An Acceptance Model for Citizen Adoption of Web-Based E-Government Services in Developing Countries: An investigation in the Saudi Arabia Context

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Certification

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

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Abstract

The fiscal spending of governments to facilitate citizens' access to government services is very high, estimated to be in the billions. These services include e-government services available on websites. However, the consumption and use of e-government services by citizens is not commensurate with the massive government spending. In order to increase the rate of adoption of e-government services by citizens and to avoid failure of the program, this study uses both theoretical and empirical methods to increase and deepen understanding of the problem. In addition, this study responds to the need to add to the few empirical studies that have covered the issues related to technology adoption through e-government services from the citizen's perspective in developing countries.

Many researchers have studied e-government from different angles. E-government adoption research currently lacks a comprehensive conceptual framework for explaining citizen adoption of e-government services for the following reasons. First, it focuses either on government-to-government (G2G) or on government-to-business (G2B) and does not adequately consider government-to-citizen (G2C) adoption and implementation of e-government. Second, it focuses on business, organisational and work environments, and does not sufficiently develop theories to fit the social context of citizens to understand the relationship between IT implementation and individuals. This research contributes to theoretical development of a citizen based e-government adoption model in developing countries by building on and extending the unified theory of acceptance and use of technology (UTAUT) through integration of pertinent constructs to the e-government context including privacy, trust and national culture.

The extended model is tested using multiple research methods: a large-scale, questionnaire survey of 634 Saudi citizens and case study interviews with e-government officials. The structural equation modelling technique is utilised for data analysis. The findings show that both measurement and structural models exhibit good model fit to data. All constructs satisfy the criteria of construct reliability and convergent and discriminant validity. The path estimations show that, of the 10 designed relationships, eight path relationships were significant and two remained unsupported.

The empirical results indicate that performance expectancy, effort expectancy, social influence, privacy, trust and culture are the main determinants affecting the behavioural intention to adopt e-government services in this particular context. There is a direct and positive relationship between culture and privacy as well as between privacy and trust for citizens to adopt and use e-government services and applications. Unexpectedly, the results indicate that facilitating conditions, as one of the UTAUT constructs, does not affect behavioural intention to use e-government services. Moreover, the results show that gender, age, education and income as moderating factors are not supported for the research sample.

Finally, the research concludes by highlighting the theoretical and practical implications, limitations and future directions. On the theoretical level, the study makes an important contribution of a citizen based e-government adoption model in developing countries by extending the UTUAT with vital e-government factors of privacy, culture and trust. Additionally, on a practical level, the study has important implications for policy makers in understanding the critical factors influencing the adoption of e-government in Saudi Arabia by its citizens. Indeed, the study paves the way for future research on e-governnment adoption in developing countries particularly in Middle Eastern countries in developing meaningful e-govnerment strategies and interventions through considering the important role of the individual's context.

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List of Abbreviations

AGFI	Adjusted goodness-of-fit index
AMOS	Analysis of Moment Structures
ASV	Average shared variance
ATM	Automated teller machines
AVE	Average variance extracted
CFA	Confirmatory factor analysis
CR	Composite reliability
CTA	Culture and technology adoption
DSL	Digital subscriber line
DTPB	Decomposed theory of planned behaviour
ECT	Expectation-confirmation theory
EFA	Exploratory Factor Analysis
ETS	E-tendering system
GFI	Goodness-of-fit index
GOF	Goodness-of-fit
HSPA	High Speed Packet Access
ICT	Information and communications technology
IFI	Incremental fit index
KMO	Kaiser-Meyer-Olkin
MACS	Mean and covariance structure
MCFA	Multi-sample confirmatory factor analysis
MI	Modification index
MIS	Management information system
MoPTT	Ministry of Posts, Telegraphs and Telephones
MSV	Maximum shared variance
NFI	Normed fit index
PBC	Perceived behaviour control
PEOU	Perceived ease of use
PGFI	Parsimony goodness-of-fit index
PNFI	Parsimonious normed fit index
PU	Perceived usefulness

RMR	Root mean square residual
SAMA	Saudi Arabian Monetary Agency
SAR	Saudi Arabian riyals
SCT	Social cognitive theory
SEGAM	SMS-based e-government acceptance model
SEM	Structural equation modelling
SMS	Short Messaging Service
SRMR	Standardised root mean square residual
TLI	Tucker-Lewis index
TOE	Technology-organisation-environment
UK	United Kingdom
UN	United Nations
VOIP	Voice-over internet protocol
WAP	Wireless Application Protocol

Chapter 1: Introduction

1.1 Overview

This study concerns the topic of e-government and the main challenges related to its acceptance among citizens in developing countries, as discussed in Section 1.2. The study investigates citizens' acceptance of e-government services in the context of Saudi Arabia. Section 1.3 discusses the effects of the Saudi government's efforts. The importance of the research is explained in Section 1.4. The study focuses on the form of government-to-citizen (G2C) called citizen's (demand-side) adoption of e-government, as detailed in Section 1.5. Section 1.6 articulates the research questions, formulated to achieve meaningful results from this study. In order to uncover the most significant factors affecting citizens' adoption of this technology, this research is based on the theory of unified theory of acceptance and use of technology (UTAUT) model, as discussed in Section 1.7.

1.2 Background of the Research

In most developing countries today, e-government programs and initiatives suffer from the many challenges related to their implementation, adoption and dissemination. Governments aspire today to use technology to assist in more effective provision of services and information to stakeholders (citizens, businesses, employees and other government agencies). However, although the adoption of e-government has the potential to provide better services to citizens at lower costs, it has acceptance problems. In fact, understanding why people accept or reject new information technology (IT) is one of the most pertinent issues in information systems (IS) research (Al-Adawi, Yousafzai, & Pallister, 2005).

Achieving results and objectives for programs, services and e-government transactions and declaring success of such innovations depends mainly on the interaction of citizens with the use of such technology (Carter & Bélanger, 2005) . The problem of low level of citizen adoption of e-government services is still faced by most governments in developing countries today (Bélanger & Carter, 2008; Choudrie & Dwivedi, 2005;

Gupta, Dasgupta, & Gupta, 2008; Kumar, Mukerji, Butt, & Persaud, 2007). Consequently, this study, which incorporates technological and cultural perspectives, explores the factors affecting the adoption rates of e-government among citizens.

1.3 E-Government in Saudi Arabia

E-government is not only the provision of public services over the Internet, but it also represents a radical change in societies. This transformational change has resulted in controversy surrounding the adoption and implementation of e-government in both developed and developing countries. A possible contributing factor towards the ineffective implementation of e-government is the temptation to introduce generic 'solutions' to e-government without understanding the contextual circumstances of the country. A global approach in the implementation of e-government may not be effective in all contextual circumstances, and may prevent the achievement of the objectives of e-government.

This study focuses on the context of Saudi Arabia, an Arabic and developing country. Saudi Arabia was selected because it is representative of the Arab and Islamic states from a cultural perspective and the Gulf states from an economic one. Saudi Arabia is eagerly seeking to adopt and implement e-government services and applications in its public sector institutions. The government of Saudi Arabia has allocated more than three billion Saudi riyals (one United States [US] dollar is equal to 3.72 Saudi riyals) to implement more than 150 electronic services, as indicated in the first operational plan (YESSER, 2012a). Saudi Arabia has been keen to adopt a communications system and to ensure access to the information society and digital economy, as well as to achieve higher levels of welfare of its citizens and residents to improve their opportunities and prosperity.

The success or failure of such projects depends on the rate of acceptance, predominantly by citizens, given the substantial potential benefit. There is demands for an urgent need to understand the key factors that are involved in the adoption of e-government adoption by Saudi citizen (Alzahrani, 2011). An understanding of the important determinants for

acceptance will help policymakers to predict users' intentions concerning this innovation. This is one of the main motivations for this research.

1.4 Importance of the Study

Despite recognition of the importance of the area of e-government adoption by citizens, more attention is needed on the key drivers of such adoption. The literature shows that most studies have focused on addressing e-government adoption at the government-to-government (G2G) level rather than the G2C level. Although e-government projects can provide great benefits to citizens, businesses and governments, the literature reports that citizens receive the widest array of such benefits (Al-shehry, 2009; Alfarraj, Nielsen, & Vlacic, 2010; Altameem, Zairi, & Alshawi, 2006). A major issue that is immediately apparent is that the success of e-government is contingent upon citizens and their willingness to use these services because they constitute the major sector of beneficiaries. Therefore, governments have to ensure that their projects are being utilised effectively by citizens in order to reap the potential benefits and avoid possible failure.

Without understanding what drives citizens to use e-government services, governments will not be able to take strategic action to increase the e-government uptake (Gilbert, Balestrini, & Littleboy, 2004).

Our understanding of citizen adoption of e-government services is scant for a number of reasons. First, while technology adoption from a user perspective has been researched substantially in various contexts, for instance, e-commerce and the world wide web (Tung & Rieck, 2005), few studies have focused on citizen adoption of e-government services (Kumar et al., 2007; Tung & Rieck, 2005). Further, there is insufficient scientific research examining attitudinal issues associated with e-government adoption (Hung, Chang, & Yu, 2006). Therefore, additional empirical research is needed in the area of e-government adoption to support governments to improve their understanding of the difficulties affecting citizen usage of e-government services.

A number of studies have addressed e-government acceptance with respect to citizens' viewpoints but they have focused on specific demographic age groups. For instance, Carter and Belanger (2004) and Schaupp and Carter (2005) targeted young age groups, thus limiting the generalisability of their studies to wider populations across various age groups. Similarly, a study by Lean, Zailani, Ramayah and Fernando (2009) used a small sample composed mostly of students and focused on the factors affecting citizens' acceptance of e-government services in Malaysia using the technology acceptance model (TAM), innovation diffusion theory (IDT) and integrated culture and trust factors. On the other end of the age spectrum, Phang, Li, Sutanto and Kankanhalli (2005) considered senior citizens' acceptance of e-government services by developing a framework from TAM and IDT models.

In addition to being limited to specific demographic groups, other studies have insufficiently examined the range of barriers to citizen e-government adoption. Studies by Carter and Bélanger (2005) , Lean et al. (2009), Schaupp and Carter (2005) and Phang et al. (2005) did not address barrier factors to adoption. Studies by Chu, Hsiao, Lee and Chen (2004) and Lau (2004) aimed to identify the key factors for adopting government electronic services, and both rightly incorporated some barrier factors but failed to include trust. Although Hung et al. (2006) did incorporate trust in their investigation of public acceptance of online filing and payment systems, they combined trust and facilitating condition factors in one construct, which is inadequate for a full understanding of the role of trust in the issue. Additionally, the majority of these studies focus on one or two e-government services only.

A study by Susanto and Goodwin (2011) examined citizen adoption of e-government services provided in Short Messaging Service (SMS). The study investigated the factors that influence individuals in the use of SMS-based e-government services. The study model, the SMS-based e-government acceptance model (SEGAM), was compared with four models of technology adoption—TAM, the theory of reasoned action (TRA), the theory of planned behaviour (TPB) and the decomposed theory of planned behaviour (DTPB)—to explain intentions to use SMS-based e-government services. The study focused on only one channel—SMS—although the e-government service is broader and has a more comprehensive method of delivery of services to people.

The apparent paucity of empirical work inspired this research. Moreover, it was encouraged by the apparent absence of sufficient studies with respect to developing countries, in general, and Saudi Arabia, in particular. Therefore, this study includes factors of adoption that have been omitted by other studies, such as privacy, trust and culture. Importantly, it conducts an investigation by examining citizens' overall perceptions of e-government services rather than focusing on one or two applications. The study develops a theoretical framework derived from the well-known and established UTAUT model and empirically validates it through fieldwork. The approach reveals the key elements involved in the adoption of e-government services by Saudi citizens, and the findings of the study extend the body of knowledge in IS and fill the gaps left by previous research. Filling this gap in the literature by conducting this study in a country such as Saudi Arabia, whose culture and values differ from that of the Western world, provides an important theoretical contribution.

1.5 Scope of the Study

Many researchers have studied e-government from different angles. Therefore, it is necessary to define the boundaries and scope of the study so it is focused and efficient, easy to understand and insightful.

The boundaries of this study are as follows:

1. based on G2C relationship as compared with other e-government contexts: G2G, government-to-business (G2B)
2. focus on web-based e-government adoption using and without using mobile technology as a channel to deliver the e-service to citizens
3. focus on individuals and social contexts of citizens as compared with business, organisational and work environments
4. focus on demand-side perspective, which examines the factors that influence citizens to adopt and use e-government services (Reddick, 2005), as compared with supply-side perspective, which explores factors that affect the adoption and the implementation of e-government services by the government itself (Reddick, 2005).

Therefore, the main focus of this study is the citizen's (demand-side) adoption of e-government.

1.6 Research Aim and Objectives

The purpose of this study is to identify the factors that influence citizen adoption of e- government services in a developing country. It develops and examines an adoption model of e-government from the citizen perspective. This model is based on UTAUT, one of the broadest and most comprehensive theories of technology adoption. The study develops a conceptual model by integrating UTAUT with other factors: privacy, trust and culture. This extended UTAUT model investigates the effects of these factors upon citizen adoption of e-government services in Saudi Arabia. Moreover, it explores the relative importance of each factor for citizen adoption of e-government services.

The research investigates the key determinants that influence citizen adoption of e-government services. The findings of the study are expected to assist government policymakers to understand the relevant issues involved. To achieve this, the following objectives were formulated:

1. Gain an understanding of current practice in e-government, particularly in relation to citizen adoption of e-government.
2. Identify the challenges facing citizen adoption of e-government in a developing countr y.
3. Identify, improve or adapt strategies that address the challenges faced in citizen adoption of e-government in a developing country.

The outcomes of the research contribute to the understanding of the drivers of e-government adoption by citizens. The research has succeeded in developing and validating an integrated model.

1.7 Research Questions

To understand citizen adoption, several questions are examined, including:

Q1. What are the definitions and models of e-government?

Q2. What is the current situation regarding information and communications technology (ICT) and the e-government program in a developing country?

Q3. What is a suitable model for understanding technology adoption and citizen acceptance of e-government services in a developing country?

Q4. What factors influence citizens' acceptance and adoption of e-government services in a developing country?

Q5. What is the relative importance of these factors and the relationship between them?

Q6. What should the government in developing countries do to ensure widespread adoption of e-government services by citizens?

1.8 Research Motivation

There is a severe attention for E-government knowledge. E-government and e-services research is becoming now of high importance. Academic studies require the more need to understand and study of e-government from different perspectives in different contexts and uses different approaches (Alghamdi, Goodwin, & Rampersad, 2011; Alshomrani, 2012; Alzahrani, Stahl, & Prior, 2012; Hanafiah & Goodwin, 2014; Rowley, 2011; Susanto & Goodwin, 2011). Therefore this research came in response for increasing interest in this topic, as well as, meets the needs of the academic and enrichment of knowledge.

Although several studies on e-government adoption have been conducted in developed countries, there is a lack of empirical e-government adoption research that focuses on the adoption of such services in the Middle East, including Saudi Arabia.

In addition, as mentioned, a low level of citizen adoption of e-government services is reported in the literature. The global average for government website usage by citizens is about only 30 per cent (Kumar et al., 2007). This low rate of e-government adoption

is particularly noticeable in Saudi Arabia. Therefore, empirical research in this area can make a significant contribution by shedding light on the important factors that can influence citizen adoption of e-government services. Identifying such factors can contribute to increasing the adoption rate of these services, by deepening the knowledge about the factors that facilitate or hinder the adoption process. Further, the study's outcomes provide insightful guidelines for decision-makers to maximise citizen utilisation of e-government services.

In information system research the focus is on the public services adoption ofG2C e-services. Public sector use of ICTs and e-services is an an area that is under researched. Previous studies (Troshani, Jerram, & Rao Hill, 2011; Walker, 2006) have addressed different angles in human interaction with organizations using ICTinnovation. This study contributes to understanding the factors that affecting the interaction between humans and the public sector use of ICTs.

The lack of in-depth research on factors within government organisations of specific countries affecting e-service programs is another reason for conducting this research in the Saudi context. The factors vary from country to country and the government of a specific country must comprehend certain unique conditions, needs and obstacles (Alhujran, 2009; AlShihi, 2006; Elsheikh, 2011).

1.9 Research Outcomes

The outcomes of this research may also be of interest to the following groups:

1. Government officials who are managing e-government projects: The study as a whole is directed to meet the needs of this group by identifying the factors affecting citizen adoption of e-government services.
2. Researchers in the e-government area: The outcomes of this research highlight the critical factors associated with e-government adoption in Saudi Arabia. Scholars may explore each factor in depth, and its effects on different societies, and/or attempt to cover more variables.

1.10 Research Organisation

This research is organised into ten chapters. The literature review is divided into four chapters, chapter 2 discusses the generic area of e-government and then the more specific context of Saudi Arabia is discussed in chapter 3. Chapter 4 focusses on extant theoretical models concerning technology adoption, followed by the more pertinent factors that influence adoption of the expanded model in chapter 5.

The research methodology in Chapter 6 then describes the research design. Quantitative data analysis is presented in Chapter 7, and Chapter 8 focuses on qualitative data analysis.

Chapter 9 provides a discussion of the results from the data analysis and research outputs. Finally, Chapter 10 explains the recommendations and conclusions. The structure of the thesis is pictorially represented in Figure 1.1.

1.11 Summary

The aim of this chapter was to outline the fundamental research issues. To fulfil this purpose, the research background was first introduced. A review of the research context revealed the reasons behind the choice of Saudi Arabia as a place to study. The importance of the study and the scope of research in e-government services were explained as well as the objectives of the research, which determined the formulation of research questions. The motivations for and outcomes of conducting this research were also discussed. Finally, the sequence of chapters for this research was outlined.

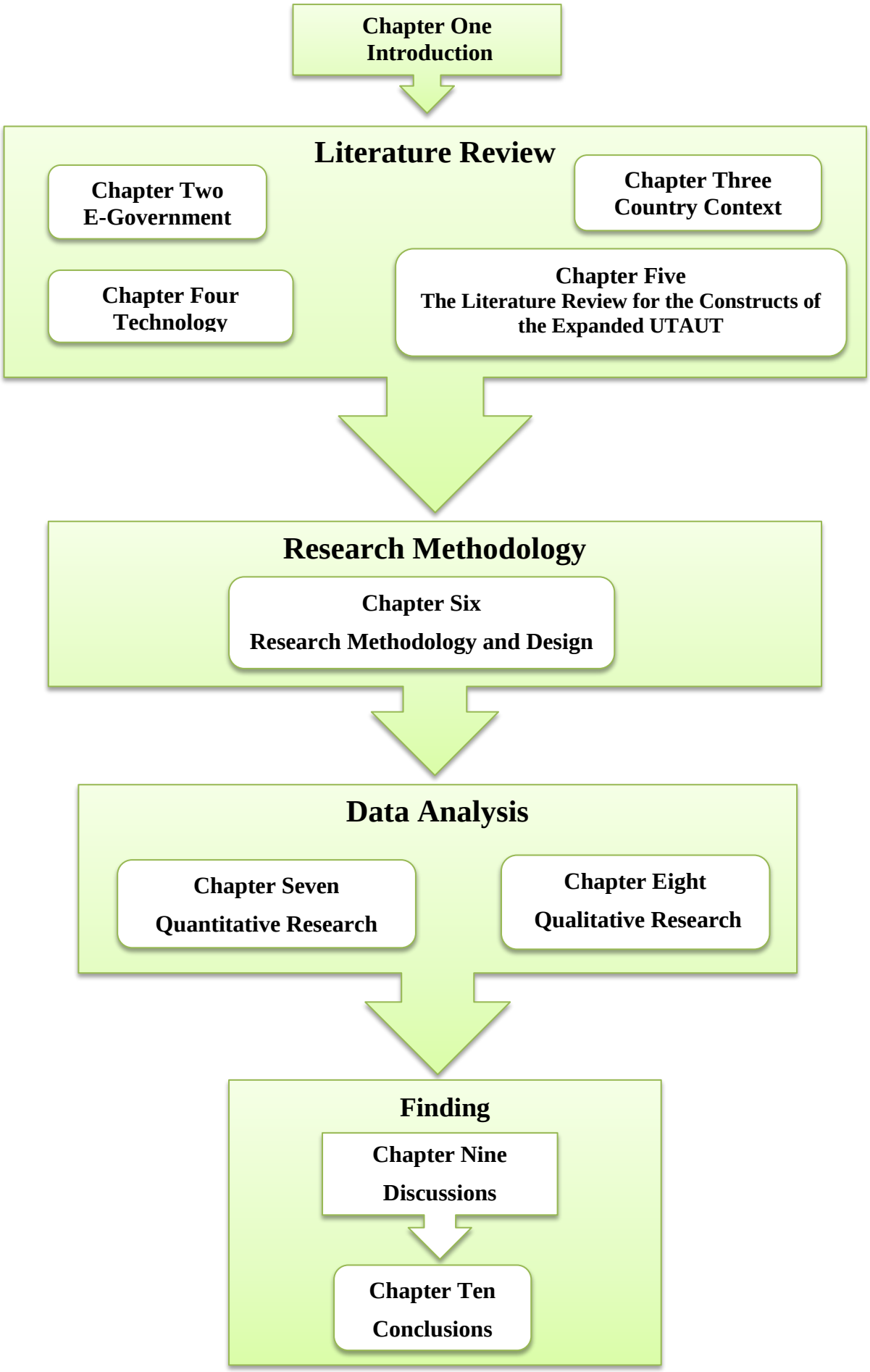

Figure 1.1 The Structure of the Thesis

Chapter 2: E-Government Background

2.1 Overview

This chapter aims to establish the main issues that surround e-government, especially those that concern its adoption by citizens. This contributes to understanding the current practice of e-government in order to address the key issues of adoption and answer the first research question: What are the definitions and models of e-government? To do so, the chapter starts by presenting a number of e-government definitions and discussing two approaches to defining it in Section 2.2. It then moves on to identifying the main sectors of e-government - government, business and the citizen—in Section 2.3. The characteristics of the stages of e-government, the relations between them and the degree of interaction from citizens are discussed in Section 2.4.

Section 2.5 presents the main imperatives for adopting the electronic delivery of services in the developing world. The issues that are covered include identifying the common drivers or imperatives in those countries: the differences and other elements that can influence these motivations. Next, in Section 2.6, the similarities and differences between e-commerce and e-government are examined by addressing issues such as access, structures, accountability and beneficiaries. Finally, conclusions are drawn.

2.2 E-Government Definition

The link between the term ‘e-government’ and its many goals, issues and factors has led to varying definitions of e-government. As a result, there is little consensus on its definition. Although they are not universal, existing definitions can contribute to our understanding about the meaning of e-government. Pardo (2000) considers that, to understand the concept of e-government fully, one must first be aware of what the concept of government itself means. Accordingly, she defines government as ‘a dynamic mixture of goals, structures and functions’ (Pardo, 2000, p. 2). The dynamic mixtures that constitute governments are subjected to a change through e-government, which is defined as ‘a complex change effort intended to use new and emerging

technologies to support a transformation in the operation and effectiveness of government' (Pardo, 2000, p. 2) According to this definition, the e-government concept is understood as a transformational process in government. However, Misra (2006) argues that, in spite of the diversity of e-government definitions, there is no plain definition that, in particular, indicates or covers the range or the content of e-government—a fact that has led to the failure of different strategies and implementation processes that have depended on such unclear definitions.

One of the trends in the definition of e-government is to focus on the use of ICT, especially the Internet. Examples of such definitions that were adopted by large, credible organisations, as well as some researchers, are the following:

- 'utilizing the internet and the world-wide-web for delivering government information and services to citizens' (United Nations & American Society for Public Administration, 2002, p. 1)
- 'the use of information and communication technologies, and particularly the Internet, as a tool to achieve better government' (Organisation for Economic Co-operation and Development, 2003, p. 63)
- 'the use of information and communication technologies (ICTs) to improve the activities of public sector organisations' (Heeks, 2003, p. 2)
- 'E-government is a delivery of government information and services online through the Internet or other digital means' (West, 2004, p. 16).

These narrow definitions, while useful and straightforward, oversimplify a more complicated transformation of traditional governments through focusing merely on technology, as the fundamental issue in adopting and implementing e-government. Their deficiency comes from the fact that they either focus on ICT tools surrounding e-government, or they focus on improvements that e-government would bring to the administrations' traditions through the use of technology. Yildiz (2007) argues that technology is just a means to achieve e-government and that certain technologies do not fundamentally define what e-government is and what it will be. Therefore, adoption of new technology alone cannot and will not transform traditional governments. Technology is just one block of a larger set of e-government blocks.

In another trend, there are e-government definitions that not only focus on the use of the technology, but also have a more profound task of addressing the transformation of the methods and means by which governments interact with stakeholders. E-government also increases the economic progress, magnifies the democracy and reshapes the government function in society's and citizens' perspectives of their government (Löfstedt, 2005). That is the purpose of such technology. Examples of these definitions include:

- 'E-government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions.' (World Bank, 2010)
- E-government is: 'a broad-based transformation initiative, enabled by leveraging the capabilities of information and communication technology; to develop and deliver high quality seamless, and integrated public services, (2) to enable effective constituent relationship management; and (3) to support the economic and social development goals of citizens, businesses and civil society at local, state, national and international lever' (Grant & Chau, 2006, p. 80).
- E-government is: 'a way for governments to use the most innovative information and communication technologies, particularly web-based Internet applications, to provide citizens and businesses with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate democratic institutions and processes' (Fang, 2002, p. 4).

E-government can be defined as a strategic tool for the transfer of information and public services to become available over the Internet. According to the aspects mentioned above, the definition should be broader, concluding that e-government is the computerisation of current government operations, especially the paperwork, to find an

effective way to manage and simplify the internal and external operations of the government and make it more responsive, accountable and transparent, as well as having increased interaction and communication with the public to enhance political trust, and thus increase participation in the democratic process. In addition, it is the provision of public services and information from one point 24 hours a day, seven days a week, with a high degree of efficiency and quality, and less time and cost. All this aims to increase the satisfaction of stakeholders such as citizens, businesses, employees and other public sector organisations by addressing their needs in line with current circumstances.

However, the successful adoption and implementation of e-government services and applications requires an awareness of the concept of organisational transformation, as well as focusing on the citizen as a key partner in the process of change, working together with the relevant public administrations to achieve a better level of satisfaction among the public about the new government services.

2.3 Categories of E-Government

Asgarkhani (2005) argues that the main task in the work of governments around the world is to build relationships with stakeholders (e.g. citizens, businesses, employees and other government agencies). This means that one of the driving forces for the implementation of e-government services and applications continues to be the need for a better interface between the consumers of government services and the providers of these services from government agencies. However, the diverse needs of stakeholders from government have caused the classification of e-government services and applications into four main categories: G2C, G2B, government-to-employee (G2E) and G2G. Categories such as G2C and G2B describe the external interactions of the government with stakeholders, whereas the categories G2E and G2G describe the internal interactions of the government (Backus, 2001).

This research focuses on the category of government services and applications to citizens (G2C). This serves the vision of the Saudi Arabia government that the provision

of services should ‘enable everyone to use effective government services in a safe manner and an integrated and easy via multiple electronic channels’ (YESSER, 2012b).

Among the categories of stakeholders, the category of citizens is the largest and most diversified in terms of their needs and expectations. This has prompted the researcher to conduct a study that identifies the factors influencing the decisions of citizens to adopt and implement e-government services and applications in the belief that knowledge of the determinants contributes to the success of such services and applications.

The categories are as follows:

- G2G: This category is simply about the interaction between governmental institutions.
- G2B: This category is simply about the interaction between the government and commercial organisations, and between the government and non-commercial organisations.
- G2C: This category is simply about the interaction between governmental institutions and citizens.

However, e-government programs involve a wide range of services, products, people and procedures. Some studies have examined the organisational level of e-government programs, for instance, those of Alghamdi, Goodwin & Rampersad (2011) and Hanafiah and Goodwin (2014). E-government programs offering services to organisations are excluded from this research scope—both those services that involve external interaction with the government such as businesses (G2B) and those involving internal interaction and collaboration with other government organisations (G2G). In addition, the e-government services based on internal interaction and cooperation between governments and their employees (G2E) are excluded.

The scope of the e-government programs examined in this research was carefully identified to avoid any complexity in the analysis and to enhance the generalisability of the results for services of the same scope. The services in this research were chosen particularly based on the type of beneficiary service they provide. Only services that involve external interaction and cooperation between government and individuals (citizen level, not organisations level) were selected. Such services provide government

to citizens' e-services (G2C) to offer satisfactory benefits in order to improve government-citizen relationships.

A study by Susanto and Goodwin (2011) examined the citizen level of e-government services that are provided in SMS. The study investigated the factors that influence individuals in the use of SMS-based e-government services. That study focused on only one channel (SMS), although the e-government service is a broader and more comprehensive way to deliver services to people. Thus, this research examines the citizen level of e-government service in broader channels, considering web-based e-government services using and not using mobile technology.

2.4 E-Government Phases

The other aspect to framing e-government as a basis for this research is the stages of e-government. E-government does not appear overnight, so academics have sought to identify the sequence of phases that are travelled on the way to full implementation of fully integrated, universally adopted services. The four phases defined by the Gartner Group (2000) and Seifert (2003) and the three by World Bank (2002) can all be mapped onto the five defined by Hiller and Belanger (2001), as shown in Table 2.1.

Table 2-1: E-Government Phases (Hanafiah and Goodwin (2014)

E-Government Phases	World Bank	Gartnar Group; Seifert	Hiller and Belanger
1st phase	Publish government information	Publish government information	Information dissemination
2nd phase	Government interacts with citizens	Government interacts with citizens	Two-way communication Government interacts with citizens
3rd phase	Transactions conducted and completed by citizens online	Transactions conducted and completed by citizens online	Transactions conducted and completed by citizens online
4th phase		Full integration of transactions	Full integration of transactions
5th phase			Participation Offers a voting system to ensure high security and privacy

Briefly, and in the numerical order of the stages they are as follows.

The first phase is to publish government information such as laws and rules on a static website, in which the relationships between citizens and government are passive–passive (no interaction between the government and citizens). The Gartner Group (2003) opted for a stage similar to this labelled ‘presence’ in their stages model.

In the next phase, government applications advance one step forward towards online services by enabling interactions. This level differs from the previous one. The interaction occurs mainly from the demand side only (citizens and business), while the government is still passive. In this case, citizens can download forms and applications from the government website and use them in further transactions. In some cases, the government can be active through email. Both of these two phases are important to accustom citizens with using e-government websites and to gain their trust.

When the government is ready to provide full services online, it moves to the third phase, in which transactions are conducted and completed by citizens and other users online. Thus, both citizens and the government start to become active (there is interaction between the government and citizens online). This is the most important stage for an e-government project; both government and citizens start to gain benefits from ICT to facilitate transactions and reduce time and effort. This aspect is the focus of this research.

The fourth stage in the Gartner Model is transformation. The public can access services and complete e-transactions at a one-stop point, no matter to which services or departments the transactions are connected. All the transactions from different agencies are integrated without concern for the beneficiaries of these services. In other words, services from different government agencies are encapsulated in one gateway for public use. At this stage of the model, a high level of technology and administration is required to avoid overlap between different agencies and reduce any redundancy in the collection of data.

Hiller and Belanger (2001) claim a fifth phase—participation—in which e-government offers a voting system. According to the authors, the rationale for proposing a separate stage for participation is to protect the information's security and citizens' privacy.

According to Hanafiah and Goodwin (2014), these models and others are considered an important measure of maturity and how to use technology in e-government services. Their study explained the importance of conducting empirical studies to validate the use of these models in order to lead e-government programs to what is expected of them. The authors noted that reliance on a single model leads to misinterpretation of e-government performance becausethe model does not contain the quality of public service delivery.

Lastly, it appears that there is a relationship between these phases and the degree of citizen interaction. Consequently, citizens can apply for services related to one government organisation, which will link them to any other part of other organisations to provide citizens with other services. Interaction is increased at the top of the e-government model and reduced until it disappears at the bottom. This research focuses on the services provided through the first, second and third phases.

2.5 Motives of E-Government

The implementation of e-government is widespread throughout developed countries and most of these countries have established projects delivering a range of services. Schware and Deane (2003) identify the factors that motivate public organisations to embrace e-government. These include the facilitation of access to government services online by providing multiple channels for citizen welfare and the improvement of the overall performance of government agencies to increase their effectiveness. In addition, Shim and Eom (2008) claim electronic government can reduce the opportunity for corruption, improve revenue monitoring and increase accountability and transparency. Governments realise that adopting and deploying IT can maintain their placements globally and lend some level of power (Stoltzfus, 2005). Further, Ndou (2004) states that the potential contribution of efficiency and cost reduction represent a high priority for adopting e-government.

It appears that improvement in efficiency, increased access to services, breaking costs down and maximising transparency constitute the main drivers for implementing e-government in industrial countries.

There is a lack of studies addressing the motivating factors for adopting electronic services among developing countries (Abdullah, Rogerson, Fairweather, & Prior, 2006a). However, the Ministry of IT (2005) in Pakistan notes that improving efficiency and effectiveness, increasing transparency and accountability, and delivering public services to citizens efficiently and cost effectively are the main drivers for implementing e-government in Pakistan. They report that cost saving and higher accesses to technology from citizens are the main drivers for adopting electronic government in developing countries.

Crossing the border to the country that is the setting for this current study—Saudi Arabia—the main objectives of its e-government program are found to be to improve public sector productivity and efficiency, to provide better and convenient services for people and businesses, to increase return on investment and to convey information in a fast and accurate manner. According to empirical research by Abdullah, Rogerson, Fairweather and Prior (2006b), economic issues such as cost saving and return on investment, strong political support from high authorities and citizens' expectations such as bringing welfare are the most important drivers for adopting e-government in Saudi Arabia. This finding is consistent with the objectives of Saudi's electronic government program.

However, when comparing the motivations of the developing world with those of industrialised nations, the situation appears to be different. For example, applying transparency and accountability in e-government can reduce the possibility of corruption (Lam, 2005; Ndou, 2004; Shim & Eom, 2008). Additionally, decision-makers feel threatened by e-government in countries where corruption is common. At the minimum level in such countries, transparency and accountability are not prioritised in e-government projects or not deemed applicable by the highest authority. The World Bank points out that civil servants fear loss of power or being caught for corruption by implementing e-government.

Another issue is that there are hidden motivations that have not risen to the surface or been discussed publicly at the national level, such as competition among countries. It is interesting that some countries dislike being sidelined in this digital race or appearing to lag behind in the eyes of their citizens, their neighbouring countries or even international society. Abdullah et al. (2006a) echo this view when they state that a regional comparison exists among Arab Gulf countries. They argue that this comparison acts as a trigger that pushes governments towards digital transformation; Saudi citizens always compare their government's progress with that of other countries in the region. Others hold a different view. Pons (2004) claims that the deployment of e-commerce and the growth in the number of Internet users are factors that facilitate Arab Gulf states to embrace electronic government.

Another essential factor that influences government objectives and motivations is financial aid from the international community. Industrialised nations have internal factors that motivate digitising services, whereas, in some poor countries, the motivation factors are framed externally. Some developing countries may suffer external pressure by donor countries and international organisations such as the World Bank (Saxena, 2005; Stoltzfus, 2005).

In short, the above discussion reveals that the potential for decreased costs, enhanced efficiency and productivity and the delivery of convenient services to citizens represent the major forces that impel the deployment of e-government in developing countries. Although many of these drivers are consistent with those of developed countries, there are some differences, such as the external influence of donors, regional comparisons and a fear of transparency and accountability from corrupt regimes. Finally, it was found that there is a shortage of studies on the effect of government motivations for adopting electronic government in developing countries.

2.6 E-Government and E-Commerce

E-commerce and e-government have risen to prominence in tandem, perhaps unsurprisingly because they share a common platform—the Internet. Similarities extend to them both using ICT and the Internet to offer products, services and information to stakeholders and, at the transaction stage of e-government, both can involve financial transactions. Further, because both replace what were previously face-to-face interactions, they rely on building a level of trust. Nevertheless, the two uses of ICT have come from different sources: one commercial and the other political.

In the same way that e-government was shown to be categorised earlier in the chapter, there have been suggestions for the different classifications of e-commerce. Oppong, Yen and Merhout (2005) identify three categories of e-commerce based on who is interacting with whom: business-to-consumer (B2C), a standard retail relationship typified by websites such as argos.co.uk or amazon.com; business-to-business (B2B), in which one business trades with another such as alibaba.com; and consumer-to-consumer (C2C), in which private individuals sell to other individuals, as is done with ebay.com or craigslist.com. Rorissa, Potnis and Demissie (2010) remind us that the development of e-commerce can hasten the spread of ICT, which in turn facilitates the provision of e-government.

In identifying distinctions between e-commerce and e-government, Jorgensen and Cable (2002) point to three areas: access, structure and availability. First, regarding access, governments are required to provide online service to all the citizenry, which means taking account of people on low incomes and those with disabilities; there are no such restrictions on the business sector when it adopts e-commerce. Regarding structure, Jorgensen and Cable (2002) argue that decision-making in a business is more centralised, whereas, in government, decisions to implement e-government can lie at several levels and in many departments and agencies, which can slow implementation. Third, with respect to accessibility, a government must consider that not all citizens will have access to services online, so alternative channels must remain open; however, a business can accept that it will not be able to reach the entire market.

A different approach was taken by Davison, Wagner and Ma (2005) and Stahl (2005), who examined the differences between the two uses of ICT in ethical terms. The move from e-commerce to e-government leads to the user's role moving from customer to citizen, also the provider's role changing from business to politics. While governments have a responsibility to meet the demands of their citizens, they also have authority over them, neither of which statements can be applied to the private sector (Davison et al., 2005; Stahl, 2005).

Abdullah et al. (2006a) cite competition as another factor that is absent in e-government but a key driver of e-commerce. One government is providing services to many citizens under e-government, but many businesses are supplying many customers under e-commerce. An exception to this generalisation arises when one national government perceives it is in competition with surrounding countries in the implementation of e-government, as Abdullah et al. (2006a) perceive takes place in the Arab Gulf region. Abdullah et al. (2006a) set out a series of contrasts between the two applications as follows:

- Overall purpose: E-government concentrates on delivering services to the citizenry with no profit expected, whereas e-commerce involves the profitable use of the Internet for buying and selling goods and services.
- Responsibilities: Businesses utilising e-commerce are free to choose which customers are targeted, whereas governments are responsible for providing access to services and information to all segments of society, including the economically disadvantaged and disabled.
- Decision-making: The authority to make decisions is spread more widely in government and its agencies than they are in a typical business.
- Accessibility: Businesses design their online offering to suit their target market, whereas governments must be mindful of the digital divide.
- Goals: E-commerce is implemented to increase profits or reduce costs, whereas governments are constrained by the need to act in the public interest.
- Viewpoint: E-government is implemented and considered from a political point of view, whereas e-commerce is viewed through a commercial lens. (Abdullah et al., 2006a)

To summarise the discussion on comparisons between e-commerce and e-government, the literature describes both similarities and differences. The similarities include the ICT platforms from which the services are delivered, a shared driver to reach large parts of the population and reduced cost compared with alternatives. At the heart of the differences lie the citizen–customer dichotomy, the political nature of e-government and the imperative to avoid the digital divide so that all citizens can be served equally, whereas businesses are not generally bound by those obligations. Therefore, it is difficult for us to benefit from the results of applying the model of e-commerce because of (a) the unique characteristics of this model and (b) the lack of focus on some key issues that may pose success factors in many other settings, such as e-government services and applications.

2.7 Summary

This chapter constituted the first part of the literature review. It examined the literature related to e-government to identify the current issues that exist in this area. It aimed to answer the first question: What are the definitions and models of e-government? In doing so, various definitions of e-government were proffered. The reasons for the variation in definitions and their key features were also discussed. It remains difficult to arrive at a consensual definition for e-government. It is a debatable issue among scholars, and no specific vision or standard is available to be followed. This research investigates web-based e-government services in general to uncover a more comprehensive view on the issue.

Next, the different categories of e-government were discussed. The author concluded that e-government has at least three sectors: G2G, G2B and G2C. These categories are comparable, and there is no significant difference of opinion among researchers on this issue.

Third, the characteristic models of e-government stages including their differences and similarities were discussed. It was found that there is a relationship between these stages and the degree of citizen interaction.

Next, the main drivers for adopting electronic services delivery in the developing world were discussed. The discussion revealed that the potential for decreasing costs and enhancing efficiency and productivity and bringing convenient services to citizens represent the major deployable forces for e-government in developing countries. Finally, it was found that there is a shortage of studies on the effect of government motivations for adopting electronic government in developing countries.

