towards developing countries to understand the dissimilarities that arise from different contexts (Venkatesh, Sykes and Venkatraman, 2013; Bélanger and Carter, 2012).

However, the uniqueness of this study can be demonstrated by understanding that different studies have included trust in broad adoption models, such as unified theory

of acceptance and use of technology (UTAUT),(Colesca and Dobrica, 2008; Horst, Kuttschreuter and Gutteling, 2007; Gefen, Karahanna and Straub, 2003; Pavlou, Tan and Gefen, 2003) technology acceptance model (TAM) and diffusion of innovation theory (DOI) (Colesca and Dobrica, 2008; Pavlou and Gefen, 2004; Gefen, Karahanna and Straub, 2003; Warkentin *et al.*, 2002), but this study focused solely on exploring the explanatory power of trust in e-government adoption by investigating how citizens' trust is generated and what the implications of this trust are on their behavioural intention to use e-government services. Many researchers have acknowledged the significant shortage of empirical studies that examine trust consequences, especially in the context of e-government (Mahmood, Osmani and Sivarajah, 2014; Morgeson, VanAmburg and Mithas, 2011; Bélanger and Carter, 2008).

In addition, to date, few studies have explored the factors that empower citizens' adoption of e-government services empirically in developing countries, especially in the Arab world and the Kingdom of Saudi Arabia (Alomari, Sandhu and Woods, 2014; Al-Rashidi, 2013; Alateyah, Crowder and Wills, 2013b; Al-Sobhi, 2011; Al-Shafi and Weerakkody, 2010; Alshawi and Alalwany, 2009; AlAwadhi and Morris, 2008).

Although in the last few years, the number of Internet users in the Kingdom of Saudi Arabia has risen dramatically (from 13% in 2005 to about 63.7% at the end of 2014, about 19.6 million Internet user) (CITC, 2014), the full utilisation and adoption of e-government services in Saudi Arabia is still weak (Al-Hujran *et al.*, 2015; Alateyah, Crowder and Wills, 2013b; Al-Sobhi and Weerakkody, 2010; Hamner and Al-Qahtani, 2009).

Moreover, some researchers have determined that the shortage of empirical studies focused on Saudi Arabia is one of the main obstacles that hinders the development of e-government programmes in the country (Al-Sobhi, 2011; Al-Fakhri *et al.*, 2009; Kolsaker *et al.*, 2007). Thus, an overview and summary of the chapters in this research will be provided as follow.

Abdulaziz Albesher

Chapter 1 provided an introduction to the research scope and area. It also highlighted the research problem and showed several motivations behind conducting such research. Furthermore, it stated the research aim and objectives and provided a general overview of the thesis structure.

To meet the aim and objectives of this thesis, a comprehensive review of e-government literature was conducted as a first step in chapter 2. It started by defining the role of information and communication technology (ICT) in e-government development. It also explored several global and local perspectives related to the emergence of e-government. Moreover, the chapter discussed the reasons for establishing e-government, definitions and the associated advantages of using such online systems. Then, the four main categories of e-government interaction (G2C, G2B, G2G and G2E) were discussed in addition to the challenges of e-government adoption. Furthermore, the context of the study (Kingdom of Saudi Arabia) and the current state of e-government systems in that country were also discussed. In addition, the chapter further reviewed the concept of trust and discussed the role of trust in e-government services.

Chapter 3 discussed the key elements that emerged from the literature review in chapter 2 and justified the hypotheses development of this research. It also discussed the formation of the research model that will be examined and revised in the next chapters (Chapters 5, 6 and 7). The chapter also described the role of citizens' trust in determining the usage intention and adoption of e-government services in Saudi Arabia. Moreover, the chapter described the uses of the theory of reasoned action (TRA) as a guiding framework to structure the conceptual model. Six constructs have been identified as influencing constructs of citizens' trust in e-government services (government agencies' ability, government agencies' benevolence, government agencies' integrity, citizens' trust propensity, trust in the Internet and social influence). Furthermore, two constructs have been identified as influencing constructs of citizens' use intention of e-government services, which are citizens' trust in e-government services (TOE) and social influence (SI). Demographic variables (age, gender, education level and Internet experience) were also considered in this research

to identify any further impact on citizens' trust in e-government services or on their use intention as suggested previously in the literature.

Chapter 4 discussed the research methodology, which included reviewing different research methods and paradigms. The aim of this chapter was to identify the most appropriate research method and design to investigate the role of citizens' trust on their behavioural intention to use and adopt of e-government services in Saudi Arabia. The chapter also discussed the research plan and procedures adopted for collecting and analysing the data. The sequential mixed methods approach with explanatory design was identified as the most appropriate technique to fulfill the aim of this thesis. Thus, the chapter started by describing the first phase of the explanatory sequential mixed methods design, which is the quantitative study. Moreover, it discussed the required tests to prepare the data, measures and variables. This include describing the procedures of data screening and the examination of constructs reliability and validity. Next, the chapter discussed the second phase of this study, which focused on the qualitative empirical study and the applied procedures. This phase aims to verify and explain the results of the previous quantitative empirical findings.

Chapter 5 showed the findings of the quantitative empirical data, including a comprehensive examination of the factors discussed in Chapter 3. A survey questionnaire was used to examine the impact of the independent variables on citizens' trust and their use intention of e-government services in Saudi Arabia. The quantitative analysis commenced by describing the respondents' profile and descriptive statistics. The results of the exploratory factor analysis (EFA) showed that all items loaded perfectly above the minimum recommended threshold in information system (IS) research, which is 0.40 (Pallant, 2013; Dwivedi *et al.*, 2010; Straub, Boudreau and Gefen, 2004), excluding SI1, which loaded below 0.40. Moreover, no cross-loading between the items above (0.40) was found except in Ab4, which therefore was excluded from the next analysis (Pallant, 2013; Straub, Boudreau and Gefen, 2004; Churchill Jr, 1979). This test was conducted using the principal component analysis (PCA) with varimax rotation method to verify the validity of the constructs (Pallant, 2010).

Abdulaziz Albesher

Then we performed the reliability test to confirm the internal consistency of the constructs. The values of Cronbach's alpha were above the recommended minimum threshold (0.70) for all the constructs, which confirms the internal consistency of the constructs. Next, hierarchical regression analysis and structural equation modelling (SEM) were used to examine the study model. Both procedures showed that government agencies' ability (Ab), government agencies' benevolence and integrity (B&I), citizens' trust propensity (TP), trust in the Internet (TI) and social influence significantly predict citizens' trust in e-government services (TOE). Furthermore, they both showed that trust in e-government services (TOE) and social influence (SI) significantly predict citizens' behavioural intention (BI) toward using e-government services in the Saudi Arabian context.

Chapter 6 presented the findings of the qualitative empirical study. This chapter reported the results obtained from interviews conducted with participants who were involved previously in the quantitative study. The aim of this study was to verify and explain the findings of the previous quantitative study in Chapter 5 (Creswell, 2013).

Chapter 7 critically discussed and reflected upon the key findings of the theoretical perspectives in Chapter 3 and the findings of the quantitative and qualitative empirical studies in Chapters 5 and 6. In addition, it validated and revised the proposed conceptual model in Chapter 3 based on the key findings of the empirical studies. Therefore, this chapter represented the main contributions of this study by confirming the factors that influence citizens' adoption of e-government in Saudi Arabia.