The chapter ended with a comparison between e-commerce and e-government. It was found that they share common characteristics in terms of service delivery, such as reducing costs, accessing a large population and producing services and products. Further, both citizens and customers require trust. However, government agencies operate under different circumstances from those of the business sector and, as a result, the concepts of citizen and customer are different. Again, decision-makers should consider this issue.

The above discussion shows that citizen acceptance of e-government is important because the success or failure of the system is associated with the rate at which they adopt it. However, the literature revealed concerns related to the dissemination of e-government among citizens, such as security and privacy, which are represented in trust. Thus, in Chapter 4, further investigations inquire into issues related to citizen adoption of e-government services. Chapter 3 sheds light on the context of Saudi Arabia, which represents the sampling domain.

Chapter 3: Saudi Arabian Background

3.1 Overview

This chapter represents the second part of the literature review. It presents the Saudi Arabian context and investigates various issues, particularly the current condition of their e-government initiative. It aims to continue the discussion started in Chapter 2 to draw a complete picture of the research. Understanding the context of the country is an essential element in mapping it to the relevant factors of adoption of IT.

Further, the chapter helps to shed light on the key elements of adoption as stated in the main research question and to answer the second question: What is the current situation regarding ICT and the e-government program in Saudi Arabia?

The chapter starts, in Section 3.2, with a justification of the selection of Saudi Arabia as the study context. Next, Section 3.3 introduces the country, including its location, geography and borders. Section 3.4 then describes the political system of the government, providing details about its cabinet and consultative council. From there, Sections 3.5 and 3.6 proceed to describe the country's population, its culture and people, the different beliefs of the tribal system, women's status and other traditions and customs. Then, Section 3.7 advances to examine the current state of IT in the country in detail. Next, the Saudi e-government program is introduced. The chapter investigates issues such as the national e-government project 'Yesser' and its two action plans in Section 3.11. The chapter ends with a conclusion.

3.2 Why the Saudi Context

Saudi Arabia is located in the south-west corner of Asia and shares its border with the United Arab Emirates, Iraq, Jordan, Kuwait, Oman, Qatar and Yemen. The Kingdom of Saudi Arabia is the largest country in the Middle East and the 13th largest country in the world.

Saudi Arabia is a developing country and is used as the case study in this research. The reason for selecting Saudi Arabia is that the country is representative of the Arab and Islamic states from a cultural perspective and of the Gulf states from an economic one.

According to the United Nations (UN) Global E-Government Survey conducted from 2003 until 2012, which includes six e-government surveys of its member states, Saudi Arabia has made great progress in its readiness for e-government. Table 3.1 presents Saudi Arabia's ranking during the period 2003–2012. The improvement is demonstrated by its advance of 64 positions over the past decade.

Table 3-1: E-Government World Ranking for Saudi Arabia 2003–2012

Year	E-Government Rank	Ranking Change	Online Service Rank
2003	105	–	–
2004	90	+15	73
2005	80	+10	73
2008	70	+10	60
2010	58	+12	75
2012	41	+17	70

With respect to online services provided to citizens, Saudi Arabia has not made significant progress during the past 10 years compared with their progress in e-government readiness, as shown in Figure 3.1.

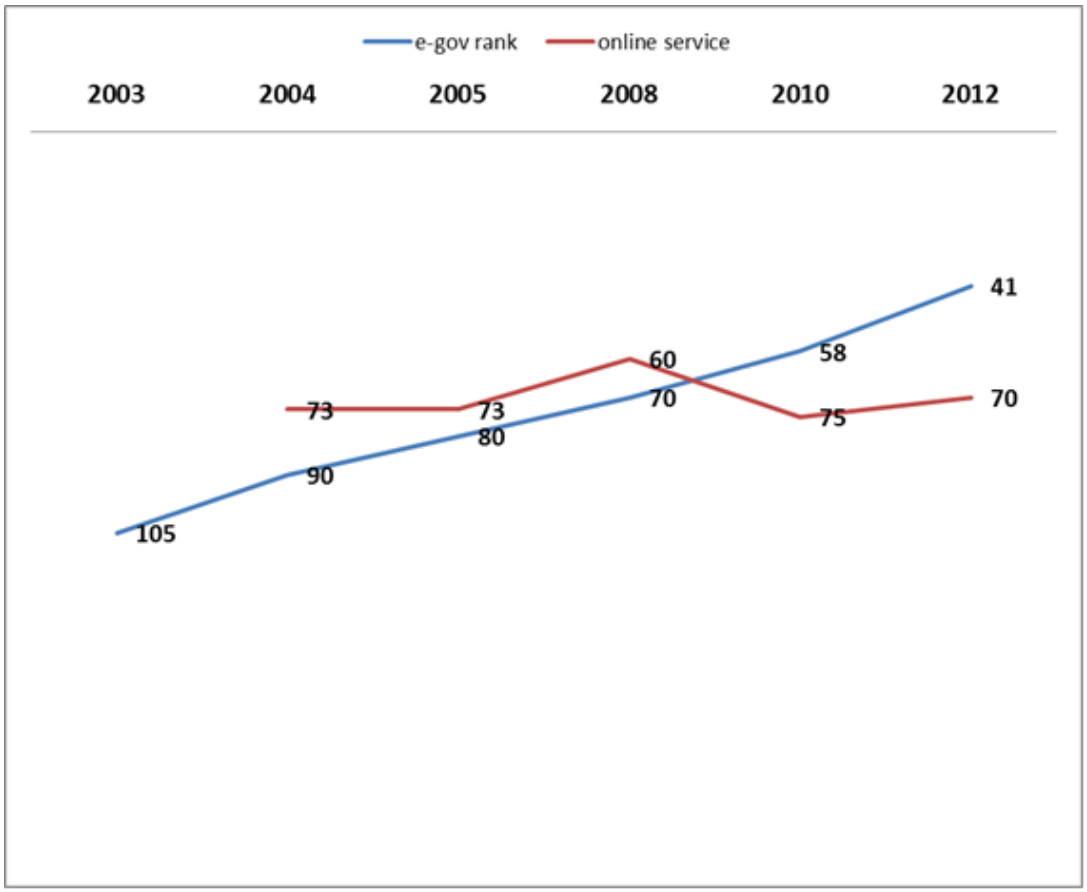

Figure 3-1: E-Government and Online Services Ranking for Saudi Arabia

Saudi Arabia is a petroleum-exporting country; therefore, it is a high-income country. The economic factor for the Saudi government is the most important factor to be relied upon to achieve a high level of prosperity for its citizens. This situation is unlike that of some other Arab and developing countries, such as Egypt and Jordan, which rely on the human factor in national development.

3.3 The Kingdom of Saudi Arabia

A royal decree was issued announcing the unification of the country and its renaming as Saudi Arabia as of Thursday, 23 September 1932, crowning the advertising efforts of King Abdul Aziz to unify the country and establish a state based on the application of the provisions of the Koran and the Sunnah (Islamic law). This declaration was the establishment of the Kingdom of Saudi Arabia. The country occupies more than two million square kilometres, which is almost 80 per cent of the Arabian Peninsula (Ministry of Foreign Affairs, 2012).

The Kingdom has a diverse geography and climate ranging from deserts to mountains. It encompasses four main geographical regions. The western region lies along the coastline of the Red Sea and contains the two holy cities, Makkah and Medina, in addition to Jeddah (known as the Islamic Port of Jeddah). The southern region comprises two chains of mountains and coastlines that stretch parallel to the Red Sea with mountainous peaks rising up to 3,000 metres above sea level. The central region is considered the heart of the Kingdom. It is a large area of plateau and desert and is known as the Riyadh region because it contains the capital city of the Kingdom, Riyadh. The eastern region is the fourth part of the country. It is sandy and stormy and contains the world's largest oil reserve (20 per cent) (Ministry of Petroleum and Mineral Resources, 2012). This region's two main cities are Dammam and Kohbar.

The Kingdom is the birthplace of Islam and the custodian of the two holy cities, Makkah and Medina. It hosts and organises more than one million pilgrims every year to perform Hajj on specific and limited days. (Hajj is an obligatory journey to Makkah. Adults should undertake it at least once in their lifetime if their finances and health allow.) It also hosts the same number of Muslims to perform Umrah at any time during the year. The working week runs from Saturday to Wednesday; Thursday and Friday comprise the official weekend. During prayer times (five times per day) shops and almost all businesses cease their activities.

3.4 Political System

The system of rule in the Kingdom of Saudi Arabia is a monarchy. The king is both the ruler and the prime minister. He is usually chosen by either a previous king or members of the royal family. The crown prince occupies the state's second position. The king appoints him, and he assists the king in carrying out his duties. The Council of Ministers consists of 22 governmental members. The king assigns them to the council. The function of council members is to advise the king about the various issues that confront the country. The council meets every Monday and the king chairs its sessions. Besides the Council of Ministers, there is a consultative council known as Majlis Al-Shura, which proposes new laws and amends previous ones to be approved by the Council of

Ministers or the king. The Council of Ministers consists of 150 members representing 12 committees. The king also nominates them. Members of both councils are assigned by the king for four years, which may be renewed for an additional period.

The judicial system in Saudi Arabia is founded upon Islamic (Shari'ah) laws and covers all aspects of life. Article 1 of Royal Decree A/90 states that the Kingdom of Saudi Arabia is a sovereign Arab Islamic state, its religion is Islam and its constitution is the Holy Qur'an and the prophet's (peace be upon him) Sunnah (traditions), its language is Arabic, and its capital is Riyadh (Ministry Of Foreign Affairs, 2012). Shari'ah is derived mainly from the Holy Qur'an as its primary source and the Sunnah as its secondary source. The Sunnah includes interpretation of the Holy Qur'an, practices, instructions and guidelines from the prophet Mohammed peace is upon him.

Saudi Arabia is divided administratively into 13 regions. The King of Saudi Arabia appoints a prince from the ruling family as a governor for each region. Each region has a council that entails at least 10 participating members. In assists and advises the previous in developing the region. Figure 3.2 shows a map of Saudi Arabia with its 13 regions.

Figure 3-2: Map of the Kingdom of Saudi Arabia

3.5 Population

Based on the latest statistics on the population of Saudi Arabia, from a census carried out by the Central Department of Statistics and Information in the Ministry of Economy and Planning in 2010, Saudi Arabia's population is about 27 million, including more than 8.4 million foreign workers (Central Department of Statics and Information, 2012). Females represent about 49.1 per cent and males about 50.9 per cent of the population. Saudi citizens constitute 68.9 per cent of the total population.

3.6 Culture, Society and People

Saudi society is a religious society in general. Islam is the main reference of the Saudi state and the people, which greatly affects the culture and interaction and movement in society. People in Saudi Arabia perform prayers five times a day and night; mosques (Massjed) spread between neighbourhoods and markets are very large even in the workplace, universities and schools. They follow what is written in the Holy Qur'an Chapter 5 (Surat Anisa) verse 103. According to the English translation provided by the King Fahd Complex for Printing the Holy Qur'an (KFCPQ, 2012), the verse is:

> When you have finished As-Salât (the congregational prayer), remember Allâh standing, sitting down, and (lying down) on your sides, but when you are free from danger, perform As-Salât (Iqamat-as-Salât). Verily, As-Salât (the prayer) is enjoined on the believers at fixed hours. (5: 103)

The family system and the tribal system are a key element and a major component of Saudi society. Family interdependence is very strong between grandparents, fathers, sons, uncles and cousins. Usually, daughters and sons leave their parents and move to new houses when they are married. However, it is common for one son, the eldest one, to remain with or host his parents after his marriage in order to care for them, especially as they age. This form of respect is considered an Islamic value, and it is reflected in the Holy Qur'an in Chapter 17 (Surat Al-Isra) verses 23 and 24:

> And your Lord has decreed that you worship none but Him. And that you be dutiful to your parents. If one of them or both of them attain old age in your life, say not to them a word of disrespect, nor shout at them but address them in terms of honour.

> And lower unto them the wing of submission and humility through mercy, and say: 'My Lord! Bestow on them Your Mercy as they did bring me up when I was young'. (KFCPQ, 2012)

The importance of the tribal system lies in the fact that members of these families are recognised as possessing the nobility of Arab origins. The term 'tribe' can be defined in the context of Arab culture as a large segment of families who claim that they have purity of origin and honour. Finally, people pay high attention to issues such as generosity, hospitality and respect for older people, especially relatives; therefore, it is usual to find sons and daughters kissing their parent's head or hands as a show of respect.

Unlike in Western countries, in Saudi Arabia, neither males nor females have the right to change their middle names, even in adoption cases, and they continue to keep their original names in this order: individual's name, father's name, grandfather's and family name. However, people are free to change their first or family names when it is considered appropriate. This obligation is a reflection of the Qur'an's instructions; hence, it is easy for people who are affiliated to tribes in Saudi Arabia to trace their descendants. The tribe system is also an important social aspect, which is related more to culture than to religion. In general, people can be grouped into two major categories—tribal families and non-tribal families—and this also represent their social status according to many Saudis.

The position of women in Saudi Arabia is different from their position in other societies, and there are important issues that should be considered in this context. Saudi women have to wear a veil called an 'abaya' when leaving home. This is a reflection of the people's view, which pays considerable attention to modesty. People stress modesty to ensure that no relationship occurs outside marriage. In terms of financial support, men have an obligation to support women such as mothers, daughters and wives, even in the case of divorce or widowhood.

Another important issue is driving. Although nomadic women can drive cars in the desert, Saudi law prohibits women from driving automobiles in cities and rural areas. Gender segregation is a distinctive cultural characteristic that exists in the social life.

This separation is witnessed by the existence of female-only schools, universities, shopping centres, bank branches and some hospital departments.

The above discussion shows that the national culture of Saudi Arabia has characteristics different from those of many other cultures. Because of its dependence on the Islamic religion, its view of the family and tribal system as the most important component of Saudi society and the gender segregation, Saudi culture will have a significant effect on the adoption of e-government in Saudi Arabia.

It is worth mentioning that studies on the adoption of modern technology by citizens are still trying to advance understanding of the local cultural factors for acceptance these technologies. Aldraehim's (2013) work is one of the important studies to illustrate the understanding of the cultural factors. The research further investigated the cultural factors in Saudi Arabia and its interaction with electronic services. The study pointed to the importance of culture in using IT in general and then proposed a cultural framework with four components of Saudi culture named 'nepotism, the fear of lack of human interaction, service oriented culture and employee commitment'.
This current research focuses on these factors and extends our understanding of national culture in the under-explored context of e-government.

3.7 ICT in the Kingdom of Saudi Arabia

Saudi Arabia has realised the importance of ICT and accorded it the greatest attention. The government has provided ICT support and opportunities to reach desired goals. ICT has become associated with all aspects of life including service, the economy, education and health. The Saudi Council of Ministers approved the national plan for ICT, which consists of two elements: the long-term perspective for ICT in Saudi Arabia and the first five-year plan for ICT in Saudi Arabia (MCIT, 2011).

The long-term perspective offers a vision of ICT in Saudi Arabia over the long term, which is a necessary step in developing detailed plans. The presence of a long-term strategic perspective governs these plans and links them. Saudi Arabia has developed

two components of a long-term perspective: a future vision and general objectives (MCIT, 2011).

The following expresses the future vision:

> The transition to an information society and a digital economy to increase productivity. And provision of telecommunication services and IT for all segments of society in all parts of the country. To build a strong industry in ICT to become one of the main sources of income. (MCIT, 2011)

The overall objectives of the national plan were developed within seven areas, as shown in Table 3.2.

Table 3-2: The Seven Objectives of the First National Plan

No	Objectives	Areas
1	Raise the productivity and efficiency of all sectors, provide services electronically for governmental, commercial and social sectors, and encourage teleworking through optimum utilisation of ICT.	Services and productivity
2	Organise the ICT sector fairly, catalyst and attractive for investments.	ICT sector regulation
3	Build ICT industry to by strongly competitive locally and internationally through scientific research and innovation and development in strategic areas, to become a major source of income.	ICT industry
4	Optimise use of ICT in education and training at all levels.	Education and training
5	Enable all segments of society in all parts of the country to deal with ICT effectively and conveniently to bridge the digital divide.	Digital divide
6	Optimise use of ICT to serve national identity, national belonging and the Arabic language, and promote the civilisational message of Islam.	Islam, homeland, Arabic language
7	Provide qualified and trained capabilities of males and females in various disciplines of ICT, through the preparation of national cadres, and attract global expertise.	Human capacity

The Saudi government began to implement the national plan across multiple projects and with high budgets to achieve the goals and visions. The current status of what has been accomplished in the achievement of the national plan for ICT in Saudi Arabia is highlighted in the last annual report prepared by the Ministry of Communications and Information Technology (MCIT, 2011). The report pointed out that 53 per cent of the projects planned had been completed, compared with 33 per cent in 2010, and 22 per cent had been implemented.The overall percentage of projects that had been completed

or were under implementation is 75 per cent. This indicates to high level of interest to achieve the plan objectives. Table 3.3 shows the ratios of achievement of the projects' overall objectives, as stated in the report.

Table 3-3: The Ratios for Achieving the Overall Objectives

Overall Objectives	First	Second	Third	Fourth	Fifth	Sixth	Seventh
Ratios	70%	87%	85%	71%	56%	57%	50%

The next sections describe the indicators spread development of infrastructure services for ICT in the Kingdom of Saudi Arabia.

3.8 Mobile Service

The total number of mobile subscriptions grew to around 54.5 million by the end of first half 2012, with penetration rate of 187.5%. Prepaid subscriptions constitute the majority (over 86%) of all mobile subscriptions. Despite the high growth rates achieved by the mobile sector in recent years, the growth is expected to continue albeit at a slower growth rate. (CITC, 2012).

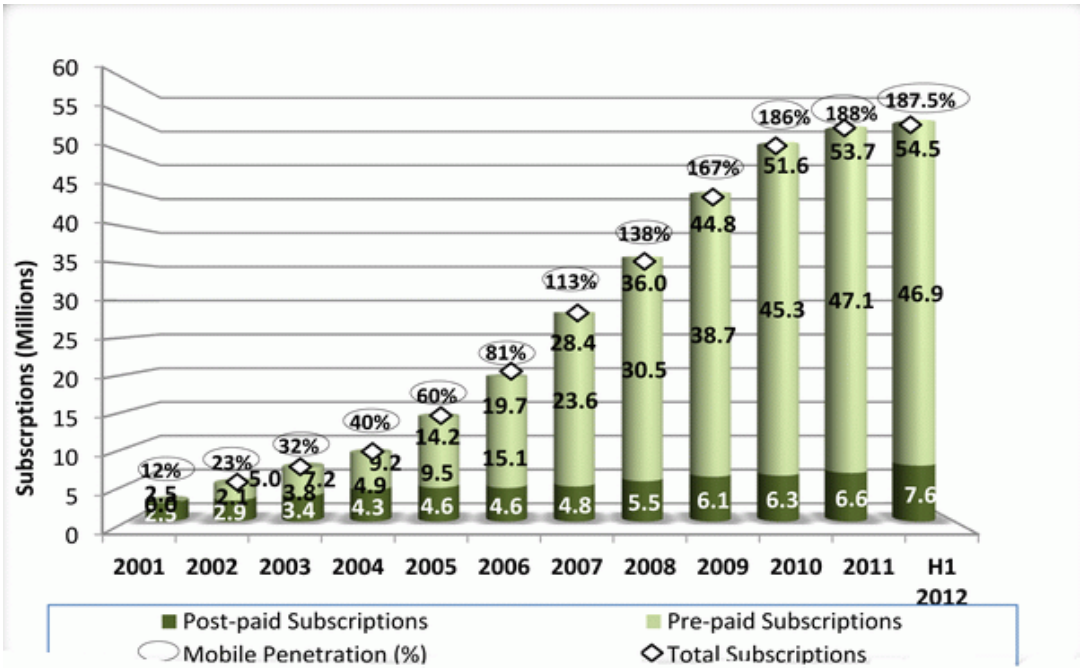

Figure 3-3: Growth of Mobile Service in Saudi Arabia (CITC, 2012)

3.9 Internet Services

Internet service was officially made available in the Kingdom of Saudi Arabia in 1997, and the Internet is becoming an integral part of the Saudi society and economy.

The number of Internet users in the Kingdom rose from around one million users in 2001 to about 14.7 million users by the end of 2012. As shown in Figure 3.4, the Internet is used by about 50.7 per cent of the population. This growth is attributed to increased awareness of the benefits of the Internet, the growth in broadband services, and the decline in the prices of devices and of the Internet (CITC, 2012).

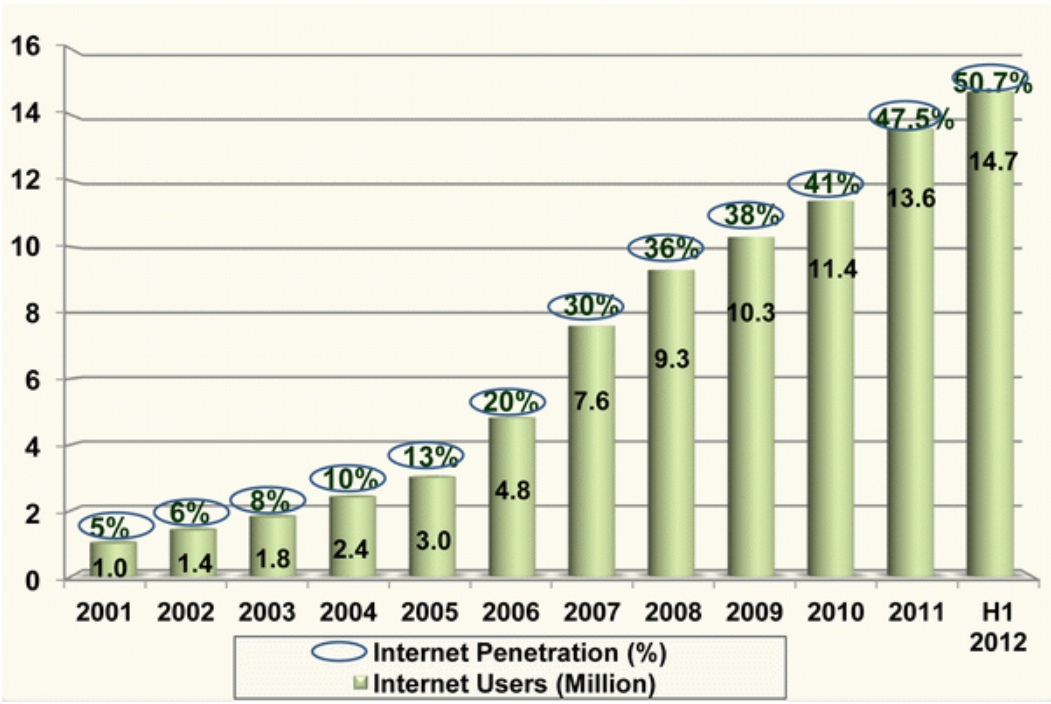

Figure 3-4: Growth of Internet Access in Saudi Arabia (CITC, 2012)

3.10 Broadband Services

The recent ncreased demand for broadband services is significant compared to previous years due to the need of society for broadband services, especially after strong government support for projects related to new technology. This requires improved digital devices, especially now that many of government measures are implemented

through electronic transactions. This increase was helped by the widespread use of the Internet in society, which has become a major source of hundreds of thousands of programs that are downloaded to smart devices such as social networking, business applications, word processors, chat programs, security tools, games and more. Service providers are currently providing broadband services through networks of fixed and mobile networks.

3.10.1 Fixed Broadband Services

Fixed broadband subscriptions, including digital subscriber line (DSL), fixed wireless or Worldwide Interoperability for Microwave Access (WiMax), fiber to the x (FTTx) and other fixed lines, grew to around 2.21 million subscriptions at the end of H1 of 2012. The fixed broadband penetration rate was about 36.4 per cent of households.

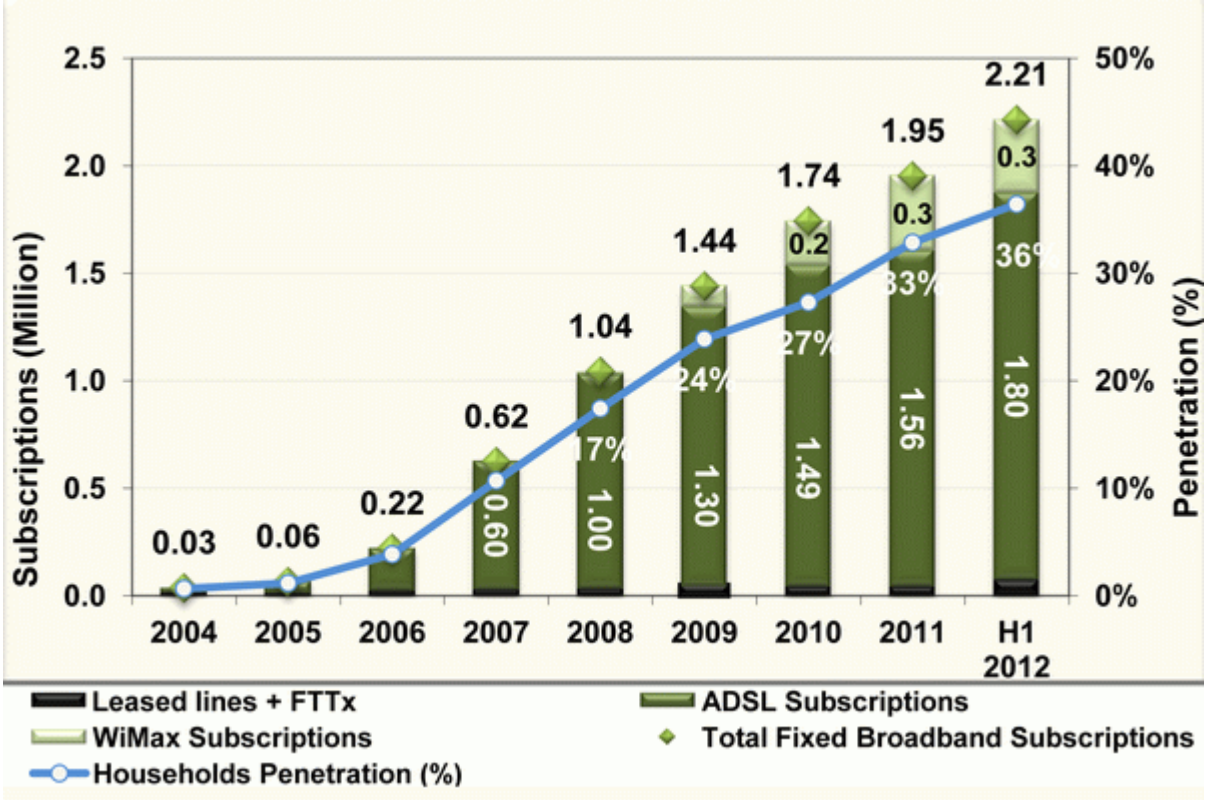

Figure 3-5: Growth of Fixed Broadband in Saudi Arabia (CITC, 2012)

3.10.2 Mobile Broadband Services

The total number of subscriptions to mobile broadband reached 12.62 million by the end of H1 2012, representing a population penetration rate of 43.4 per cent. The mobile broadband market continues to gain momentum in the Kingdom. The key reasons for this growth are the vigorous competition, a healthy expansion of smart phones and offers of various data packages by mobile operators. It has become easier to access via mobile devices such as smart phones. The mobile networks are also improving, as the 3.5G High Speed Packet Access (HSPA) continues to be deployed and as wireless broadband technologies (4G) emerge over the next few years.

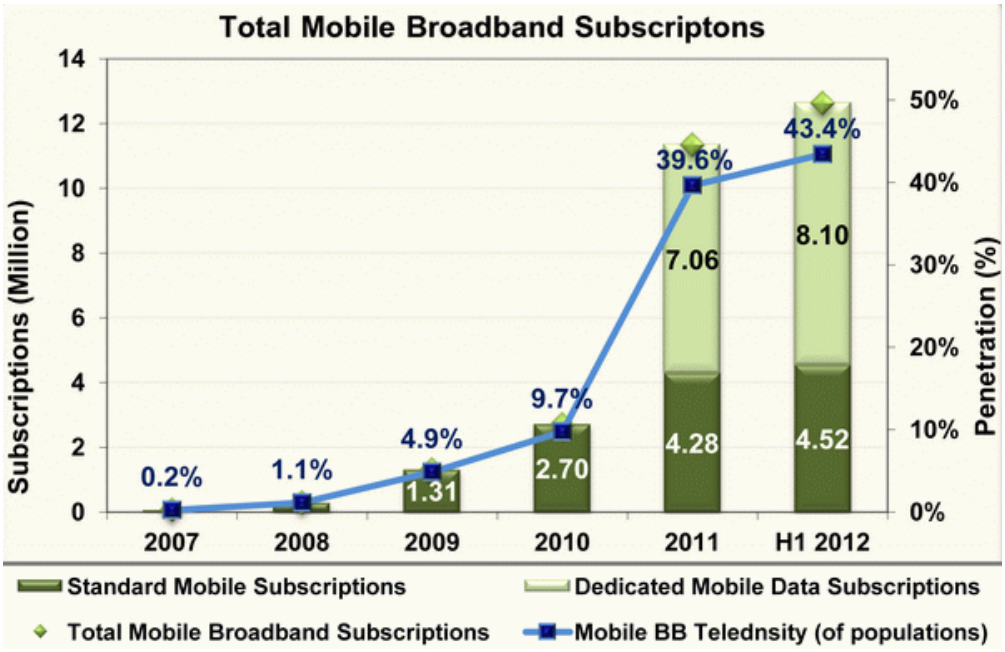

Figure 3-6: Growth of Mobile Broadband Services in Saudi (CITC, 2012)

The above discussion shows that Saudi Arabia aims to increase and develop its IT capabilities and meet the high demand for broadband services. This initiative is important for diffusing IT nationally and accelerating the adoption of e-government by government organisations, businesses and citizens. It appears that a poor Internet service at a high cost can be a key barrier to the adoption of e-government in Saudi Arabia. It is clear that widespread broadband services facilitate the access of online services.

3.11 E-Government in Saudi Arabia

As mentioned in Section 3.7, Saudi Arabia has a great significance in the transformation to the information society. To achieve the objectives of this shift, the Saudi government has created an e-government program named 'Yesser'. The role of the program is to enable the implementation of e-government. It reduces, as much as possible, centralisation in e-government implementation while ensuring the minimum level of coordination between government departments. The program's work methodology is based on the main principles shown in Figure 3.7.

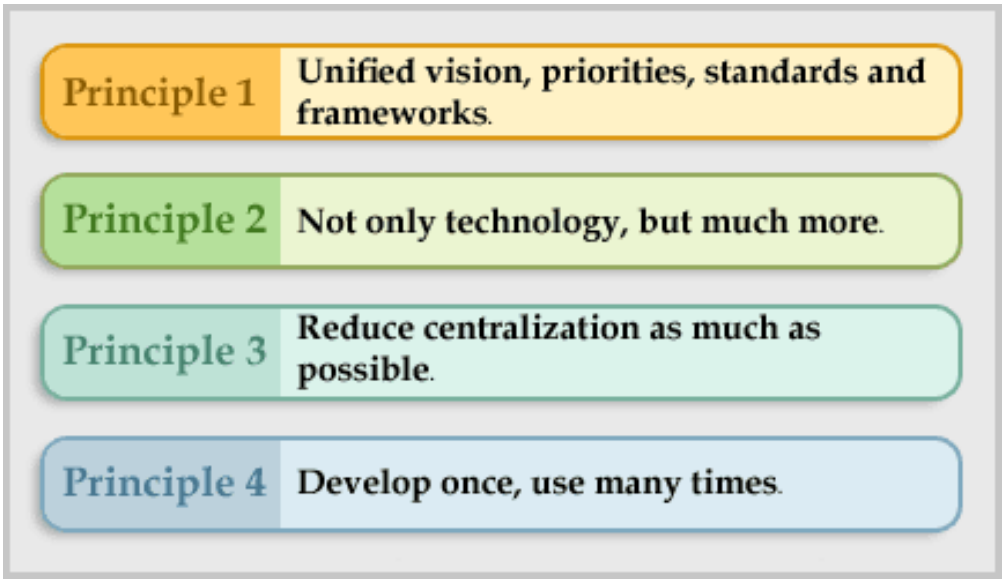

Figure 3-7: The Four Principles of the Yesser Program (YESSER, 2012a)

This research comes at a time of transition from the first e-government action plan (2006–2010) to the second (2012–2016). Therefore, the study aims to help clarify the current e-government situation in Saudi Arabia for those involved in its implementation.

3.11.1 The First Action Plan (2006–2010)

The Saudi e-government program did not actually start until 2005. The director of strategic planning and initiatives support the MCIT Eng Suhail bin Mohammed Alolmai said that on the allocation of 3 billion riyals to finance projects, programs and e-government in the Kingdom, stressing that there are about 400 e-services currently available on the national portal of e-government transactions site

(http://www.saudi.gov.sa) and government agencies. The Kingdom is ranked fifth out of 22 Arab countries in e-government readiness, 13th out of 47 Asian countries and 58th out of 192 global countries. The total number of electronic transactions in one year amounted to 202.6 million in the sectors of education, traffic vehicles, information security, finance, labour, tourism, Hajj and Umrah, and health insurance (Alwatan, 2010).

The vision for Saudi Arabia's e-government initiative is purportedly user centric, focusing on a number of aspects that all revolve around the central notion of providing better government services to the user. Users are understood here as individuals (citizens and expatriates), businesses and government agencies. The user-centric vision for Saudi Arabia's e-government initiative is summarised by the following vision statement:

> By the end of 2010, everyone in the Kingdom will be able to enjoy—from anywhere and at anytime—world class government services offered in a seamless, user friendly and secure way by utilizing a variety of electronic means. (YESSER, 2012a)

Ten potential strategic targets further detail the vision of this initiative. The e-government program (YESSER, 2012a) identifies these targets under three key components: (1) provides better services; (2) improves the level of efficiency and effectiveness in the government sector; and (3) contributes to citizens' well-being and the prosperity of the nation.

The first action plan included many projects that aimed to achieve the initiative's strategic objectives. The projects are divided, according to their nature, into three categories: infrastructure projects, e-service projects and national application projects. It was decided to classify and divide the three categorised projects into major subprojects based on their assigned objectives to bring the initiative to reality by the estimated time. The first category is infrastructure projects, which aim to develop a rigorous and reliable infrastructure to facilitate implementing e-services between government agencies. Within this classification are six different subprojects: e-government network, infrastructure integration, e-government portal, Intranet portal, e-services shared data and interoperability framework. Yesser acts as the owner and main coordinator in conjunction with other government agencies.

The second category is e-service projects. This track includes three different subprojects.

The purpose of this classification is to implement electronic services in three phases. In more detail, it seeks to address the redesign of each electronic service. Further, it works to identify the financial, procedural, organisational and technical aspects of each one. According to the e-government program (YESSER, 2012a), this track aims to achieve the main objective of e-government: 'providing better services'. The last category of projects is national application projects, which include e-procurement, government correspondences and government databases. This track attempts to provide shared applications among government agencies to enhance efficiency and effectiveness.

3.11.1.1 Projects Implemented

Although the government of Saudi Arabia was late in recognising the importance of e-government, in 2004, government agencies have developed their own websites to deliver various services electronically to its citizens. However, government organisations have differed in their progress since they adopted the innovation, which has depended on their available resources and individual views. Consequently, they vary in the stages of the e-government model that they have achieved. By examining the official portal of the Saudi e-government program, it is possible to determine that the Yesser program, in broad terms, is still at stage one of this model.

The national portal for e-government (www.saudi.gov.sa), which is a unified website on the Internet, aims to facilitate the transactions of citizens, residents and the private sector with the government sectors and increase the level of transparency. The official portal of e-government began its launch in 2007 with an early stage offering that included the following:

- information about 200 government services including service description, requirements and forms
- a directory for government rules and regulations

- a directory of government agencies that provide contact details for government bodies including telephone, fax, email and websites for more than 1,000 government agencies head and subhead
- links to many e-services provided by government agencies.

In order to facilitate Yesser projects, the government established a series of large-scale IT projects. For instance, in a national project related to the Yesser program, the government established the National Centre for Digital Certification (www.pki.gov.sa) to secure the transferring of data among different organisations. It is a security-integrated system that works based on a public key algorithm to provide identity identification, data integrity and digital security (NCDC, 2012). This project provides services to e-government and e-commerce applications, and the target participants are government, business and citizens.

Another important project is SADAD, which is a centralised payments system that aims to facilitate and accelerate all payments over all electronic banking channels such as branches, automated teller machines (ATMs), phone banking and Internet banking. In 2004, the Saudi Arabian Monetary Agency (SAMA) established and developed the SADAD system to be the national provider of electronic bill presentment and payment (EBPP) (SADAD, 2012). It acts as a gateway and linkage between all banks, government and business organisations to facilitate financial transactions by users and to complete any payment transaction with any organisation that is already registered with SADAD. According to the e-government program (YESSER, 2012a), SADAD is an important initiative for the Yesser program because it eases the incorporation of all governmental payment transactions in one system and hence allows one single point of entry.

3.11.2 The Second Action Plan (2012–2016)

Based on what was achieved during the first action plan, Yesser developed the second action plan (2012–2016). The components of the second action plan, as shown in Figure 3.8, include a national vision, a set of values and four strategic themes, which are:

1. Build sustainable e-government workforce.

2. Improve the experience of the public in their interaction with government.
3. Develop a culture of collaboration and innovation.
4. Improve government efficiency.

These four strategic themes support a set of general objectives to be achieved through 46 initiatives spread over six work streams.

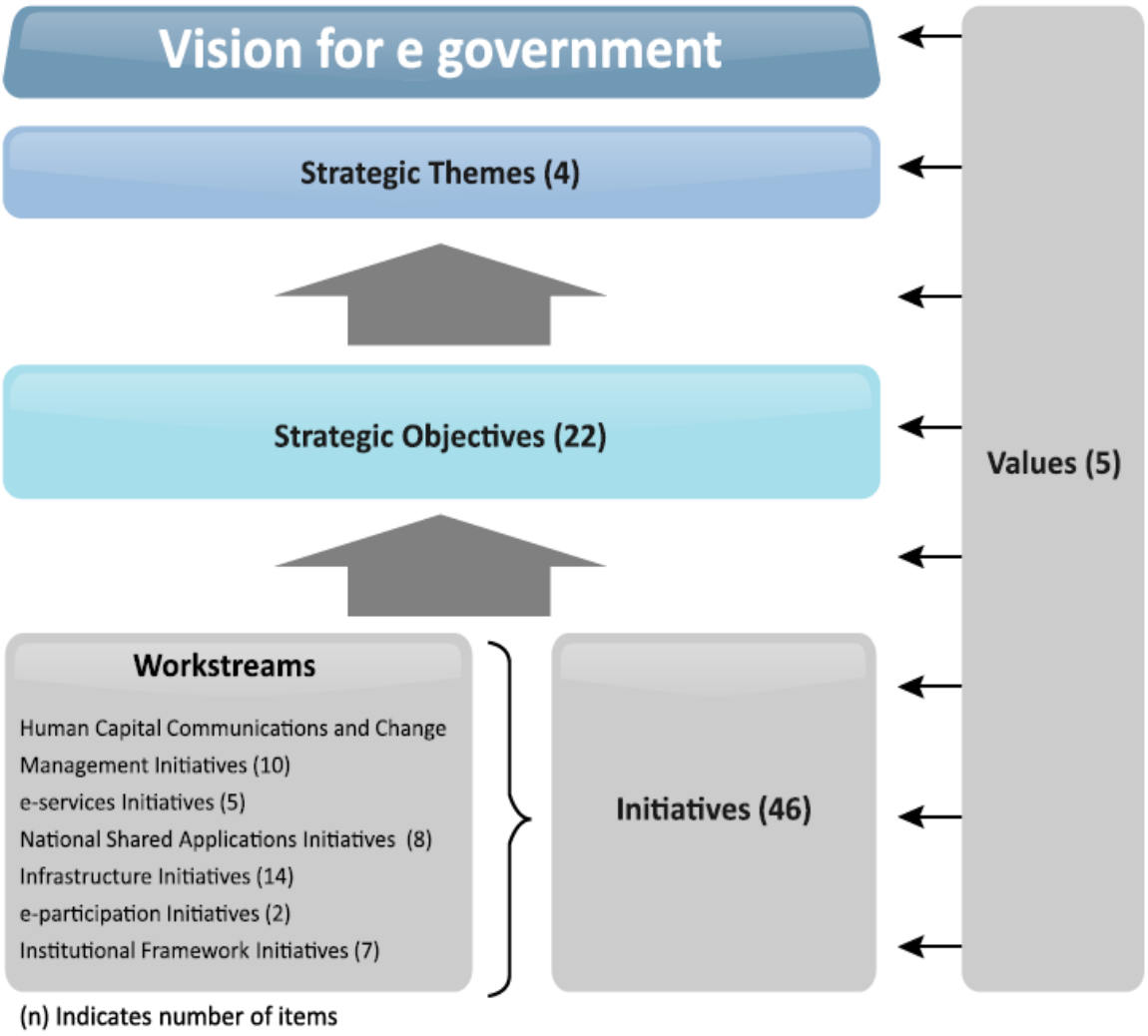

Figure 3-8: Components of the Second Action Plan (YESSER, 2012b)

The relationship between these components is shown in Figure 3.9. The vision and strategic themes describe the future for e-government in Saudi Arabia. It is widely recognised that e-government progress is more about changing people, culture and public administration, rather than simply implementing technology solutions. Initiatives in the human capital communications and change management and institutional

framework work streams are the foundation for the success of the other work streams in this second action plan. These work streams e-services, national shared applications, infrastructure and e-participation contain the initiatives that will deliver the benefits of e-government to citizens and businesses.

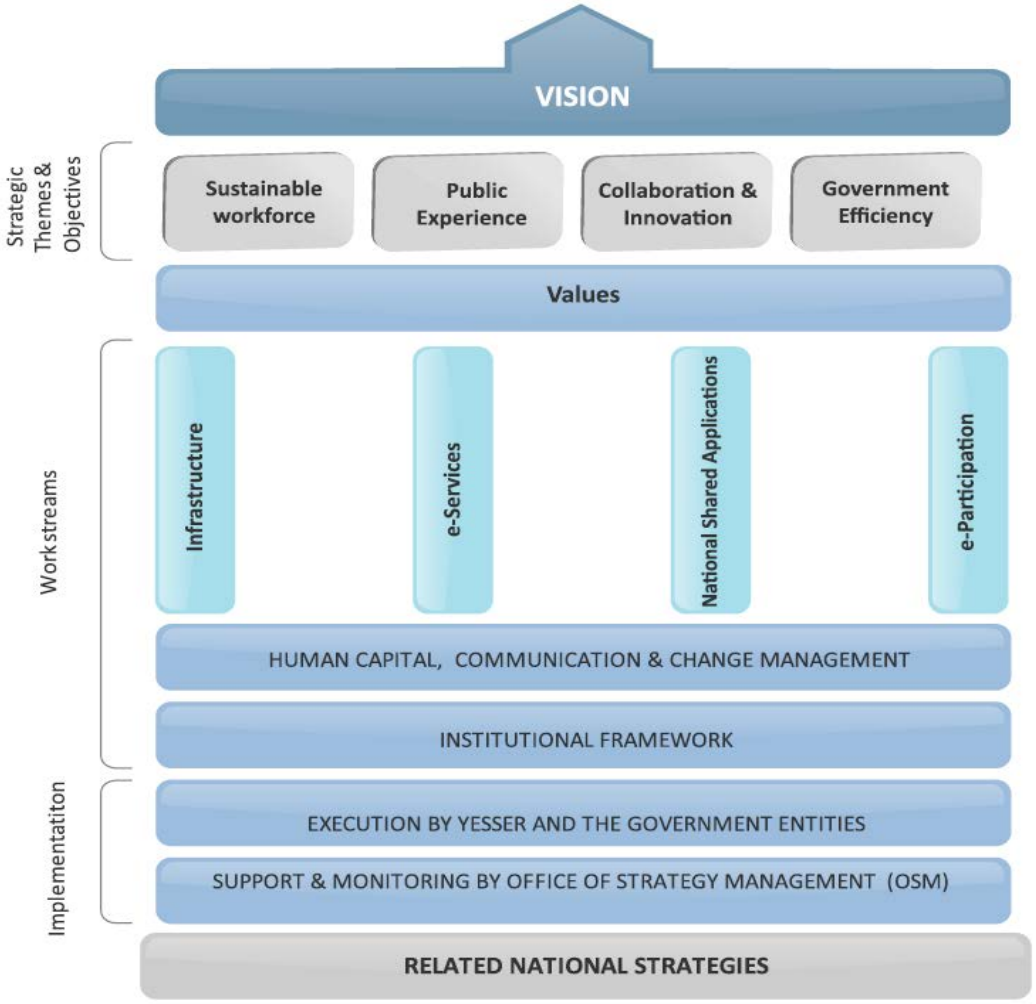

Figure 3-9: Relationship between Components of the Second Action Plan (YESSER, 2012b)

The Saudi Arabian e-government vision has shifted from what it was in the first plan to 'enable everyone to use effective government services in a safe manner and an integrated and easy via multiple electronic channels' (Yesser, 2012). Saudi Arabia is seeking to deploy and adopt the values of e-government; however, Saudi government is trying to increase the contribution of individuals to the implementation of this plan. Figure 3.10 shows the e-government values.

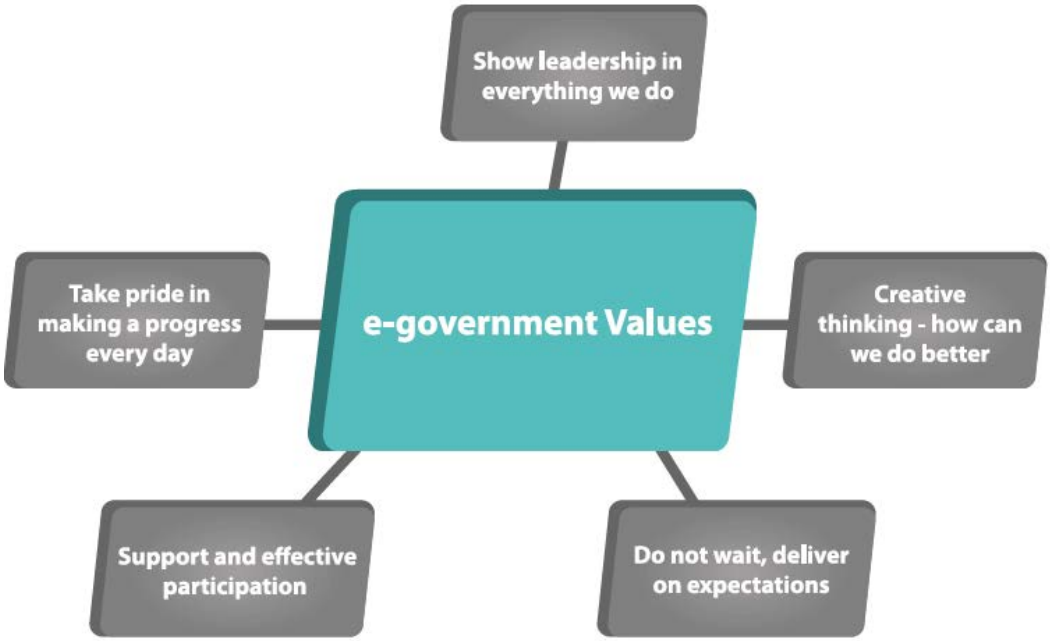

Figure 3-10: E-Government Values (YESSER, 2012b)

In light of the above discussion and through the completion of the first action plan, it is apparent that there has been a significant effort by the government to bring the program to reality. The government intends to spend billions to bring the country into the information age. Although the official e-government portal is still at an early stage, there are independent government projects that are successful and able to progress and achieve the advanced stage in the model of e-government. They are capable of delivering various electronic services to citizens. The Yesser program aims to unite and organise these efforts and make them accessible through one point of entry. The above discussion illustrates that the Saudi government is keenly interested and determined to develop e-transactions and deliver electronic services to individuals, businesses and government agencies. This reflects the importance of investigating the relevant factors that may affect a citizen's adoption of e-government because success is contingent on citizens' acceptance. Encouraging citizens to use these e-services will reap the system's potential benefits and achieve the defined objectives of the program. This chapter focused on the second research question, which inquires into the current situation of e-government in Saudi Arabia.

3.12 Summary

This chapter aimed to present the context of Saudi Arabia in relation to various issues and, in particular, to investigate the current situation of its e-government program. As the second part of the literature review, it continued the investigation that began in Chapter 2 with the aim of answering the second research question: What is the current situation regarding ICT and the e-government program in Saudi Arabia?

This chapter started with a discussion on why Saudi Arabia was chosen as the context for this research, and a depiction of Saudi Arabia's location, geography and borders. Then, it presented the political system of the country. Issues related to the country's population and cultures were described, including the different beliefs about the tribal system, women's status and other traditions and customs. Saudis highly respect their parents and older people and the family is considered important in their lives. Therefore, this literature review demonstrates that Saudi culture may play an essential role in the adoption of e-government services.

From there, this chapter examined the current situation of IT in Saudi Arabia. It found that there is a lack of infrastructure for IT and a costly and inadequate Internet service. These elements are expected to play a significant role in the adoption of e-government. The chapter showed that the Saudi government pays considerable attention and gives support to e-government applications. As mentioned in a previous chapter, this chapter presented the vision statement and the aims of the Yesser program in terms of delivering e-services and improving the national economy. This chapter answered the research question regarding the current situation of ICT and e-government in Saudi Arabia and showed that the project is still in its early stage and that the government aims to deliver a wide range of services to the citizens.

Having explained the country context and revealed some key elements involved in the adoption of e-government, such as the country's culture, social life and Internet services, in the next chapter, the study investigates these issues further using the literature germane to IT adoption. The next chapter represents the last part of the literature review, which aims to derive the remaining key elements for citizen acceptance of e-government services, bearing in mind the issues revealed in Chapters 2 and 3.

Chapter 4: Technology Adoption

4.1 Overview

Agarwal (2000) defines technology adoption as the use, or acceptance, of a new technology or new product. In IT and IS research, numerous theories have been used to study users' adoption of new technologies.

This chapter is the third part of the literature review and it investigates the most commonly established theoretical models on technology adoption. In reviewing these theories and models, a comparison is made of the main strengths and weaknesses of each theory. How these theories have been used in previous studies on the adoption of available technologies is also reviewed. From this review, the appropriate theory and model to use in this study was selected to answer the research questions.

Various models have been developed to explain technology adoption, including TRA (Ajzen, Fishbein, & Heilbroner, 1980), TPB (Ajzen, 1991), TAM (Davis, 1989), the diffusion of innovation (DOI) theory, technology organization environment (TOE) and, recently, UTAUT (Venkatesh et al., 2003), which have identified factors that affect an individual's intention to use or the actual use of IT.

4.2 Theory of Reasoned Action (TRA)

TRA (Ajzen et al., 1980; Fishbein & Ajzen, 1975) is a well accepted model that has been used successfully to explain behaviour across a wide variety of settings (Chau, 1996; Chen, Gillenson, & Sherrell, 2002; Davis, Bagozzi, & Warshaw, 1989; Venkatesh, 1999). According to TRA, an individual's behaviour is best predicted by his or her behavioural intention, which in turn is determined by the person's attitudes and subjective norm (social influence) (Fishbein & Ajzen, 1975). This implies that individuals consider the implications of their actions before they decide actually to engage in any given behaviour. This theory focuses on behavioural intentions rather than on attitudes that influence behaviour (Al-Qeisi, 2009). However, an individual may not always consider the implications of his or her actions. This too may differ from one

individual to another and across situations. According to TRA, an individual's intention to perform behaviour encompasses two factors: attitudes to the performance of the behaviour and subjective norms. Behavioural intention refers to the strength of one's intention to perform a specified behaviour (Davis et al., 1989).

Attitude is defined as the degree to which an individual makes a positive or negative evaluation about certain behaviour (Alzahrani, 2011). It is a set of beliefs about the object under consideration. An individual's attitude towards any object can be predicted with a high degree of accuracy if the researcher has knowledge about the individual's beliefs about the attitude object and the evaluation aspects of these beliefs (Al-Qeisi, 2009). If an individual believes that e-banking is risky or cumbersome or economic, the action taken would depend upon the evaluation of the attribute.

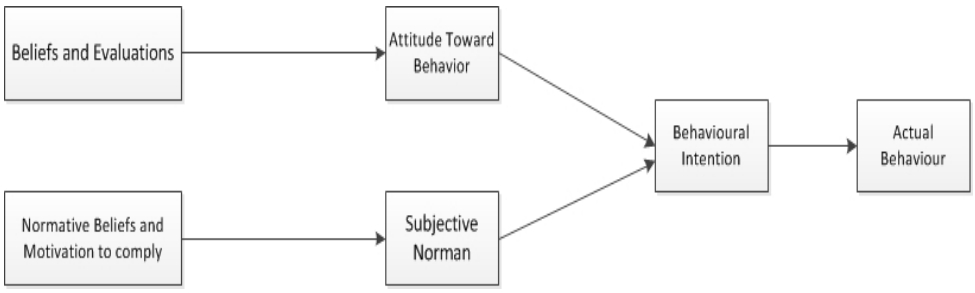

Figure 4-1: Theory of Reasoned Action (TRA)

Subjective norm is defined as beliefs about what others will think about the behaviour (Fishbein & Ajzen, 1975). It is also the social norm to perform or not perform behaviour (Alzahrani, 2011). That is, if an individual believes that most of the people who are important to him or her perceive the outcome of performing the behaviour as positive, the individual will be more likely to perform the behaviour. Hence, it can be defined as the individual's perception of what most people would like, especially people who matter to him or her. Subjective norms are generally determined by the perceived expectations of the specific reference group and by the person's motivation to comply with these expectations (Al-Qeisi, 2009).

The main limitation of TRA comes from the assumption that individual behaviour is under volitional control (Ajzen, 1991), which is not always the case. This implies that the theory only applies to behaviour that is consciously thought of in advance, which

may not always be the case. Some people have little control, or think they have little control, of their behaviour. Moreover, irrational behaviour, habitual actions or behaviour that have not been considered in advance cannot be explained by this theory (Al-Qeisi, 2009). To sum up the limitations, every action may not have an explainable reason.

4.3 Theory of Planned Behaviour (TPB)

TPB extends from TRA by incorporating an additional construct, namely, perceived behaviour control (PBC), to account for situations in which an individual lacks substantial control over the targeted behaviour (Ajzen, 1985). TPB is considered one of the most influential theories on predicting and explaining behaviour (Sheppard, Hartwick, & Warshaw, 1988). This theory is generally used in situations in which individuals exhibit a lack of control over their behaviour. The lack of control occurs due to the presence or absence of known opportunities and adequate resources essential to perform certain behaviour. As explained by Ajzen, PBC refers to the internal and external obstacles that create barriers to performing certain behaviour (Alzahrani, 2011). PBC also has a direct influence on behaviour. TPB is depicted in Figure 4.2.

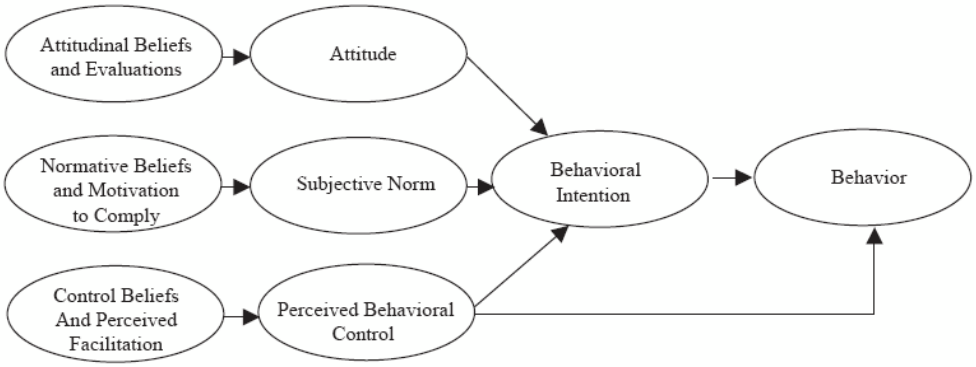

Figure 4-2: Theory of Planned Behaviour (TPB)

Ajzen (1991) contends that attitude is a component of an individual's beliefs towards certain behaviour and the outcome that results from a certain act. The motivation to comply with the subjective norms is the individual's willingness to comply with the norms. The author further contends that PBC has two components: control beliefs and

perceived facilitation. Control belief refers to the possible resources needed to conduct the behaviour, and perceived felicitation is the individual's that the resources would actually facilitate the performance of the act.

The theory also acknowledges that social influence alters intentions (Lee, Murphy, & Swilley, 2009). The actual behaviour is determined directly by behavioural intention as well as by behavioural control (Maity, 2010). TPB also recognises that the perceived ease or difficulty in using technology may facilitate or hinder the intention to use it.

The new construct PBC was defined as the 'perception of ease or difficulty of performing the behaviour of interest' (Ajzen, 1991:183). According to TPB, an individual's behaviour can be explained by his or her behavioural intention, which is influenced by attitude, subjective norms and perceived behavioural control. Attitude refers to an individual's positive or negative evaluation of the performance effect of a particular behaviour. Subjective norms refer to an individual's perceptions of other people's opinions on whether or not he or she should perform a particular behaviour. Perceived behavioural control refers to an individual's perceptions of the presence or absence of the requisite resources or opportunities necessary for performing the behaviour.

Various studies have shown the applicability of TPB to various domains, and verified the ability of this theory in providing a valuable framework for explaining and predicting the acceptance of new IT (Hung et al., 2006). Like most models of adoption, the TPB has been extended and the new model was termed the decomposed theory of planned behaviour (DTPB) by Taylor and Todd. The authors have decomposed the three constructs of TPB attitude, subjective norm and perceived behavioural control into multi-dimensional constructs. In this way, the theory includes a larger number of factors that explain the usage of technology. The decomposed version of TPB has been widely used in studies concerned with e-commerce, e-banking, e-learning, e-governance and mobile banking. This suggests that it might also be useful in evaluating e-governance in the Saudi Arabian environment. In addition, it has been used extensively to identify factors that might influence the adoption of anti-spyware systems. However, it appears that factors of TAM and TPB have been used interchangeably depending upon the subject of research and the situation. The factors are not clearly demarcated, which

makes it difficult to apply this theory in the Saudi Arabian environment, where cultural influence would alter the subjective norms and attitude of people.

4.4 Technology Acceptance Model (TAM)

Based on TRA, TAM was proposed to explain and predict users' acceptance of IT and IS systems by assuming that the constructs perceived ease of use (PEOU) and perceived usefulness (PU) are the key determinants of IT and IS acceptance behaviour. According to Zhengchuan, Chenghong and Hong (Xu, Zhang, & Ling, 2008), the success of m-commerce depends upon the acceptance of new and well defined technologies by consumers. TAM was initially developed to explain computer usage behaviour but has since been used for other research in several different fields.

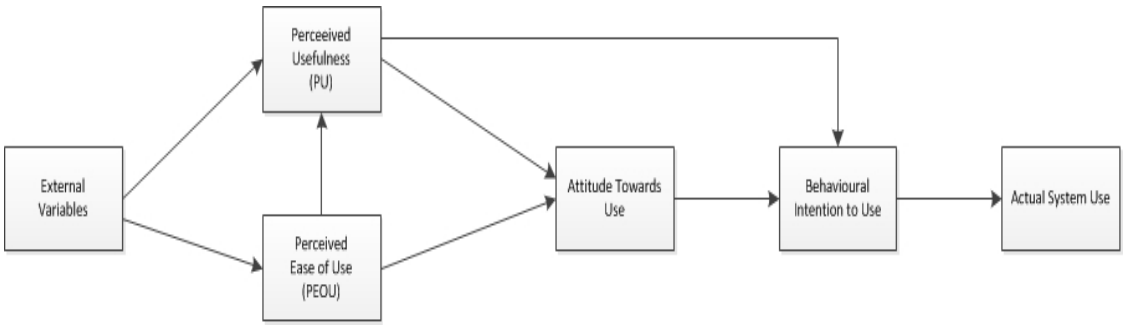

Figure 4-3: Technology Acceptance Model (TAM)

Davis (1989:320) defined PU as 'the degree to which a person believes that using a particular system would enhance his or her job performance' and PEOU as 'the degree to which a person believes that using a particular system would be free of effort' (p. 320). According to TAM, usefulness and ease of use will have significant effects on a user's attitude towards using the system; such effects are defined as feelings of positive influence or negative influence towards the system (Alzahrani, 2011). Davies further postulates that PU has a much stronger effect on technology acceptance than ease of use. However, Davies clarifies that ease of use could have a direct effect on PU (Alzahrani, 2011). In addition, PU and the amount of information provided by the websites affect adoption of technology.

Fishbein and Ajzen (1975:216) defined behavioural intention as 'the strength of one's intention to perform a specified behaviour' (p. 216). This model explains attitudes towards technology because attitudes directly affect intentions to use and adopt technology. How an individual responds to a stimulus conveys his or her attitude towards that stimulus. Attitude is important because some consumers may still use technology and m-commerce despite having a negative attitude because the environment may so demand. Hence, it also becomes important to determine the satisfaction level of the consumers.

How the behavioural intention develops over a five stage process has been explained by Karaatli, Ma, and Suntornpithug (2010). This is the expectation confirmation theory (ECT), which explains that consumers first form an expectation from the service prior to purchase. Thereafter, they use the service. Consumers form a perception about the performance of the service. They then assess the difference between the perceived performance and actual performance. Satisfaction or dissatisfaction is arrived at depending upon the experience and the level of expectation that has been achieved.

In short, TAM states that PU and PEOU affect behavioural intention to use a system, which in turn affects actual use. Attitude towards technology is also based on security concerns, privacy and compatibility, which suggests that TAM should extend beyond the perceived use and ease of use. Online shopping is also influenced by normative beliefs and self efficacy. According to Bhatti (2007), subjective norms, PU, ease of use, behavioural control and personal innovativeness contribute significantly to technology adoption. Social influence also shapes an individual's ability to use and have the confidence to use and adopt technology. Hence, if the government in Saudi Arabia could evaluate the social context in which e-governance would operate, the adoption rates could be high.

TAM has been criticised for ignoring the influence of social and human factors on technology adoption (Fu, Farn, & Chao, 2006; Mathieson, 1991). Venkatesh and Davis (2000) extended TAM by integrating social and cognitive variables such as experience, job relevance, image and voluntariness. This extended model is referred to as TAM2. Other researchers (Luarn & Lin, 2005) have also extended the TAM model by integrating factors from TPB, such as self-efficacy and perceived financial cost, as well

as from trust literature factors such as credibility perceived credibility (is defined as the extent to which a person believes that the use of mobile banking will have no security or privacy threats). Ha and Stoel (2009) extended the model by incorporating quality, enjoyment and trust factors to evaluate the adoption of electronic shopping. According to the study, these factors also influence the PU and attitude towards technology adoption. TAM has also been criticised for being too general because it fails to supply meaningful information. In addition, it does not consider barriers such as lack of expertise, time or budgetary constraints that can hinder the use of technology (Yeow & Loo, 2009).

Overall, TAM is a simple and practical theoretical model. It has been tested extensively and is widely accepted (Gupta et al., 2008). At the same time, several researchers have added their extensions to the model or integrated factors from other models. Hence, it cannot be said to be an all encompassing model that can be used for all studies. Modifications may have to be made, as and when necessary, depending upon the subject, and the size or duration of the study.

4.5 Diffusion of Innovation Theory (DOI)

DOI theory was initially proposed by Rogers (2003), who defined diffusion as 'the process in which an innovation is communicated through certain channels over time among the members of a social system'. It is a special type of communication through which messages that are perceived to be new ideas are spread. This theory has been adapted in many areas and suggests that there are four elements of diffusion. These include innovation, time, communication channels and social systems. In the context of IS, search innovation can pertain to e-commerce, e-banking, e-government services and Wireless Application Protocol (WAP) mobile phones.

An innovation is an idea, project or an object that is perceived as new by an individual or another unit of adoption (Al-Qeisi, 2009). Communication is the process by which the participants create or share information to reach a mutual understanding. New ideas are perceived as risky because of the uncertainty involved. This uncertainty can be

reduced by obtaining information. Thus, information serves to reduce the uncertainty, especially when a choice exists among a set of alternatives.

DOI and adoption of technology follow an S-shaped curve of innovation. The S-shape begins to occur when opinion leaders take the initiative to use the new idea (Al-Qeisi, 2009). The term 'imitation' implies that an individual learns about an innovation by copying others. This is known as a social process of interpersonal communication network. Kauffman and Techatassanasoontorn (2005) classify adopters into five groups depending upon the stage of adoption. The groups are innovators, early adopters, early majority, late majority and laggards.

Adoption of technology starts with a few innovators, and then gradually more innovators adopt the technology, after which it finally levels off towards the end of the diffusion process. The diffusion states also vary across introduction, early diffusion, late diffusion and maturity. When consumers in a particular market are familiar with technology, the diffusion is faster. However, in a given social setting, innovators comprise 2.5 per cent of the total population, enjoy substantial financial resources, and have the ability and understanding to apply complex technical knowledge. They play an important role in launching new ideas. Early adopters make up 13.5 per cent of the population and are generally the opinion leaders who motivate the potential adopters (Al-Qeisi, 2009). They serve as a role model as they put their stamp of approval on new ideas. The early majority (34 per cent) may take some time before they completely adopt some new idea or technology and they can never be leaders. They form an important link in the diffusion process because they mediate between the early adopters and the late majority. The late majority (34 per cent) need to remove all uncertainties before they invest in innovation, and the laggards (16 per cent) with their limited resources demonstrate resistance.

As per DOI theory, Wei, Marthandan, Chong, Ooi and Arumugam (2009) and Alzahrani (2011) highlight five different attributes of innovation: relative advantage, compatibility, complexity, trialability and observability. Relative advantage helps in comparing the advantages of the new technology over the current system it supersedes. Compatibility is the degree to which the technology is consistent with the past values and fulfils the need of the potential users. Complexity determines how difficult it is to

understand and use the innovation, and trialability is the extent to which the innovation can be experimented with. Observability is the extent to which the results are visible to others. The users try to ascertain the effect of the innovation and how it would be useful. Of all these elements, Rogers ascertained that complexity is negatively associated with the rate of adoption.

DOI theory generally refers to the innovative characteristics, but it has also been extended; the extended model was developed by (Moore & Benbasat, 1991). Moore and Benbasat (1991) focused on the perceived characteristics of using an innovation rather than focusing on the innovation itself. The constructs of DOI were hence redefined to focus on the perception of using the innovation. The redefined constructs are voluntariness of use and the extent to which using the technology enhances the image (Al-Qeisi, 2009). However, this new model was not an extension of the original DOI because the authors responsible for developing it also integrated the ease of use of the TAM model. They even decomposed the observability attribute into result demonstrability and visibility. In this model, different researchers find different constructs are influential in technology adoption.

Researchers have also used different constructs from different models of adoption to examine factors affecting individual attributes in relation to broadband adoption in Korea. Constructs from different adoption models were employed along with some of the factors of DOI in a study by Wu and Wang (2005). The study concluded that experience facilitates the adoption of technology. To test consumers' intention to use m-commerce, the researchers combined the DOI and TAM theories. The study found that ease of use did not influence the adoption of technology and compatibility was the most significant influencing factor in adopting technology. The fact that different researchers find different factors influencing adoption of technology suggests that no model is complete in itself.

While some researchers, such as Gefen, Karahanna and Straub (2003), find that TAM is a robust model, others, such as Plouffe et al. (2001), find that DOI is richer and explains more variance when compared with TAM (Alzahrani, 2011). Yet others find that TPB has an advantage over TAM because it includes dimensions such as social influence and control determinants not included in other models. The constructs PU and PEOU of

TAM are synonymous with the constructs relative advantaged and complexity of DOI. Therefore, the author emphasises that TAM is a subset of DOI. Again, DTPB appears to be more in use than DOI because it includes factors that capture the absence or presence of the resources needed to engage with technology. This theory also requires improvement measurements of the various attributes (Al-Qeisi, 2009). Although DOI theory helps in predicting the likely rate of adoption of technology, it does not provide evidence on how it evolves into accept or reject situations. Further, it is unrealistic to expect that the same model can predict attitude in respect of innovation.

4.6 Technology-Organization-Environment (TOE)

When reviewing the theories of technology adoption by individuals, it is worthwhile considering another type of theory that tries to explain technology adoption by organisations. The technology–organisation–environment (TOE) model is one such theory. Developed by Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990)Depietro, Wiarda, and Fleischer (1990), it relies on three main contexts, namely technological, organisational and environmental (see Figure 4.4). The technological context describes the relevant technologies available to the organisation, both internal and external. The organisational context refers to several indexes regarding the organisation, such as firm size and scope, centralisation, formalisation and complexity of managerial structure. It also refers to resources, such as the quality of human resource and amount of slack resources. The environmental context explains the environmental conditions in which the organisation conducts its business, including competitors and government policy or intention. These three contextual factors together influence an organisation’s technology adoption decision.

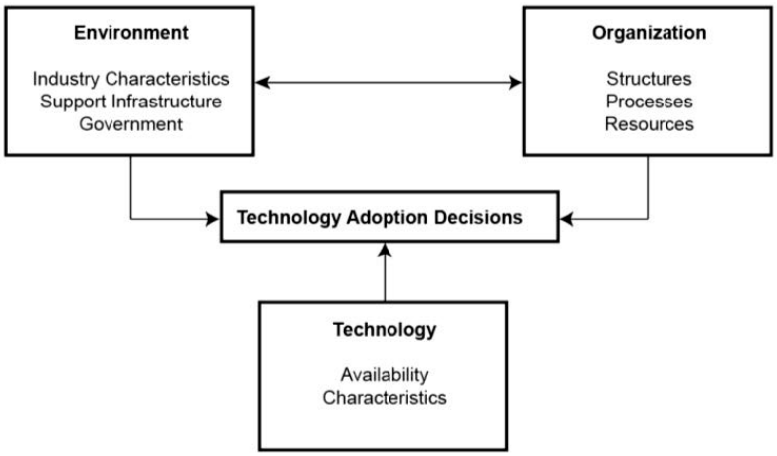

Figure 4-4: Technology–Organisation–Environment (TOE)

A considerable number of empirical studies have use the TOE model with a focus on various IS domains. In the area of innovation, Troshani, Rampersad, and Plewa (2011) study confirmed the validity of the TOE model for explaining organisational decisions to adopt innovation management software in innovation settings. Swanson (1994) contended that the adoption of complex IT innovations requires an advantageous technology portfolio, organisational structure and environmental strategy. Chau and Tam (1997) adopted the TOE model and explained three factors that affect the adoption of open systems. These factors are the characteristics of the innovation, organisational technology and external environment. Kuan and Chau (2001) confirmed the utility of the TOE model adopting complex information system innovations.

To improve services to communities of local government organisations, Sharif, Davidson, and Troshani (2013) utilised the TOE model to explore the factors that affect the adoption of social media within Australia. Their study investigated the role of TOE components and found that each context has factors that affect the adoption of social media, as follows: technological factor (relative advantage and perceived security), organisational factors (social media policies and management drive) and environmental factors (community demand and bandwagon effects). In addition, Parveen (2012) examined the factors within the TOE model that affect social media usage in organisations.

Further studies, such as those of Lin and Lin (2008); Oliveira and Martins (2010); Zhu, Kraemer, and Dedrick (2004) used the TOE model to assess the value of e-business at the organisation level. They found that technological readiness (the significant factor), financial resources, global scope and regulatory environment contribute strongly to e-business value.

In e-commerce adoption research, some studies have applied the TOE model to identify the determinants of e-commerce use within the three contexts that operate at the organisation level. For instance, Gibbs and Kraemer (2004) postulated that (1) the technology factor was technology resources; (2) the organisation factors were perceived benefits, lack of organisational compatibility, financial resources and firm size; (3) the environment factors were external pressure, government promotion and legislation barriers. Another study, by Hong and Zhu (2006), considered the TOE model in the adoption of e-commerce and the identification of new factors that fit the characteristics of the organisational level.

Finally, with respect to e-government adoption studies, Pudjianto, Zo, Ciganek, and Rho (2011) used the TOE to investigate the determinants of e-government assimilation in Indonesia. The developed model postulated the three contexts of TOE as follows: the technology context was ICT expertise and ICT infrastructure; the organisational context was top management support, organisational compatibility and extent of coordination; and the environmental context was regulatory environment and competitive environment, with organisation type as a moderating variable and organisation size and the time as control variables. The study found that ICT infrastructure, top management support, regulatory environment, ICT expertise and competitive environment are significant factors to explain e-government assimilation in Indonesia.

4.7 Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh et al. (2003) created UTAUT by synthesising models to present a more complete picture of the acceptance process than any previous individual model had been able to do. Eight existing IT and IS adoption theories and TAMs were merged in an integrated model. These eight models are TRA, TAM, the motivational model (MM),

TPB, a model combining TPB and TAM (C-TAM-TPB), the model of personal computer utilisation (MPCU), IDT and social cognitive theory (SCT). Each model attempts to predict and explain user behaviour using a variety of independent variables. A unified model was created based on the conceptual and empirical similarities across these eight models.

User acceptance has been defined as a user's psychological state, which can influence voluntariness and the intention to use technology (Yeow & Loo, 2009). According to UTAUT, the core determinants of users' acceptance and usage behaviour include a number of factors, as illustrated in Figure 4.5.

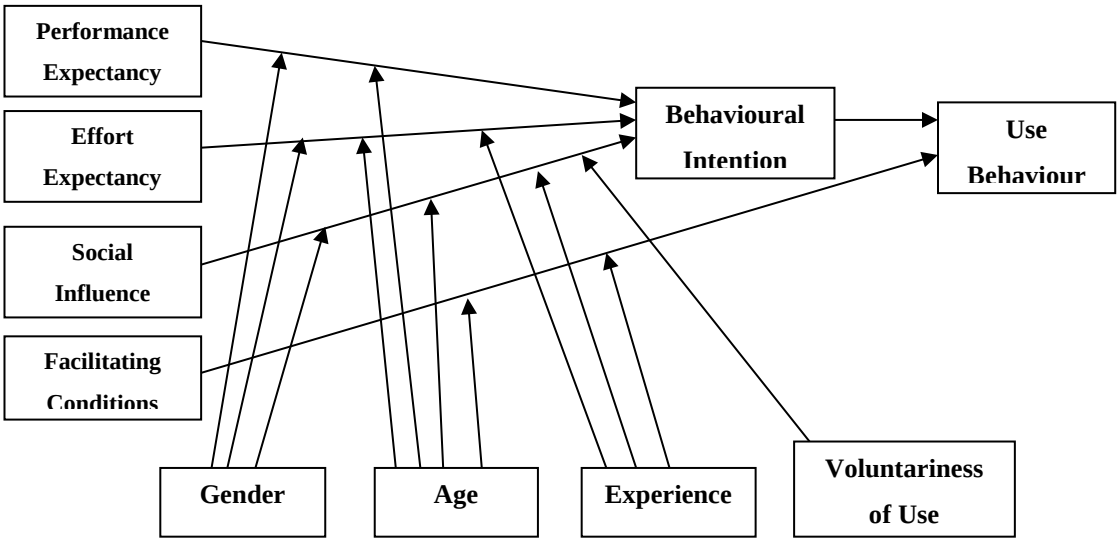

Figure 4-5: Unified Theory of Acceptance and Use of Technology (UTAUT)

Performance expectancy is defined as 'the degree to which an individual believes that using the system will help him or her to attain gains in job performance' (Venkatesh et al., 2003:447). This variable captures the constructs of PU, extrinsic motivation, job fit, relative advantage and outcome expectations (Armida, 2008). Performance indicator is the strongest predictor of intention.

Effort expectancy is defined as 'the degree of ease associated with the use of the system' (Venkatesh et al., 2003:450). This variable captures the constructs of ease of use and complexity. Effort expectancy is significant with periods of extended usage when users learn to use new technology effectively (Armida, 2008).

Social influence is defined as 'the degree to which an individual perceives that important others believe he or she should use the new system' (Venkatesh et al., 2003:451). Each variable such as subjective norm, social factors and image explain that the individuals' behaviour is influenced by their own perceptions about how other people would react to their use of new technology.

Facilitating conditions is defined as 'the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system' (Venkatesh et al., 2003:453). This variable captures the construct of perceived behavioural control, facilitating conditions and compatibility. This construct relates to intention and use behaviour, especially when effort expectancy is not present.

The UTAUT model contains moderating factors: gender, age, experience and voluntariness of use. Age is an important variable because the younger generation demonstrates higher attitude towards behaviour whereas perceived behavioural control is more important for the older generation. Men have been found to be more salient than women as far as attitude towards behaviour is concerned, but women have been found to be more salient in perceived behavioural control and subjective norm.

This model accounts for 70 per cent of the variance in usage intention and gives a perspective on how the variables related to intention and behaviour change over time (Armida, 2008). YenYuen and Yeow (2009) conducted a study to examine the usage of Internet banking in Malacca and Kuala Lumpur based on the UTAUT model. The study included factors of self-efficacy, anxiety, attitude towards using Internet banking services and credibility. The study found that perceived performance expectancy and attitude towards using e-banking services influenced their intention to use Internet banking (Foon & Fah, 2011).

4.8 Advantages of UTAUT Model and Justification for Using This Model

The UTAUT model informs understanding of factors that influence acceptance of an important new technology. Even though the UTAUT model is quite new, it is quickly

growing in popularity. Additionally, its viability, validity and stability in technology adoption research studies have already been confirmed within several contexts e.g. (S AlAwadhi & A Morris, 2008; Anderson & P. Schwager, 2004; Anderson, Schwager, & Kerns, 2006; Zhou, Lu, & Wang, 2010).

Studies in TRA, TPB and TAM have expended substantial effort towards enhancing the area of IT adoption theories, and they have produced a very good body of discussions and arguments. Nevertheless, difficulties remain among those theories. First, despite the fact that every model utilises various terminologies within their phrase of acceptance elements, they are basically similar aspects. Next, as a result of the nature of behaviour research and the limitation of the researchers, there is no single theory that addresses most (or the majority) of the factors. Basically, every theory and model has its own restrictions and does not enhance the other theories and models (Al-Shafi & Weerakkody, 2010; Min, Ji, & Qu, 2008). The UTAUT model explains 70 per cent of technology acceptance behavioural intention, whereas other models explain just over 40 per cent of acceptance (Venkatesh et al., 2003), because UTAUT includes more factors affecting the intention of the behaviour. It has resolved the deficiencies of the other models and theories and combined them. UTAUT is the most comprehensive IT adoption theory.

UTAUT unifies the theoretical perspectives common in the adoption literature and incorporates moderators to consider dynamic aspects such as user experience, and demographic characteristics such as age and gender. Most of the key relationships in this model are moderated and, hence, the study of the variables is an important added value of UTAUT. Several qualitative and quantitative studies have been conducted using the UTAUT model in the field of B2B, mobile services and devices, in SMS, and in web-based course management software. All of these studies have found this model to be suitable and have validated it. The studies have found that UTAUT variables have a strong power in explaining the constructs intention of use and use behaviour.

The UTAUT model encompasses variables from all the previous models and has been extensively tested in the use of technology in different sectors. As far as evaluating the use of e-government services is concerned, several benefits can be envisaged. For instance, the performance expectancy construct would be able to highlight whether

extrinsic motivation exists for people if they use these services. This implies that users must be able to anticipate benefits from using the e-government services. E-government services are formulated, but not all consumers may be at ease in using them, and this can be captured through the effort expectancy construct. Moreover, it would also help to evaluate whether users become comfortable in using these services over time. Extended usage and its implications would help the government to redesign or simplify the technology to attract more consumers. Evaluating the social influence is also important because this affects the overall usage of e-government services. This model also takes into account age, gender, experience and voluntariness of use.

This research uses a theory model that is based on UTAUT and integrated with another set of factors from e-government models. UTAUT has been found to be a definitive model that synthesises what is known and advances cumulative theory while retaining a parsimonious structure (Al-Qeisi, 2009). Few published studies have adopted this model, but this does not undervalue its power when compared with all other technology models.

4.9 Summary

This chapter aimed to reveal the key issues and challenges that seem to have an influence on citizen adoption of e-government to provide an initial answer to one of the research questions: What is a suitable model for understanding technology adoption and citizen acceptance of e-government services in the Kingdom of Saudi Arabia? To do so, first, the chapter reviewed the literature on the most common models used in technology adoption studies, including TAM, TPB and DOI. Then, it examined the weakness and strengths of each context and explained the rationale for the choice of theoretical framework. The researcher decided to select the UTAUT model to serve as the main theoretical framework for this study because it has more than determinants and dimensions than the other model, which enables a better understanding of the phenomenon. The next chapter will continue by providing a critical review of the existing literature on determinants of e-government adoption.

Chapter 5: The Literature Review for the Constructs of the Expanded UTAUT

5.1 Overview

In developed countries, there has been a long history of research and development into the capability and acceptability of e-government products that are created in, and for, those countries. Technology adoption has been the foundation of much of the research into technology diffusion, but almost all of this research has been conducted in the US and other developed, Western countries. UTAUT is one of the technology adoption models that are subject to this limitation in its suitability for research into acceptance of e-government in the circumstances that exist in developing countries, especially Saudi Arabia. There is currently no empirical evidence that the technology adoption models established in developed countries can apply equally well to developing countries without some modification to account for the different context. However, it is not unreasonable to assume that a need for some modification may be the case. A universally applicable model must have relevance across the broad field of IT applications and should also have a high probability of success in transfers of various technologies across economic and cultural boundaries.