Abdulaziz Albesher

8.3. Main Findings

The main findings of this research can be summarised as follow:

1. the highest correlation was found between the three proposed trustworthiness constructs (ability, benevolence and integrity);

2. after performing the exploratory factor analysis (EFA) test, we found that the items of the benevolence and integrity constructs were loaded together in one construct. Although the definitions of those two constructs were clearly differentiated in this research, participants still view them as interrelated and highly connected;

3. from the hierarchal regression analysis, we found that the independent variables (ability, benevolence and integrity, trust propensity, trust in the Internet and social influence) can explain 37% of citizens' trust in e-government services. The weight of beta in these independent variables varied in its prediction of the dependent variable ((trust in e-government services (TOE)), government benevolence and integrity had (β = .315), trust in the Internet (β = .249), followed by government ability (β = .160), social influence (β =.138), then trust propensity (β = .123)). In addition, we found that the independent variables (trust in e-government services and social influence) can explain 40% of citizens' behavioural intention to use e-government services, with beta weights of (β =.365) for trust in e-government services (TOE) and (β = .319) for social influence (SI). These results gained after controlling the effect of the demographic variables;

4. to get more accurate results from the quantitative data, we performed structure equation modelling (SEM). After applying the confirmatory factor analysis (CFA), the item B3 was dropped because it had a factor loading

Abdulaziz Albesher

estimate below the minimum recommended threshold of 0.5 (Hair *et al.*, 2010);

5. the overall model fit showed that this study model has very good model fit based on the recommended model fit indices and by comparing it with the model fit indices of the measurement model. In addition, we found that the exogenous variables (ability, benevolence and integrity, trust propensity, trust in the Internet and social influence) can explain 39% of the endogenous variable trust in e-government services (TOE). Moreover, we found that exogenous variables (social influence and trust in e-government services) can explain 38% of the endogenous variable citizens' behavioural intention towards using e-government services (BI);

6. we also found that citizens' trust propensity is a significant predictor of citizens' trust in e-government services. In addition, the correlation test revealed that the relationship between trust propensity and use intention (.256) is higher than the relationship between trust propensity and citizens' trust in e-government services (.171). This has been further supported by some interviewees who stated that trust propensity empowers their behavioural intention to use e-government more than trusting them. As a result, this indicates that trust propensity can be a key factor for understanding trust and use intention of a new technology;

7. after controlling the effect of the controllers (demographic variables), we only found gender to have a significant role on citizens' trust in e-government services. In addition, we only found Internet experience to have a significant role on citizens' use intention of e-government services; and

8. several explanations of the results gained from the quantitative study were found from conducting the qualitative study (Chapter 6) and added more value to the contribution of this study, as is explained in the next section.

8.4. Theoretical contribution (Theoretical implications)

Although several researches have attempted to understand citizens' adoption of e-government services, this study argues that so far, no independent study has explored the implications of citizens' trust on the behavioural use intention and adoption of e-government services in Saudi Arabia. Full capacity of e-government services cannot be achieved without citizens' acceptance, participation and adoption of these electronic services. In addition, the rate of citizens' usage and adoption of e-government services is considered a significant determinant of the success or failure of an e-government system (Al-Sobhi, 2011; Heeks, 2005).

Therefore, the outcomes of this research will contribute in extending knowledge in the area of e-government service adoption by understanding citizens' trust and its implications on use and adoption of e-government services. The current research makes many contributions to several aspects of e-government research. Chapters 1, 2 and 3 provide contributions to the contextual knowledge and conceptual aspects of e-government. Chapter 4 also contributes in the domain of research methods by reviewing and synthesizing relevant methodological literature.

Chapters 5 and 6 provide two empirical studies conducted in Saudi Arabia, which also contributed to a better understanding of the role of citizens' trust on the use intention and adoption of e-government services in developing countries. Finally, chapter 7 presents a critical analysis and discussion of the empirical findings and e-government literature to validate the proposed hypotheses and revise the research model, which also adds knowledge to the field of e-government research. The next section will outline the main theoretical contributions of this research.

Contribution 1: Based on Chapters 2 and 3, a conceptual model has been proposed. The model used the theory of reasoned action (TRA) as a guiding framework to

Abdulaziz Albesher

explore citizens' trust and their behavioural intention to use e-government services. To date, no independent study has explored the implications of trust, trustworthiness, trust propensity, trust in the Internet and social influence on citizens' use intention and adoption of e-government services, especially in developing countries. This model offers a better understanding of the adoption challenges through understanding the role of citizens' trust, which in many cases hinders the users from adopting new technologies. Based on the empirical studies in Chapters 5 and 6, the model has been analysed and discussed. In Chapter 7, a holistic and critical discussion has been made, and a revised conceptual model has been presented.

Contribution 2: The study's conceptual model contributed to understanding the factors that impact the development of citizens' trust in e-government services. In addition, it contributed to understanding the use intention and adoption of e-government services in Saudi Arabia by understanding the role of citizens' trust.

Contribution 3: The study contributed in proposing six independent variables that impact citizens' trust in e-government services, which are government agencies' ability, government agencies' benevolence, government agencies' integrity, citizens' trust propensity, citizens' trust in the Internet and social influence. It also contributed in proposing two predictors of citizens' behavioural intention to use e-government services, citizens' trust in e-government services and social influence.

Contribution 4: The study contributed to understanding the role of demographic differences such as age, gender, education level and Internet experience on citizens' trust and use intention of e-government services.

Contribution 5: The revised conceptual model presented in Chapter 7 can be used by decision-makers and researchers to understand the factors that influence citizens' trust and use intention of e-government services, avoid and manage the decline of

public trust and increase citizens' adoption of government online services. In addition, the large number of participants in both quantitative and qualitative empirical studies (using the sequential explanatory mixed methods design) also contributed by adding more value to the accuracy and reliability of the findings.

Contribution 6: Based on the aforementioned contributions, this study provides great insight into the context of e-government in Saudi Arabia. In addition, it is consider as an initial pioneering study that explores the implications of government agencies' trustworthiness, trust propensity, trust in the Internet and social influence on citizens' trust in e-government services and their effects on citizens' behavioral intention to use and adopt e-government services, especially in developing countries and more specifically in the Kingdom of Saudi Arabia.

8.5. Contribution to the Practice (Pragmatic Implications)

Many government initiatives around the world have attempted to leverage the usage and diffusion of e-services in the public sector. As mentioned previously, trust is a key enabler that improves relationships and increases reliability between interactive parties. Therefore, this study investigated how trust in e-government services is generated by assessing the trustworthiness of the government agencies (service providers) from the citizens' perspective. It also investigated the consequences of citizens' trust propensity, trust in the Internet and social influence on citizens' trust in e-government services. Thus, this study contributed by addressing a model that assists in predicting citizens' trust and use intention of the provided e-government services from the public sector.

In addition, this study provides valuable findings regarding citizens' trust in the service provider (government agencies) and the used technology in Saudi Arabia at

Abdulaziz Albesher

the managerial and operational levels that can enhance the usage and adoption of e-government services among citizens. Based on the analysis in this study, several practical lessons can be learned.

1. Government agencies' benevolence and government agencies' integrity were viewed by most of the participants as one construct, and this new combined construct was found to be the most predictive construct of citizens' trust of e-government services with beta weight of (β =.315). This phenomena has been explained by some participants as these two construct being interrelated and sharing a casual relationship, especially in Saudi society.

2. Trust propensity was found to be a significant predictor of citizens' trust in e-government services ($\beta = .123$). In addition, in a correlation test, the strength of the relationship can be determined based on the size of the absolute value. Based on our results, we found that the relationship between trust propensity and use intention (.256) is higher than that between trust propensity and citizens' trust in e-government services (.171). This indicates that further prediction of citizens' use intention could be attained by investigating the direct effect of trust propensity (TP) on citizens' behavioural intention to use e-government services (BI). Moreover, this was confirmed by some of the interviewees who found trust propensity to be a more significant motivator to their intention to use e-government services than trusting in e-government services. The government agencies that provide the e-services should be aware of the impact of trust propensity on citizens' trust and their intention to use and adopt e-government services. Therefore, targeting and motivating citizens with lower trust propensity to enhance citizens' perceptions of e-government services is highly recommended.