This research recognises that there are many factors that could affect the success and effectiveness of e-government in developing regions such as Saudi Arabia. Some of these factors may not be identified in the existing literature on IT adoption because most of this research has been conducted in developed countries for which the technology was originally created. A review of the literature and an exploratory study in the Saudi context suggests that UTAUT, which is the basis of much of the research into IT diffusion, may be useful, although it may need to be extended to include specific issues of privacy, trust and culture as part of citizen acceptance.

This chapter justifiy the research model integrates the UTAUT framework with a set of important factors identified in the literature that are considered the most relevant to citizens' acceptance of e-government services. The rationales for the relationships in the research model are also discussed. Finally, a list of hypotheses and a definition of construct models concludes this chapter.

5.2 Privacy

Privacy in general has multiple definitions, which means that the definition and limits vary from one environment to another. However, the common feature in all these definitions is that privacy is one of the perspectives of human rights that are mainly dependent on the environment and context. International law does not mention a definition for privacy, but only establishes provisions to ensure the protection of this right. Therefore, the concept of privacy becomes more resilient in the world of mobile digital information between computing devices, wherein threats to privacy can arise through identity disclosure and the ability to observe and link personal data (Seničar, Jerman-Blažič, & Klobučar, 2003).

Although privacy has been recognised as a concept since the time of the ancient Greeks (Stahl, 2004), it has since been redefined in several ways. One of these redefinitions, by American judge Thomas Cooley, is 'the right to be let alone' (Warren & Brandeis, 1890). Recently, the concept of privacy has been determined by ourselves; by seeking privacy, we might ask others not to enter our property, not to read our mail, not to know or retrieve our past and so on without our permission (Stahl, 2004).

Moreover, it is very challenging to find a structure of uniform definition of privacy in ordinary language. That is because the concept of privacy is non-static and it contains vital components such as political, technical and social features (Tavani, 2007, 2008). Another reason for the difficulty is that people's interests in privacy vary; they might include controlling personal information, controlling access to one's location and person, obtaining autonomy, maintaining one's personal development and preserving a level of secrecy. Privacy interests are culturally relative, and even if a particular action against privacy might be considered a serious violation of privacy in one culture, the same action might nevertheless be considered perfectly acceptable in another culture.

Privacy definitions in the literature can be summarised as follows. Westin (1967) defines privacy as 'the claim of individuals, groups or institutions to determine for themselves when, how, and to what extent information about them is communicated to others' (as cited in Pirim, James, Boswell, Reithel, & Barkhi, 2010). In other words,

privacy is a personal process of control whereby people have the means to choose between their desire for confidentiality or disclosure according to their situation and its social norms and their awareness of the possible costs of using that control. The need for privacy, according to Westin, works in tandem with other needs in maintaining people's emotional ability to engage with other people in daily life (as cited in Margulis, 2011).

Brandimarte, Acquisti, and Loewenstein (2013) pointed out that Miller, in 1971, emphasised the importance of the ability to control the flow of personal information in order for individuals to attain the effective right to their privacy. Altman (1975) characterises privacy as 'the selective control of the access to the self' (as cited in Margulis, 2011). In other words, there seems to be a process that regulates privacy in a way that enables people to optimise their 'openness' and 'closeness' according to their circumstances (Spiekermann & Cranor, 2009, p. 68).

However, it is worth mentioning that Westin's and Altman's privacy definitions were formed prior to the pervasiveness of electronic environments (Spiekermann & Cranor, 2009). The use of the Internet and online communication is associated with a number of complications with regard to the meaning of privacy. One of these complications is that the assumption by Internet users that online activities (similar to offline) can be private is misplaced. This is due to the mechanical nature of the Internet, which renders online conversations insecure compared with face-to-face or even telephone conversations (Walther, 2011).

Moreover, Fried, in 1984, defined privacy as 'not simply an absence of information about us in the minds of others, rather it is the control we have over information about ourselves' (Brandimarte et al., 2013). Further, Smith, Milberg, and Burke (1996, p. 189) cited Stone and his companion's definition of privacy, that is, 'the ability of the individual to personally control information about one's self'.

Finally, Clarke (1997) suggests privacy 'is the interest that individuals have in sustaining a "personal space", free from interference by other people and organizations'. Privacy refers to the right of an individual to control the collection and use of any information considered personal. This information may or may not be digital. However,

the high reliance on electronic information has resulted in new concerns and implications for the storage and protection of data. This dependence on data collection and usage in the present day technology-reliant society has increased concerns related to privacy. This has led to the consideration of privacy as one of the main ethical concerns in this information age (Belanger & Hiller, 2006).

5.2.1 Privacy and Technology

The type of technology activities that are used online link to the level of privacy concerns. Privacy concerns may be affected by the nature of information required for particular Internet activities, the way that the information is collected and characteristics of the information collector, for example, e-commerce, e-government and social networks (Smith et al., 1996). With regard to e-government, which is the level of confidence among citizen users with regard to how their personal information will be used (Alzahrani & Goodwin, 2012). Dealing with e-government services is likely to decrease because of the relationship with personal information providers that could affect a user's behavioural intention to engage in online activities (Dinev & Hart, 2006).

The relationship between privacy and technology could be studied from the role of technology (specifically ICT) when considering the concept of privacy. In terms of the role of technology in raising concerns regarding privacy, it has been argued that ICT has this effect on privacy for two reasons. One reason is that it speeds up the already extant actions of collecting, processing and exchanging personal data. The other reason is its capacity to put information together in a way that could negatively affect people, that is, cause them physical, emotional, financial or legal harm.

As a result of the dramatic increase in the spread of information technologies, there has also been a significant increase in services accessed through this technology, all of which may lead to a real risk to privacy. Privacy has grown in prominence in this era the era of IT particularly in the operation of e-government transactions and dealing with potentially millions of records of citizens and customers. These records include personal data and people's concerns, interests and activities. Along with the tremendous possibilities arising from the analysis of these data, which can be easily transferred

between continents in a few seconds, comes a growing threat from the increasing numbers of hackers and identity thieves.

One constraint that is linked to privacy that limits the use of e-government is the willingness of users. The trust of users of these systems determines whether they are willing to carry out transactions over the web. The intersection that exists between privacy interests and the adoption of IT and e-government to improve the efficiency and ease of use on the part of citizens is multifaceted and dynamic. The intersection should be user centred to ensure that privacy rights are upheld. In the year 2002, the technology agenda for the then president Bush incorporated within its goals the expansion of e-government, to be centred on the user and, more importantly, showing their commitment to strengthening privacy rights (Belanger & Hiller, 2006).

Generally, the Privacy Act of 1974 (US) regulates data collection for the federal government. It stipulates that any agency maintaining a system of records containing individuals' information identifiable by a number, name or any other identifier should give notice about new records, ensure accuracy, allow for individual inspection, obtain permission to have the information shared and inform individuals about the uses of the information. However, this Act leaves out too much. The vast variability of interpretation, considering these exceptions, is leading to widespread sharing that has not been consented. This has been greatly criticised and has led to the perception among citizens that their privacy is not properly guarded from government uses (Belanger & Hiller, 2006).

The effects of Internet marketing on society and consumers have remained an issue for public policymakers for more than a decade now (Lwin & Williams, 2003). There are a number of issues that are challenging from ethical and legal standpoints. One of these issues is concerned with privacy and online consumer behaviour. Privacy has been cited as one of the inhibiting factors of e-commerce growth. Privacy concerns have led to consumers being less likely and also less willing to conduct transactions over the Internet (Lwin & Williams, 2003).

In the current world that is information intensive, organisations concerned with the collection and use of personal information must address individual concerns effectively

or else risk substantial consumer backlash (Stewart & Segars, 2002). The rapid growth in the collection of personal information has been a theme in the literature of privacy since the 1970s (Henderson & Snyder, 1999).

The right to privacy is an ethical issue that is among the most vital ethical concerns of the information age. The recent attention given to information privacy issues has revealed that citizens are more concerned about information privacy and their right to have it (Henderson & Snyder, 1999). Governments should be conscious of the issues related to the privacy of personal information and any repercussions that may accrue if they do not take precautions to protect information that is collected from individuals. It has been argued that the perception of individuals about the importance of privacy at the personal level may affect their behaviour in the adoption of IT (Henderson & Snyder, 1999).

However, it remains unclear as to whether citizens will adopt e-government services. The main concern that inhibits the growth of these e-government services is privacy. In general, citizens have increasing concerns about privacy violations and cyberspace identity theft. Citizens are hesitant to use these services because of mistrust (Lwin & Williams, 2003). They tend to believe that the outcome of these initiatives is an invasion or compromise of their privacy by the government. It is estimated that about 90 per cent of e-government sites in Europe and about 76 per cent of sites in North America (US and Canada) are vulnerable to attacks. The motivating factor for this is access to the private information stored on these sites that lures cyber attackers to attack these sites, causing a nuisance and destruction by using the private information obtained for financial gains (Stewart & Segars, 2002).

The collection of data involving individuals has a history of invoking privacy issues. Online technologies are known to increase privacy concerns. This is because they enable easier and faster storage of more data and their aggregation, most often without the knowledge of the customer. In the electronic commercial world, privacy concerns that are considered serious are outweighed by a number of advantages for businesses and consumers (Culnan & Armstrong, 1999).

Collection of data allows customisation and personalisation of consumer interaction with the organisations that are found on the Internet. In this case, consumers agree to

give out their personal information on the Internet if the trade-off is convenience, better services and other benefits from the websites to which they are submitting their information. Agencies of government have access to the same technologies as those accessible to the businesses in terms of collecting, aggregating and cross-referencing data of individuals.

However, the collection of individual data by the government is sometimes viewed as an invasion of privacy (Smith et al., 1996). Despite the fact that businesses are also involved in the collection and aggregation of personal data, sometimes without the consent of the owner, a survey of 100 adults after a breach of security at the Los Alamos National Laboratory in 1999 revealed that most of the consumers were more likely to trust businesses with the security of their personal information and had major concerns with the misuse of their data in the hands of government (Henderson & Snyder, 1999).
The opinion of the public always acknowledges that privacy concerns should always appear at the top of any list of issues when it comes to e-government and the Internet. Guidelines and privacy legislation have been produced by the e-government unit and the privacy commissioner that provide a framework on how to eliminate these concerns and restore public concern (Henderson & Snyder, 1999). However, public confidence will be restored by the actual practice of this framework. The public will not use online services unless they have confidence in the way the information that they provide online is handled. This inhibits the potential benefits of e-government (Pirim et al., 2010).

Prior research has revealed that people are willing to disclose private information provided that the disclosure is for social or economic benefit. This is subject to a ‘privacy calculus’, which is an assessment that the provided private information will not be used unfairly and that they will not experience negative consequences (Townsend & Bennett, 2003). An example of this is the most recent survey of Internet users carried out by Georgia Tech. They discovered that about 78 per cent of those who participated in the survey would be willing to release their personal information provided that statements on the information use were available. Only six per cent of all those whom participated in the survey would not be willing to disclose their information under any circumstance (Alan, 1968).

Privacy issues form the biggest concerns when it comes to using commercial sites. There are even greater concerns for citizens involved in e-government services. The e-government sites are potential targets for terrorists and cyber attackers. It is the duty of the government to safeguard citizens' rights with regard to privacy, collecting and processing of personal data so that it is used only for purposes that are legitimate (Dawes, 2002). Concerns pertaining to information sharing, tracking of websites, mishandling or disclosure of information that is considered private are universally common. There is also concern that e-government itself will be used in the monitoring of citizens, thereby invading their security. Dawes (2002) argued that e-government should be used with the aim of upholding and protecting the privacy of an individual. In tackling the privacy issue in the e-government context, both policy and technical responses may be needed (Tolbert & Mossberger, 2006). It is also prudent to respond promptly and effectively to issues of privacy in networks so as to increase the confidence of citizens in the adoption of e-government services. The confidence of citizens in the careful handling and privacy of any kind of information that is shared with governmental organisations is vital to the applications of e-government (Belanger & Hiller, 2006).

Solove (2006) cited privacy as one of the key factors that has inhibited the growth of e-commerce. This can be attributed to the customers being less likely or not willing to buy or carry out their instructions over the Internet. Privacy invasions take place when the control of consumers over their individual data is significantly reduced. Such consumer data may include lifestyle characteristics, names, addresses and the habits of purchasing that can be traced back to the individual. Because of this, consumers are mostly not willing to provide their full information over the Internet. They are reluctant to provide information such as their full names, demographic information and phone numbers (Solove, 2006).

According to Solove (2006), the use of information technologies by government agencies has the capability to transform relations with its citizens and businesses in addition to other arms of the government. When used in government, these technologies can serve a variety of ends: enhanced interactions with industry and businesses, improved delivery of government services to its citizens, empowering citizens through access to information and a government management that is more efficient. The overall

importance is an increase in transparency, less corruption, growth in revenue, greater convenience and a reduction in costs (Pirim et al., 2010).

Many research centres have been conducting statistical research into identity theft and fraud; these statistics have recorded growing numbers of identity theft and fraud cases over the past five years. About 8.1 million people in the US were exposed to identity theft in 2010 according to a report by Javelin Strategy & Research (Singletary, 2011). Mounting concern regarding the possible misuse of sensitive data, or indeed any use of the data in a manner not intended by the individual citizen, has ensured that privacy is an issue that has gained prominence in the public mind. Therefore, privacy is one of the global constraints that affect the implementation of e-government (Belanger & Hiller, 2006).

In the Saudi Arabian e-government context, the concerns and challenges surrounding the concept of privacy and how these should be taken into account in the adoption of e-government transactions have been taken into consideration (see Appendix D). In addition, the Saudi constitution has no provision for a right to privacy, but in 2007, IT criminal legislation was introduced defining IT crimes and their prospective punishments. Releasing personal information depends on the presence of satisfaction by individuals about the procedural fairness governing privacy (Culnan & Armstrong, 1999). However, the IT criminal law, written in Arabic, does not define privacy, nor does it mention any relevant punishments that might be applied to companies, organisations and website operators who do not protect the privacy of their customers or visitors.

A number of researchers have studied privacy in some IT adoption models using TAM, for instance, (Elgarah & Falaleeva, 2005) and (Lallmahamood, 2007).

The literature review found little information on how privacy can affect technology adoption using the UTAUT model, but one previous paper has shown that privacy can be related with behavioural intention to adopt in UTAUT. For instance, Min et al. (2008) proposed a revised UTAUT that included privacy as one of the characteristics of mobile commerce to understand its user acceptance. The current study evaluates

whether privacy as an UTAUT model construct can improve the prediction of behavioural intention to adopt e-government.

This research adopted a privacy instrument that was developed by Pirim et al. (2010) to examine three dimensions of privacy: the degree of privacy concerns (developed personal privacy issues), information management concerns (disclosure repercussions) and interaction management concerns (trust/misuse).

5.3 Trust

An individual's trust stands out as one of the most important factors in technology adoption in general. Because of the nature and properties of the technology to be used, trust is considered a directed determent of behavioural intentions (Al-Adawi et al., 2005). It is especially required in the case of sourcing customers and later attracting them to return to online shopping (Gefen, 2002).

Trust is considered one of the main factors that affect customer engagement and participation in e-commerce transactions (Stewart, Pavlou, & Ward, 2002). It plays a critical role in motivating consumers to purchase through the Internet (Jarvenpaa, Tractinsky, & Saarinen, 1999). Pavlou (2003) found that trust is likely to be an important factor in predicting e-commerce acceptance. Lee, Ahn, and Han (2006) studied the role of trust in virtual communities to understand the activities of e-commerce better. They found that trust is one of the key variables in explaining user acceptance of virtual communities.

A study by Armida (2008) integrated UTAUT with trust to test voice-over internet protocol (VOIP) technology and its adoption by end users. The study found that trust in the company is related to performance expectancy and social influence. At the lower level, even the behavioural intention to adopt a technology is based on trust. Trust in technology is related to both performance and effort expectancy. VOIP was just developing when the study was conducted and hence the study could evaluate how, over time, its acceptance increases as trust in the technology develops. The study concluded that trust in technology is more important than trust in the company in facilitating

adoption by end users. This implies that consumers can be persuaded to use technology if they can be convinced of the potential benefits in using technology.

Trust plays a major role in creating a relationship between citizens and the government when the citizens may not even be aware of the e-government services or the service providers (Al-Sobhi, Weerakkody, & Kamal, 2010; Alzahrani, 2011). Trust has been defined as 'an expectancy that the promise of an individual or group can be relied upon' (Al-Sobhi et al., 2010, p. 19). Trust in the service provider and trust in the tools are equally important. Trust in the e-enabler, namely the Internet, is a salient feature that predicts e-government acceptance. When the trust environment is low, the users pay more attention to the controls and consequently spend more time. Trust reduces the need to monitor, control or understand online task modalities and hence ease of use affects e-services adoption.

However, citizens must be willing to accept and use e-government services. When citizens engage in online transactions with the government, there is no human interaction that inhibits the acceptance of this technology (Alzahrani, 2011). Fear also acts as a deterrent because citizens are apprehensive of interception and misuse. When situations such as an online environment arise, the chances of risks and uncertainties are high. This is when the need for trust emerges.

In the context of e-government, trust is also important and can hinder its acceptance. Beldad, De Jong, and Steehouder (2010) have indicated that only a few studies have covered the relevant issues of trust from a citizen's perspective for e-government and e-health systems compared with other non-governmental studies. A study by Carter and Bélanger (2005) incorporated a trust model into the TAM and DOI models to investigate citizen acceptance of e-government services. The researchers argued that trust in the Internet and government are both key elements for its adoption. The findings show that both trust elements have a significant effect on behavioural intentions. Bélanger and Carter (2008) investigated the role of trust and perceived risk in e-government adoption from a citizen's point of view. They hypothesised a model of trust in the application of e-government services by incorporating disposition to trust, and trust in the Internet and government. The findings showed that trust in the Internet and

government and perceived risk have a significant effect on citizens' intentions to use e-government services.

Another study in the field, by Warkentin, Gefen, Pavlou, and Rose (2002), formulated a conceptual model to analyse the effect of trust in citizens' propensities to complete tax transactions online. The proposed model considered issues of trust, cultural variables, risk, behaviour control and a TAM to measure individual intention towards technology usage. The study reinforced the suggestion made by previous studies (Gefen, Karahanna, & Straub, 2003; McKnight, Choudhury, & Kacmar, 2002) that institution-based trust is expected to be a significant element in building trust in e-government. Finally, Schaupp, Carter, and McBride (2010) examined taxpayers' adoption of the electronic file. The study integrated trust dimensions into the UTAUT. The findings showed that trust in the Internet and the service provider significantly influences perceived risk, which affects taxpayers' intentions to use the system. The study confirms the previous studies that indicate trust in both the Internet and service providers are key issues of trust of e-government services.

However, the existing trust literature in e-government largely views trust as a reflection of the citizen's beliefs (Hung et al., 2006; Warkentin et al., 2002). In this research, the privacy factor includes a portion of the elements of trust, that is, trust in the government. Therefore, the concept of trust is trust in the government's efforts in the field of technology used in the e-government services—something the government does to make them trustworthy (worthy of trust or confidence of citizens), through technologically and strategically communicating its information security policy on the government website. It follows that perceived trust is likely to be an important factor in predicting e-government adoption.

5.4 The Relationship between Privacy and Trust

Previous studies have shown a relationship between privacy and trust. For instance, Hoffman, Novak, and Peralta (1999) showed that a lack of online trust emerges from perceptions about security and privacy. They claim that losing control over Internet activities with a web vendor is a key cause of the lack of trust, from which arises a fear

of sharing private information with others. These concerns directly affect the perception of security of the online environment.

Using the same approach, Belanger, Hiller, and Smith (2002) argue that security and privacy are key drivers in generating trustworthiness in e-commerce. The authors describe trustworthiness as the consumer's view of the electronic vendor to maintain reliability, that is, the ability to carry out and protect business activities over the Internet and integrity. In other words, the belief that trustee will be honest and truthful. The study identifies security and privacy as two distinct issues. Privacy is defined as the ability to control personal information. Security is defined as the ability to secure consumer information through technological secure solutions. The authors suggest four indices for trust: third party privacy seals, privacy statements, third-party security seals and security features, that is, security applications. The study found that security features are the most valued indicator of trust from a consumer's point of view. In this study, it seems likely that a definition of privacy may not imply expressing 'privacy' itself because here the definition focuses on the ability to control an action, which is behavioural in nature, not rights to protect privacy.

However, it is apparent that privacy and trust are interrelated issues.Yousafzai, Pallister, and Foxall (2003) point out that the two main antecedents of trust in e-banking are the customer's perception of security and privacy. Privacy threats can be categorised into two distinction dimensions: a threat caused by an electronic retailer who may share a customer's information with another party and a threat caused by intruders who can illegally hack transaction sessions and then steal sensitive data. According to Wang, Lee, and Wang (1998), there are two privacy concerns: tracking users' behaviours and collecting data. The authors pointed out that there is a challenge between taking advantage of the free flow of information on the web by the business sector and maintaining the rights of individuals to their privacy. They correctly define privacy, in the context of the Internet, as the right to maintain the ownership of personal information from being used or exposed without permission or prior knowledge.

Finally, in a survey analysing consumers' perceptions of privacy, Hoffman et al. (1999) found that the major obstacle for web users providing demographic data is the lack of trust in websites. Thus, in order to alleviate fears about privacy issues, the private sector

has to adopt self-regulation for protecting privacy, governments have to enforce legal regulations and individuals should be encouraged to use technological security tools (Wang et al., 1998).

Therefore, in this research it is assumed that privacy and trust positively correlate. Whenever citizens feel the need to maintain the level of their privacy, their trust in dealing with e-government services is affected.

5.5 Culture

Culture has been defined by various authors and researchers in ways that vary from universal to more precise in accordance with the context of use. Moreover, it is considered a difficult concept to define (Davison & Martinsons, 2003). It is one of the key factors with regard to technology adoption and plays a major role in influencing the manner in which technology is accepted by individuals across various regions (Bagchi, Cerveny, Hart, & Peterson, 2003; Hasan & Ditsa, 1999; Su & Su, 2010). The usage and success of any technology is greatly driven by the behavioural norms of any society because citizens may tend to resist change, which eventually leads to negative consequences with regard to technological implementation (Watson, Ho, & Raman, 1994). Societal factors that are key indicators of culture also heavily influence individuals, who may or may not accept the new technology according to their respective beliefs and social customs.

Each nation has a distinct culture that shapes everything. Hofstede (1991,p.5) defines national culture as ‘the collective programming of the mind which distinguishes the members in one human group from another’. Schein (2010) views culture as the basic assumptions and beliefs that operate unconsciously in human beings. Hofstede also assumes that national culture is a common component of a wider culture that contains both global and subnational constituents (McSweeney, 2002). Even though the population of a nation can be differentiated on many grounds, Hofstede endorses the idea that every national population shares a unique culture (McSweeney, 2002). Culture can also pertain to the valuations, beliefs and motives of the diverse groups of a population. These values and beliefs take shape in childhood and are reinforced all

through one's life. The determinants of culture are language, religion, social structure, education and political and economic philosophy (Chang, 2002).

With regard to Saudi culture, factors such as religion, the presence of tribes and the overall regime may have a significant effect on the attitudes of people towards modernisation, in general, and technology adoption, specifically. Historically, Saudi Arabia has been a place of great significance and prestige in the Islamic world owing, in particular, to the presence of holy shrines (Al-Farsy, 2009). Religion has played (and continues to play) a major role in influencing the attitudes of its citizens. Religion is an inherent and inevitable part of Saudi culture, and acts as a major force in determining societal norms, traditions and practices (Al-Saggaf, 2004). Further, the tribal system, which is also an inherent part of Saudi society, influences individual attitudes and perceptions towards modernisation and hence may determine the success or failure of any given technology.

National culture is a critical factor that influences the manner in which a society or nation functions (Hofstede, 1984). Organisational culture can be viewed as a direct reflection of the national and societal culture and norms, which in turn affect the use of technology; hence, such factors need to be studied comprehensively prior to implementing e-government. The study of Internet usage patterns in Saudi Arabia act is crucial because it may help in understanding the acceptability of e-governance among citizens. The advent of the Internet and its applicability in Saudi Arabia, in 1999, provides an example of the strong opposition of Saudi leaders, who considered certain 'objectionable' content freely accessible on the Internet as something against their culture. However, finally, after several deliberations and debates, and following the implementation of a robust system to filter such content, the Internet was ultimately made available to the general public (Al-Saggaf, 2004). Such instances indicate the strong influence that social and cultural factors have on adoption, implementation and acceptance of new technology.

Hofstede (1983) study is one of the most important studies that have investigated the development of an integrated framework to determine cultural dimensions or elements. A study carried out by Leidner and Kayworth (2006) found that these dimensions have been used in more than 60 per cent in the literature. Hofstede identifies five dimensions

of national culture along which countries can be hierarchically ordered. He defines these dimensions as follows.

- Power distance (PDI): 'the extent to which the less powerful members of the institutions and organisations within a country expect, and accept, that power is distributed unequally'
- Uncertainty avoidance (UAI): 'intolerance of uncertainty and ambiguity'
- Individualism and collectivism (IDV): 'the extent to which individuals are integrated into groups'
- Masculinity and femininity (MAS): 'assertiveness and competitiveness versus modesty and caring'
- Long-term versus short-term orientation (LTO) (recently added): 'the fostering of virtues oriented towards future rewards, in particular perseverance and thrift. Short-term orientation stands for the fostering of virtues related to the past and present, in particular respect for tradition, preservation of "face" and fulfilling social obligation.'

Table 5.1 shows Hofstede's ranking of the Arab world. The Arab world has a high ranking in the power distance dimension. This means that people in this region expect, and accept, that leaders will separate themselves from the group. In addition, the table reveals that the Arab world has a high ranking in the uncertainty avoidance dimension, which means that people in this region do not readily accept change and they are classified as less risk-taking. Long-term orientation is the lowest Hofstede dimension for the Arab world, which indicates that people in this region are more adherent for tradition. The ranking for masculinity is also high, indicating that there is a difference between males and females in the Arab societies.

Table 5.1: Hofstede's Ranking of the Arab World

Country	PDI	IDV	MAS	UAI	LTO
Arab countries	80	38	53	68	23

Figure 5.1 shows a comparison between the Arab world and Australia, in terms of the index values of Hofstede's cultural dimensions. The figure demonstrates the cultural differences between the Arab world and Western countries. It is clear that the Arab

world and Australia belong to two distinct sets of cultures. Whereas the Arab culture is high in power distance (80 v. 40) and uncertainty avoidance (68 v. 36), the Australian culture is high in individualism (90 v. 38) and masculinity (61 v. 53). Both cultures are close in short-term orientation (23 v. 21).

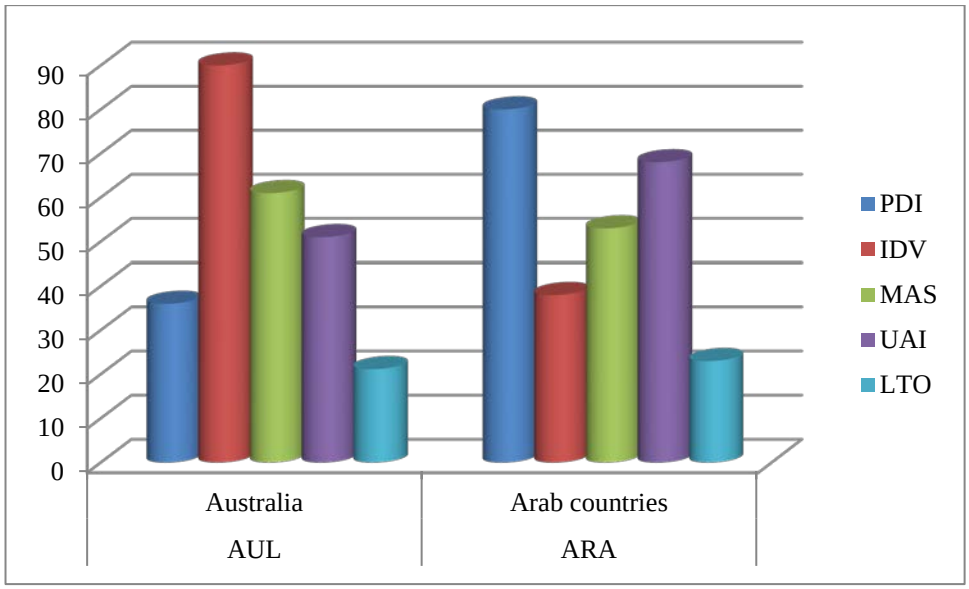

Figure 5.1: Hofstede's Cultural Dimensions Comparison between Arab World and Australia

Several studies have been conducted highlighting the link between national cultures and adoption of IS and IT. Studies have found that cultural dimensions influence the core variables of TAM (PU & PEOU). This was also tested in the Arab countries of North Africa and the results were consistent. In countries such as Jordan, only power distance and collectivism had a significant effect on the intention to use technology or management information system (MIS) adoption (Alhujran, 2009). Because the Arab world scores high on the uncertainty avoidance dimension, it is highly likely that the population of Saudi Arabia would be prone to avoiding taking risks in using e-government services. However, it has also been argued that societies with high power distance are more likely to adopt e-government services. This could possibly be because, in high power societies, there is a tendency to follow the leaders and abide by their instructions. Thus, if the elders in the family or the top management at the workplace adopt e-government services, it is likely that members of the society would be keen to follow.

There is no doubt that most IT technologies are designed and produced in developed societies. Therefore, these technologies are expected to be culturally designed to suit the developed countries' sociocultural system, and as a result, will often encounter cultural resistance during the transfer process to other countries with different cultures. Hence, less developed countries need to pay attention to the social and cultural factors when adopting and using those technologies. Several studies have explored the influence of culture on IT transfer (Al-Gahtani, 2004; Lee, Trimi, & Kim, 2013; Rashid, Sambasivan, & Rahman, 2004; Zain, Rose, Abdullah, & Masrom, 2005). Shore and Venkatachalam (1996) emphasised the importance of culture when transferring IT application across cultures. Before any technology transfer, we need to study user requirements and needs. Those needs and requirements are heavily influenced by culture.

Straub, Loch, and Hill (2002) studied the role of culture in technology transfer to the Arab world. They concluded that the Arab cultural beliefs are a strong predictor of the success or the failure of technology transfer to the Arab world. Al-Gahtani (2004) contends that cultural and social influences can play an important role in bridging the gap towards a better understanding of IT and IS acceptance.

One study (Aldraehim, Edwards, Watson, & Chan, 2013) examined Saudi culture and its effect on electronic services. The study pointed to the importance of culture in using IT in general and then majored in definition one of the components of Saudi culture named 'the fear of a lack of interaction with other humans'. The study states that Saudi culture derives from two sources: Islam and Arab culture. The study concluded that the role played by Islam as a religion and its influence on Saudi culture has a significant effect on the use of e-service. The last sentences in the discussion of the study are 'Islamic and Arabic traditions encourage helping people in general and especially those in need. Implementing e-services is seen to reduce / obstruct such help' (Aldraehim et al., 2013).

Although culture is considered a contributing factor in IT and IS adoption, very limited research has attempted to explore the effect of the national culture on IT and IS adoption in the Arab region. Most of the previous research has focused on economic, political and technological factors that affect technology transfer to the Arab world.

Thus, given that national culture is an important factor in IT and IS adoption in general, it becomes clear here that there is a need to explore the role of the national culture as one of the factors that is likely to influence the acceptance of or the resistance to e-government services in the Arab world including Saudi Arabia. In the model for research into citizen adoption of e-government in Saudi Arabia, Saudi culture is considered an important directing factor in making the model more applicable in the Saudi context. Because it is widely recognised and accepted, Hofstede's definition of culture, and his five cultural dimensions model, has been chosen in this research as a theoretical background to assess the effect of the national culture on e-government adoption in Saudi Arabia.

5.5.1 Culture, Privacy and Trust

As mentioned in Section 5.2, the perception of privacy within Western culture can be described, according to Judge Cooley, as the right to be let alone and, when extended to ICT and computer-mediated communication, it can be described as the right to informational self-determination (Stahl, 2004). However, as a concept, privacy is arguably still not clearly understood (Tavani, 2008).

The concept of privacy as it might be found in Western culture does not exist in Far East Asian cultures, that is, Chinese, Japanese and Thai cultures. These cultures are collectivist rather than individualistic. They tend to be more interested in collective values than individualistic ones, which conflicts with the privacy concept as an individual right (Brey, 2007).

However, within modern China, there has been a gradual increase in individuals' expectation of the right to privacy for themselves as well as for others. The meaning of privacy has been extended to include all personal information rather than just the shamefully secret, which is the traditional and narrow meaning of privacy. These new notions of privacy have influenced the regulation of the right to privacy in the Chinese legal system. For example, Article 40 of the Chinese Constitution protects its citizens' rights to freedom and privacy in communications. However, there is no national data protection law in the Chinese legal system (Yao-Huai, 2005).

Japanese culture attaches less importance to the right to privacy than the West because of cultural and linguistic differences. For example, the Japanese equivalent of the private versus public dichotomy in Western culture is the dichotomy of the partial, secret and selfish versus the public (Brey, 2007).

Cultural backgrounds can affect online trust and privacy. Some researchers suggest that embedded cultural value tends to affect the level of trust, and others claim that individuals' beliefs and, therefore, their decision to use the Internet for online shopping is affected by sharing a common value with other individuals via what is called an in-group trust culture (Siala, O'Keefe, & Hone, 2004).

Cultural value could be described as one of the reasons behind the differences in the level of concern about Internet privacy (Bellman, Johnson, Kobrin, & Lohse, 2004). There is also a relationship between the level of trust in society and the level of reliance on families as a source of the trust (Dinev & Hart, 2006). In addition, privacy perceptions are connected to aspects of an individual's social group. (Xu, Dinev, Smith, & Hart, 2008) demonstrate that the social norms of Internet users could be used to predict the nature of their privacy values.

With regard to Islamic culture, the concept of privacy has been recognised by Islam in a number of verses of the Islamic holy book, the Qur'an (2014). For example, Allah says:

> O you who have believed, do not enter houses other than your own houses until you ascertain welcome and greet their inhabitants. That is best for you, perhaps you will be reminded. And if you do not find anyone therein, do not enter them until permission has been given you. And if it is said to you, 'Go back', then go back; it is purer for you. And Allah knows of what you do. (18:27-28)

In Arab culture, religion tends to play an essential role and affects most people's lives and business decisions (Aldraehim et al., 2013; Zakaria, Stanton, & Sarkar-Barney, 2003). Trust in religious groups is usually engendered through cultural values, that is, the teachings of parents, older generations and ministers or clerics of the religion (Siala et al., 2004).

Islamic countries observe ethical issues relating to technology from the perspective of Islam, for example, the Islamic Body on the Ethics of Science and Technology, which was created by the Ministries of Higher Education and Scientific Research of Islamic Countries, directs Muslim public opinion on the important ethical issues in computing, including online privacy, from the perspective of Islam. In addition, Muslims appear to adhere more to computer codes of conduct that come from Islamic teaching than with those that emanate from other sources (Al-A ali, 2008).

In short, the literature points to the importance of culture as an influence on privacy and trust in the use of IT. For further understanding of the interaction between the factors, this research investigates the relationships between the factors of culture and privacy, as well as trust if the culture has an influence on privacy and trust in the behavioural intention to use e-government services.

5.6 Research Studies on E-Government Adoption

Studies on e-government adoption are divided into two areas: supply side and demand side. In this research, the supply side includes factors related to the source of public services (government and its partners) at local, state and national levels (Reddick, 2005). In practice, the supply side includes factors that affect the government institutions' adoption and implementation of e-government services (Al-shehry, 2009; Alghamdi et al., 2011; AlShihi, 2006; Ebrahim & Irani, 2005; Norris & Moon, 2005). Among these factors, the IT infrastructure, financial resources, human resources and change management are highlighted. In contrast, the demand side includes factors related to end users of public services, whether they are citizens, companies or government employees. Therefore, the current research belongs to the e-government adoption from the demand-side perspective.

With respect to the supply side, the adoption of e-government services has not reached the stage of digital maturity, despite the widespread adoption of e-government at the local and national level (Huang, 2006; Moon, 2002; Norris & Moon, 2005; Tung & Rieck, 2005). For example, Moon (2002) indicates that the maturity level of most e-government websites at the municipal level in the US is between Stage I (simple

information dissemination/one-way communication) and Stage II (request and response/two-way communication).

Alghamdi et al. (2011) study is an example of e-government adoption from the supply-side perspective. Their study addresses the supply-side factors that lead to successful e-government adoption in Saudi Arabia. The study proposed a model for assessing e-government organisational e-readiness for main internal factors to accomplish better operational efficiency and effectiveness of e-government. The results indicate that government organisational strategy, user access, e-government programs, portal architecture, business processes, ICT infrastructure and human resources are important factors from the supply-side perspective.

However, a few e-government websites at the local level in the US offer advanced services such as e-payment (Moon, 2002; Norris & Moon, 2005). At the national level, the results are not different, but according to the UN Global E-Government Survey conducted in 2008, about 16 per cent of the national governments in all parts of the world provide an e-payment gateway. Similarly, Darrell (2007) showed that only 50 per cent of e-government websites throughout the world provide integrated services on the Internet. Although the situation in the Arab countries is not much different, only three Gulf states out of 22 offer advanced services such as e-payment (Chatfield & Alhujran, 2007).

In short, governments around the world still face the problem of the availability of advanced e-government services. This has led many researchers and practitioners in this field to focus on the supply side in the adoption and implementation of e-government services and applications, in other words, the factors related to the provision of e-government services and the extent of complexity (Alhujran & Chatfield, 2008). Highlighted among these factors are business strategies (Janssen & Cresswell, 2005), top management support (Ndou, 2004), red tape (Welch & Pandey, 2007)(Welch & Pandey, 2007), organisational capacity (Holden, Norris, & Fletcher, 2003; Norris & Moon, 2005), change management (Ndou, 2004) and technical capacity (Ebrahim & Irani, 2005).

With respect to the demand side, one of the key success factors in implementing e-government services and applications is the adoption, acceptance and use of those services and applications by citizens (Carter & Bélanger, 2005). Most academic studies have focused on the supply side of e-government, and the number of studies addressing issues such as why citizens adopt and use e-government, and the circumstances under which they can do so, is relatively low (Alhujran & Chatfield, 2008; Carter & Bélanger, 2005; Reddick, 2005; Tung & Rieck, 2005). Accordingly, this research addresses these issues. However, following is a discussion of previous studies' investigation of factors that affect citizens in the adoption of e-government services and applications.

Carter and Belanger (2004) proposed a model for the adoption by citizens of e-government services in the US. This model is based on the DOI theory and aims to discover factors that affect citizens in the adoption of e-government services. The results indicate that perceived image, perceived relative advantage and perceived compatibility are important factors that affect the intention of the citizens in the adoption of e-government services. According to this study, higher levels of these factors increase the citizen's intention to use e-government services. In addition, the authors pointed to the role of knowledge and awareness in influencing the intention of citizens in the adoption of e-government services. However, the results did not indicate that PEOU is a factor affecting citizens' intentions to adopt e-government services. This may be due to the sample of students surveyed because of their expertise in the use of the Internet and computer applications as well as the small sample size (n = 140), both of which affected the results.

A subsequent study by Carter and Bélanger (2005) included a larger group of citizens in the US and aimed to understand the factors that affect their adoption of e-government services and applications. This study integrated TAM, DOI and trustworthiness as a theoretical basis for the study of the adoption of e-government services and applications. The results indicate that PEOU, compatibility and trustworthiness are factors affecting the intention of the citizen to adopt and use e-government services. The results of this study were diametrically opposed to the previous study (Carter & Belanger, 2004) because it found a positive relationship between PEOU and intention to use e-government services and applications. In addition, the authors stressed on the role of knowledge and awareness of the influence the intention of citizens in the adoption of

e-government services and applications. According to this study, higher levels of compatibility and trustworthiness have shown a positive relationship with the intention of citizens to adopt and use e-government services and applications. In addition, unlike the previous study, this study suggests that perceived image and relative advantage have no effect on the intention of citizens to adopt and use e-government services. These results could be due to the differences in the demographic characteristics of the citizens surveyed.

In another study, by Schaupp and Carter (2005) using the Carter and Bélanger (2005) model, on the factors affecting young voters in the adoption and use of the e-voting system in the US, the results indicate that PU, compatibility and trust are influential factors in the intention of the citizen to adopt and use the voting system over the Internet. In contrast, PEOU, image and relative advantage were not among the factors affecting the intention to adopt and use the e-voting system.