3. Social influence was found to be a significant factor that impacted both citizens' trust and their behavioural intention to use e-government services. Friends, families and close societies do have an effect on each other in terms of trusting and using e-government services. They also contribute positively in encouraging

Abdulaziz Albesher

each other to accept any new e-government service. Hence, the government is advised to promote awareness campaigns in newspapers, television, government agencies' websites and social networks and to encourage citizens to tell their relatives and friends about the benefits of these e-services.

Government agencies need to stress their competence in handling business processes professionally before showing the ability to deliver services online using the Internet. In e-commerce, many businesses in the private sector realised the importance of trust perception to attract costumers. Hence, they used several techniques to attain customers' trust, such as promoting the security features, emphasising privacy policies and displaying trust seals. Similarly, government agencies should advertise the competence and integrity of the back office processes and promote features that enhance citizens' confidence in the communication method (e.g., posting privacy seals on government websites). In addition, establishing collaborations between government agencies in the public sector and well-respected organizations in the private sector (specialised in e-commerce) can contribute in enhancing the overall efficiency of public sector business processes and e-services. This consequently helps to boost citizens' trust and perceptions of e-government services. The aforementioned points can contribute to increasing citizens' trust propensity, enhancing their perceptions of the provider's trustworthiness and improving citizens' trust in the Internet and the agency's online portal.

8.6. Research Limitations, Personal Reflection and Future Research Directions

8.6.1. Research Limitations

Despite the great effort and time spent by the researcher in this study, some limitations should be mentioned.

The first limitation is the factor of time. The researcher is a PhD student who needed to complete his PhD programme in a fixed time period (within 3-4 years). This limited time has hindered the researcher from further empirical studies, which could add more value to the research and contribute in extending the level of detail.

Trust is a complicated concept and, therefore, the study is limited to focusing only on one level of perspective, which is the citizens' level. Hence, based on this adopted scope, the study is limited in its investigation of the routines that develop citizens' trust, use and adoption of e-government services. Furthermore, the study could not include the perspectives of the business level due to limitations of time and resources.

Although most of the participants were 44 years and less, this was expected as approximately 51% of the Saudi population are less than 25 years (Murphy, 2012).

In terms of methodology, exceptional effort has been made to utilise the explanatory sequential mixed methods in the best way. Yet, the limited availability of resources, accessibility and time controlled the researcher to allow more participants to engage in the quantitative and qualitative studies, which could add further extension of the detail, for example, by using some open questions or allow adding more factors to the study model and then running a new iteration to test the new model. In addition, the adopted methodological technique does have inherent limitations, since applying its procedures consumes time because the qualitative study is based on the quantitative study and the qualitative study cannot be conducted before collecting and analysing the data obtained from the quantitative study.

8.6.2. Personal Reflection (Self Reflection)

Personal reflection is more about the experiences of the researcher during his PhD journey. Throughout my work on this PhD thesis, I have acquired and developed several skills. In the beginning, it is more appropriate to start with reading skills because it was essential to read a lot of research and books relevant to the area of interest whether directly or indirectly.

Reviewing such a great number of studies should not be done randomly, but rather in critical and smart way. In addition, time management and the way researcher invests his time and effort are crucially important to completing such a thesis. This can be facilitated by setting up and using an initial plan to guide the researcher throughout the whole process, which includes setting up milestones and targeting new skills to be developed. In terms of methodology, this thesis adopted a mixed methods approach (quantitative and qualitative), and this required developing statistical and interpretational skills.

Therefore, the researcher spent much time in learning (by attending courses and reading books) and developing these skills. The development of statistical and interpretational skills was intensive because the researcher was required to understand the details while simultaneously being restricted by the time factor. This included developing and understanding the processes of data collection and analysis. Given these aforementioned points, this PhD journey improved many of the researcher's skills and made him a better person in dealing with the difficulties and managing his time.

Abdulaziz Albesher

8.6.3. Recommendations for Future Research

Some recommendations and suggestions can be made based on this research for further development and extendibility of similar research.

Future research could explore and determine any further effects of trust constructs on e-government adoption. For example, comparing perceptions of citizens' trust in e-government services to their actual use may result in new findings, since most of the participants had experienced using one of these e-services.

Investigating the direct effect of the provider's trustworthiness and citizens' trust propensity on citizens' behavioural intention and their actual use of e-government services without being mediated by trust would also be a very interesting target for future research.

In addition, it would be interesting to explore the differences between the interactions of business-to-consumer relationships and government-to-citizen relationships, since this could contribute to identifying new influential factors in the e-government context. Investigating the antecedents of each proposed construct in the study model can also help improve the explanatory power of the model. Furthermore, the study model can be used to examine citizens' trust in specific e-government systems, such as those provided by the traffic department or the e-voting system.

The model proposed in this study has been only examined in the context of e-government in Saudi Arabia, which is one of the developing countries. Therefore, validating the model in one of the neighbouring Gulf Cooperation Council (GCC), as it share similar social and culture values, countries or one of the developing countries would provide valuable information for the context of e-government in developing countries, for example, by conducting a comparative analysis of e-government adoption in these countries. Notwithstanding, it is critically important to take into

Abdulaziz Albesher

consideration the cultural, political, social and economic differences between different contexts because they play a significant role in validating the effect of the factors.

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Abdulaziz Albesher

Appendix A

Questionnaire

The influence of citizens' trust on the adoption of e-government services

Confidentiality Statement

Dear Sir/Madam

I am a PhD student in information system and computing at Brunel University UK. I aim to conduct a survey to explore the role of citizen's trust on the adoption of electronic government (e-government) services in Saudi Arabia. E-government can be defined as

Abdulaziz Albesher

"Citizens' utilization of the Internet for sending and receiving government information and services". The attention is directed on understanding the relation between citizen's trust and the adoption of e-government services in Saudi Arabia.

Please note that your responses will be treated confidentially, anonymity and the information provided in this survey will be solely used for academic purposes. In addition, this study has got an ethical approval and your participation in this questionnaire is completely voluntary. Finally, your participation in this survey is greatly valuable and appreciated.

This research is being conducted under the supervision of Dr Laurence Brooks, who can be contacted on laurence.brooks@brunel.ac.uk. If you have any question please do not hesitate to contact me on Abdulaziz.Albesher@brunel.ac.uk.

If you have any concerns or complaints regarding the ethical elements of this project please contact the ethics committee at Brunel on siscm.srec@brunel.ac.uk or call Prof. Zidong Wang: 01895266021

This questionnaire takes less than 10 minutes to complete!

Instructions

I am interested in your opinions, perceptions and level of confidence in interacting with e-government services. Please respond to the following questions and relate your answers to your personal opinion and experience. Your participation in this study is greatly appreciated.

Section A: Demographic Items:

These questions are being asked so that comparison can be made between different groups of respondents. All responses will remain confidential, with no individual being identified.

Age:
- ☐ Under 18 years
- ☐ Between 18 – 24 years
- ☐ Between 25 – 29 years
- ☐ Between 30 – 44 years
- ☐ Between 45 – 54 years
- ☐ 55 years and above

Abdulaziz Albesher

Gender:
- ☐ Male
- ☐ Female

Education Level:
- ☐ Less than high school
- ☐ High school
- ☐ Diploma
- ☐ Bachelor
- ☐ Postgraduate

What is your occupation?

Student
Sponsored student
Businessperson
Public sector employee
Private sector employee
Other ()

How many years have you been using the Internet?

- ☐ 1-6 months
- ☐ 7 -11 months
- ☐ 1-2 years
- ☐ 3-4 years
- ☐ More than 4 years

How often do you use the Internet?

- ☐ Never
- ☐ Once a month
- ☐ Several times a month
- ☐ Several times a week
- ☐ Everyday

What is the purpose of using Internet?

- ☐ Email
- ☐ Research
- ☐ Purchasing
- ☐ Entertainment
- ☐ Social
- ☐ Other ( )

Abdulaziz Albesher

How often do you use the Internet to gather information about or from the government?

- ☐ Never
- ☐ Once a month
- ☐ Several times a month
- ☐ Several times a week
- ☐ Everyday

Section B: Research Data

Please rate the following statements on a scale of 1 - 5:

[1=strongly disagrees 2=disagree   3=neutral   4=agree   5=strongly agree]

Ability						
1	Government agencies are very capable of performing their job.	**1**	**2**	**3**	**4**	**5**
2	Government agencies are known to be successful at the things they try to do.	**1**	**2**	**3**	**4**	**5**
3	Government agencies have much knowledge about the work that needs done.	**1**	**2**	**3**	**4**	**5**
4	I feel very confident about Government agencies' skills.	**1**	**2**	**3**	**4**	**5**
5	Government agencies have sufficient expertise and resources to provide services.	**1**	**2**	**3**	**4**	**5**
Benevolence						
1	Government agencies are very concerned with my welfare.	**1**	**2**	**3**	**4**	**5**
2	My needs and desires are very important to government agencies.	**1**	**2**	**3**	**4**	**5**
3	Government agencies would not knowingly do anything to hurt me.	**1**	**2**	**3**	**4**	**5**
4	Government agencies really look out for what is important to me.	**1**	**2**	**3**	**4**	**5**
5	Government agencies will go out of their way to help me.	**1**	**2**	**3**	**4**	**5**
Integrity						
1	Government agencies have a strong sense of justice.	**1**	**2**	**3**	**4**	**5**
2	I never have to wonder whether government agencies will stick to their word.	**1**	**2**	**3**	**4**	**5**
3	Government agencies try hard to be fair in dealing with citizens.	**1**	**2**	**3**	**4**	**5**
4	Government agencies act sincerely in dealing with citizens.	**1**	**2**	**3**	**4**	**5**
5	Sound principles seem to guide government agencies' behavior.	**1**	**2**	**3**	**4**	**5**
Trust on e-government						

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1	I expect that e-government services will not take advantages of me.	**1**	**2**	**3**	**4**	**5**
2	I believe that e-government services are trustworthy.	**1**	**2**	**3**	**4**	**5**
3	I believe that e-government services will not act in a way that harms me.	**1**	**2**	**3**	**4**	**5**
4	I trust e-government services.	**1**	**2**	**3**	**4**	**5**

Trust propensity

1	I generally do trust other people.	**1**	**2**	**3**	**4**	**5**
2	I generally have faith in humanity.	**1**	**2**	**3**	**4**	**5**
3	I feel that people are generally reliable.	**1**	**2**	**3**	**4**	**5**
4	I generally trust other people unless they give me reason not to.	**1**	**2**	**3**	**4**	**5**

Trust in Internet

1	The internet has enough safeguards to make me feel comfortable using it to interact with the e-government services.	1	2	3	4	5
2	I feel assured that legal and technological structures adequately protect me from problems on the Internet.	1	2	3	4	5
3	I feel secure sending sensitive information across the internet.	1	2	3	4	5
4	In general, the internet is now a robust and safe environment in which to transact services with the e-government.	1	2	3	4	5

Behavioural intentions

1	Assuming I have access to e-government services, I intend to use it.	**1**	**2**	**3**	**4**	**5**
2	I would interact with e-government services over the web.	**1**	**2**	**3**	**4**	**5**
3	I would use e-government to obtain services and information.	**1**	**2**	**3**	**4**	**5**
4	I would not hesitate to provide information to the e-government.	**1**	**2**	**3**	**4**	**5**

Use behaviour

1	How many times have you used e-government services in the 6 months?					

Social influence

1	People who are important to me think that I should use e-government services.	**1**	**2**	**3**	**4**	**5**
2	I would use e-government services if my friends used them.	**1**	**2**	**3**	**4**	**5**
3	Interacting with e-government over the web enhances a person's social status.	**1**	**2**	**3**	**4**	**5**
4	People who use e-government to obtain services have more prestige than those who do not.	**1**	**2**	**3**	**4**	**5**

Would you be interested in taking part in a follow-up interview, if yes please add your email

Abdulaziz Albesher

Thank you for your participation

Appendix B

<div dir="rtl">

تأثير ثقة المواطنين في تبني خدمات الحكومة الإلكترونية

</div>

Confidentiality Statement

<div dir="rtl">

السلام عليكم...

أنا طالب دكتوراه في قسم نظم المعلومات في جامعة برونيل في بريطانيا. أنا أهدف لإجراء إستفتاء لمعرفة دور ثقة المواطنين في تبني خدمات الحكومة الإلكترونية في المملكة العربية السعودية. يمكن تعريف الحكومة الإلكترونية بـ"إستخدام المواطنين للإنترنت لإرسال و إستقبال المعلومات والخدمات للحكومة". التركيز ممحور لمعرفة العلاقة بين ثقة المواطن و تبني خدمات الحكومة الإلكترونية.

أنا مهتم برأيك الشخصي و مفهومك ومدى إرتياحك أثناء تواصلك مع خدمات الحكومة الإلكترونية. سأكون ممتنا لك لمشاركتك في هذا الإستبيان، علما بأن جميع المشاركات ستكون مجهولة المصدر، و ليس من الممكن لأحد أن يطلع على المعلومات التي قمت بإرسالها.

</div>

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هذه الإستبانة تستغرق أقل من 10 دقائق لإكمالها.

إذا كنت ترغب في مناقشة نتائج هذا الإستبيان أو تود الحصول على معلومات إضافية حول هذا البحث، لا تتردد في التواصل معي:

عبدالعزيز بن عبدالله البشر

جامعة برونيل، لندن- بريطانيا

Abdulaziz.Albesher@brunel.ac.uk

@AzAlbesher

إذا كان لديك أي ملاحظة على هذا الإستبيان، تستطيع مراسلة الجامعة على البريد التالي:

siscm.srec@brunel.ac.uk or call Prof. Zidong Wang: 01895 266021

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Section A: Demographic Items:

الأسئلة في هذا القسم ستستخدم للمقارنة و تقسييم المشاركين إلى مجموعات مختلفة. مع العلم أن هويات المشاركين ستبقى مجهولة.

العمر:

- ☐ 18 سنة و أصغر
- ☐ 19 – 25
- ☐ 26 – 29
- ☐ 30 – 44
- ☐ 45 - 54
- ☐ 55 و أكبر

الجنس:

- ☐ ذكر
- ☐ أنثى

مستوى التعليم:

- ☐ أقل من الثانوية العامة

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☐ ثانوية عامة
☐ دبلوم
☐ جامعي
☐ دراسات عليا

ما هو نوع عملك؟

طالب

طالب مبتعث

موظف حكومي

موظف قطاع خاص

أعمال حرة

عاطل

غير ذلك ( )

عدد سنوات الخبرة في استخدام الإنترنت؟

1-6 شهور

7-11 شهور

1-2 سنوات

3-4 سنوات

أكثر من 4 سنوات

كم مرة تستخدم الإنترنت في العادة ؟

لا أستخدمه مطلقا

مرة في الشهر

عدة مرات في الشهر

عدة مرات في الأسبوع

كل يوم

الهدف من إستخدام الإنترنت ؟

الإيميل

البحث

الشراء

الترفيه

تواصل إجتماعي

غير ذلك

كم مرة إستخدمت الإنترنت للحصول على المعلومات أو الخدمات من الحكومة ؟

لم أستخدمه مطلقا

مرة في الشهر

عدة مرات في الشهر

عدة مرات في الأسبوع

كل يوم

النزعة للثقة

من السهل علي أن أثق في شخص أو شئ.

ميولي للثقة في شخص أو شئ عاليه.