In light of the above discussion, it can be observed that there are discrepancies in the results of three studies on the factors affecting citizens' adoption and use of e-government services at the US national level. This disparity is due to the reasons mentioned above, which confirms the absence of a single model for the adoption and use of e-government services that fits all the conditions for a particular environment such as the US. In other words, every academic study conducted within a particular context may add value to the knowledge, even if there is an oversupply of academic studies conducted within the same context.

Phang et al. (2005) pointed out that PU is the main factor affecting the intention of senior citizens to adopt and use e-government services and applications. Their study aimed at identifying the antecedents of TAM's PU for the adoption and use by senior citizens of e-government services in Singapore. The results indicate that the safety of online transactions and PEOU are both significant factors in predicting the PU by senior citizens of adopting and using e-government services and applications. In contrast, factors such as compatibility and image did not show an effect on the PU by senior citizens of adopting and using e-government services and applications. This is due to cultural considerations related to Singapore. However, the results of this study were consistent with the original assumptions of TAM.

Fu et al. (2006) pointed to the same conclusion reached by the previous study in terms of whether PU is the key factor that affects taxpayers' intention to adopt and use the appropriate method for them to pay their taxes. This study was based on the integration of the theories of TPB, TAM and other factors such as perceived risk and compatibility, and aimed to explore the factors affecting the adoption and use of the e-tax system in Taiwan. The results indicate that the perceived risk and the independent variables in the TPB (subjective norm, self-efficacy, resource facilitating conditions and technology facilitating conditions) did not show significance in the interpretation of the behaviour of Taiwanese taxpayers to use e-tax system.

Similarly, Wang (2003) addressed the factors that affect the adoption by citizens of the e-tax system in Taiwan on the basis of TAM. In this study, a new variable was proposed called perceived credibility to denote the intrinsic belief of a user of the e-tax system. The new factor refers to the two dimensions affecting the intention to adopt and use the e-tax system, namely, security and privacy. The results indicate that computer self-efficacy is one of the factors that affect the intention of the Taiwanese citizen to adopt and use the e-tax system through PU, PEOU and perceived credibility. According to the study, higher levels of computer self-efficiency have a positive effect on ease of use and usefulness beliefs. Moreover, self-efficacy has a positive effect on the intention of citizens to adopt and use the e-tax system in Taiwan.

In the same context, Hung et al. (2006) referred to the TPB to identify the factors that affect the public acceptance of e-government services in Taiwan. The results suggest that factors such as ease of use, PU, perceived risk, compatibility, trust, self-efficacy, external influences, interpersonal influence and facilitating condition have a ripple effect on Taiwan citizens' acceptance of e-government services. In addition, the results indicate a correlation between attitude and behavioural intention to adopt and use the e-tax system (attitude towards the behaviour).

In addition, Chu et al. (2004) identified the factors that can affect the adoption of the e-tendering system (ETS) in Taiwan. Depending on the TPB, the results showed that factors such as user satisfaction, driven by information accuracy and PU of the ETS, have a positive effect on the adoption of the ETS. The results also showed a relationship

between attitude and intention of the behaviour towards the adoption and use of the ETS (attitude towards the behaviour). Also, increasing awareness and improving knowledge in the field of IT and the Internet affect the adoption and use of the ETS.

Choudrie and Dwivedi (2005) examined the awareness of citizens about the adoption of e-government initiatives in the United Kingdom (UK). The results indicate that the differences in demographic characteristics of citizens, including gender, age, education, income and social class, explain the differences in the awareness of citizens about the adoption of e-government services and applications. Citizens who have home broadband access are more likely to adopt and use e-government services. Likewise, Reddick (2005) investigated the characteristics of the citizens that affect the adoption of e-government services and applications in the US. The results indicate that the demographic and social characteristics of citizens, including gender, age, education, type of work and online experience, and the characteristics of e-democracy, including trust in the government, change of government policies and political party affiliation, affect the behaviour of the citizen to adopt e-government services and applications. According to this study, the characteristics of citizens who are more interested in e-government services and applications include those who have more contact with government officials, have high income, have expertise in the use of the Internet, want to change government policies and trust the state government. The study also found that older citizens are less likely to adopt and use e-government services.

Although many academic studies have investigated the role of trustworthiness (the government side) in the intention to adopt and use e-government services and applications in the US (Carter & Bélanger, 2005), few of these studies have addressed the role of trust (the citizen side) in the intention to adopt and use e-government services and applications (Carter & Belanger, 2004; Horst, Kuttschreuter & Gutteling, 2007; Schaupp & Carter, 2005; Warkentin et al., 2002). Further, there is a disparity in cross-cultural studies regarding the importance of the role of trust and trustworthiness in influencing the intention to adopt and use e-government services and applications.

Few studies have developed models for the adoption of e-government services at the level of citizens. For example, Kumar et al. (2007) developed a model for the adoption by citizens of e-government services. This model includes the users' characteristics,

including perceived risk and perceived control, as well as web design issues, including PU, PEOU, and a number of other factors that generate satisfaction for the user and thereby influence the decision to adopt e-government services and applications. The results indicate that the characteristics of the user such as experience in the use of the Internet, perceived risk and perceived control are factors affecting the adoption of e-government services. The results also indicate that there is a need to focus on issues related to the design of e-government websites, including the accuracy of the content, ease of surfing, ease of access and personalisation. These factors affect the level of satisfaction of citizens and thus their decision to adopt e-government services and applications. A higher level of citizen satisfaction means an increase in the rate of adoption and use of e-government services and applications.

Similarly, Warkentin et al. (2002) developed another model of the adoption by citizens of e-government services. This model includes the citizen's trust as one of the factors affecting the adoption of e-government services. The model also includes factors such as PU, PEOU, perceived risk, perceived behavioural control and cultural dimensions to explain the behaviour of citizens towards the adoption of e-government services. The results indicate that there is a positive correlation between trust and the intention of the citizen to adopt and use e-government services and applications. Other factors such as PU, PEOU and perceived behavioural control showed a positive correlation with the intention of the citizens to adopt and use e-government services. In contrast, the perceived risk showed a negative correlation with the intention of citizens to adopt and use e-government services. Cultural variables, especially power distance and uncertainty avoidance dimension, have a strong correlation with the intention of the citizens to adopt e-government services. Citizens of countries characterised by high levels of power distance (the distance between the lowest and highest places of society) are more likely to adopt and use e-government services. Citizens of countries characterised by high levels of uncertainty avoidance would be more inclined to adopt and use e-government services.

In another study, Wangpipatwong, Chutimaskul, and Papasratorn (2008) explored the factors that may affect the intention of the citizen regarding the continued use of e-government services in Thailand. The study includes the integration of TAM and computer self-efficacy to explain the intention of Thai citizens to continue to use e-

government services and applications. The results indicate that both PU and perceived ease of e-government use affect the intention of the citizen to adopt and use e-government services and applications. The results also indicate that computer self-efficacy has a positive effect on the perceived ease of e-government use, and therefore positively affects the intention of the citizens of Thailand to continue to use e-government services. However, an earlier studies, by Y.-S. Wang (2003), did not reach the same conclusion because it found there was no correlation between computer self-efficacy and perceived ease of e-government use.

Moreover, a study by Susanto and Goodwin (2011) examined citizen adoption of e-government services that are provided in SMS. The study investigated the factors that influence individuals in the use of SMS-based e-government services. The study model, SEGAM, was compared with four models of technology adoption—TAM, TRA, TPB and DTPB to explain the intention to use SMS-based e-government services. The study focused on only one channel (SMS), although the e-government service is a broader and more comprehensive way to deliver services to people.

For Arab countries, the number of studies on the factors that affect the adoption of e-government services from both the supply and demand side is relatively low compared with studies conducted in developed countries, and even in other Asian developing countries. For example, AlShihi (2006) explored factors that affect the adoption of e-government services from both the supply and demand side in the Sultanate of Oman. On the demand side, the results indicate that the factors that affect the adoption of e-government services can be summarised in the characteristics of citizens such as IT literacy, age, education and income. According to this study, young citizens, the educated and those with high income are more likely to adopt e-government services. In addition, citizens with expertise in the use of computers and the Internet are more likely to adopt e-government services. This study also addressed the major barriers facing the government of the Sultanate of Oman to move forward in the implementation of e-government initiatives. These barriers are summarised in the lack of experience in the use of IT, lack of awareness and knowledge of e-government services and lack of trust in government and technology alike.

AlAwadhi and Morris (2008) explored the demand-side factors that affect citizens in the adoption of e-government services in Kuwait, on the basis of UTAUT. The results indicate that factors such as facilitating conditions, peer influence, performance expectancy and effort expectancy explain the behaviour of Kuwaiti citizens towards the adoption and use of e-government services. The study also points to other factors such as culture and trust, which has not been examined in this context, but in future studies because of their importance. Similarly, but in a different context, (Shafi & Weerakkody, 2009) explored the demand-side factors that affect the behavioural intention to use of citizens in adopting e-government services in Qatar, on the basis of UTAUT. The results showed that three factors performance expectancy, social influence and facilitating conditions have a significant effect on the behavioural intention of citizens to adopt and use e-government services in Qatar. The study also points to other factors such as culture, which has not been examined in this context, but in future studies because of its importance.

Elsheikh's study (2011) is one of comprehensive studies, which used the grounded theory methodology. The study searched about factors that influence e-government services acceptance among citizens of Jordan. The researcher collected 525 valid questionnaires by using face-to-face surveys to test the research model. The research proposed the integration model between a number of factors, which were grouped into four main perspectives namely the national contextual, organisational governmental, individual citizen and technological perspective. The findings showed that citizen involvement in the change process towards e-government, the prevailing sociocultural, citizen trust and website design are factors that affected the adoption of e-government services. The study explained that perceived ease of use, perceived usefulness, and the security of e-government systems are no among the main factors that affect the use of e-government services.

In the Saudi Arabia context, Alzahrani et al. (2012) explored the demand-side factors that affect citizens in the adoption of e-government services on the basis of three integrated theories: TAM, IDT and TPB. The results show that the key elements of adoption are the dependent factors, which include attitude and perceived behavioural control, and the independent factors, which comprise PU, perceived compatibility, perceived image, self-efficacy, technology support, trust in government and gender. The

study also recommends that researchers consider the gender factor and trust as moderating effects rather than direct effects on behavioural intention. In addition, this study recommended that other factors such as culture and privacy and their effect on acceptance be examined in future research. Therefore, the current research is in line with Alzahrani (2011) recommendations for studies on citizens' adoption of e-government.

In short, there are more studies on factors affecting the adoption by citizens of e-government services in developed countries than there are studies conducted in developing countries, and Arab countries, in particular. This knowledge gap has become apparent in developing countries, particularly Arab countries. However, the use of citizen e-government services in most Arab countries is a voluntary behaviour, which increases the importance of studies on the factors that have a positive effect on citizens' behavioural intention to use e-government services in the Arab Muslim region. In other words, few studies have investigated the factors affecting the adoption of e-government services in the context of Arab countries, especially Saudi Arabia.

In addition, despite its importance, e-government researchers have paid very little attention, if any, to exploring empirically the effect of privacy in the context of G2C e-government adoption. Moreover, few studies have integrated trust with UTAUT to examine the effect of these factors upon citizen adoption of e-government services.

Further, national culture is considered an important factor in IT and IS adoption (Al-Gahtani, Hubona, & Wang, 2007; Im, Hong, & Kang, 2011); therefore, dimensions of Hofstede's national culture have been integrated with TAM to form a conceptual model to study e-government adoption (Warkentin et al., 2002). However, there is a knowledge gap with respect to integrating national culture with the UTAUT model. Therefore, it might be useful to examine the effect of these culture dimensions on citizen adoption of e-government services.

Finally, Patel and Jacobson (2008) pointed out the extreme paucity of e-government adoption studies using the triangulation method. The current study fills the gap in knowledge that has been found in the literature.

5.7 The Research Model

Following the introduction and discussion of models, theories and the major objective of this thesis, the problem of low level of adoption of e-government is addressed by conducting empirical field research on demand-side e-government adoption. This section synthesises and proposes the research model for this study. This empirical research sheds light upon the factors that explain citizen adoption of e-government services. Citizen adoption is measured by citizen behavioural intention to use e-government information and services within the research model (see Figure 5.2). The original UTAUT model has been modified to include privacy, trust and culture to determine how they affect citizen adoption of e-government services.

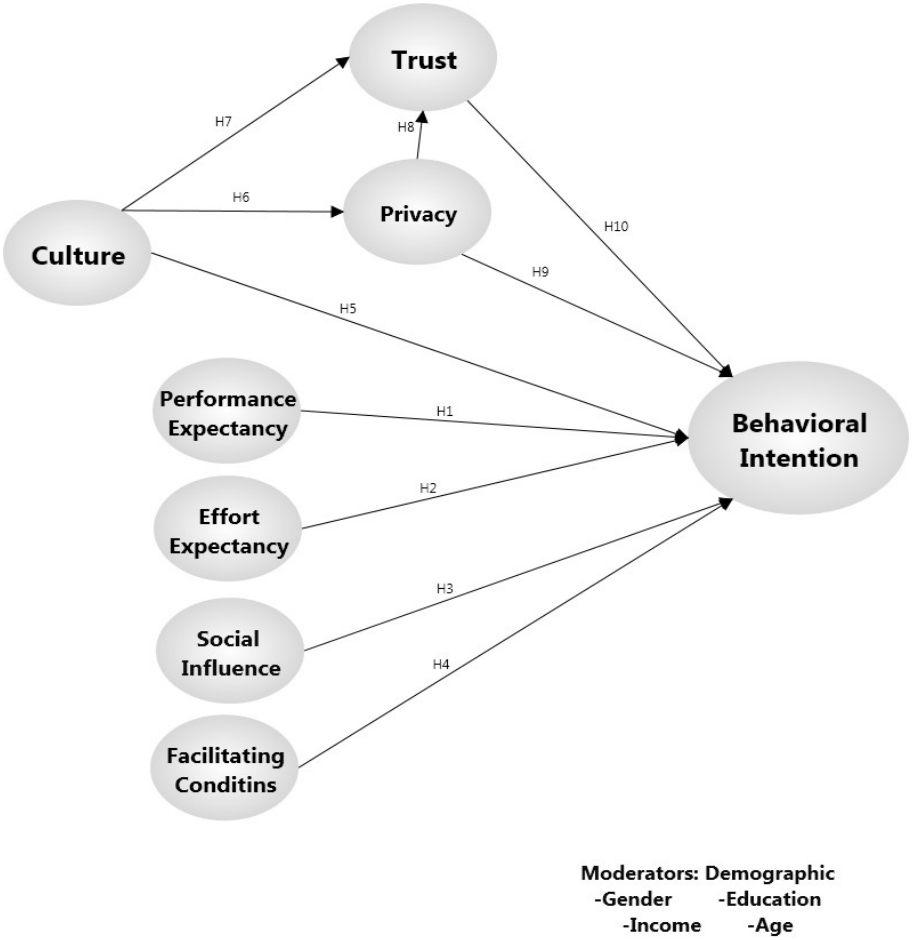

Figure 5.2: Research Model

5.8 Hypotheses

The following is a list of all the research hypotheses that were developed based on the literature review and the assumptions of UTAUT with some modifications. These hypotheses were tested in this study to validate empirically the proposed research model of e-government adoption in Saudi Arabia.

H1: *There is a direct and positive relationship between performance expectancy and behavioural intention to use e-government services.*

H2: *There is a direct and positive relationship between effort expectancy and behavioural intention to use e-government services.*

H3: *There is a direct and positive relationship between social influence and behavioural intention to use e-government services.*

H4: *There is a direct and positive relationship between facilitating conditions and behavioural intention to use e-government services.*

H5: *There is a direct and positive relationship between culture and behavioural intention to use e-government services.*

H6: *There is a direct relationship between culture and privacy in using e-government services.*

H7: *There is a direct relationship between culture and trust in using e-government services.*

H8: *There is a direct relationship between privacy and trust in using e-government services.*

H9: *There is a direct and positive relationship between privacy and behavioural intention to use e-government services.*

H10: *There is a direct and positive relationship between trust and behavioural intention to use e-government services.*

H11: *Citizen demography will moderate the relationships among the proposed model constructs.*

5.9 Definitions of Constructs

The research model has eight constructs with citizen demography as a moderator; the definitions for these constructs are summarised in Table 5.2.

Table 5-2: Definitions of the Research Model Constructs

Construct	Definition	Reference
Performance Expectancy	The degree to which an individual believes that using the system will help him or her to attain gains in job performance	(Venkatesh et al., 2003)
Effort Expectancy	The degree of ease associated with the use of the system	(Venkatesh et al., 2003)
Social Influence	The degree to which an individual perceives that important others believe he or she should use the new system	(Venkatesh et al., 2003)
Facilitating Conditions	The degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system	(Venkatesh et al., 2003)
Privacy	The combination of personal beliefs held by an individual on the importance of privacy and his or her control over it, the perceived repercussions of the release of information deemed private, and the trust in the entity to which the information is being released or the trust in the appropriate/non-negligent usage of the information	(Pirim et al., 2010)
Trust	The mutual confidence that no party to an exchange will exploit another's vulnerabilities; an exchange partner is trustworthy when it is worthy of the trust of another	(Barney & Hansen, 1994)
Behavioural Intention	Intention is an immediate predictor of behaviour (towards an innovation)	(Venkatesh et al., 2003)
Culture	The collective programming of the mind that distinguishes the members in one human group from another	(Hofstede, Hofstede, & Minkov, 2010)
Citizen Demography	Gender, age, income, education	

5.10 Summary

This chaptr is the last part of literature review chapters of research. It continues to discuss the literature related to privacy, trust and culture as the factors that influence citizens to adopt and use e-government services. Next, the chapter concludes with a presentation of the research model and a list of hypotheses. The next chapter will present the research methodology and design.

Chapter 6: Research Methodology and Design

6.1 Overview

In this chapter, the methodology used for this research is justified. The chapter aims to continue by discussing various issues related to the research design of this inquiry to test the hypotheses outlined in the previous chapter. The purpose of this study is to gain a deeper understanding of e-government adoption, not in developed countries where it originated, but in a developing country where circumstances are quite different. There are several factors that influence citizens' adoption of e-government. This research investigates the adoption of e-government in Saudi Arabia, a country in the Middle East, and aims to develop a framework of the variety of factors that are likely to be involved in its acceptance by citizens. Consideration of the research design needs to take into account the different demands of collecting, analysing and interpreting data under these circumstances. Following a general discussion of possible research methodologies, this chapter justifies the decision to adopt a mixed method approach for the study, which includes the collection and analysis of both quantitative and qualitative data.

The chapter explains in detail the data-collection methods used in this study, which include the survey technique and a case study. With regard to the survey, the questionnaire design and procedures are described in five stages, including the concept and operationalisation of constructs, the measurement scale, preparing the draft instrument, the translation of the questionnaire, and the face validity test and pretest for the instrument. Next, the validation of the developed scales via a pilot study is discussed. Finally, the data-gathering procedures for the main study and semi-structured interviews are presented.

6.2 Research Methodology

The research methodology is a logical sequence through the process of research to formulate a method and guidelines for obtaining knowledge and solving the research problem (Kothari, 2004). To achieve the objective of the research, which is expressed

through the questions and verified answers, this study adopted a deductive approach. The deductive approach created the theory of research from the literature and then continued through the process of deductive approach, which includes generating hypotheses, collecting data, and confirming or rejecting hypotheses. In order to give a complete picture about the theoretical research, as illustrated in Figure 6.1. This study examined the most important research terms: e-government, Saudi Arabia and technology adoption. Drawing from the literature, this study addressed each term in chapters 2, 3 and 4.

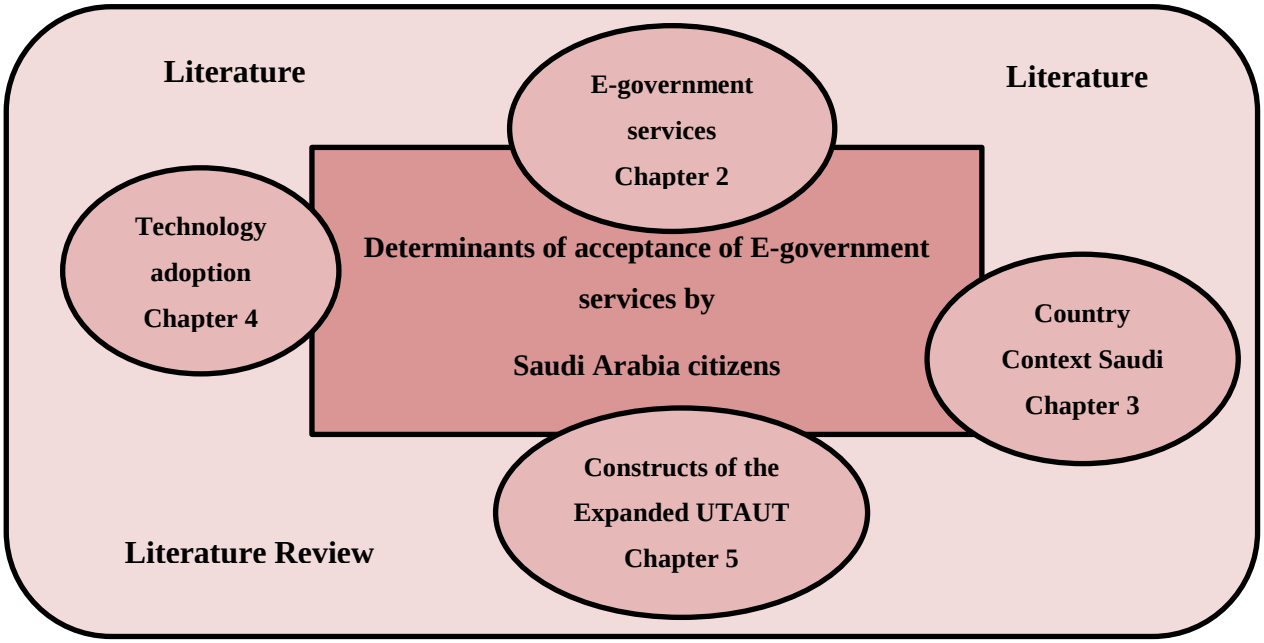

Figure 6-1: How This Study Created Theoretical Research from Literature Review

The second chapter investigated the concept, the categories and stages of the e-government model and relevant issues that led to answering Q1: What are the definitions and models of e-government? The third chapter considered the Saudi Arabian context and discussed various issues, particularly the current state of its e-government program. The aim of this chapter was to answer Q2: What is the current situation regarding ICT and the e-government program in Saudi Arabia? This was an essential element in determining the relevant factors for adoption in the next chapter. This study assumes that the determinants of acceptance of e-government services by citizens are derived from prominent theories of technology adoption in general combined with other influencing factors for individuals, as illustrated in both chapters 4 and 5. These two chapters addressed Q3: What is a suitable model for describing the technology adoption and citizen acceptance of e-government services in Saudi Arabia?

At the end of these three chapters that are based on a literature review, this study proposed the theoretical research and generated hypotheses based on the research model for citizen adoption of e-government.

Empirical study for this research answered research questions 4, 5 and 6 using the proposed and validated research model for citizen adoption of e-government. The following sections describe the data-collection process for this research, and the following chapters discuss and elaborate the findings and confirmation or rejection of the hypotheses.

6.3 Research Design

The framework for data collection and analysis is the definition of research design (Bryman, 2008). A research design may be described as a series of decisions that, as a whole, form a strategy for answering the research questions and testing the hypotheses. Supporting this way of thinking, Cavana, Delahaye and Sekaran (2001) view research design as a structured set of rational decision-making choices, or guidelines, to assist in generating valid and reliable research results.

The research design in a positivist setting covers decisions about the choice of data-collection methods, measurement and scaling procedures, instruments, samples and data analysis (Bryman, 2008; Cavana et al., 2001). The information gathered through the research design should be appropriate to the problem of research and collected by objective procedures.

Using a mixed method approach, this study combined qualitative and quantitative methods to find answers to the research questions outlined in Chapter 1. The usual justification for choosing a mixed research design approach is that it may capitalise on the strengths and resolve the weaknesses of each single method (Mingers, 2003). Examining a research problem using a multiple research design provides rich insight because a problem is approached from differing perspectives, allowing the researcher to

develop more accurate explanations of a phenomenon (Kaplan & Duchon, 1988; Mingers, 2003).

To confirm this point, Silverman (2009) and Leedy and Ormrod (2005) suggest using a triangulation of the methods used to collect data. Triangulation is a common approach that means merely using both qualitative and quantitative methods (Wisker, 2007). Triangulation allows a better understanding regarding the research phenomenon because using multiple research methods increases the validity of the collected data and derived findings.

Moreover, Patel and Jacobson (2008) have pointed out the extreme paucity in e-government adoption studies that used the triangulation method. This study fills this gap of knowledge that has been found in the literature.

Quantitative research enables us to test the relationship between the research model variables, and to provide evidence to support, or work against, the research hypotheses (Bélanger & Carter, 2008; Lee, Tan, & Trimi, 2005; Warkentin et al., 2002).

Qualitative research in this study was conducted through a case study of the Saudi government department responsible for e-government adoption. Studying MCIT's e-government program (Yesser) in Saudi Arabia increases our understanding of the factors that influence the adoption of e-government services by the Saudi citizen from a managerial perspective. It also provides up-to-date information about e-government in Saudi Arabia.

The sequence of the research process follows what Creswell (2009) defines as 'sequential procedures, in which the researcher seeks to elaborate on or expand the findings of one method with another method'(p.16). Creswell (2009, p. 16) also states that 'the study may begin with a quantitative method in which theories or concepts are tested, to be followed by a qualitative method involving detailed exploration of a few cases or individuals'.

As mentioned in the previous section, this research started by collecting and evaluating the research literature. An initial systematic literature review was essential because the

conceptualisation of important issues related to e-government adoption culture dimensions, trust and privacy required an examination of existing thinking in several research fields. For example, in determining the relevant dimensions of trust and privacy, a review of the IS and marketing literature revealed existing constructs related to trust and privacy. The second step of this research was the development of a quantitative survey instrument to test the relationship between the variables. Finally, qualitative interviews were conducted to elaborate and to refine the quantitative results. As illustrated in Figure 6.2, this study is based on two main phases of quantitative research followed by qualitative research. The diagram shows that the literature review was a continuous activity during the study. The literature review was an essential tool for determining the main issues related to the research problem and identifying the most important variables. It was also an essential step in developing the survey instrument.

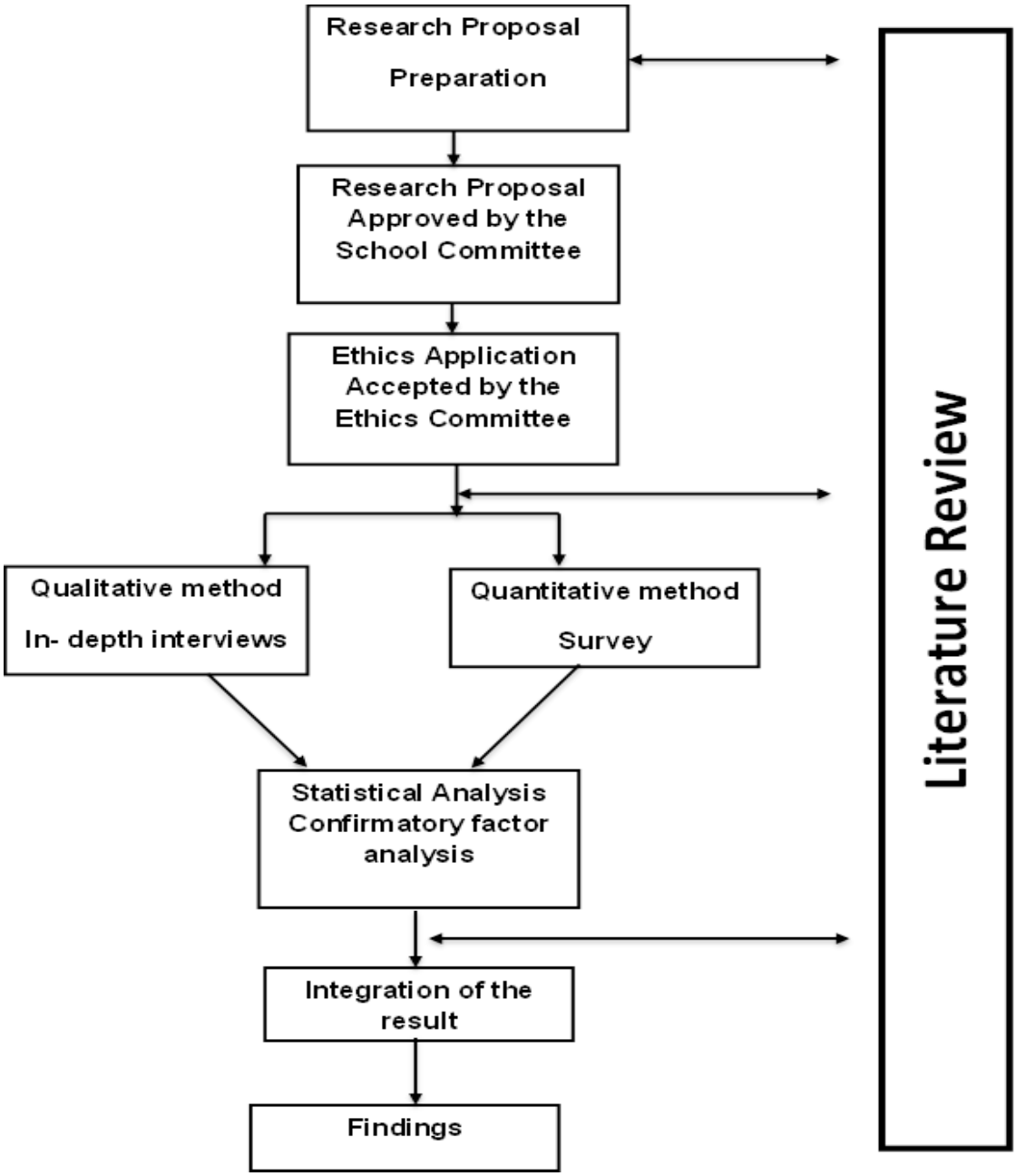

Figure 6-2: Research Design

6.4 Research Methods

The process of collecting data is an important stage in the deductive approach, which was adopted in this research. There are many techniques used for collecting data, which are part of the research method (Bryman, 2008). Research method is defined as 'a strategy of inquiry which moves from the underlying philosophical assumptions to research design and data collection' (Myers & Avison, 2002, p. 7).

Figure 6.3 shows how surveys and interviews are adopted as a method of collecting primary data to answer the research questions. In this study, surveys were used for collecting data from citizens and interviews were used for collecting data from Yesser managers.

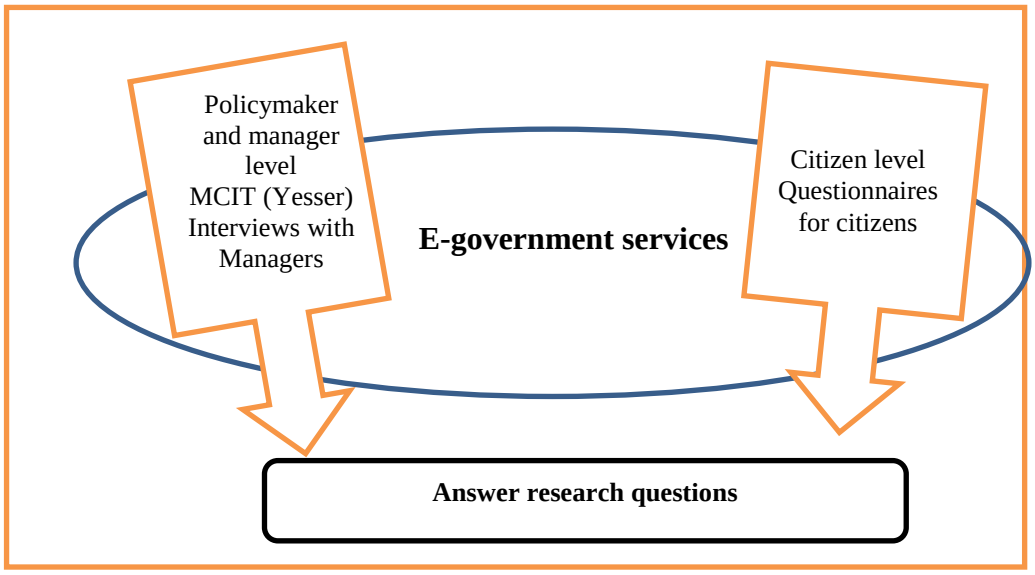

Figure 6-3: Questionnaires and Interviews Adopted in Research

6.5 Survey

In academic research, the method of gathering data from a sample of individuals is called the survey. Survey research is a popular and accepted method used for collecting data. Moreover, it intends to enable generalisation from a sample to a large population by covering a wide area and a large number of people. Bryman (2008) observed that questionnaires and structured interviews are the most common methods applied in survey research. Therefore, a large-scale survey was used at the first stage. Surveys are very beneficial for producing information that is inherently statistical in nature. The aim of this research is to determine the attitudes and intentions of acceptance of e-government services by citizens. Thus, this method is appropriate for the study because it aims to measure citizens' attitudes and intentions to use e-government services.

The survey questionnaire refers to a set of questions or items carefully structured and assembled in a predefined order to be completed by participants (Payne, Payne, &

Reference, 2004). Participants provide data to researchers by answering these questions. The researcher then analyses the data and presents solutions to the problem. In this study, the research objectives have also been translated into a series of questions. The questions, and response formats, were standardised so that all participants were asked the same questions.

The primary method of data collection for the main study is a questionnaire survey, supplemented by follow-up personal interviews. The questionnaire method was selected from two main reasons. First, there have been very few studies that have investigated the factors influencing the adoption and use of e-government in Saudi Arabia. This study collected data to obtain a broad picture of citizens' beliefs and attitudes towards new technology such as e-government, in order to understand the important factors that drive the development and classification of citizen behaviour in relation to new technology in the government in Saudi Arabia. Survey research is probably the best method available to collect original data describing a large population. The present study uses a questionnaire as an economical and efficient way of covering a study population that is geographically dispersed across Saudi Arabia. The second reason is that a major part of the study is concerned with the respondents' perceptions of e-government and how these perceptions affect their adoption and use of the new technology service.

6.5.1 Questionnaire Design and Procedures

This section illustrates how the instrument was prepared to obtain valid and complete information about the research problem. To simplify administrative and data processing, most of the instrument questions were precoded, or used a standard response formulation. The format of this study's instrument was developed using the following steps: (1) concept and operationalisation of constructs, (2) measurement scale, (3) draft instrument, (4) translation of questionnaire, and (5) face validity test and pretest for the instrument.

6.5.2 Concept and Operationalisation of Construct

A conceptual or theoretical definition is needed for each construct of the proposed model before data can be collected for the variables. The operational definition is used to measure a conceptualised construct (Bryman, 2008). The measurement development process starts with conceptualisation, and is followed by operationalisation. That is, constructs must be specified in such a manner as to be potentially observable. In this study, the literature related to each variable served as a guide in the development of the measures.

Theoretical constructs were operationalised using validated items from prior research and modified specifically to the e-government services context.

UTAUT model constructs

Chapter 4 presented the models frequently used in explaining behaviours related to new technology adoption. Although TRA, TPB and TAM are the most frequently used models for explaining technology acceptance, these models are criticised for their relatively low explanatory power in terms of behavioural intentions, which ranged from 30 to 40 per cent only. The integrated acceptance model presented by Venkatesh et al. (2003) reported a high explanatory power, amounting to 70 per cent. While many studies have utilised the technology acceptance models in investigating various systems' adoption in different contexts, very few have utilised the UTAUT model. This research utilises the UTAUT model with its constructs (performance expectancy, effort expectancy, social influence and facilitating conditions and behavioural intentions). Measurement items for UTAUT constructs were adapted from Venkatesh et al.'s (2003) study with some adjustments to reflect the specific target behaviour e-government services usage.

Culture

Culture is an essential but very difficult concept in behavioural and social sciences, and hence has many different conceptualisations and definitions (Smelesr, 1992). In the field of anthropology, culture often refers to 'whatever is distinctive about the "way of life" of a people, community, nation or social group' (Hall, 1997, p. 2), for example, its

customs, language and material artefacts. In sociology, culture is commonly defined as an integrated set of learned behavioural patterns that are shared by, and characteristic of, the members of any given society, including everything that a group thinks, says, does and makes its shared systems of beliefs, attitudes and feelings .

Hofstede defines culture as a set of shared assumptions that result in a common frame of reference by members of a society. Culture is viewed as the 'mental software' people carry and use when, for example, forming a specific belief (Veiga, Floyd, & Dechant, 2001). He defines culture as being the specific patterns of thinking that affect, and are reflected in, the meaning people attach to their behaviour (Hofstede, 1994). In his work, Hofstede (1984) has identified several specific patterns in which the values and beliefs that constitute a national culture are arranged. These dimensions, also called indices, function as tools for gauging and measuring different aspects of culture. Hofstede defines four specific dimensions of cultural variation: uncertainty avoidance, power distance, collectivism versus individualism, and femininity versus masculinity (and he later added long-term versus short-term orientation) (Veiga et al., 2001).

Uncertainty avoidance can be defined as the extent to which people feel threatened by ambiguous situations and have created beliefs and institutions that try to avoid these situations (Hofstede, 1984). Cultures with strong uncertainty avoidance tend to have a strict code of behaviour; they tend to involve a variety of people in decision-making processes and require more information and security to cope with situations they perceive as unstructured, unclear or unpredictable. In contrast, in cultures with low uncertainty avoidance, people are more likely to accept risky and ambiguous situations; they tend to be more relaxed and contemplative, and cherish innovation and broad assignments with open objectives (Hofstede, 1984).

Power distance is the extent to which people accept social inequality, that is, that some people will receive the larger share of the benefit and others the smaller share. Cultures with low power distance usually strive for equality of power, decentralisation of power and justice (Hofstede, 1984). In such a culture, people value competence more than superiority in the hierarchy. However, in cultures with a high power distance, the social elite, such as one's superiors at work, have a great influence on the behaviour, attitudes and beliefs of a person. People are much more likely to form attitudes towards a specific

behaviour and to behave in a certain way based on their perceptions of their superiors' attitudes (Veiga et al., 2001).

Individualism is defined as the tendency to value one's independence over other considerations the tendency to place one's personal interests above those of the rest of society (Veiga et al., 2001). Collectivist cultures focus on the society as a whole, the well-being of everyone and loyalty to the groups to which people belong. The group to which a person belongs becomes the primary source of that person's individual identity and people tend to seek approval, status and support through group affiliation (Veiga et al., 2001). Individualism influences each person's behaviour in terms of self-motivation, self-actualisation, and determination to perform whatever behaviour is most beneficial for that person. Individualistic cultures are also highly competitive and tend to promote individual decision-making, whereas collectivist cultures tend to behave in the group's best interests rather than in one's individual interest.

Masculinity versus femininity is the dimension that is hardest to conceptualise and validate (Veiga et al., 2001). Assertiveness, independence, success, money and high self-achievement tend to characterise the values of masculine cultures. People's behaviour in cultures with high masculinity tends to be competitive and very goal and earnings driven. Traditional masculine cultures tend to follow a 'live-to-work' belief. Feminine cultures mainly focus on the quality and benefit of behaviour to all people involved. They value caring for each other, security, cooperation, work freedom and low-stress environments. People in these cultures believe in 'work-to-live' ethics (Hofstede, 1984).

Hofstede identified the above discussed dimensions, along which the dominant value systems of a variety of countries were found to differ, and established them as a yardstick with which to measure differences between cultures. As mentioned above, culture as a whole is not easily identifiable, and is even harder to measure. Hofstede's dimensions of culture are limiting, reducing the concept of culture down to the values that a group of people articulate (Lam, 2002). However, the concept of culture as a whole is much richer. A variety of studies have used Hofstede's cultural dimensions successfully as a means of measuring the values and attitudes of a culture as introduced above. In addition, the simplicity of the model lends itself to studies with limited time

frames and resources, such as this one. Hofstede's suggestions for measuring basic differences in cultural values are concrete and fairly easy to measure. Al-Sukkar (2005) study adapted validated items of Hofstede's cultural dimensions integrated with the TAM model. Therefore, for the current study, culture was measured according to items borrowed from Al-Sukkar (2005).