أنا أميل للثقة في شخص أو شئ، حتى و إن كانت لدي معلومات قليله عنه.

الثقة في شخص أو شئ ليس سهلا.

Section B: Research Data

أرجو تقييم العباراة التالية من 5 – 1 :

[موافق بشدة=5   موافق=4   محايد=3   غير موافق=2غير موافق بشدة=1]

	قدرة مقدم الخدمة					
1	القطاعات الحكومية قادر جدا على تأدية عملها.	**1**	**2**	**3**	**4**	**5**
2	القطاعات الحكومية معروفة بنجاحها في الأشياء التي تحاول عملها.	**1**	**2**	**3**	**4**	**5**
3	القطاعات الحكومية تمتلك معلومات كثيرة عن العمل اللذي يراد القيام به.	**1**	**2**	**3**	**4**	**5**

Abdulaziz Albesher

294

4	أشعر بالإرتياح جدا لمهارات القطاعات الحكومية.	**1**	**2**	**3**	**4**	**5**
5	القطاعات الحكومية تمتلك خبراء و مصادر مناسبين لتقديم الخدمات الإلكترونية.	**1**	**2**	**3**	**4**	**5**

نزعة مقدم الخدمة للخير						

1	القطاعات الحكومية مهتمه جدا برفاهية المواطن.	**1**	**2**	**3**	**4**	**5**
2	إحتياجاتي و إستحقاقاتي مهمه جدا بالنسبة للقطاعات الحكومية.	**1**	**2**	**3**	**4**	**5**
3	القطاعات الحكومية لن تفعل أي شئ بالعمد لكي تؤذيني.	**1**	**2**	**3**	**4**	**5**
4	القطاعات الحكومية تبحث بصدق عن الأشياء المهمة بالنسبة لي.	**1**	**2**	**3**	**4**	**5**
5	القطاعات الحكومية قد تقوم ببعض التجاوزات فقط لمساعدتي.	**1**	**2**	**3**	**4**	**5**

نزاهة مقدم الخدمة						

1	القطاعات الحكومية تمتلك حس قوي للعدالة.	**1**	**2**	**3**	**4**	**5**
2	لست بحاجة لكي أقلق حيال إلتزام القطاعات الحكومية بوعودها.	**1**	**2**	**3**	**4**	**5**
3	القطاعات الحكومية تحاول بجد أن تتعامل مع المواطنين بمساواة.	**1**	**2**	**3**	**4**	**5**
4	القطاعات الحكومية تتعامل بصدق و أمانة مع المواطنين.	**1**	**2**	**3**	**4**	**5**

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5	المبادئ السليمة هي من يقود سلوك القطاعات الحكومية.	**1**	**2**	**3**	**4**	**5**

الثقة في خدمات الحكومة الإلكترونية

1	أتوقع أن خدمات الحكومة الإلكترونية لن تستغلني.	**1**	**2**	**3**	**4**	**5**
2	أعتقد أن خدمات الحكومة الإلكترونية جديرة بالثقة.	**1**	**2**	**3**	**4**	**5**
3	أعتقد أن خدمات الحكومة الإلكترونية لن تقوم بشئ يؤذيني.	**1**	**2**	**3**	**4**	**5**
4	أنا أثق بخدمات الحكومة الإلكترونية.	**1**	**2**	**3**	**4**	**5**

النزعة للثقة

1	بشكل عام أنا أثق في الناس.	**1**	**2**	**3**	**4**	**5**
2	بشكل عام أنا أؤمن بالإنسانية.	**1**	**2**	**3**	**4**	**5**
3	أشعر بأن الناس في الغالب يمكن الإعتماد عليهم.	**1**	**2**	**3**	**4**	**5**
4	أنا أثق بالأشخاص الآخرين، إلا إذا أعطوني سببا لعدم الثقة فيهم.	**1**	**2**	**3**	**4**	**5**

الثقة في الإنترنت

1	الإنترنت يمتلك وسائل حماية كافية تجعلني أشعر بالإرتياح أثناء إستخدامه في التواصل مع خدمات الحكومة الإلكترونية.	**1**	**2**	**3**	**4**	**5**

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		1	2	3	4	5
2	أشعر بالراحة بأن القوانين و البنية التقنية تحميني بشكل مناسب من المشاكل على الإنترنت.	1	2	3	4	5
3	أشعر بالأمان حيال إرسال المعلومات الحساسة عبر الإنترنت.	1	2	3	4	5
4	بشكل عام، الإنترنت حاليا بيئة قوية و آمنة لإتمام الخدمات مع الحكومة الإلكترونية.	1	2	3	4	5
النية للإستخدام						
1	أنا أعتزم إستخدام خدمات الحكومة الإلكترونية ،بإفتراض أنني أملك وسيلة للوصول إليها.	1	2	3	4	5
2	أنا سأتواصل مع خدمات الحكومة الإلكترونية عبر الشبكة العنكبوتية.	1	2	3	4	5
3	أنا سأتواصل مع الحكومة الإلكترونية لطلب الخدمات و المعلومات.	1	2	3	4	5
4	أنا لن أتردد في تقديم المعلومات للحكومة الإلكترونية.	1	2	3	4	5
الإستخدام الفعلي						
1	كم مرة استخدمت خدمات الحكومة الإلكترونية في آخر ستة شهور؟ (أرجو الإجابة بالأختيار من 0 - 100)					
التأثير الإجتماعي						
1	الأشخاص المهمين بالنسبة لي يعتقدون أنه يجب علي استخدام الخدمات الحكومية الإلكترونية.	1	2	3	4	5
2	أنا قد استخدم خدمات الحكومة الإلكترونية إذا استخدمها أصدقائي.	1	2	3	4	5

3	التواصل مع الحكومة الإلكترونية عبر الإنترنت يحسن وضعي في المجتمع.	1	2	3	4	5
4	الأشخاص اللذين يستخدمون الحكومة الإلكترونية لطلب الخدمات يملكون سمعة أفضل من اللذين لا يستخدمونها.	1	2	3	4	5

شكرا لكم...

إذا كنت ترغب بالمشاركة في المرحلة الثانية للبحث أرجو إضافة بريدك الإلكتروني في الأسفل:

سأكون ممتنا لمساعدتكم لي في نشر الإستبيان..

Copy of the Online Survey

Abdulaziz Albesher

Survey on the impact of trust on the adoption of e-government services

السلام عليكم... أنا طالب دكتوراه في قسم نظم المعلومات بجامعة برونيل في بريطانيا. أنا أهدف لعمل إستبيان لمعرفة دور ثقة المواطنين في تبني خدمات الحكومة الإلكترونية في المملكة
العربية السعودية. يمكن تعريف الحكومة الإلكترونية بـ"إستخدام المواطنين للإنترنت لإرسال و إستقبال المعلومات والخدمات الحكومية إلكترونيا". التركيز ممحور لمعرفة العلاقة بين ثقة
المواطن و تبني خدمات الحكومة الإلكترونية. أنا مهتم برأيك الشخصي و مفهومك ومدى إرتياحك أثناء تواصلك مع خدمات الحكومة الإلكترونية. سأكون ممتنا لك لمشاركتك في هذا الإستبيان،
علما بأن جميع المشاركات ستكون مجهولة المصدر، و ليس من الممكن لأحد أن يطلع على المعلومات التي قمت بإرسالها. هذه الإستبانة تستغرق أقل من 10 دقائق لإكمالها. :إذا كنت ترغب في
مناقشة نتائج هذا الإستبيان أو تود الحصول على معلومات إضافية حول هذا البحث، لا تتردد في التواصل معي

عبدالعزيز بن عبدالله البشر

جامعة برونيل، لندن- بريطانيا

Abdulaziz.Albesher@brunel.ac.uk @AzAlbesher

إذا كان لديك أي ملاحظة على هذا الإستبيان، تستطيع مراسلة الجامعة على البريد التالي: siscm.srec@brunel.ac.uk or call Prof. Zidong Wang: 01895 266021

I am a PhD student in information system and computing at Brunel University UK. I aim to conduct a survey to explore the role of citizen's trust on the adoption of electronic government (e-government) services in Saudi Arabia. E-government can be defined as "Citizens' utilization of the Internet for sending and receiving government information and services". The attention is directed on understanding the relation between citizen's trust and the adoption of e-government services in Saudi Arabia.
Please note that your responses will be treated confidentially, anonymity and the information provided in this survey will be solely used for academic purposes. In addition, this study has got an ethical approval and your participation in this questionnaire is completely voluntary. Finally, your participation in this survey is greatly valuable and appreciated.
This research is being conducted under the supervision of Dr Laurence Brooks, who can be contacted on laurence.brooks@brunel.ac.uk. If you have any question please do not hesitate to contact me on Abdulaziz.Albesher@brunel.ac.uk , @AzAlbesher.

If you have any concerns or complaints regarding the ethical elements of this project please contact the ethics committee at Brunel on siscm.srec@brunel.ac.uk or call Prof. Zidong Wang: 01895266021

This questionnaire takes less than 10 minutes to complete!

* 1. فضلا اختر اللغة التي تناسبك
Please select the language that you prefer

◯ اللغة العربية

◯ English

معلومات إحصائيه

أرجو اختيار الإجابة المناسبة :

2. العمر :

( ) أصغر من 18 سنة   ( ) 30 – 44

( ) 18 – 25   ( ) 45 - 54

( ) 26 – 29   ( ) أكبر من 55

3. الجنس :

( ) ذكر

( ) انثى

4. مستوى التعليم :

( ) أقل من الثانوية العامة

( ) ثانوية عامة

( ) دبلوم

( ) جامعي

( ) دراسات عليا

5. ما هي أفضل عبارة تصف عملك؟

( ) طالب   ( ) موظف قطاع خاص

( ) طالب مبتعث   ( ) أعمال حرة

( ) موظف حكومي   ( ) عاطل

( ) غير ذلك (أرجو التحديد)

[   ]

6. عدد سنوات الخبرة في استخدام الإنترنت؟

◯ لم أستخدمه مطلقا

◯ 1-3

◯ 3-6

◯ 6-9

◯ أكثر من 10 سنوات

7. كم مرة تستخدم الإنترنت في العادة ؟

◯ لا أستخدمه مطلقا

◯ مرة في الشهر

◯ عدة مرات في الشهر

◯ عدة مرات في الأسبوع

◯ كل يوم

8. الهدف من إستخدام الإنترنت ؟

☐ الإيميل   ☐ الترفيه

☐ البحث   ☐ تواصل إجتماعي

☐ الشراء   ☐ غير ذلك

9. كم مرة تستخدم الإنترنت للحصول على المعلومات أو الخدمات من الحكومة ؟

◯ لا أستخدمه مطلقا

◯ مرة في الشهر

◯ عدة مرات في الشهر

◯ عدة مرات في الأسبوع

◯ كل يوم

Abdulaziz Albesher

تقييم مقدم الخدمات الإلكترونية "القطاعات الحكومية"

أرجو تقييم العباراة التالية من 1 – 5 حيث أن :

غير موافق بشدة=1
غير موافق=2
محايد=3
موافق=4
موافق بشدة =5

* 10. : قدرة مقدم الخدمة

	غير موافق بشدة	2	3	4	موافق بشدة
القطاعات الحكومية قادره جدا على تأدية عملها	○	○	○	○	○
القطاعات الحكومية معروفة بنجاحها في الأشياء التي تحاول عملها	○	○	○	○	○
القطاعات الحكومية تمتلك معلومات كثيرة عن العمل اللذي يراد القيام به	○	○	○	○	○
أشعر بالإرتياح جدا لمهارات القطاعات الحكومية	○	○	○	○	○
القطاعات الحكومية تمتلك خبراء و مصادر مناسبين لتقديم الخدمات الإلكترونية	○	○	○	○	○

* 11. : نزعة مقدم الخدمة للخير

	غير موافق بشدة	2	3	4	موافق بشدة
القطاعات الحكومية مهتمه جدا برفاهية المواطن	○	○	○	○	○
إحتياجاتي و إستحقاقاتي مهمه جدا بالنسبة للقطاعات الحكومية	○	○	○	○	○
القطاعات الحكومية لن تفعل أي شئ بالعمد لكي تؤذيني	○	○	○	○	○
القطاعات الحكومية تبحث بصدق عن الأشياء المهمة بالنسبة لي	○	○	○	○	○
القطاعات الحكومية قد تقوم ببعض التجاوزات فقط لمساعدتي	○	○	○	○	○

* 12. نزاهة مقدم الخدمة :

	غير موافق بشدة	2	3	4	موافق بشدة
القطاعات الحكومية تمتلك حس قوي للعدالة	○	○	○	○	○
لست بحاجة لكي أقلق حيال إلتزام القطاعات الحكومية بوعودها	○	○	○	○	○
القطاعات الحكومية تحاول بجد أن تتعامل مع المواطنين بمساواة	○	○	○	○	○
القطاعات الحكومية تتعامل بصدق و أمانة مع المواطنين	○	○	○	○	○
المبادئ السليمة هي من يقود سلوك القطاعات الحكومية	○	○	○	○	○

Abdulaziz Albesher

أرجو تقييم العباراة التالية من 1 – 5 بحيث أن :

1=غير موافق بشدة
2=غير موافق
3=محايد
4=موافق
5=موافق بشدة

أمثلة على خدمات الحكومة الإلكترونية :

سداد، خدمات المرور الإلكترونية، خدمات الأحوال المدنية، خدمات الجوازات، خدمات وزارة التجارة...

* 13. : الثقة في خدمات الحكومة الإلكترونية

	غير موافق بشدة	2	3	4	موافق بشدة
أتوقع أن خدمات الحكومة الإلكترونية لن تستغلني	○	○	○	○	○
أعتقد أن خدمات الحكومة الإلكترونية جديرة بالثقة	○	○	○	○	○
أعتقد أن خدمات الحكومة الإلكترونية لن تقوم بشئ يؤذيني	○	○	○	○	○
أنا أثق بخدمات الحكومة الإلكترونية	○	○	○	○	○

* 14. : النزعة للثقة

	غير موافق بشدة	2	3	4	موافق بشدة
بشكل عام أنا أثق في الناس	○	○	○	○	○
بشكل عام أنا أؤمن بالإنسانية	○	○	○	○	○
أشعر بأن الناس في الغالب يمكن الإعتماد عليهم	○	○	○	○	○
أنا أثق بالأشخاص الآخرين، إلا إذا أعطوني سببا لعدم الثقة فيهم	○	○	○	○	○

* 15. : الثقة في الإنترنت

	غير موافق بشدة	2	3	4	موافق بشدة
الإنترنت يمتلك وسائل حماية كافية تجعلني أشعر بالإرتياح أثناء إستخدامه في التواصل مع خدمات الحكومة الإلكترونية	○	○	○	○	○
أشعر بالراحة بأن القوانين و البنية التقنية تحميني بشكل مناسب من المشاكل على الإنترنت	○	○	○	○	○
أشعر بالأمان حيال إرسال المعلومات الحساسة عبر الإنترنت	○	○	○	○	○
بشكل عام، الإنترنت حاليا بيئة قوية و آمنة لإتمام الخدمات مع الحكومة الإلكترونية	○	○	○	○	○

Abdulaziz Albesher

أرجو تقييم العباراة التالية من 1 – 5 حيث أن :