Privacy

Section 5.2 discussed the effect of privacy on technology adoption in general and e-government services in particular. This study adopts the privacy scale developed and validated by (Pirim et al., 2010). Their model is an aggregated scale of different aspects of privacy features and presence that affect the individual acceptance of technology and comprises three dimensions of privacy: the degree of privacy concerns (developed personal privacy issues), information management concerns (disclosure repercussions) and interaction management concerns (trust/misuse). The validated eight-item measuring scale is considered appropriate and can be incorporated with the UTAUT measurement scale.

Trust

As mentioned in Section 5.3, the existing trust literature in e-government largely views trust as a reflection of the citizen's beliefs (Hung et al., 2006; Warkentin et al., 2002). In this research, the privacy factor includes a portion of the elements of trust, that is, trust in the government. Therefore, the concept of trust is trust in the government's efforts in the field of technology used in the e-government services something the government does to make them trustworthy (worthy of trust or confidence of citizens), through technologically and strategically communicating its information security policy on the government website. It follows that perceived trust is likely to be an important factor in predicting e-government adoption. Therefore, a construct for trust can be found in the literature. A reliability and validity seven-item scale proposed by Carter and Bélanger (2005) was adapted in previous studies for trust in the internet (McKnight et al., 2002), and for trust in government (Pavlou, 2003; Van Slyke, Bélanger, & Comunale, 2004). The study combined these into one variable. Additionally, with respect to the concept of

trust, items to measure trust were developed based on the scales of Carter and Bélanger (2005).

6.5.3 The Measurement Scale

As mentioned in Section 5.5, this study used the survey method to investigate attitudes and intentions. One of the most common techniques for such research is the Likert scale (Bryman, 2008). The decision to use this scale was made after considering the fact that such a scale can conveniently show the responses as strongly positive to strongly negative, with the midpoint indicating a neutral response.

All items were measured using a five-point Likert-type scale, ranging from 'strongly agree' to 'strongly disagree'. With a 5-point scale, it is easier for the participants to read out the complete list of scale descriptors (agree, strongly agree, etc.), which is not the case for the lengthier seven-point scale. In addition, the five-point Likert scale is the most commonly used type of scale in e-government adoption and UTAUT related research (Al-Qeisi, 2009; Al-Shafi & Weerakkody, 2010; Alhujran, 2009; Alzahrani, 2011).

6.5.4 Preparing Draft Instrument

The purpose of this step was to draft the instrument with the knowledge of the objectives of the research, the communication method to be used and the approximate length of the instrument. Considered in the instrument were the question wording, response format, sequences of questions and the characteristics of the instrument. The principles of good question design relate to the content, wording and structure of each question. In relation to question content, only brief, relevant questions were needed to collect the data required; there were no double-barrelled or sensitive questions, and only a modest amount of effort was required to complete the instrument. In relation to question wording, care was taken to ensure that words had only one meaning, there were no double negatives, there were no leading or biased words or phrases, there were no abbreviations or incomplete sentences, and all questions were stated positively. In relation to question structure, all questions had a clear structure. Two types of structured questions were used. In the first part, multiple choice questions were used for

demographic and ICT state issues. For the rest of the parts of the instrument, scale questions were used. Finally, clear attention and effort was given to ensuring the instrument was simple, through wording of the items and pretesting.

Tables 6.1, 6.2 and 6.3 show the scales in the draft instrument. The questionnaire contains 15 demographics and ICT state questions, and 57 statement items to measure eight constructs of interest. The UTAUT variables have five constructs: performance expectancy, five items; effort expectancy, six items; social influence, four items; facilitating conditions, five items; and behavioural intention, three items. Culture has five dimensions and 21 items. Trust includes one dimension and five items. Privacy has three components as one dimension with eight items. Each of these scales was examined in the pilot test.

Table 6-1: Construct Items of Scales of UTAUT Variables

Construct	Statement
Performance Expectancy	Using e-government services on government websites enable me to access government services more quickly.
	Using e-government services on government websites enhances my effectiveness in accessing government services (e.g. find the most relevant information about a service).
	Using e-government services on government websites allows me to access more government services than would otherwise be possible.
	Using e-government services on government websites to access government services increases my productivity (e.g. find information about services within shortest time frame).
	Overall, I find e-government services on government websites useful for me to access government services.
Effort Expectancy	Learning how to use e-government services on government websites to access government services is easy for me.
	I find it easy to use e-government services on government websites to find what I want.
	My interaction with e-government services on government websites to access government services is clear and understandable.
	E-government services on government websites are flexible to interact with.
	Using e-government services involves too much time doing mechanical operations (e.g. data input).
	Overall, I find using e-government services to access government services easy to use.
Social Influence	People who influence my behaviour think that I should use e-government services and /or government websites.
	People who are important to me think that I should use e-government services on Government websites.
	I would only use e-government services if I needed to.
	I would use the e-government services if my friends used them.
Facilitating Conditions	I have the resources necessary to use e-government services on government websites.
	I have the knowledge necessary to use e-government services on government websites.
	I have enough Internet experience to use e-government services on government websites.
	I would find it difficult to use e-government services on government websites due to lack of time.
	I think that using e-government services on government websites fits well with the way I like to work.
Behavioural Intention	I intend to use the e-government services on government Websites to access government services frequently.
	I predict that I should use the e-government services on government website(s) to access government services in the future.

Table 6-2: Construct Items of Scales of Culture Variables

Dimension	Statement
Uncertainty Avoidance	It is important to have job requirements and instructions spelt out in detail so that people always know what they are expected to do.
	Rules and regulations are important because they inform workers about what the organisation expects of them.
	People should avoid making changes when their outcomes are uncertain.
	Order and structure are very important in a work environment.
	It is better to work in an organisation with specific rules and regulations as opposed to a more flexible organisation.
	Working in a structured environment is better than working (rules and regulations) in an unstructured work environment.
Power Distance	Managers should be careful not to ask the opinions of subordinates too frequently; otherwise, the manager might appear to be weak and incompetent.
	Managers should make most decisions without consulting subordinates.
	Employees should not question their manager's decisions.
	Managers should not ask subordinates for advice, because they might appear less powerful.
	In general, the manager, not the employees, should have the last word.
	Decision-making power should stay with top management in the organisation and not be delegated to lower-level employees.
Individualism/Collectivism	Individual rewards are not as important as group welfare.
	Group success is more important than individual success.
Masculinity/Femininity	It is preferable to have a man in a high-level position rather than a woman.
	Men usually solve problems with logical analysis.
	Women usually solve problems with intuition.
	Solving organisational problems usually requires an active forcible approach that is typical of men.
Long-Term v. Short-Term Orientation	Respect for tradition hampers performance.
	The exchange of favours and gifts is not necessary to excel.
	Upholding one's personal image makes little difference in goal achievement.

Table 6-3: Construct Items of Scales of Trust Variables and Privacy Variables

Construct	Statement
Trust	The used technology (web-based, mobile) has enough safeguards to make me feel comfortable using it to access e-government services.
	I feel assured that legal and technological structures adequately protect me from problems on the used technology for e-government services.
	In general, the used technology is now a robust and safe environment in which to transact with e-government services.
	In general, I think I can trust e-government services on government websites.
	In my opinion, e-government services on government websites are trustworthy.
Privacy	I feel that my privacy is very important to me.
	I feel that my control over my personal information is very important to me.
	I feel that it is important not to release sensitive information to any entity.
	I feel it is important to avoid having personal information released that I think could be financially damaging.
	I feel it is important to avoid having personal information released that I think could be socially damaging to me.
	I feel that the release of personal information to entities where I feel as though I am anonymously providing the information is unacceptable.
	I feel that the release of personal information to individuals with whom I have a high comfort level is unacceptable.
	I feel that the use of personal information that has been released by me but is used in a manner not intended by me is unacceptable.

6.5.5 The Translation of the Questionnaire

After finishing preparing the draft instrument, the English language questionnaire was translated into Arabic because the target respondents of this study are citizens of Saudi Arabia whose native language is Arabic. Therefore, the pilot study as well as the main study would be in the Arabic language. First, the researcher translated the questionnaire into Arabic. Then he sent the two versions (English and Arabic) to three Arab PhD students who were studying in the IS and IT field and asked them to comment on the instrument's clarity to remove any ambiguity. Next, the questionnaire in Arabic was pretested on monolingual Arabic-speaking respondents and modified based on their feedback. Finally, an experienced bilingual lecturer in the field of IS was asked to evaluate the overall quality of the instrument. Through this procedure, a consistent format was ensured for the final Arabic version of the research instrument, which was accompanied by an English version.

6.5.6 Face Validity Test and Pretest for the Instrument

In this step, the face validity was conducted. Face validity refers to the issue of whether each statement item that was devised to gauge the construct concept really measures that concept. People who have experience or are experts in the field can be asked to act as judges to advise on whether scale items have face validity (Bryman, 2008). Accordingly, the instrument was reviewed by three academic experts in IS and two statistic consultants. They were asked for feedback on whether the questions would accurately measure each construct; whether the questions were vague, ambiguous or difficult to understand; or whether the questions contained contradictions. According to their feedback and suggestions, the wording of some questions was modified to improve clarity. Separation of overlap in some statements was adjusted to have an appropriate level of difficulty (for example, a statement about masculinity/femininity in the culture dimension should be two separate statements one for men and the other for women instead of one statement 'Men usually solve problems with logical analysis; women usually solve problems with intuition.').

Moreover, the questionnaire was pretested by three academically excellent students (English and Arabic speakers), who were asked to complete the questionnaire and to determine if there were any problems in understanding the survey questions and some complex English words and terms in the questions. Finally, the instrument was modified to reflect the feedback received from the experts. It was now ready to be used for the pilot study.

6.6 Pilot Study

Regardless of the skills of the researcher in the formulation of a questionnaire, some points can be missed by the researcher. A pilot study is an experimental study used to prove a particular instrument of investigation. It is recognised as a part of the scale development methodology. The aim of the pilot study was to establish the constructs' reliability and validity and to ensure that the items and instructions were clear and understandable, to assist the study in achieving appropriate responses.

The survey questionnaire for the pilot study was conducted in Australia with Saudi Arabians who had come to Australia to study and who had spent less than one year there. Therefore, they still had the same cultural Saudi Arabian attitudes. Due to time and budget restrictions, a sample of 100 people was randomly chosen from the Saudi student population in Adelaide. The returned responses were 70 questionnaires, four of which were exempted from the analysis because many questions were left unanswered. Therefore, 66 questionnaires were used in the analysis.

Participants were requested to comment and provide any feedback on the instrument concerning any unclear wording or ambiguity.

6.6.1 Instrument Reliability

The reliability of a measure refers to the degree to which the instrument is free of random errors. It is concerned with consistency and stability of the measurement (Sekaran & Bougie, 2010). In this pilot study, detailed item analyses and reliability were used to clean up the measures of each construct. The measurement items were assessed and, if shown to decrease the reliability of the instrument, they were removed. Cronbach's alpha was used to evaluate the reliability of the instrument items. The accepted cut-off value for reliability should be equal or greater than 0.50 or above 0.70 for an ideal loading.

The reliability function in the statistical package SPSS Version 20 was used to test the internal consistency for the items of each construct's measure in the survey. The results are presented in Table 6.4.

Table 6-4: Reliability Coefficients of Scales

Construct	Subdimensions	Coefficient Alpha	Original # of Items	#of Deleted Items	Final # of Items
Performance Expectancy		0.890	5		5
Effort Expectancy		0.853	6	1	5
Social Influence		0.800	4	1	3
Facilitating Conditions		0.740	5		5
Privacy		0.819	8	2	6
Trust		0.872	5		5
Behavioural Intention		0.755	2		3
Saudi Culture	Power Distance	0.633	21	7	15
	Individualism/ Collectivism	0.557			
	Masculinity/ Femininity	0.720			
	Uncertainty Avoidance	0.701			
	Long-term v. short-term orientation	0.265			

The outcomes of the pilot study statistical analysis confirmed acceptable coefficient alpha for all the construct items except the fifth dimension of culture scale. As Table 5.4 shows, the long-term v. short-term orientation dimension is below the acceptable reliability. After consultation, one academic and one expert in statistics suggested eliminating this dimension from the culture scale. Moreover, as mentioned in Section 4.12, there is no score for this dimension (long-term orientation) for Saudi Arabia. Here the pilot study confirmed that this dimension is not applicable in this country context. In contrast, the remaining four dimensions are applicable and have significance values of the alpha coefficients when the reliability test was completed.

Table 6.4 illustrates that some items were deleted to increase the value of alpha after the reliability test. For the scales of effort expectancy and social influence, one statement item was eliminated from each, thus increasing the value of alpha to (0.853) and (0.8) respectively.

The reliability test for privacy deleted two statement items and seven items in the Saudi culture scale. Based on recommendations, one item was added from the literature to the behavioural intention construct. In addition, another item was added to the individualism/collectivism culture dimension. Therefore, in the final instrument for the main study, each construct has at least three scale items.

6.6.2 Validity of Scale Using Exploratory Factor Analysis (EFA)

In the pilot study, validity of the scales was assessed using exploratory factor analysis (EFA) and examination of the correlation coefficients.

An EFA using principal component factor analysis with varimax rotation was conducted on each multiple-item scale. SPSS 20 was used to conduct the factor analysis.

The construct scales were analysed one by one. First, the correlation coefficients matrix was computed for the scale items used to measure the scales and the significance values were scanned. The correlation coefficients between items greater than 0.3 are acceptable to indicate that the scales are suitable for factor analysis (Coakes & Steed, 2009). See Appendix F for all constructs.

Results from the first step provided a basis for proceeding to an empirical examination of adequacy for factor analysis. For a more accurate judgement, further analysis was conducted.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were performed to check whether the dataset was appropriate for a factor analysis. Generally, a KMO measure should be greater than 0.5 (De Vaus, 2002; Field, 2009). As Table 6.5 shows, the KMO statistic for all constructs were acceptable, and Bartlett's test of sphericity was $p < .001$. Therefore, it could be concluded that the data were appropriate for factor analysis.

Table 6-5: KMO and Bartlett's Sphericity for Constructs

Construct	KMO Value	Bartlett's Test of Sphericity
Performance Expectancy	.889	.000
Effort Expectancy	.858	.000
Social Influence	.600	.000
Facilitating Conditions	.825	.000
Privacy	.731	.000
Trust	.813	.000
Behavioural Intention	.678	.000

As a final point, the factor loading of the scale items was examined. Generally, factor loadings below 0.4 are considered low, and low-loading items should be suppressed (De Vaus, 2002; Eley & Stevenson, 1999; Field, 2009; Stevens, 2002). The test of dimensionality is that each summated scale should consist of items correlated and loaded highly on a single factor (Hair & Anderson, 2010). As shown in Table 6.6, the loading values of all items exceed the cut-off level.

Table 6-6: Item Loadings for Pilot Study

Constructs	Items	Loadings						
Performance Expectancy	PE1	.829						
	PE2	.892						
	PE3	.840						
	PE4	.855						
	PE5	.867						
Effort Expectancy	EE1		.801					
	EE2		.865					
	EE3		.847					
	EE4		.789					
	EE6		.823					
Social Influence	SI1			.912				
	SI2			.912				
	SI3			.815				
Facilitating Conditions	FC1				.727			
	FC2				.826			
	FC3				.834			
	FC4				.625			
	FC5				.748			
Privacy	PR1					.823		
	PR2					.831		
	PR3					.557		
	PR4					.838		
	PR5					.837		
Trust	TR1						.743	
	TR2						.803	
	TR3						.876	
	TR4						.864	
	TR5						.850	
Behavioural Intention	BI1							.721
	BI2							.699
	BI3							.713

Finally, another purpose of the pilot testing was to estimate the time required to complete the questionnaire. Because of the pilot testing, some minor modifications were made, but not in the main questions, and the instructions were found to be satisfactory.

The average time of completing the questionnaire was from 25 to 30 minutes, which was considered a reasonable time for such research. Consequently, after the completion of the pilot study stage, which was very useful in making necessary amendments, it could be confirmed that the instrument was reliable and ready for the main study. Copies of the final versions of both the English and Arabic questionnaires are included in Appendix A and Appendix B respectively.

6.7 The Main Study

In order to ensure the sample target, the participants of this study were the citizens of Saudi Arabia's three largest cities: Riyadh, Jeddah and Dammam. The rationale for this selection was as follows. First, it was difficult to cover the whole population because of time limitations and the limited resources that were available for this study. Second, these cities contain a high proportion of the population and belong to the three largest out of the13 regions of Saudi Arabia, as mentioned in Chapter 4. Third, these cities have old universities, research centres and IT centres that deal with citizens. Because this questionnaire study was based on a web survey, it facilitated access to citizens from a very large area.

To collect data, this study used an electronic questionnaire by subscribing to Qualtrics (http://qualtrics.com). The data-collection process occupied a period of three months that began on 21 July 2011 and ended on 24 October 2011. The link to the online questionnaire was sent to email addresses from email lists of citizens registered with the IT centres of government departments, universities and email groups on the Internet in Riyadh, Jeddah and Dammam in Saudi Arabia. Both the Arabic and the English versions of the web survey were distributed. A total of 817 responses were received, 634 out of them were completed and valid for the analysis making the percentage of about 77.6%.

To encourage people to participate in the survey, for each respondent this study donated $2 to the victims of the Somali famine crisis and they were registered in a prize draw competition to win an iPhone 4. In addition, the survey result would be made available to respondents that were interested.

6.8 Case Study

Case studies are commonly used by IT and IS researchers as a method for data collection (Myers & Avison, 2002). Yin (2009) defined the case study as 'an empirical inquiry that investigates a real-life phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident'(p. 19). Case studies can be conducted about programs, implementation processes, decisions and organisational change (Miles & Huberman, 1994). Therefore, the case study is a suitable method because this research focuses on a specific program: the e-government program in Saudi Arabia.

In this research, semi-structured interviews were employed as the data-collection method for the case study. Through the one-to-one meeting between the researcher and the interviewee, a semi-structured interview technique gives the researcher the opportunity to probe deeply to uncover new clues and open up new dimensions of the studied phenomenon. This helps greatly in securing accurate accounts that are based on the interviewees' personal experiences. Easterby-Smith, Thorpe, and Jackson (2012) confirm that the semi-structured interview is an appropriate method when it is necessary to understand the constructs that the interviewee uses as a basis for his/her opinions and beliefs about a particular situation.

However, one of the disadvantages of interviews is the individuals being studied are usually small in number and/or have not been randomly selected, making it highly problematic to draw generalisations (Rao & Woolcock, 2003). This might lead to problems related to the validity and verifiability of the research.

6.8.1 Interviews

The semi-structured interviews were conducted with the key government officials who were responsible for the e-government program in Saudi Arabia: MCIT's e-government program, Yesser. Only those who were in touch with the e-government program were interviewed. Consequently, interviews were conducted with the government officials as illustrated in Table 6.7.

Table 6-7: E-Government Program Officials Who Were Interviewed

Interviews#	Position
IN1	Assistant Director-General
IN2	Director of Strategic Planning and Supporting Initiatives
IN3	Director of E-Services Department
IN4	Director of Strategic Planning
IN5	Quality Expert
IN6	E-Channels Improvement Manager
IN7	E-Services Project Manager

The key e-government officials were expected to have in-depth information about e-government services and strategies in Saudi Arabia. Semi-structured interview questions (see Appendix E) were designed to explore the officials' experience and perceptions regarding e-government adoption in Saudi Arabia. They were also designed to survey the current progress, planned future and main challenges for the Saudi e-government program. The outcomes of these interviews were employed to complement the questionnaires' results.

With respect to the interview process, first, a formal approval to conduct the interviews was obtained from the director of the e-government program in Saudi Arabia. Then, the communication manager in the e-government program coordinated access to e-government officials. Interviews were then arranged and conducted through formal means with these people in the period between 10 November 2011 and 21 November 2011.

Interviews lasted for 30–45 minutes. All interviews were conducted in the Arabic language, and professionally translated and transcribed to the English language prior to the analysis. All interviews were tape-recorded except for one interview because the interviewee did not wish to be taped. A digital recorder was used to record the interviews with the permission of the interviewees. The aim of the recording was to back up notes taken during the interviews. Hence, the recording was used when interviews were translated and transcribed before the analysis stage. Each interviewee was provided with a summary of the research objectives prior to the actual interview. In

addition, they were notified that they could contact the researcher if they wanted to know the progress and the outcomes of the study.

6.9 Ethical Permission

This study obtained ethical approval from the Social and Behavioural Research Ethics Committee of Flinders University prior to conducting the data collection (Approval No. 5254; see Appendix C). The purpose and aims of the research were explained in a cover sheet. Participants were informed that the researcher had the responsibility to protect their confidentiality and anonymity and they had the right not to participate in this study. Therefore, no names or any other technique were used to trace participants' responses.

6.10 Summary

This chapter described and justified the methodology used to achieve the objective of the research and test the research questions. The chapter also described the overall research design used for this study, which consists of a combined approach of qualitative (case study) and quantitative (survey) research. The process of the development and validation of the instrument was also provided. The study used two data-collection strategies: a survey and semi-structured interviews. An online questionnaire used for Saudi Arabia citizen. Semi-structured interviews were conducted with the key government officials at MCIT, who were responsible for the e-government program in Saudi Arabia (Yesser). It should be taken in consideration when adopting such a research approach which is very difficult to generalise from a small number of interviews. The research was approved by the Social and Behavioural Research Ethics Committee of Flinders University.

Chapter 7: Quantitative Analysis and Results

7.1 Overview

This chapter discusses the quantitative research analysis. It begins by describing the procedures used for data preparation. Data analysis was based on the two steps in the analysis of quantitative data that follow in this chapter.

First, descriptive statistics are presented to obtain a description of the basic features of the sample data. This is achieved by describing and discussing the results of the demographic profile of the respondents as presented in Section 7.4.1 and ICT characteristics presented in Section 7.4.2.

Second, the advanced statistical analysis is discussed in depth by employing the structural equation modelling (SEM) approach.

The objective of this chapter is to validate the proposed model and present the outcomes of the hypotheses. It aims to reveal the key elements of citizen acceptance of e-government services and supply the answers to Q4 (What factors influence citizens' acceptance and adoption of e-government services in the Kingdom of Saudi Arabia?) and Q5 (What is the relative importance of these factors and the relationship between them?). To achieve this aim, the chapter presents the testing of the assumptions of data analysis followed by a discussion on the SEM approach and confirmatory factor analysis (CFA). Then, in Section 7.8, the scale reliability of the main survey is presented.

Next, the chapter investigates the appropriate fit measures that can be used in this study. From there, it proceeds to verify the measurement and structural models using Analysis of Moment Structures (AMOS) Version 20 software. In the measurement model, it is used for the validation process to first assess the overall fit of the measurement model and then establish the convergent and discriminant validity of the model's constructs. For the structural model, additional statistical analysis was carried out to validate it by

assessing the model's overall fit. The chapter then reports on the supported hypotheses by examining the relationships among the hypothetic constructs. Next, the chapter presents the effect of moderators on the research model. Finally, the chapter presents a conclusion of the quantity analysis results.

7.2 Data Preparation

Data preparation includes data coding, data entry into a database, data cleaning and finding any missing responses. In this research, several steps were taken for the data-preparation procedure. The first step was visually checking the raw data once they were received. Second, all datasets were numbered as they were returned and sight-edited for legibility and completeness to check that they were completed by eligible respondents. For example, if a participant answered all questions in exactly the same way, the data were considered ineligible. Third, to avoid the influence of acquiescence and extremity bias, some scales have negative statements. This requires recoding of the responses of these statements. For example, the positive statement 'strongly agree' initially had a score of 5, whereas 'strongly disagree' had a score of 1. After the recoding process, in the negative statement, 'strongly disagree' had a score of 5, and 'strongly agree' had a score of 1. Fourth, the data from the usable responses were entered into an SPSS 20 statistical package. Fifth, after the data were entered into SPSS, another test was conducted to ensure that the data had been appropriately entered. The test involved a sample being examined manually. A systematic sample of every fifth questionnaire was checked manually by comparing the entered data against the original.

Sixth, frequencies were computed using SPSS for each variable to check for missing data and outlier responses.

7.3 Data Analysis

Diversity in the statistical methods has been a major challenge for researchers in making sense of the data collected. According to Hair, Money, Samouel, and Page (2007), there are two basic steps in the analysis of quantitative data: (1) descriptive statistics to obtain a description of the basic features of the sample data, and (2) inferential statistics to test

hypotheses by using data collected from a sample to make inferences about the larger population from which the sample is drawn. For this study, the researcher adopted the two steps of statistical analysis to make sense of the data collected.

7.4 Descriptive Statistics

Descriptive statistics are used to obtain a description of the basic features of sample data. This statistical analysis organises and summarises large datasets in a smaller number of meaningful statistical indicators (Janssens, Wijnen, De Pelsmacker, & Van Kenhove, 2008). Descriptive statistics usually contain three types of indicators: frequency distribution, measures of central tendency and measures of dispersion. All these statistical indicators were used in this phase of the study.

7.4.1 The Demographic Profile

As shown in Figure 7.1, the majority of the 634 participants in the survey were male (61.2 per cent) and over one-third (38.8 per cent) were female. This indicates that the percentage of males who adopt e-government in Saudi Arabia is higher than the percentage of females.

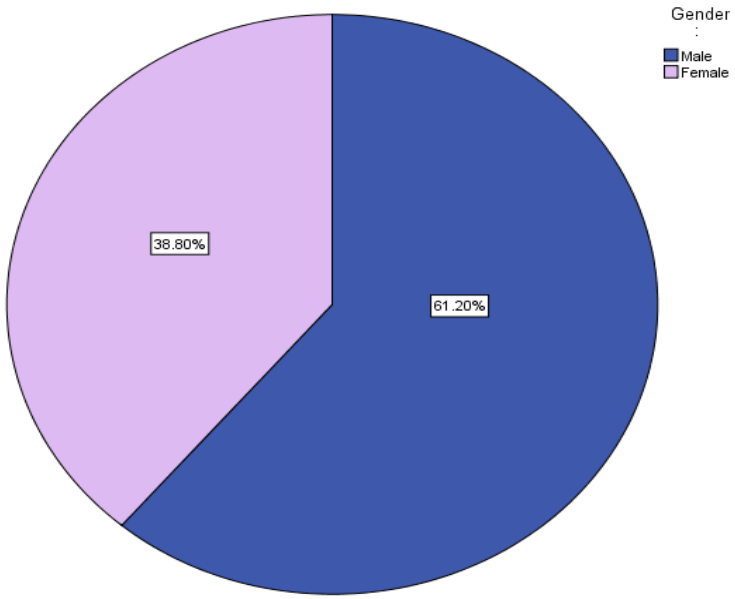

Figure 7-1: Gender Distribution

Figure 7.2 shows that the majority age group of the 634 participants of both genders was ranged from 18 to 30. The next group of men and women participants were those who fall within the age group 31–40, followed by the age group 41–50. Those aged 51–60 represented a small number of participants. It should be noted that there was no involvement of both males and females over the age of 60.

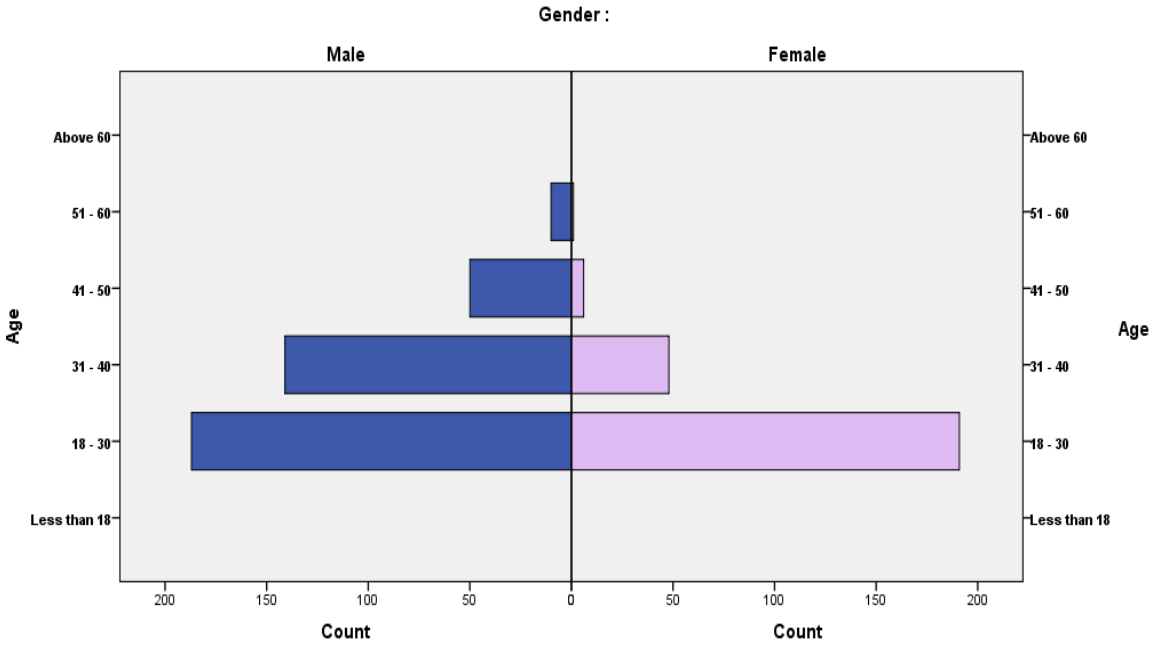

Figure 7-2: Age Distribution by Gender

Figure 7.3 shows that the majority of the 634 participants of both genders were high school graduates. The male participants had the following degrees, listed from highest number of participants to the lowest: diploma degree, bachelor degree, master degree and doctorate or higher. In contrast, the female participants were distributed as follows from highest to lowest: bachelor degree, diploma degree, master degree and doctorate or higher.

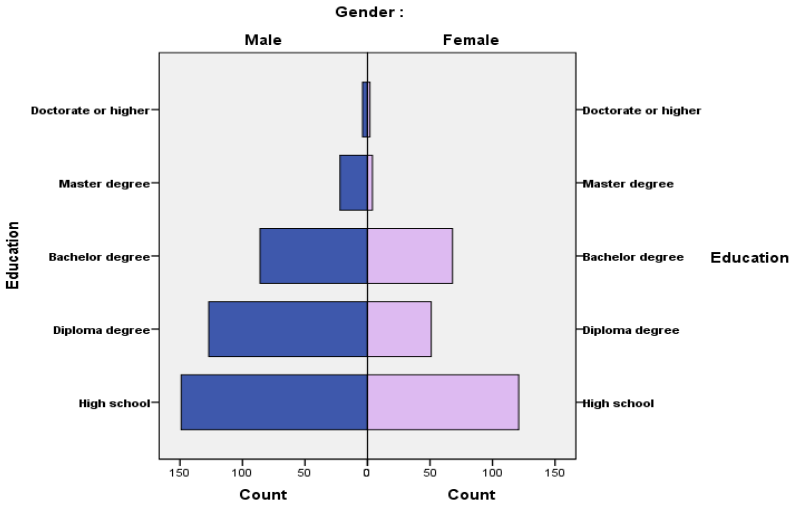

Figure 7-3: Education Distribution by Gender

As Figures 7.4 and 7.5 reveal, the majority of the 634 participants (282) were from the low-income group (less than 2,000 Saudi Arabian Riyals [SAR] per month); 141 of the participants earned 5,001–10,000 SAR per month. Of the sample involved in this study, as shown in Figure 6.5, women had less income than men. This is to be expected in Saudi society because of the cultural expectation that men are responsible for women, whether the man is a father, brother or husband of the woman, as was mentioned in Section 3.6.

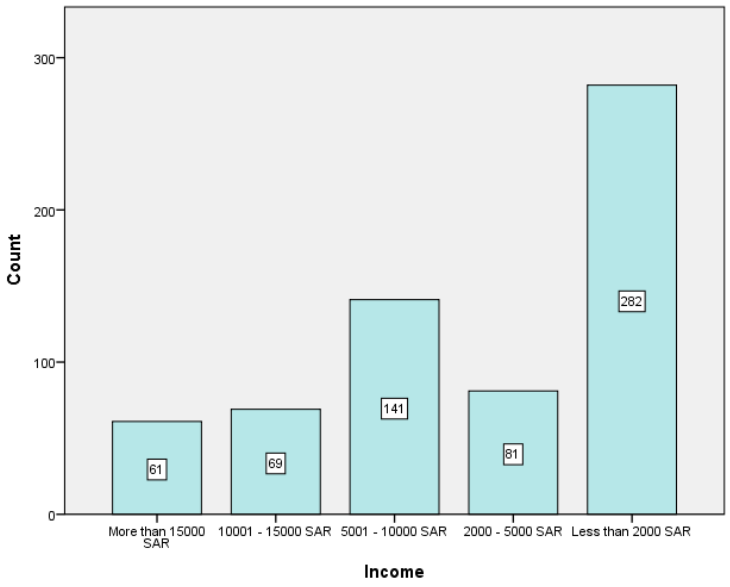

Figure 7-4: Income Distribution

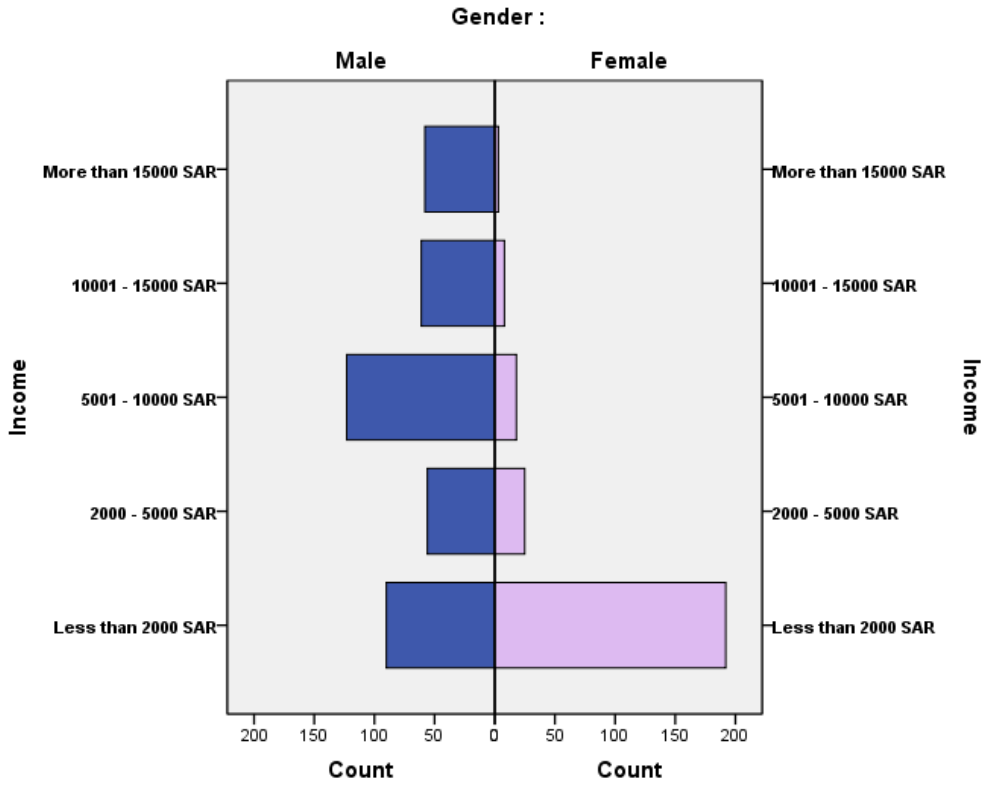

Figure 7-5: Monthly Income Distribution by Gender

As Figure 7.6 shows, the majority of the respondents were students, at 41.96 per cent. The percentage of the public sector employees was 31.2 per cent, and the percentage of private sector employees was 17.8 per cent based on the research sample.

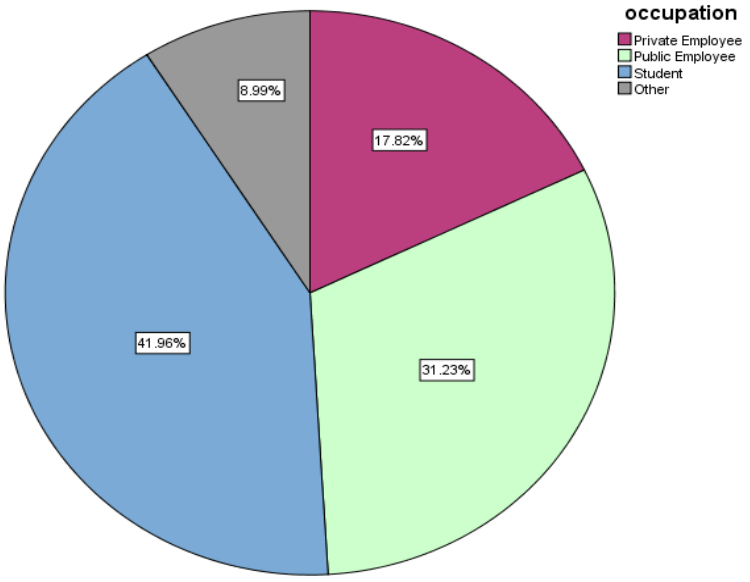

Figure 7-6: Occupation Distribution

7.5 ICT Characteristics of the E-Government Adopters

The following provides a general overview of the e-government adopters in terms of their ICT characteristics, such as computer experience, Internet experience and e-government experience.

7.5.1 Computer Experience

More than three-quarters (78 per cent) of the respondents from the e-government adopters had more than five years of computer experience, as shown in Figure 7.7. Approximately 17 per cent of the respondents had three to five years of computer experience, and five per cent had less than three years of computer experience.

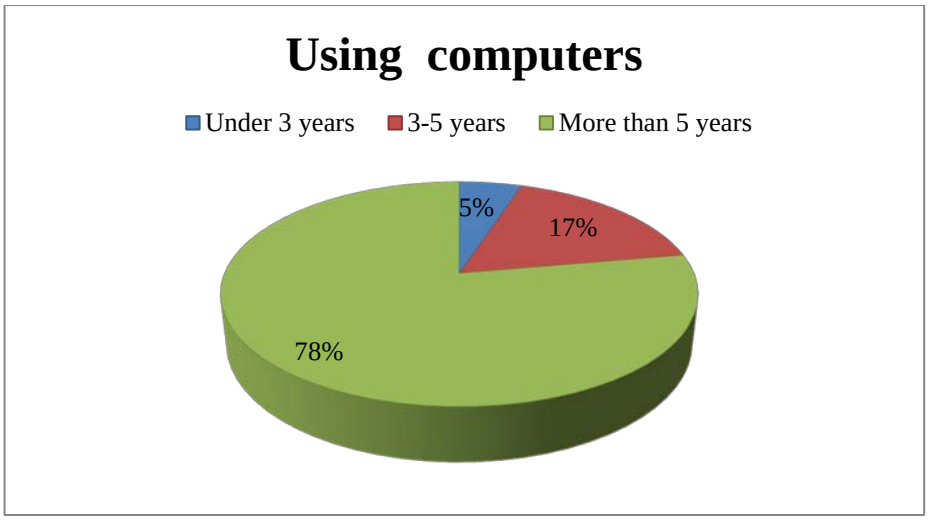

Figure 7-7: Computer Experience Distribution

7.5.2 Internet Experience

As shown in Figure 7.8, the majority of the respondents (76 per cent) of this sample accessed the Internet several times a day, 10.4 per cent accessed the Internet a few times a week, 9.3 per cent accessed the Internet once a day, and 4.2 per cent accessed the Internet a few times a month.

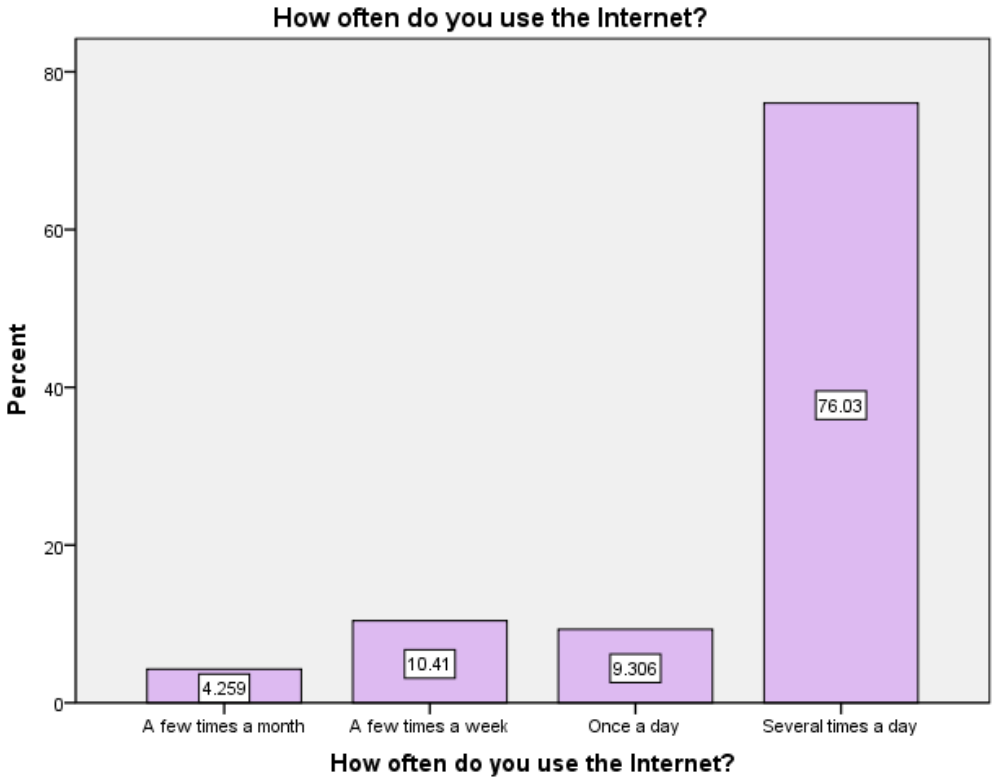

Figure 7-8: Internet Experience

As shown in Figure 7.9, the majority of the 634 participants of both genders were using the Internet several times a day. This indicates that the online experience is at a high level for both sexes in Saudi society.