غير موافق بشدة=1
غير موافق=2
محايد=3
موافق=4
موافق بشدة=5

* 16. : النية للإستخدام

	موافق بشدة	4	3	2	غير موافق بشدة
أنا أعتزم إستخدام خدمات الحكومة الإلكترونية، بإفتراض أنني أملك وسيلة للوصول إليها	○	○	○	○	○
أنا سأتواصل مع خدمات الحكومة الإلكترونية عبر الشبكة العنكبوتية	○	○	○	○	○
أنا سأتواصل مع الحكومة الإلكترونية لطلب الخدمات و المعلومات	○	○	○	○	○
أنا لن أتردد في تقديم المعلومات للحكومة الإلكترونية	○	○	○	○	○

17. : الإستخدام الفعلي

كم مرة استخدمت خدمات الحكومة الإلكترونية في آخر ستة شهور؟ (أرجو الإجابة بالأختيار من 0 - 100)

* 18. : التأثير الإجتماعي

	موافق بشدة	4	3	2	غير موافق بشدة
الأشخاص المهمين بالنسبة لي يعتقدون أنه يجب علي استخدام الخدمات الحكومية الإلكترونية	○	○	○	○	○
أنا قد استخدم خدمات الحكومة الإلكترونية إذا استخدمها أصدقائي	○	○	○	○	○
التواصل مع الحكومة الإلكترونية عبر الإنترنت يحسن وضعي في المجتمع	○	○	○	○	○
الأشخاص اللذين يستخدمون الحكومة الإلكترونية لطلب الخدمات يملكون سمعة أفضل من اللذين لا يستخدمونها	○	○	○	○	○

19.

الرجاء إضافة بريدك الإلكتروني إذا كنت ترغب بالمشاركة في المرحلة الثانية للبحث وهي عبارة عن إجراء مقابلة شخصية تابعة لنفس للموضوع :

ساكون ممتنا لمساعدتكم لي في نشر الإستبيان..

Abdulaziz Albesher

Demographic Items :

Please select the appropriate answer:

20. Age:
- ⚪ under 18
- ⚪ 18-24
- ⚪ 25-29
- ⚪ 30-44
- ⚪ 45-54
- ⚪ 55 and above

21. Gender:
- ⚪ Male
- ⚪ Female

22. Education level:
- ⚪ Less than high school
- ⚪ High school
- ⚪ Diploma
- ⚪ Bachelor
- ⚪ Postgraduate

23. Which of the following best describes your current occupation?

- ⚪ Student
- ⚪ Scholarship student
- ⚪ Businessperson
- ⚪ Other (please specify)

- ⚪ Public sector employee
- ⚪ Private sector employee

[   ]

24. How many years have you been using the Internet?

◯ Never used

◯ 1-3 years

◯ 3-6 years

◯ 6-9 years

◯ 10 years or more

25. How often do you use the Internet?

◯ Never

◯ Once a month

◯ Several times a month

◯ Several times a week

◯ Everyday

26. What is the purpose of using Internet?

☐ Email ☐ Entertainment

☐ Research ☐ Social

☐ Purchasing

☐ Other (please specify)

[   ]

27. How often do you use the Internet to gather information about or from the government?

◯ Never

◯ Once a month

◯ Several times a month

◯ Several times a week

◯ Everyday

| Government agencies trustworthiness |

Please rate the following statements on a scale of 1 - 5: [1=strongly disagrees 2=disagree 3=neutral 4=agree 5=strongly agree]

* 28. Ability

	strongly disagree	2	3	4	strongly agree
Government agencies are very capable of performing their job.	○	○	○	○	○
Government agencies are known to be successful at the things they try to do.	○	○	○	○	○
Government agencies have much knowledge about the work that needs done.	○	○	○	○	○
I feel very confident about Government agencies' skills.	○	○	○	○	○
Government agencies have sufficient expertise and resources to provide services.	○	○	○	○	○

* 29. Benevolence

	Strongly disagree	2	3	4	strongly agree
Government agencies are very concerned with my welfare.	○	○	○	○	○
My needs and desires are very important to government agencies.	○	○	○	○	○
Government agencies would not knowingly do anything to hurt me.	○	○	○	○	○
Government agencies really look out for what is important to me.	○	○	○	○	○
Government agencies will go out of their way to help me.	○	○	○	○	○

* 30. Integrity

	Strongly disagree	2	3	4	strongly agree
Government agencies have a strong sense of justice.	○	○	○	○	○
I never have to wonder whether government agencies will stick to their word.	○	○	○	○	○
Government agencies try hard to be fair in dealing with citizens.	○	○	○	○	○
Government agencies act sincerely in dealing with citizens.	○	○	○	○	○
Sound principles seem to guide government agencies' behavior.	○	○	○	○	○

Please rate the following statements on a scale of 1 - 5: [1=strongly disagrees 2=disagree 3=neutral 4=agree 5=strongly agree]

Examples of E-government services:
SADAD, Traffic department services, Ministry of commerce and Industry...

* 31. Trust on e-government

	Strongly disagree	2	3	4	strongly agree
I expect that e-government services will not take advantages of me.	○	○	○	○	○
I believe that e-government services are trustworthy.	○	○	○	○	○
I believe that e-government services will not act in a way that harms me.	○	○	○	○	○
I trust e-government services.	○	○	○	○	○

* 32. Trust propensity

	Strongly disagree	2	3	4	strongly agree
I generally do trust other people.	○	○	○	○	○
I generally have faith in humanity.	○	○	○	○	○
I feel that people are generally reliable.	○	○	○	○	○
I generally trust other people unless they give me reason not to.	○	○	○	○	○

* 33. Trust in Internet

	Strongly disagree	2	3	4	strongly agree
The internet has enough safeguards to make me feel comfortable using it to interact with the e-government services.	○	○	○	○	○
I feel assured that legal and technological structures adequately protect me from problems on the Internet.	○	○	○	○	○
I feel secure sending sensitive information across the internet.	○	○	○	○	○
In general, the internet is now a robust and safe environment in which to transact services with the e-government.	○	○	○	○	○

Abdulaziz Albesher

Please rate the following statements on a scale of 1 - 5: [1=strongly disagrees 2=disagree 3=neutral 4=agree 5=strongly agree]

* 34. Behavioural intentions

	Strongly disagree	2	3	4	strongly agree
Assuming I have access to e-government services, I intend to use it.	○	○	○	○	○
I would interact with e-government services over the web.	○	○	○	○	○
I would use e-government to obtain services and information.	○	○	○	○	○
I would not hesitate to provide information to the e-government.	○	○	○	○	○

35. Use behaviour

How many times have you used e-government services in the last 6 months?

* 36. Social influence

	Strongly disagree	2	3	4	strongly agree
People who are important to me think that I should use e-government services.	○	○	○	○	○
I would use e-government services if my friends used them.	○	○	○	○	○
Interacting with e-government over the web enhances a person's social status.	○	○	○	○	○
People who use e-government to obtain services have more prestige than those who do not.	○	○	○	○	○

37. Would you be interested in taking part in a follow-up interview, if yes please add your email:

Thank you very much for your time. شكرا جزيلا على التكرم ببعض وقتك

Appendix C

School of Information Systems, Computing and Mathematics
David Gilbert, Head of School, Professor of Computing
Jasna Kuljis, Head of Information Systems and Computing, Professor of Computing
Tony Rawlins, Head of Mathematical Science, Professor of Mathematics

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Zidong.Wang@brunel.ac.uk

Date: 29th April 2013

STATEMENT OF ETHICS APPROVAL

Proposer: Abdulaziz Albesher

Title: The influence of citizens' trust on the adoption of e-government services

The school's research ethics committee has considered the proposal recently submitted by you. Acting under delegated authority, the committee is satisfied that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that you will adhere to the terms agreed with participants and to inform the committee of any change of plans in relations to the information provided in the application form.