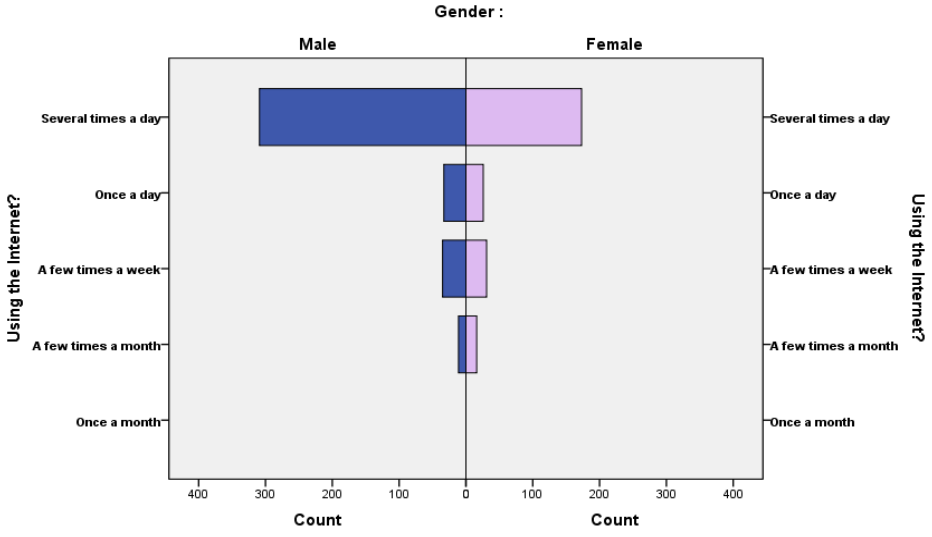

Figure 7-9: Internet Experience Distribution by Gender

7.5.3 Type of Device

As shown in Figure 7.10, a laptop is the device most used by respondents, at 86.6 per cent. Desktop computers and mobiles are used by 29.7 per cent and 26.5 per cent respectively.

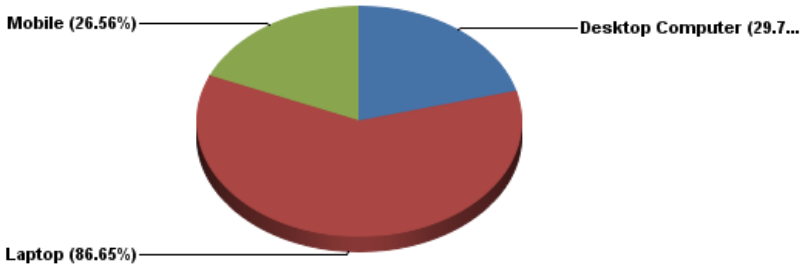

Figure 7-10: Type of Device Used

7.5.4 Type of Connection

Most respondents use a wireless connection (72.9 per cent) when using the Internet and e-government sites, and 27.1 per cent of respondents use a fixed-line connection, as shown in Figure 7.11.

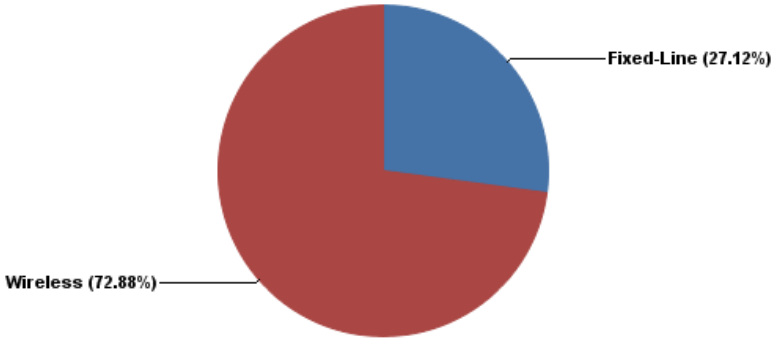

Figure 7-11: Type of Connection Used

Figure 7.12 shows that less than half of the participants in this study learnt about the e-government service through the Internet, at 39.59 per cent of the sample. The second most common way of learning about it was through mass media, at 25.24 per cent, and the participants who learnt about e-government services from the Saudi government did not exceed 18 per cent of the sample. This indicates the extent of deficiencies in the government sectors in Saudi Arabia in deploying the e-government service to citizens.

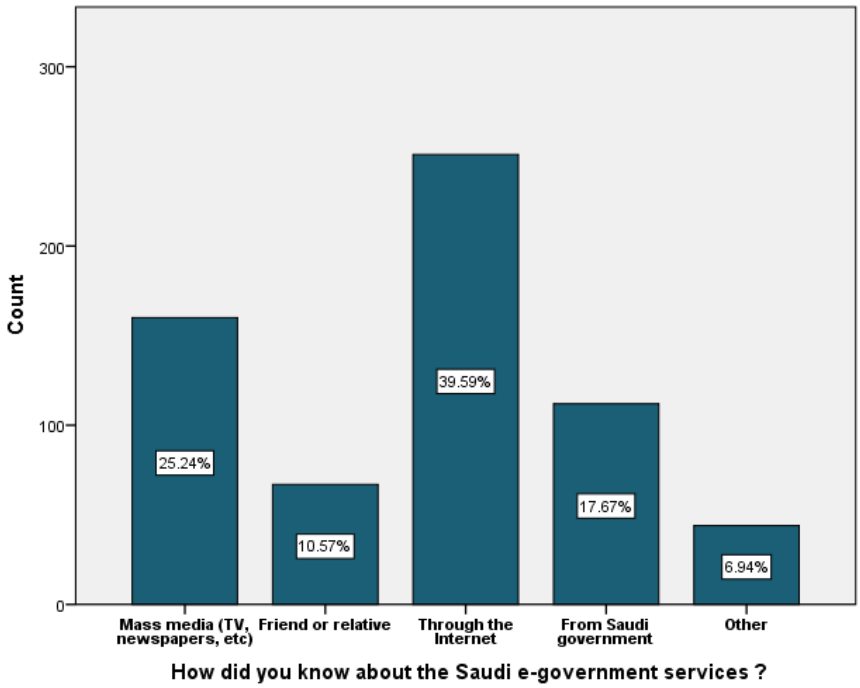

Figure 7-12: Ways of Learning about E-Government by Participants

7.6 Testing the Assumptions of Data Analysis

After collecting the data and before proceeding and starting on the analysis of the quantitative data, two assumptions tests were conducted to meet the requirements of data analysis. The first was outliers testing, which refers to observations with values that are distinctly different from those of other responses in the collected data. Outliers need to be avoided because they can artificially inflate or deflate estimates. In this study, outlier detection was carried out prior to conducting advanced data analysis. It is an essential stage for validating the measurement model and presenting the SEM by eliminating the effect of outlier cases.

The second test was normality testing, which was necessary to investigate the multivariate normality of the sample data. Normality occurs at the univariate level when each individual variable or at the multivariate level when a combination of two or more variables have a normal shaped distribution (Hair & Anderson, 2010). Normality can be examined by examining the data histograms and checking the values of kurtosis and skewness. The data are considered to be normally distributed if they are bell shaped, and

values of kurtosis and skewness are close to zero. Values above zero indicate that the distribution is relatively peaked, and values below zero indicate that the distribution is relatively flat. As a rule for evaluating whether or not there are normality issues, the index of skewness is an indicator of normality providing that its absolute value is no greater than 3.0 and the absolute value of kurtosis does not exceed 10.0 (Hair & Anderson, 2010; Kline, 2011). The variables exhibited acceptable levels of normality, within the suggested range, as shown in Table 7.1.

Table 7-1: Assessment of Normality

Variables	Kurtosis	Skewness
Performance Expectancy	1.861	–1.137
Effort Expectancy	.485	–.371
Social Influence	.721	.006
Facilitating Conditions	–.064	–.349
Privacy	–.249	–.725
Trust	–.43	–.326
Behavioural Intention	1.491	–1.086
Saudi Culture	3.773	–.569

7.7 Structural Equation Modelling (SEM) and Confirmatory Factor Analysis (CFA)

For this study, SEM was used for the following reasons: (1) it enables researchers to conduct CFA to assess instruments resulting from the previous phase (Kelloway, 1998) and (2) it provides a unique analysis that considers all questions of measurement and prediction at the same time (Kelloway, 1998).

SEM is a statistical technique that allows the researcher to examine multiple interrelated dependence relationships in a single model (Hair et al., 2007). There is agreement that all the structural equation models involve two aspects: first, an estimate of the multiple interrelated dependent relations between variables and, second, the ability to construct

latent variables while accounting for estimated measurement errors associated with the imperfect measurement of variables. This is particularly useful when a dependent variable in one equation becomes an independent variable in another equation. SEM has become an increasingly popular tool for researchers to validate theoretical models (Gefen, Straub, & Boudreau, 2000)

AMOS, a software package for analysis of SEM, was used in this study because it is compatible with the SPSS program that was used for the previous analysis.

CFA is an SEM application. CFA is used to validate hypothesised theoretical constructs (or factors) (Klein, 2007). In this sense, CFA measures the extent to which a set of observed variables (or items) represent the theoretical construct (or factor) they purport to measure. Combining the CFA results with construct validity tests enables researchers to gain a better understanding of the quality of their measures. CFA aims to identify a number of items that can explain all of the hypothesised constructs (or factors) in the study. Each item can be explained by the construct that represents it, and can be explained through so-called path loading. Following this, the measurement model was developed, which specifies the relationships between the observed variables (or items) and latent variables or hypothetical constructs (factors). Issues of reliability and validity of the observed and latent variables were also identified. This was done before fitting the structural equation model, in which relationships between the hypothetical constructs (or latent variables) were specified.

This study conducted EFA in the pilot study, which befitted to explore the factor structure (how the variables relate and group based on intervariable correlations). At this late stage of the analysis, the CFA confirmed the factor structure that was extracted in the EFA.

7.8 Scales Reliability

Reliability was used in the research to assess the internal consistency of the constructs. Straub (1989) stated that reliability concerns the stability of construct measures each time data are collected from the same sample of subjects. In other words, it is the ability

to have the same or close to the same research results every time the research is applied within the sample.

The reliability function in SPSS was used to test the internal consistency for the items of each construct's measure in the survey. Cronbach's alpha was used to measure internal consistency for survey and research variables based on sample estimation. Researchers suggest 0.7 as the accepted cut-off (Hair & Anderson, 2010). Table 7.2 shows the Cronbach's alpha value for each scale.

Table 7-2: Reliability of Scale

Construct	Subdimension	No of Items	Cronbach's Alpha
Saudi Culture	Power Distance	15	.817
	Individualism/Collectivism		.742
	Masculinity/Femininity		.852
	Uncertainty Avoidance		.833
Performance Expectancy		5	.909
Effort Expectancy		5	.733
Social Influence		3	.797
Facilitating Conditions		5	.805
Privacy		6	.833
Trust		5	.882
Behavioural Intention		3	.806

7.9 Goodness-of-Fit (GIF) Metrics

Once the SEM requirements are assessed, the next step is to assess and validate the overall fit for the measurement and structural models. There are several and varied fit measures used to verify the degree to which the hypothetic model can fit to the data. These fit measures or fit indices are grouped together based on their characteristics and the information they reflect about the fit. Hair and Anderson (2010) state that each category of goodness-of-fit (GOF) measures assesses the model from a different perspective.

To achieve GIF for the empirical data, both the measurement and structural model should meet the requirements of selected metrics. There is a variety of fit metrics available to researchers. The fit metrics can be classified into one of three types: absolute fit indices, incremental fit indices and parsimony fit indices (Schumacker & Lomax, 2004).

Absolute fit indices determine the congruence between a model's fit and the invariance–covariance matrix of the sample data without comparing the model's fit to other models (Kline, 2011). The most common and important index of the absolute fit measures is the chi-square x^2 statistic; x^2 indicates a good fit model when the associated p-value with x^2 is insignificant (Gefen et al., 2000). The model is considered a good fit to observations when the difference between the sample and estimated covariance matrices are close. However, the literature shows that the chi-square is extremely sensitive to a large sample size and model complexity (Hair & Anderson, 2010). The data collected in this study include more than 200 cases; therefore, it would be dispensing with x^2 when show a statistically significant, especially when the other indices show better fit for the model.

Usually normed x^2 is used as an alternative measure to mitigate the effect of sample size by dividing the chi-square by the degrees of freedom x^2/df where a value less than 3.0 is an indicator of better fit and sometimes less than 5.0 is permissible (Hair & Anderson, 2010).

Other metrics included in this category are the root mean square error of approximation (RMSEA), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the root mean square residual (RMR) and the standardised root mean square residual (SRMR). A value close to 1.0 for GFI and AGFI fit measures is an indicator of GIF, and a value close to zero for RMSEA and SRMR is an indicator of badness of fit.

Incremental fit indices, relative fit indices or comparative fit indices measure how much better the fitted model is compared with some baseline model. Most often, the baseline model used for comparison is the null model or independence model, in which the only model parameters are the variances of the observed variables. This implies that all variables are uncorrelated with the null hypothesis. Incremental fit indices computed by

AMOS include the normed fit index (NFI), the comparative fit index (CFI), the incremental fit index (IFI) and the Tucker-Lewis index (TLI).

Parsimony fit indices determine how well a model fits the sample data by taking into account the complexity (i.e. number of estimated parameters) of the hypothesised model in the assessment of overall model fit (Mulaik et al., 1989). In other words, it is common to add parameters to the estimated models until they fit the data. It is important to ensure that the large number of parameters of the model and its complexity are not the reason behind the high level of fit of the model. This type of index includes the parsimony goodness-of-fit index (PGFI), the parsimonious normed fit index (PNFI) and the parsimony ratio (PRATIO).

In the literature, despite the difficulty of decisiveness in the selection of the most effective index, statistical studies provide some guidelines that intersect or are consistent in judging the quality of some of the indices and vary in judging the effectiveness of some of the other indices (Boomsma, 2000; Diamantopoulos & Siguaw, 2000; Hu & Bentler, 1999; Kline, 2011; McDonald & Ho, 2002; Schreiber, Nora, Stage, Barlow, & King, 2006). Given these evaluation studies, it is found that some statistical fit indices won the recommendation to be used in assessing and reporting model fit. GIF indices provide different aspects of a model's evaluation. Thus, it is recommended that multiple indices be employed to provide insightful and informative characteristics of the assessed model. Therefore, at least one GIF item should be utilised from each class of fit index because each fit index presents a different angle of the fit of the model.

In this study, the indices that ought to be used to evaluate the CFA and structural model are shown in Table 7.3, along with their acceptable levels. GIF is inversely related to sample size and the number of variables in the model. Thus, the thresholds in the table are simply a guideline based on recommendations by Hair and Anderson (2010), Hu and Bentler (1999), Kline (2011), Reinard (2006) and Garson .

Table 7-3: Fit Indices Used to Evaluate CFA and Structural Model

Fit Index	Acceptable Level
Chi-square x^2	
P-value for the model	> 0.05
CMIN/DF (normed chi-square (x^2/df))	< 3 good; < 5 sometimes permissible
RMSEA (root mean square error of approximation)	< 0.05 good 0.05 to 0.10 moderate > .10 bad
SRMR (standardised root mean square residual)	< 0.10
GFI (goodness-of-fit index)	> 0.90
AGFI (adjusted goodness-of-fit index)	> 0.80
CFI (comparative fit index)	> 0.95
PRATIO (parsimony ratio) * used for model adding more parameters	>= 0.5 closer to 1 better

7.10 Instrument Refinement and Validation

Validation of the factor structure was made using CFA for each construct (or factor). This provides a better understanding of what items truly measure the factors identified in the research model. CFA was conducted on all the variables to check whether all items load significantly on their respective (or hypothesised) variable, and whether they provide a more satisfactory account of the model fit. Model fit refers to how well the research model accounts for the correlations between variables in the data sample. Items were dropped in many cases on the basis of the variance explained, the path loading and the standardised residual value, and the factor structure was gradually refined and revised based on significant findings from the multiple model runs. The model fit was good and falls within the acceptable limits as shown in Table 7.4.

From the analysis, congeneric models for each construct were tested prior to analysing the structural model. The item loadings lower than 0.5 were excluded from further analysis. Appendix G shows the CFA for each construct (factor).

Table 7-4 Overall Fit Indices of Congeneric Models

Construct	Chi-sq.	P-value	CMIN/DF	RMSEA	SRMR	GFI	AGFI	CFI	PRATIO
Performance Expectancy	3.923	.416	1.1	0.000	0.0173	0.998	0.991	1	-------
Effort Expectancy	6.178	.103	2.0	0.041	0.031	0.996	0.981	.998	-------
*Social Influence	0.0	0.0	-------	-------	0.000	1.00	---------	1.00	-------
Facilitating Conditions	5.906	.206	1.477	0.027	0.0120	0.996	0.986	0.998	-------
Privacy	7.382	.117	1.846	0.037	0.0202	0.995	0.983	0.998	-------
Trust	2.942	.086	2.121	0.055	0.0329	0.998	0.972	0.999	-------
*Behavioural Intention	0.00	0.00	-------	-------	0.000	1.00	----------	1.00	-------
Saudi Culture	269.881	0.00	3.7	0.056	0.0526	0.951	0.934	0.979	0.791

*The model has zero degrees of freedom. The model should fit the data perfectly, and the chi-square statistic should be zero. Consequently, no probability level can be assigned to the chi-square statistic. The model is untestable.

7.11 Measurement Model (with All Constructs)

The research model (see Figure 7.13) consisted of an endogenous construct (i.e. behavioural intention [BI]) which was theorised to be determined directly by seven exogenous constructs (i.e. performance expectancy [PE], effort expectancy [EE], social influence [SI], facilitating conditions [FC], privacy [Pr], trust [Tr] and culture [Cu]).

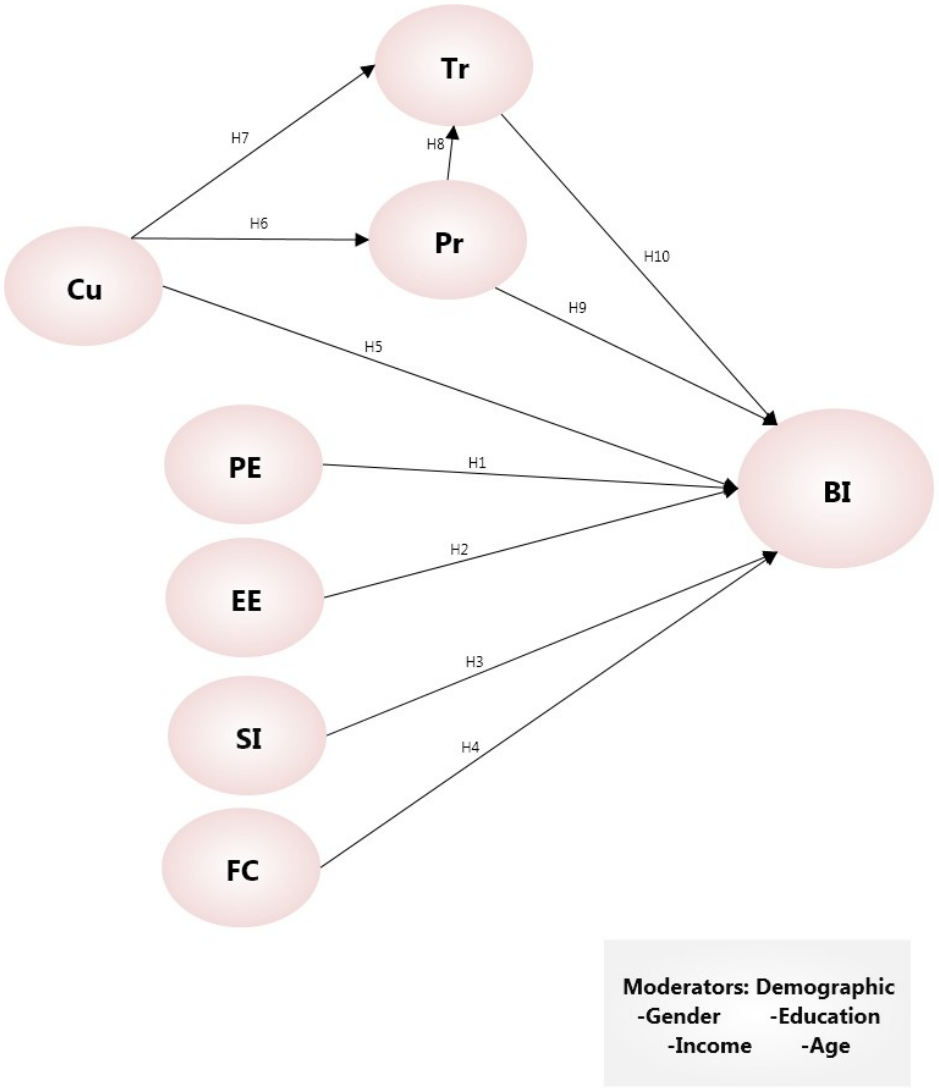

Figure 7-13: A Conceptual Model of User Acceptance of E-Government Services

Before proceeding to estimate the path coefficients and overall model fit of the hypothesised structural model, a CFA was used for all latent variables to confirm the factor structure of each individual variable. The model fit was good and falls within the acceptable limits except chi-square. As discussed earlier, chi-square is sensitive to sample size and is not recommended in such situations. The alternative index is normed chi-square (CMIN/DF) and it shows a good fit for the estimated model of 1.912, which is below the common recommended value of 3, indicating a better overall fit of the proposed model. The measurement model was run with all the latent variables. Table 7.5 shows the overall fit indices for the measurement model with all constructs.

Table 7-5: Overall Fit Indices of Measurement Model with All Constructs

Chi-sq.	P-value	CMIN/DF	RMSEA	SRMR	GFI	AGFI	CFI	PRATIO
1648.4	0.00	1.912	0.038	.0541	0.901	0.875	0.959	0.911

7.12 Validity Analysis

Before proceeding to test the final structural model, the next step of the researcher is to calculate convergent and discriminant validity. There are a few measures that are useful for establishing validity and reliability: composite reliability (CR), average variance extracted (AVE), maximum shared variance (MSV) and average shared variance (ASV). The thresholds for these values as suggested by Hair and Anderson (2010) are shown in Table 7.6.

Table 7-6: Recommended Measures for Model Validity and Reliability

Analysis Test	Recommended Criteria
Reliability	CR > 0.7
Convergent Validity	CR > (AVE) AVE > 0.5
Discriminant Validity	MSV < AVE ASV < AVE

If it has convergent validity issues, variables do not correlate well with each other within their constructs; that is, the latent factor is not well explained by its observed variables. If it has discriminant validity issues, variables correlate more highly with variables outside their constructs than with the variables within constructs; that is, the latent factor is better explained by some other variables (from a different factor) than by its own observed variables.

Table 7-7: Validity and Reliability Analysis

	CR	AVE	MSV	ASV
Facilitating Conditions	0.818	0.532	0.444	0.171
Performance Expectancy	0.910	0.669	0.452	0.139
Trust	0.878	0.596	0.184	0.070
Privacy	0.847	0.534	0.235	0.067
Culture	0.919	0.741	0.138	0.021
Social Influence	0.915	0.782	0.102	0.048
Behavioural Intention	0.913	0.778	0.138	0.021
Effort Expectancy	0.873	0.582	0.452	0.180

In this case, all the criteria were within acceptable limits and thus confirmed CR, the convergent validity and discriminant validity, as illustrated in Table 7.6.

For this study and based on Table 7.8, the researcher noted that the square correlation between any two constructs was less than their respective AVE. This was evidence of the discriminant validity of all constructs in the research model. Each construct was measured by specific items that had no effect on other constructs.

Table 7-8: Factor Correlation Matrix with Square Root of the AVE on the Diagonal

	FC	PE	Tr	Pr	CU	SI	BI	EE
FC	**0.729**							
PE	0.544	**0.818**						
Tr	0.370	0.261	**0.772**					
Pr	0.485	0.322	0.151	**0.730**				
Cu	–0.034	–0.022	–0.056	0.049	**0.861**			
SI	0.289	0.231	0.274	0.140	0.006	**0.884**		
BI	–0.021	–0.015	0.010	–0.084	0.371	–0.054	**0.882**	
EE	0.666	0.672	0.429	0.274	–0.062	0.320	–0.022	**0.763**

Once the overall fit of the model was established and the measurement model verified, the research could safely advance to analysing the structural model. The outcomes of the hypotheses are presented in the next section.

7.13 The Structural Model Analysis

The hypothesis testing required the development of a structural model with all eight factors that were assessed in the measurement model. In doing so, the overall fit of the structural model was evaluated using the aforementioned employed fit indices, as described in Table 7.3. The study then moved on to examining the hypothesised dependence relationships in the research model, as shown in Figure 7.13.

In SEM, the structural model test produces estimated path coefficients, t-values and standard errors, in which the first two figures reflect the strength of the relationship between predicator and dependent construct. The standard errors reflect the amount of errors in the path coefficient that are due to the sampling error (Hair & Anderson, 2010). The t-value is the critical ratio resulting from dividing the path coefficient by the standard error. The hypothesis relationship is considered significant when it exceeds a critical ratio of ±1.96 (significant at alpha (α) level 0.05) or ±2.56 (significant at alpha (α) level 0.01)

(Gefen et al., 2000). Moreover, the study must ensure that the resulting direction of the path coefficient is consistent with the proposed one in the structural model.

After the first analysis was run, the research model did not fully provide a good fit to the data. As shown in Table 7.9, the values of CMIN/DF, RMSEA and PRATIO indicate an acceptable fit to the data, but the SRMR, GFI, AGFI and CFI are below the recommended values.

Table 7-9: Fit Indices for the Research Model

The Fit Indices	Recommended	Research Model
Chi-square x^2		2841.145
P-value	> 0.05	0.00
CMIN/DF	< 3 good; < 5 sometimes permissible	3.196
RMSEA	< .05 good 0.05 to 0.10 moderate	0.038
SRMR	< 0.10	0.14
GFI	> 0.90	0.876
AGFI	> 0.80	0.762
CFI	> 0.95	0.897
PRATIO	>= 0.5 closer to 1 better	0.942

Figure 7.14 presents the SEM outputs and depicts a graphic representation of the structural model with the results of the hypotheses testing. As noticed, the paths from performance expectancy (PE), effort expectancy (EE), social influence (SI), privacy (Pr), trust (Tr) and culture (Cu) to behavioural intention (BI) were significant, but facilitating conditions (FC) to behavioural intention (BI) was not significant. In other words, facilitating conditions have no direct effect on the behavioural intention to use e-government services.

These parameters indicate that the model should be modified to fit the data better.

In modifying the research model, this study initially dropped the path that was not significant and then specified error covariances and direct paths between constructs based on modification indices, theoretical basis and qualitative data.

Non-significant parameters ($p \geq 0.05$), with the exception of error variances, could be considered unimportant to the model and were deleted from the model (Byrne, 2009). Thus, as noted in Figure 6.14, two paths were not significant and dropped: facilitating conditions (FC) to behavioural intention (BI) ($\beta = .06$; $p = 0.223$) and culture (Cu) to trust (Tr). The standardised regression weight for the relationship (β) was –.02 with $p = 0.594$.

Following modification, the indices were considered. This step examined whether there were any factor loadings or error covariances that have a large modification index (MI). A large MI indicates the presence of cross-loading between the factors or the errors, that is, a loading on more than one factor or error. Such indications suggest that the model could be improved by correlating the factors or the errors.

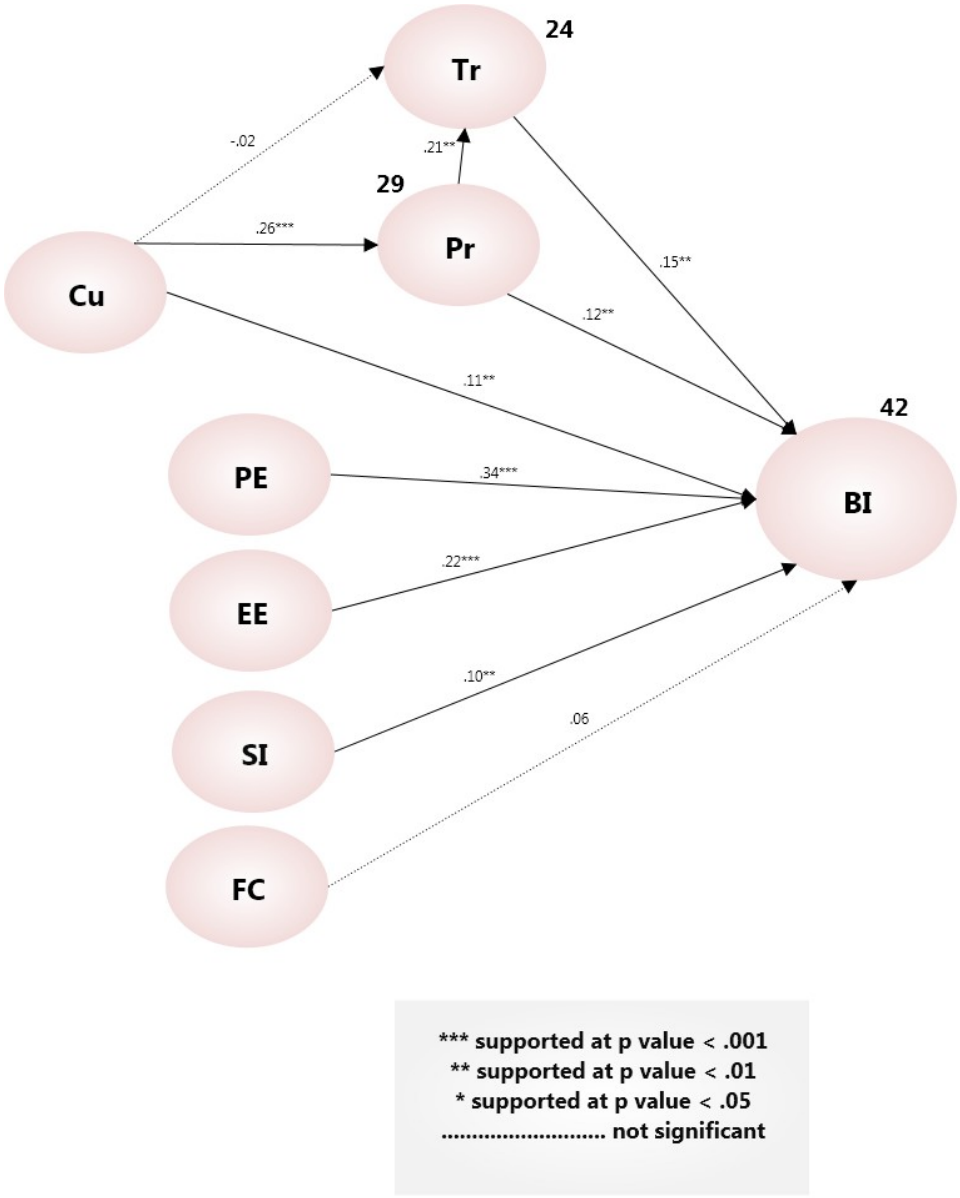

Figure 7-14: Evaluating the Research Structure Model

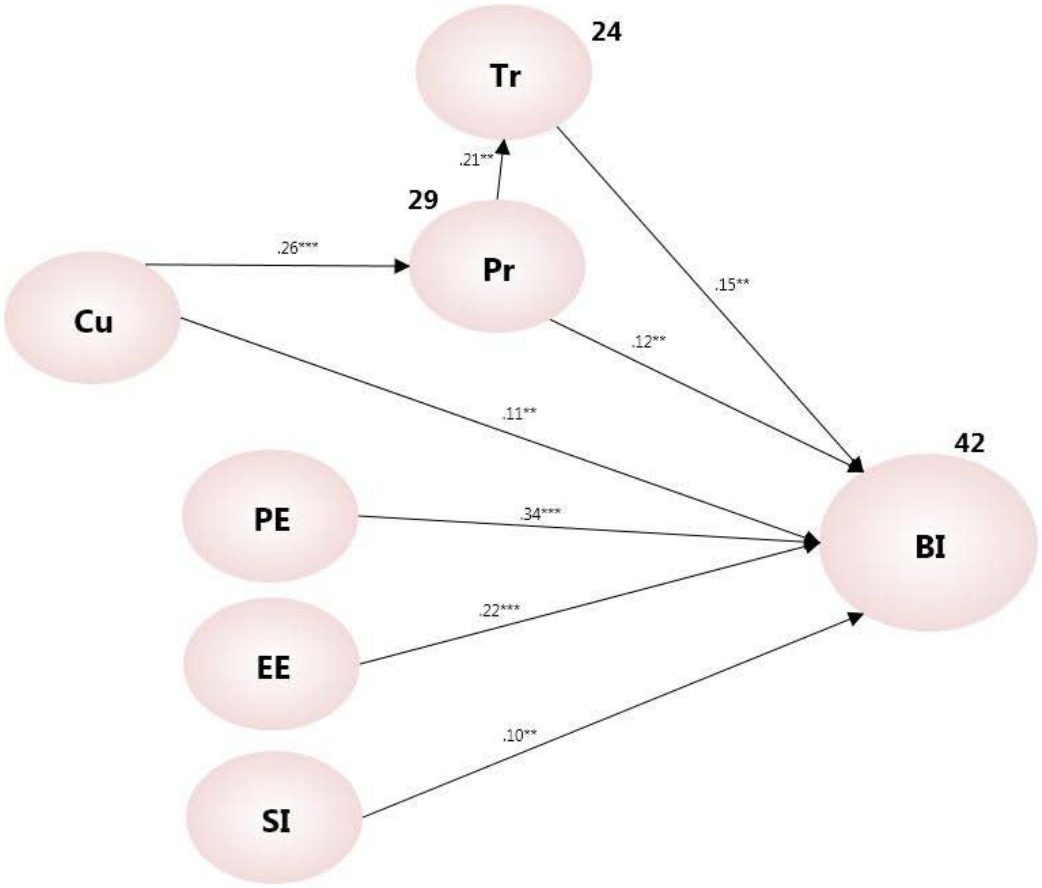

Figure 7-15: Research Model with All Significant Relationships Based on SEM Analysis

As presented in Figure 7.15, all paths are significant. The model accounts for 42 per cent of the variance in behavioural intention to use e-government services.

Table (7-10) summarises the estimation results of the structural model. The results show that four significant predicators explain this variance in behavioural intention: performance expectancy (PE), effort expectancy (EE), social influence (SI), privacy (Pr), trust (Tr) and culture (Cu). However, contrary to the designed hypotheses of this study, two relationships i.e. facilitating conditions (FC) with behavioural intention (BI), and culture with trust are rejected.

Table 7-10: Results of Hypotheses Testing in the Structural Model

Hypothesis	Path Coefficient	t-value CR	p	Empirical Support
H1: PE→BI	0.34	7.212	***	Accepted
H2: EE→BI	0.22	6.923	***	Accepted
H3: SI→BI	0.10	3.841	**	Accepted
H4: FC→BI	0.06	1.168	0.211	Rejected
H5: Cu→BI	0.11	3.112	**	Accepted
H6: Cu→Pr	0.26	5.128	***	Accepted
H7: Cu→Tr	– 0.02	3.774	0.594	Rejected
H8: Pr→Tr	0.21	3.121	***	Accepted
H9: Pr→BI	0.12	2.773	**	Accepted
H10: Tr→BI	0.15	2.939	**	Accepted

7.14 The Effect of Moderators

This section presents the effect of moderators on the research model as shown in Figure 7.13. The moderators investigated here are the demographic variables, in specific variables such as income, gender, age and education. The effect of these moderators on the relations among the variables in the model is investigated through multi-group analysis and measurement invariance. Measurement invariance, defined as the extent to which items or subscales have equal meanings across groups (French & Finch, 2006), is investigated

through two levels. The first level investigates the equivalence of the psychometric properties of the instrument (i.e. configural, metric and measurement error). The second level investigates group differences using latent means and covariance analysis. Multiple-group or multi-sample confirmatory factor analysis (MCFA) is a common method for examining levels of measurement invariance (French & Finch, 2006).

Using AMOS multiple-group covariance structure analysis to assess measurement invariance produces four levels of invariant output: measurement weights, structural weights, structural residuals and measurement residuals. Only the first two levels of invariance were checked for the purpose of this investigation.

When the measurement weights invariance is achieved, the next step is to check scalar invariance using mean and covariance structure (MACS) analysis to assess differences in mean scores or compare means between the two groups.

In cases in which the measurement weights are non-invariant, the next step would be to allocate the variant factor loadings (by constraining one factor equal at a time). In other words, measurement weight invariance answers for item-variable presentation in each model and item loading on related variables. This type of invariance is called metric invariance (Hair & Anderson, 2010). Hence, if measurement weights are not significantly different across the groups under investigation, it is assumed that the metric is reasonably non-invariant.

Prior to investigating the effect of the four demographic moderators, the dataset for these variables, except for gender, was recoded into two groups using the median split approach (Hair & Anderson, 2010) to enable or facilitate the running of the group analysis examination.

The sample was distributed into 388 males and 246 females for the gender moderator. Education was divided into A (less than bachelor degree) and B (bachelor and above), age was divided into A (30 and below) and B (31 and above), and income was divided into

income groups A (SAR 10,000 and below) and B (above SAR 10,000). Following the guidelines (Byrne, 2013; Hair & Anderson, 2010), the final structural model was applied, first to two groups for each moderator separately to examine if each group could achieve a model fit separately (Hair & Anderson, 2010). As illustrated in Table 7.11, all group models indicated good model fits.

Having reached an acceptable model fit for the two groups in each variable's moderator, a run of multiple-group analysis to assess factor structure equivalence for both groups simultaneously rather than separately was carried out. The path estimates for each demographic variable indicated that the first group and second group are similar.

The next step was to run the MACS analysis to test for mean score difference between the two groups while constraining the first group to be the reference group for each variable moderator. The result of invariance at the structural weights level indicated the structural paths were not significantly different between the two income, gender, age, and education groups. Thus, all the hypothesised demographic variables moderating effects were not supported for the research sample.

Table 7-11: The Results of All Moderating Groups of Model Fit

	Gender		Education		Age		Income	
The Fit Indices	**Male**	**Female**	**A**	**B**	**A**	**B**	**A**	**B**
Chi-square x^2	1608.145	1905.457	1313.760	1330	1371.121	1441.843	1250.514	1271.068
P-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CMIN/DF	1.866	1.398	1.524	1.543	1.591	1.673	1.451	1.475
RMSEA	0.042	0.040	0.044	0.055	0.040	0.060	0.040	0.058
SRMR	0618	0.0559	0.0621	0.0695	0.0555	0.778	0.0622	0.0676
GFI	0.923	0.918	0.922	0.913	0.936	0.925	0.934	0.927
AGFI	0.894	0.861	0.860	0.860	0.825	0.867	0.857	0.842
CFI	0.987	0.968	0.980	0.980	0.988	0961	0.976	0.989
PRATIO	0.911	0.911	0.878	0.911	0.912	0.911	0.911	0.911

7.15 Summary

The main purpose of this chapter was to discuss the quantitative analysis of research including the process of data preparation and the descriptive statistics. An assessment of validity and reliability was carried out and the research model validated using the advanced statistical approach SEM. CFA was employed to carry out this analysis using AMOS 20 software. The overall measures of the measurement model were established by exceeding all the threshold values suggested by the literature. The results also showed that all the constructs satisfied the criteria of reliability, convergent and discriminant validity. In terms of the structural model, the results showed that all the fit measures satisfied the recommended threshold values, providing a model well fit to the data. This was followed by identification of the significant paths and revealing of the supported hypotheses as the second step to validate the model.