Yours sincerely,

Professor Zidong Wang
Chair of the Research Ethics Committee
SISCM

Abdulaziz Albesher

Appendix D

Brunel
UNIVERSITY
WEST LONDON

Interview

The influence of citizens' trust on the adoption of e-government services

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Confidentiality Statement

Dear Sir/Madam

I am a PhD student in information system and computing at Brunel University UK. I aim to conduct interviews to investigate and understand the role of citizen's trust on the adoption of electronic government (e-government) services in Saudi Arabia. E-government can be defined as "Citizens' utilization of the Internet for sending and receiving government information and services". The attention is directed towards understanding the relation between citizen's trust and the adoption of e-government services in Saudi Arabia.

Please note that your responses will be treated confidentially, anonymously and the information provided in this interview will be solely used for academic purposes. In addition, this study has got an ethical approval and your participation in this questionnaire is completely voluntary. Finally, your participation is greatly valued and appreciated.

This research is being conducted under the supervision of Dr Laurence Brooks, who can be contacted on laurence.brooks@brunel.ac.uk. If you have any question please do not hesitate to contact me on Abdulaziz.Albesher@brunel.ac.uk.

Abdulaziz Albesher

If you have any concerns or complaints regarding the ethical elements of this project please contact the ethics committee at Brunel on siscm.srec@brunel.ac.uk or call Prof. Zidong Wang: 01895266021

Instructions

I am interested in your opinions, perceptions and level of confidence in interacting with e-government services. Please respond to the following questions and <u>relate your answers to your personal opinion and experience</u>. Your participation in this study is greatly appreciated.

<u>Interview Questions:</u>

1. What does government agencies' capability means to you? Does it influence your trust in their E-services?

2 In your opinion, why were the answers of the majority of citizens (who participated in the survey) show a lack of trust in the ability of government agencies?

3. In the survey, most of the participants' did not feel very confident regarding government agencies' skills, do you agree? If so, why?

4. Does the benevolence of government agencies toward citizens increase your trust and reliability in their e-services? And why does it have this impact?

5. To what extent does government agencies' integrity important to you? Does it impact your confidence and trust in their e-services? To what level does it impact?

6. Do you differentiate between the integrity and benevolence of government agencies, or do you believe they indicate similar aspects?

Abdulaziz Albesher

7. Do you believe that personal trust propensity has a critical role in increasing trust in e-government services? Or is it more influential on the intention to use such e-services?

8. Do you believe that the Internet is a safe communication environment? Do feel confident to send sensitive information through the Internet? And why?

9. Does your trust in the Internet impact your trust in e-government services?

10.1 What sort of impact does social influence have on your adoption of e-government services?

10.2 In your opinion why does social influence had the most impact in influencing citizens to use the e-government services, while it has less impact on influencing them to trust these e-services?

11. Dose citizens' trust in e-government services has impact on their behavioral intention to use these e-services? Please explain?

12. Do you have any other comments, or issues that we have not covered in the interview up to now?

Thank you very much

Appendix E

<div dir="rtl">

تأثير ثقة المواطنين في تبني خدمات الحكومة الإلكترونية

</div>

Confidentiality Statement

<div dir="rtl">

السلام عليكم...

أنا طالب دكتوراه في قسم نظم المعلومات في جامعة برونيل في بريطانيا. أنا أهدف لإجراء إستفتاء لمعرفة دور ثقة المواطنين في تبني خدمات الحكومة الإلكترونية في المملكة العربية السعودية. يمكن تعريف الحكومة الإلكترونية بـ"إستخدام المواطنين للإنترنت لإرسال و إستقبال المعلومات والخدمات للحكومة". التركيز محور لمعرفة العلاقة بين ثقة المواطن و تبني خدمات الحكومة الإلكترونية.

أنا مهتم برأيك الشخصي و مفهومك ومدى إرتياحك أثناء تواصلك مع خدمات الحكومة الإلكترونية. سأكون ممتنا لك لمشاركتك في هذه المقابلة، علما بأن جميع المشاركات ستكون مجهولة المصدر، و ليس من الممكن لأحد أن يطلع على المعلومات إلا الباحث.

هذه المقابلة تستغرق تقريبا ٣٠ إلى ٤٥ دقيقة لإكمالها.

إذا كنت ترغب في مناقشة نتائج هذه المقابلة أو تود الحصول على معلومات إضافية حول هذا البحث، لا تتردد في التواصل معي:

</div>

Abdulaziz Albesher

عبدالعزيز بن عبدالله البشر

جامعة برونيل، لندن- بريطانيا

Abdulaziz.Albesher@brunel.ac.uk

@AzAlbesher

إذا كان لديك أي ملاحظة على هذا الإستبيان، تستطيع مراسلة الجامعة على البريد التالي:

siscm.srec@brunel.ac.uk or call Prof. Zidong Wang: 01895 266021

أجندة المقابلة

١ ماذا تعني لك كفاءة القطاع الحكومي في تأدية عمله؟ وهل لهذا تأثير في ثقتك لخدماته الإلكترونية؟

٢ لماذا في اعتقادك لماذا كان تحليل الاستفتاء يظهر ضعف ثقة الناس بقدرة القطاعات الحكومية؟

٣ أضعف نتيجة كانت تظهر أن المواطنين غير مرتاحين لمهارات القطاعات الحكومية هل انت تأيد ذلك؟ و لماذا؟

٤ هل نزعة (رغبة) القطاع الحكومي للخير للمواطن قد ترفع من ثقتك بخدماتهم الإلكترونية المقدمة؟ و لماذا قد يؤثر ذلك في ثقتك في الخدمات الإلكترونية المقدمه؟

٥ ماذا يعني لك نزاهة القطاع الحكومي؟ و هل لذلك تأثير في ثقتك بخدماته الإلكترونيه المقدمه؟ و ما مدى ذلك التأثير؟

٦ في رأيك لماذا المواطنون ينظرون إلى النزعه للخير و النزاهه (كعنصر واحد) وأنها تعتبر و تعني نفس الشيء؟ ما هو الإختلاف في رأيك؟

٧ هل تعتقد أن نزعة (قابلية) الشخص للثقه في الأشياء الجديدة عليه، لها دور كبير في رفع ثقته بالخدمات الإلكترونية، أم هي أكثر تساعد في تحفيزه لإستخدام هذه الخدمات الالكترونية؟ و لماذا؟

Abdulaziz Albesher

316

٨ هل تثق في الإنترنت و هل تعتقد أنها وسيلة آمنة للتواصل؟ و لماذا؟

٩ في اعتقادك ما هو دور الثقة بالإنترنت على ثقتك بالخدمات الإلكترونية المقدمه من القطاعات الحكومية؟

١٠ في اعتقادك لماذا كان للتأثير الإجتماعي الدور الأكبر (الأهم) في ترغيب الشخص في استخدام الخدمات الإلكترونية؟ بينما كان له تأثير أقل على ثقة الشخص بهذه الخدمات الإلكترونية المقدمه؟

١١. هل يوجد شيء آخر أثر عليك لكي تستخدم خدمات الحكومة الإلكترونية؟

١٢. هل تريد إضافة أي تعليق؟

Abdulaziz Albesher

Appendix F

School of Information Systems, Computing and Mathematics
David Gilbert, Head of School, Professor of Computing
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Tony Rawlins, Head of Mathematical Science, Professor of Mathematics

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Date: 13th August 2013

STATEMENT OF ETHICS APPROVAL

Proposer: Abdulaziz Albesher

Title: The influence of citizens' trust on the adoption of e-government services

The school's research ethics committee has considered the proposal recently submitted by you. Acting under delegated authority, the committee is satisfied that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that you will adhere to the terms agreed with participants and to inform the committee of any change of plans in relations to the information provided in the application form.

Yours sincerely,

Professor Zidong Wang
Chair of the Research Ethics Committee
SISCM

Abdulaziz Albesher

319

Abdulaziz Albesher