The path estimations test showed that the path relationships were found to be significant and two paths were not supported. Finally, the chapter reported the effect of moderators on the research model sample. In this chapter, the third and fourth research questions were answered. The next chapter discusses the qualitative analysis of research.

Chapter 8: Qualitative Analysis

8.1 Overview

The purpose of this chapter is to present the results of the analysis of semi-structured interviews conducted with key e-government officials in Saudi Arabia. The aim of conducting these interviews was to complement the findings of the questionnaire survey. Because they are the people who are responsible for e-government planning, development and management in Saudi Arabia, government officials from the e-government program in Saudi Arabia of MCIT, Yesser, were interviewed to explore important issues of e-government adoption in Saudi Arabia from a managerial perspective. The officials were in charge of different aspects of e-government such as e-services development, strategic planning, change management, quality assurance and security issues. The methods used to collect and analyse interview data were explained earlier in the research methodology and design chapter (see Section 5.8).

8.2 Background

In 2003, the name of the Ministry of Posts, Telegraphs and Telephones (MoPTT) was changed to the Ministry of Communications and Information Technology (MCIT). This change reflects the attention given by the Saudi government to the communications and IT sector. The main aim of MCIT is to guide Saudi Arabia's transformation into a knowledge-based economy that contributes to the socio-economic development. MCIT is the policymaker for ICT in Saudi Arabia. MCIT was also assigned to take the lead role in implementing the e-government program in Saudi Arabia. Accordingly, the e-government program Yesser was established in 2005 to manage, facilitate and implement e-government services. Figure 8.1 presents Yesser's organisation chart, including the e-government program. Table 8.1 shows the departments and positions of the e-government officials who were interviewed.

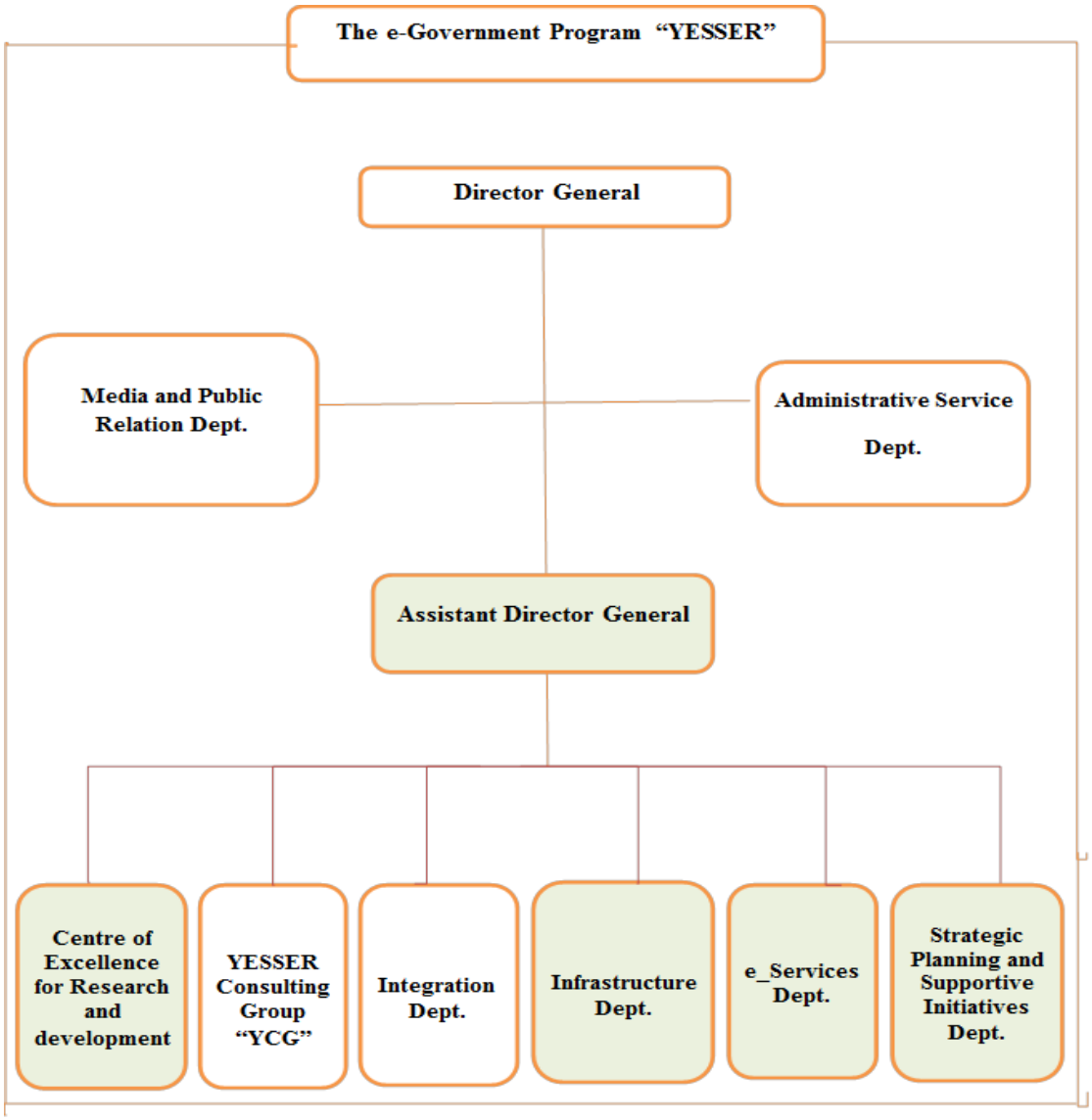

Figure 8-1: Organisation Chart of Yesser

Table 8-1: E-Government Program Officials Who Were Interviewed

Interviews#	Position
IN1	Assistant Director-General
IN2	Director of Strategic Planning and Supporting Initiatives
IN3	Director of E-Services Department
IN4	Director of Strategic Planning
IN5	Quality Expert
IN6	E-Channels Improvement Manager
IN7	E-Services Project Manager

8.3 Reliability and Validity of the Interviews Analysis

To assess the reliability of information obtained in individual interviews, the researcher asked participants to repeat some key points later in the interview. In addition, important information obtained in one interview could be assessed and tested in subsequent interviews by asking about similar experiences.

The validity of information obtained from interviews can be assessed by comparison with other sources of data. In our case, this was generally achieved by comparing the interview findings with the results of the survey.

8.4 Interview Data Analysis

The iterative data analysis model of Miles and Huberman was followed through the four phases of data collection, data reduction, data display, and drawing and verifying conclusions (Miles & Huberman, 1994). In this study, the NVivo package Version 10 from QSR International was used to analyse the interviews. NVivo is a software application that can be used by researchers to manage and analyse qualitative data such as interview transcripts.

8.4.1 Phase 1: Data Collection

The researcher utilised his own notes taken during the interviews to test and correct any distorted data resulting from the audio recordings. Moreover, to achieve the best possible degree of accuracy of the collected data, the transcribed interviews were sent back to the interviewees for them to review and comment on before conducting the qualitative analysis of these interviews. This is another way of checking the validity of information obtained from interviews mentioned above.

8.4.2 Phase 2: Data Reduction

Data reduction refers to the process of selecting, simplifying and transforming data that appear in the original documents (Miles & Huberman, 1994). The main aims of data

reduction are to report and summarise what the interviewees have declared, and to enable the detection of free nodes, which is the process that takes place during the open coding in the data display phase.

8.4.3 Phase 3: Data Display (Open Coding)

At this stage, the interview data within each transcript were grouped by their questions before importation into NVivo10. When imported into NVivo, these questions formed section headings within NVivo, allowing data from the seven interviews pertaining to each question to be collated together. The purpose of this process was to link the answers to any given question in the interview, allowing the researcher to effortlessly scan through the interview data in relation to any question, and highlight the differences.

Following coding answers to questions, data were analysed line by line to extract every possible piece of information; this is the process of open coding. Subsequently, 18 free nodes were extracted from the seven interviews. Not all questions were directly answered by the interviewees, so there was an ample amount of data with a variety of free nodes.

The result of this phase was three core categories representing the interpretive themes that dominated the thoughts of the interviewed e-government officials. These three themes, which are shown in Table 7.2, categorised all the free nodes. The researcher selected the relevant interviewees' verbatim quotes into the free nodes; however, they were edited, using the researcher's personal notes taken during the interviews. Included in square brackets are the researcher's words to clarify the meaning of each phrase.

The details (i.e. free nodes) of each of these three categories can be synthesised to interpret what the senior managers explained about e-government in Saudi Arabia. For example, some of these details confirm a number of the factors that influence citizens' adoption of e-government that were deduced from the literature review and further validated through the quantitative study. Examples of these factors are culture, trust and privacy. This is discussed further in the following sections.

Table 8-2: Free Nodes Assigned to Themes Representing E-Government in Saudi Arabia

Themes	Free Nodes
Current and future e-government services in Saudi Arabia	• Importance of Yesser (e-government program) • SADAD project as gateway • E-government services are too late • Most of e-government website are inquiry services • Some transaction services • Now in second action plan improving e-government services
Main challenges facing e-government	• Change management • It is a process of changing thinking (Culture) • E-services integration between government sectors • Privacy concept
Factors that affect citizens' adoption of e-government	• Citizens' awareness • Trust • Citizens' privacy • Culture • Age • Service quality • Social influence • Ease of use

8.4.4 Phase 4: Drawing and Verifying Conclusions

In this phase, themes and connections were used to develop a list of key points and important findings that were discovered as a result of categorisation and sorting of the data. The following sections provide a presentation and brief discussion of these key points and findings.

8.5 E-Government Program Importance

The qualitative research emphasised and confirmed the findings in the literature discussed in Chapter 3 (see Section 3.11) about the objectives of the e-government program Yesser.

Interviewee (IN1) stated about the role of Yesser, 'Yesser is to combine connecting governmental institutions and to make it easy to transfer to e-government services'.

The same interviewee continued:

> One of the roles of the e-government program [Yesser] is to provide shared e-government services that can be used by all public organisations, for example, the SADAD project, which is a centralised payment system that aims to facilitate and accelerate all payments over all electronic banking channels, such as branches, ATM, phone and Internet banking. It acts as a gateway and linkage between all banks, government and business organisations to facilitate financial transactions that should enable users to use the service and complete any payment transaction with any organisation that is already registered with SADAD. Our job is to provide plans and general directions for using these channels by the public organisations to provide services to the public.

Interviewee IN5 explained the purpose of Yesser:

> The purpose of Yasser is to be a link between the customer and governmental institutions, whether for citizens or residents. Yesser is trying to make it easy to communicate with governmental institutions and motivate them at the same time by providing such communication between institutions.

According to interviewees, the e-government services are still not at a satisfactory level in terms of providing the services. Most of the e-government websites are informative, and the available e-services are simple. In this regard, interviewee in IN5 stated:

> From my point of view, we are too late in Saudi Arabia in terms of providing such services; also, the current services do not cover the actual needs of citizens.

Interviewee IN1 corroborated this view by saying:

> Regarding the available e-services, inquiry services are more than 88 per cent of total services in e-government services whereas transactional services include about 150 services. However, we are in the second action plan and we are working on developing e-services from inquiry to transactional and integrated.

8.6 Challenges Facing E-Government Implementation and Adoption

Despite the progress that has been made, a number of challenges were encountered in the early stages of the e-government program. Based on the qualitative approach with the e-government officials, the following describes the main challenges of e-government implementation in Saudi Arabia.

Implementing e-government introduces new channels for providing and processing governmental services. Therefore, interviewees agreed on the importance of proper change management during the transition process. However, this requires creating awareness among e-government stockholders for them to become familiar with this new shift. One of the interviewees pointed out:

> The idea of change management in the area of e-government is to help the government organisations, government employees, as well as e-services receivers, to get familiar with the new changes which are associated with the implementation of e-government services. Both government organisations and citizens are familiar with the traditional way of delivering the services (i.e. face to face). However, when introducing new channels to provide e-services, we need to help those stakeholders to get familiar with the new situation. This, of course, requires creating awareness among them about e-services. (Interviewee IN4)

Interviewee IN5 confirmed this challenge facing the e-government program in Saudi Arabia:

> The main challenge comes from the resistance to change from top management in some governmental organisations. Let me say that there is good acceptance from some organisations, but there is resistance from top and intermediate management in others.

Another interviewee (IN1) supported and commented on this issue:

> There are stages and services that must be provided as bases for transferring to e-service transactions because such a transfer is a process and not a project. It is a process of changing thinking, methodology, work procedures and communication channels with users of e-government services.

Another issue, according to the correspondence between the researcher and the director-general of the e-government program (Yesser) was about the e-government challenges as shown in Appendix D. The director-general of Yesser stated that there are two main challenges. The first is the e-services integration between government sectors. The second is the privacy concept, which he feels is in conflict with e-government services. This research addressed the privacy issue as the main factor to affect e-government adoption.

8.7 Factors Affecting Citizens' Adoption

The interviewees reported several factors affecting citizens' adoption of e-government services in Saudi Arabia. The following presents these factors.

8.7.1 Citizens' Awareness

Interviewees stressed the significance of heightening citizens' awareness of the available e-government services, the benefits of using them and the government efforts to make its e-government services trustworthy. This will boost their trust in these services and, therefore, increase their intention to use them. For example, interviewee IN7 highlighted this issue:

> It requires us to create awareness among citizens and clarify the usefulness of these services. Also, we will increase citizens' trust in e-government services by explaining to them that delivering online services will make things easier for them and they will be 100 per cent secure. Thus, there is no reason for concern.

Interviewee IN3 agreed on the importance of concentrating on creating awareness among citizens of how using e-government information and services could save their time and money:

> Currently, in my opinion, Saudi citizens according to their existing culture prefer to get the face-to-face service from the government counters. But, we want to change this culture by building awareness among them regarding the benefits of using online services, for example, how the use of online services could save them time and money. We have a plan to promote and advertise our e-government through posters and other channels such as TV. We will educate citizens about the objectives of e-government services, the online services that we already have, and its benefits and so on.

8.7.2 Trust

All interviewees agreed on the importance of citizens' trust as one of the main factors that affects their intention to use e-government services. The lack of trust, according to interviewees, is considered one of the main barriers to e-government adoption in Saudi Arabia.

Therefore, increasing citizens' trust in e-government services is viewed by the interviewees as a vital factor to increase the rate of e-government adoption. For example, in this regard, an interviewee stated:

> We need also to build the trust in these services, especially when the citizen is required to pay over the Internet. For instance, when a citizen wants to get a new passport or renew his passport by using the e-government portal, this may require payment through the Internet. Therefore, it's very important to ensure

> that the online payment system is secure, and in case of any problems, the citizen will not lose his money. (IN6)

In this study, the concept of trust is a response of citizens to the government's efforts to be trustworthy. In this regard, interviewees indicated that increasing citizens' trust requires that the government make its e-services trustworthy by implementing information security and privacy policies on the government websites:

> I think that this trust can be built by taking some actions; for example, in case of providing a governmental email with a name for a citizen that cannot be changed at all for purposes of safety, not to use Gmail, Hotmail and others; whereas trust is a very important factor. But how to acquire the trust of the people, it is by your providing of some services that make the services related to the government, for example, by claiming that a website is sponsored by a specific ministry that is responsible for its actions; however, no one could trust a personal website. Moreover, the governmental institution must be the only authorised party for changing your password, for example, and not anyone else, also to confirm your password by sending a message to your mobile. We believe that security is very important to increase citizens' trust in e-government services. Because security is the most important factor to boost trust.

8.7.3 Privacy

As mentioned above, privacy is one of the main challenges for e-government adoption and implementation, especially in Saudi Arabia. In a letter, the director-general of the e-government program Yesser explained that privacy is the main challenge facing e-government adoption. Moreover, interviewees showed clearly that privacy is one of the affecting factors in the progress towards the adoption of e-government services. Interviewee IN4 stated:

> We have been delayed in understanding and awareness of the concept of privacy. It is considered one of the important obstacles in the adoption of e-government services.

In addition, interviewee IN7 stated that information that privacy is in the Saudi citizen culture; it is one of the influencing factors in using e-government services.

> Privacy plays an important role; some people consider the name of your wife as a private matter according to our culture. The issues related to wife or daughters photos in passports, for example, is an evil matter that cannot be avoided; the problem is with abuse in this regard; the program must be aware of the culture of the community and not provide the service in an inappropriate or inacceptable way, it must consider the privacy. (IN7)

In addition, interviewee IN1 confirmed that it is an important factor in the acceptance by citizens and their intentions to use e-government services. Therefore, it is necessary

to find solutions, including good communication with citizens and users of e-government services:

> I don't think that we have communicated with users in a way that can convince them that their privacy is preserved in your dealing with e-services; we have to explain about the available methodology for preserving users' privacy because this will form a positive aspect that increases the use of e-services. (IN1)

However, interviewee IN7 played down the effect of privacy by saying:

> Maybe it is a factor that affects a few people, but not the majority of the people; however, I don't think it will be very effective. It differs from one place to another and from one generation to another; I think, for example, that here in Saudi Arabia, privacy is not an important issue in the Middle, East and West regions of the Kingdom; however, it may be a critical factor in the southern areas that in small cities.

8.7.4 Culture

The national culture is one of the factors that affect the widespread use of e-government in Saudi Arabia. Citizens prefer the traditional face-to-face way to obtain government services, as indicated by one of the interviewees:

> Currently, in my opinion, Saudi citizens according to their existing culture prefer to get face-to-face service from the government counters. But, we want to change this culture by building awareness among them regarding the benefits of using online services. I strongly believe that changing citizens' culture is crucial for the widespread use of e-government. (IN6)

Interviewee IN1 also felt that Saudi culture in particular is one of the determinants of citizen adoption of e-government services.

> Saudi culture is a very important factor affecting individuals using e-services because the Saudi people are dedicated to their religion and teachings of Islam; although there are some negative behaviours by some of the people; had the Saudi people recognised the benefits of such services, in terms of saving money and spending it in other good aspects and not spending it in vain.

8.7.5 Age

Interviewee IN5 noticed the difference in the ages of people who are using e-government services, saying:

> Most of those who apply to e-services are young people because the old people face problems in this aspect; many old people are educated but they

> prefer to use old, manual media with documents rather than to use modern technology.

8.7.6 Services Quality

Some interviewees mentioned attributes related to service quality as important factors for e-government adoption. Among these attributes were providing reliable e-government services, auditing of e-government portals and websites to ensure that all provided information is accurate and up-to-date, and response to citizens' inquiries quickly and accurately. In this regard, interviewee IN5 stated:

> For achieving a purpose of high citizen adoption for e-government services, the services must be available around the clock, easy, flexible and safe; for example, it is not logical to receive a message telling me that the web page cannot be displayed after I complete filling my form; the problem with our community is that they become frustrated quickly and we have no patience in case of receiving message errors or something similar…… After providing an e-service, there must be customer service to answer citizens' questions and inquiries clearly and quickly.

8.7.7 Social Influence

The quantitative research by interview also confirmed that social influence is one of the factors that determine the use of e-government services for citizens. Interviewee IN5 said:

> People when they find that the service is working properly and is better for them than the traditional way, they will publicise it to their friends and families.

8.7.8 Ease of Use (Effort Expectancy)

Ease of use is represented in this research as effort expectancy, and emerged in the interviews.

Public organisations should provide a straightforward and easy-to-use service delivery mechanism with minimum effort required. In this regard, interviewee IN3 said, 'providing easy to use services to the public is also important'.

8.8 Summary

This chapter discussed and analysed the results of seven interviews conducted with key e-government officials in Saudi Arabia. Each interviewee expressed his views towards current electronic services in regard to the number, quality and future development of those services, in addition to the main challenges facing e-government in Saudi Arabia, and ways and suggestions to overcome them. Barriers and factors affecting citizens' adoption of e-government services were also explained by the interviewed e-government officials.

All questions in the interview were adequately answered, adding more detail, not only around the topic of the question, but also about some other internal processes or services rendered by public organisations. This profusion of data enriched the derived information about the e-government program in Saudi Arabia.

The general qualitative analysis of e-government in Saudi Arabia was concluded by deriving three core categories representing the interpretive themes that dominated the thoughts of the interviewed e-government officials. These categories are tree nodes that contain independent nodes construed from the interview data.

In the following chapter, the analysed data qualitative and quantitative from this chapter and the previous chapters are collated and combined to present, and discuss, the final findings of this study.

Chapter 9: Discussion

9.1 Overview

The research sought to explain citizen adoption of e-government services. It aimed to accomplish four primary objectives:

1. Provide an understanding of current practice in e-government and its adoption by citizens.
2. Propose a model of citizen acceptance of e-government services by conducting an intensive investigation of the well-known theories of technology adoption and incorporating privacy, trust and culture concerns in the research framework.
3. Empirically validate the proposed model using the value of multi-method research. This study combines quantitative and qualitative research.
4. Provide suggestions and strategies for practitioners and recommendations for academic research.

In this chapter, the results of the data analyses of both the quantitative (survey) and qualitative (interviews) research presented in the previous two chapters are discussed. This chapter utilises the results of the descriptive analysis to add more explanation that emerging during the discussion and bridge any gaps in the understanding of the adoption process.

An interpretation of the findings derived from a synthesis of the prior research with the outcomes of this study is presented. The chapter then provides an interpretation of the findings from both the survey and the case study. Finally, it integrates the results of the survey and the case study to present a list of the main factors that affect citizens' adoption of e-government services in Saudi Arabia.

9.2 Overview of the Study

The purpose of this study was to develop an acceptance model for citizen adoption of e-government services in Saudi Arabia. The first step in this study was to conduct a literature review to derive the relevant factors of adoption. Because the phenomenon is

complex, this task was carried out in three main phases to gain a complete picture of the issues that surround the study.

Therefore, the literature review contains three components. The first part focussed on e-government background and aimed to understand the current practice of e-government services, such as the definition and categories of e-government, and the phases of existing e-government models. Because it was decided to conduct the empirical work in Saudi Arabia, it was considered essential to gain enough knowledge about the context of the field study. In order to pinpoint the research problem, a theoretical model grounded in UTAUT was developed as a result of the last components of the literature review. This model integrates UTAUT with a set of external variables identified in the literature: privacy, Hofstede's national culture and trust.

In order to answer the research questions and reveal the relevant factors of adoption, the study attempted to outline the appropriate research methodology by adopting a deductive approach. Through the deductive approach, a theory of research was created from the literature, that is, the factors influencing citizens to adopt e-government service. The next step was to go through the process of deduction, which includes, first, generating hypotheses. The study generated the research hypotheses. Second, in collecting data, this study used a mixed method approach by combining quantitative and qualitative methods.

For the quantitative method, a questionnaire survey of a representative sample of 634 citizens of Saudi Arabia was used to validate the research model and hypotheses. The proposed model includes seven independent variables: performance expectancy, effort expectancy, social influence, facilitating conditions, privacy, trust and culture, and one dependent variable, behavioural intention to use e-government services.

For the qualitative method, the aim of the interviews was to supplement the findings of the questionnaire survey. Because they are the people who are responsible for e-government planning, development and management in Saudi Arabia, government officials from the e-government program in Saudi Arabia at MCIT's e-government program, Yesser, were interviewed to explore important issues of e-government adoption in Saudi Arabia from a managerial perspective.

The next sections discuss the rest of the process of the deductive approach applied in this study, finding and confirming or rejecting the research hypothesis.

9.3 Survey Finding

9.3.1 Finding for Descriptive Analysis

This section discusses the main findings obtained from analysing the demographic characteristics of the respondents. Six demographic variables—namely, (1) gender, (2) age, (3) education, (4) income, (5) occupation and (6) computer experience and Internet experience—were subjected to a series of frequency analyses to identify any significant findings, and any notable differences between adopters and non-adopters of e-government services in Saudi Arabia. The following subsections discuss these findings.

9.3.1.1 Gender

As indicated in Section 7.4.1, the results showed a significant difference between e-government adopters according to the respondents' gender: 61.2 per cent of the males reported that they had adopted e-government services, but only 38.8 per cent of the females reported that they had adopted e-government services. This clearly shows that the percentage of males who were adopting e-government services in Saudi Arabia is higher than that of females. This finding may be explained from a cultural perspective. The cultural and social values in Arab countries, to which Saudi Arabia belongs, are based on gender segregation. Compared with males, females in the Arab world are subject to a stricter set of rules, which limits their interaction and communications (Tubaishat, Bhatti, & El-Qawasmeh, 2006). This finding is consistent with Simsim (2011), who studied Internet usage in Saudi Arabia and found that females had a lower degree of use of Internet services. In addition, Alzahrani (2011) found that men are more likely than women to adopt e-government services in Saudi Arabia.

9.3.1.2 Age

The results indicated that the majority of age group of the respondents was 18 to 30. The justification for this finding is that most of the respondents were people who had finished high school, as was found in the education variable. In addition, it can be noted that young citizens in Saudi Arabia have a higher motivation to adopt e-government services than older citizens. This finding may possibly be explained by the qualitative research; for example, interviewee IN7 said:

> Most of those who apply to e-government services are young people because the old people face problems in this aspect; many of the old people are educated but they prefer to use manual old channels with documents rather than to use modern technology.

Moreover, this finding is consistent with that of Simsim (2011), who studied Internet usage in Saudi Arabia and found that the Internet is spreading more among young individuals than older ones.

9.3.1.3 Education

As reported in Section 7.4.1, this study found the majority of the respondents (42.6 per cent) had finished high school. Diploma degrees were held by 28.1 per cent of participants, and 24.3 per cent held bachelor degrees. Five per cent had a higher education level. This result is consistent with the previous variable, that is, age, of which the majority were from the 18-to-30-years-old group. This is the age group when high school, diploma and bachelor degrees are awarded. This confirmed that younger and educated Saudi citizens showed a greater intention to adopt e-government services.

9.3.1.4 Income

Distribution of income shows that the top group of the respondents (43.8 per cent) earn less than 2,000 SAR per month. This finding can be partially explained by the fact that the majority of the respondents had finished high school and were continuing their study. Students are usually low-income citizens, but they are well educated; they are also early adopters of the Internet and the likely users of e-government services in Saudi Arabia. This finding is consistent with that of Simsim (2011), who studied Internet

usage in Saudi Arabia and found that Internet use is spreading faster among young individuals than older ones.

9.3.1.5 Occupation

The majority of the respondents were students (41.96 per cent); 31.2 per cent were public sector employees, and 17.82 per cent were from the private sector. Interestingly, the results showed that the public sector employees were more likely to be adopters of e-government than private employees. This result is consistent with the results obtained by Reddick (2005), who studied citizen interaction with e-government and found that citizens who work for the government are more e-government engaged.

9.3.1.6 Computer and Internet Experience

Most of the respondents had considerable experience in using a computer and the Internet: 78.2 per cent had more than five years of computer experience and 76 per cent used the Internet several times a day. About 17 per cent of the respondents reported that they had from three to five years of computer experience and 10 per cent used the Internet a few times a week. These results indicate that citizens in Saudi Arabia have considerable experience in using computers. In addition, the results show a positive association of computer experience with e-government services adoption. These results are consistent with findings by Gauld, Goldfinch, and Horsburgh (2010), who studied the demand side of e-government in Australia and New Zealand and found that high users of ICT were more likely to use e-government services and to view the experience positively.

9.3.2 Findings from Hypotheses Testing

As part of the task of providing answers to the research questions Q4 and Q5 a set of hypotheses were postulated in this study based on the literature review. The analyses and the results of testing these hypotheses were presented in Chapter 7. The core model factors include performance expectancy, effort expectancy, social influence, facilitating conditions; privacy, trust and culture. This section interprets and discusses these results.

H1: There is a direct and positive relationship between performance expectancy and behavioural intention to use e-government services.

The study found that performance expectancy has a significant positive effect on citizens' behavioural intention to use e-government services. The research result supports the hypothesis H1, which assumes that performance expectancy positively predicts behavioural intention to use e-government services. This result is consistent with findings by other researchers who used UTAUT to examine IT and IS adoption and diffusion (Al Qeisi & Al-Abdallah, 2014; Esteva-Armida & Rubio-Sanchez, 2012; Louho, Kallioja, & Oittinen, 2006; Shafi & Weerakkody, 2009; Weerakkody, El-Haddadeh, Al-Sobhi, Shareef, & Dwivedi, 2013).

In this study, the term 'performance expectancy' reflects the degree to which a citizen believes that using e-government services will help him or her to attain gains when communicating with the government in terms of benefits, saving time and money, improving the quality of government services and increasing equity between all citizens.

Among the salient beliefs, citizens' perceptions about the performance expectancy of e-government services appear to be the most significant factor to influence their behavioural intention to use e-government services. The strength of the result is not surprising because e-government services can deliver a wide range of benefits to citizens. E-government can provide a convenient access to useful information and facilitate online payments from anywhere and anytime. It enables citizens to download and print forms and carry out many services in a quicker and more convenient way. By switching to online services, citizens are able to avoid long queues and complex routines. Respondents were able to recognise these benefits, and this may explain why performance expectancy has emerged as the strongest determinant of behavioural intention to use e-government services among all the other factors. The findings suggest that citizens should develop positive behavioural intention when they recognise these benefits.

H2: There is a direct and positive relationship between effort expectancy and behavioural intention to use e-government services.

In this study, the effort expectancy variable is defined as the degree of ease associated with the use of Saudi e-government services. It was measured by the perception of ease by which one could learn, use and become skilful at using these systems. The relationship between effort expectancy and behavioural intention to use e-government services was significant and supported by the research findings. Moreover, this finding is also in line with earlier UTAUT research (Garfield, 2005; Venkatesh et al., 2003) and e-government adoption research (Al-Shafi & Weerakkody, 2010).

Individuals are most likely to develop a positive attitude towards technology, especially e-government services, when they believe it is easy to learn and use. E-government services in Saudi Arabia are still at an early stage in terms of their adoption by citizens. This may be explained by the fact that the effect of effort expectancy showed a significant result in this research.

H3: There is a direct and positive relationship between social influence and behavioural intention to use e-government services.

For this research, the social influence construct was defined as the degree to which an individual perceives that it is important in the opinions of others that he or she use e-government services. This factor was measured by the extent to which the perception of social influence affects citizens' behavioural intention to use e-government services. The findings indicate that social influence as has a significant effect on citizens' intentions to use e-government services in Saudi Arabia. The findings show that the adopters of e-government services in Saudi Arabia are socially influenced. This corresponds to Venkatesh et al. (2003) suggestion that social influence is a key factor in the acceptance and adoption of technology. Moreover, this result confirms previous findings reported in several studies using UTAUT to investigate e-government services adoption (Im et al., 2011; Kijsanayotin, Pannarunothai, & Speedie, 2009; Shafi & Weerakkody, 2009).

However, this finding is inconsistent with (Alshehri, Drew, Alhussain, & Alghamdi, 2012) study, which found that the use of e-government systems was a personal and individual issue and was not affected by social influence.

For this study, to clarify this accepted hypothesis, it can be argued that citizens may consider that social communications and relationships with people who are experienced in technology and that they are well equipped to manage online services. In addition, it may be due to the impact of social influence knowing that majority of Saudi citizens who participated in my study were aged between 18 and 30 years.

H4: There is a direct and positive relationship between facilitating conditions and behavioural intention to use e-government services.

Facilitating conditions refers to the availability of technological and organisational resources used to support the use of the e-government system. Facilitating conditions was measured by the perception of accessing required resources, and the necessary knowledge and technical support needed to use e-government services systems. The study result revealed the insignificant effect of facilitating conditions on behavioural intention to use e-government services. As a result, the hypothesis H4 on the relationship between facilitating conditions and behavioural intention was unsupported.

This result confirms what emerged from the results of other studies (Louho et al., 2006; San Martín & Herrero, 2012). San Martín and Herrero (2012) in a study exploring the factors individuals affecting reservations of rural accommodation for tourists directly through online systems concluded that facilitating conditions have no effect on intention.

The finding here is also consistent with the findings of research on technology adoption (Chau & Hu, 2001; Moore & Benbasat, 1991; Taylor & Todd, 1995; Thompson & Higgins, 1991; Venkatesh et al., 2003) indicating that facilitating conditions, comprised of three root constructs (perceived behavioural control, facilitating conditions and compatibility), did not predict intention to use IT when both of the constructs performance expectancy and effort expectancy were used in the same model.

The possible reason for this result is that descriptive analysis shows that about 78.2 per cent and 76 per cent of the responses of the research sample have used computers and Internet respectively. In addition, as mentioned in Section 3.7, ICT is growing in Saudi Arabia. From this view, it may be that citizens feel that such a situation makes this factor (facilitating conditions) not have a direct effect in determining the intentions to use e-government.

H5: There is a direct and positive relationship between culture and behavioural intention to use e-government services.

Prior research in the fields of IT and IS points to cultural differences as a contributing factor in the transfer and adoption of IT and IS (Bagchi, Hart, & Peterson, 2004; Cooper, 1994; Gargeya & Brady, 2005; Johns, Murphy Smith, & Strand, 2003; Straub et al., 2002) However, little is known about the effect of national culture on e-government adoption in the Muslim and Arab world, including Saudi Arabia. In addition, Davis (2007) mentioned that one of the future directions for technology adoption research is to include social and cultural values. The most popular conceptualisation of national culture has been the work of Hofstede (Leidner & Kayworth, 2006). Hofstede et al. (2010) initially identified four dimensions for cultural variation: uncertainty avoidance, power distance, individualism and masculinity. Subsequently, he added long-term orientation (Hofstede & Bond, 1984). Hofstede et al. (2010) characterised the Arab world, to which Saudi Arabia belongs, as high in power distance, uncertainty avoidance and masculinity, and low in individualism.

This study hypothesised that there would be a positive relationship between culture and behavioural intention to use e-government services. The findings show that culture ($\beta = 0.11$, $t = 3.112$, $p < 0.01$) has a significant positive effect on behavioural intention. This finding is in line with Warkentin et al. (2002), who made a strong case for the role of culture as a determinant of citizens' adoption of e-government services. They used the Hofstede components, which are likely to influence the adoption of e-government services.

These results are inconsistent with those of Aldraehim et al. (2013) study on the cultural effect on e-service use in Saudi Arabia. They concluded that Saudi culture is a negative

predictor of intention to use e-services in Saudi Arabia. The study used the TAM model and relied on a new component of the culture of Saudi, the fear of a lack of interaction with other humans; the higher the score on this component the less likely the intention to use e-services. A plausible reason for this is that the context of the study was different; the context of their work for e-services was in the business area in general, including e-commerce and e-government. Aldraehim et al. (2013) study focused on electronic business (e-business) implementations. Thus, the concept of e-service in their study was broader than e-government service in the current study. The influence of cultural values on e-services, whether the services are provided by a commercial or a government organisation, differ from the cultural effect on e-government services. Therefore, the perspective of the technology user who uses technology to accommodate most of his or her life's activities, whether commercial, social networking, government services, banking or purchase of goods, inevitably varies from that of a user who just wants to use technology for government services. Another possible speculation is that the sample in Aldraehim et al. (2013) study were employees of the public and private sector whereas the current study relies on citizens in general.

Due to the interrelation and similar characteristics of the the next three hypotheses, it is felt that it is better to discuss these determinants at the same time.

H6: There is a direct and positive relationship between culture and privacy in using e-government services.

H7: There is a direct and positive relationship between culture and trust in using e-government services.

H8: There is a direct and positive relationship between privacy and trust in using e-government services.

To investigate the interaction between the factors that influence the use of e-government services, this research tested the hypothesis that culture would be found to have a significant effect on privacy in using e-government services ($\beta = 0.21$; $t = 3.121$). The result ($\beta = 0.21$; $t = 3.121$) supports studies that show a relationship between cultural

background and its effect on privacy concerns arising from the use of online services. One of these studies concluded that privacy was affected by culture (Al-Amri, 2012).

Contrary to previous findings, there was a weak relationship between culture and trust, and H7 was thus not supported. The findings indicate that the influence of culture ($\beta = -0.02$, $t = 0.594$) is weak and not associated with trust in using e-government services.

The relationship between privacy and trust in this research as formulated in H8 was accepted in the research model.

H9: There is a direct and positive relationship between privacy and behavioural Intention to use e-government services.

The privacy factor was found to have a significant effect ($\beta = 0.12$, $t = 2.773$) on citizens' behavioural intention to use e-government services. This finding is in line with a study by Lallmahamood (2007) on Internet banking adoption that found privacy has a positive effect on individuals' intention to use Internet banking. This study used the TAM model as the theory of study and added perceived security and privacy as external variables.

However, this result is contrary to that of Chellappa and Sin (2005) study, which confirmed that concern for privacy negatively influences consumers' intention when using online personalisation services. This may be explained in the following way. The study proposed a model to predict the use by individual consumers of online personalisation. Online personalisation involves the collection and use of personal information that contains the privacy of using personalisation services. The online user in this service is dealing with multiple vendors in the virtual world; thus, the privacy factor could be negatively affecting the user's intention to use personalisation. Moreover, it may that the online consumers in this service do not feel they are attaining benefits that compensate for their loss of privacy. That is, consumers may give up some privacy if corresponding benefits are provided.

For this study, to the best of our knowledge, privacy has never been tested for e-government services citizen adoption using the UTAUT model. Privacy reflects the

combination of personal beliefs held by citizens about the importance of privacy and their control over it, the perceived repercussions of the release of information deemed private, and the trust in the government to which the information is being released or the trust in the appropriate and non-negligent usage of the information. The possible reason for this result is that which was found in the qualitative results, as stated by interviewee IN1:

> I don't think that we have communicated with users in a way that we can convince them that their privacy is preserved in your dealing with e-services; we have to explain about the available methodology for reserving users' privacy because this will form a positive aspect that increases the use of e-services.

Government believes that it is very important for a citizen, who is benefiting from services, to have services meet his/her daily requirements. Moreover, Government seeks to reassure citizens about the security of their private information. Subsequently, the trust in government among the citizens is at a very acceptable level, which is a component of the privacy factor.

H10: There is a direct and positive relationship between trust and behavioural intention to use e-government services.

The meaning of trust in this research is trust in the government's efforts in the field of technology used in e-government services something the government does to make it trustworthy (worthy of the trust or confidence of citizens), through technologically and strategically communicating its information security policy on the government website. The findings of this study demonstrated empirical support for the hypothesis H11. The results of the study indicated that trust has significant a effect on behavioural intention to use e-government services. The standardised coefficient (beta value) for trust is positive and significant ($\beta = 0.15$, $t = 2.939$, $p < 0.01$), and thus hypothesis H11 was supported.

For UTAUT technology adoption, this result corroborates the claims of previous studies, namely, trust in technology is an important element in technology adoption (Armida, 2008; Schaupp et al., 2010). A study by Armida (2008) applied the UTAUT model, adding trust in technology as a new variable that affects the adoption process of VOIP technology. In a study by Schaupp et al. (2010) on e-file adoption, the authors

asserted that trust in the e-file system and the Internet (technology) provider was found to play a significant role.

Another study, by Kim and Prabhakar (2004) on the adoption of B2C in electronic commerce, stressed the importance of trust in Internet banking (technology) as a determinant of adoption behaviour. Moreover, the findings are inconsistent with those of Bélanger and Carter's (2008) and Carter and Bélanger's (2005) studies. Both studies confirm that trust in the Internet (as the technology used) affects citizens' intentions to use e-government services.

The possible justification is that most of the sample respondents may have had positive experiences with various government department websites. Such prior interactions with government websites may lead to initiating and developing positive images about government departments' websites and possibly lead to trust in e-government services. The findings confirm the importance of trust in the government's efforts in technology used in the e-government services to enhance citizens' willingness to use the e-government services.

Another possible explanation for this result is that trust in technology through government website activities refers to the perception of having the necessary technical safeguard tools in place to assure a secure environment. Consequently, a plausible speculation for the significant result here is that individuals in Saudi Arabia may have prior, good experience with one of the most successful e-government initiatives within the context of Saudi Arabia, SADAD (Gharawi, 2011), which is a centralised payment system that aims to facilitate and accelerate all payments over all electronic banking channels, including branches, ATM, phone and Internet banking, as discussed in Chapter 3. Citizens may consider that the government now has the ability to convey e-services in a secure manner. Moreover, citizens may believe that e-government services are about conducting online payments through the Internet. As a result, individuals are able to express either a positive or a negative opinion about trust in e-government services, which results in a positive relationship for trust in the technology used and e-government acceptance.

H11: Citizen demography will moderate the relationships among the proposed model constructs.

The demographic characteristics of the study sample were discussed in Section 8.3. This section is devoted to a discussion of the effect of moderators on the relationships in the model. The moderators refer to the respondents' demographics such as gender, education level, income level and age.

Unexpectedly, the measurement invariance testing for both models resulted in gender invariance on the measurement weight level and the structural weight level, indicating that gender, education, income and age are not moderators for behavioural intention to use e-government services.

With respect to gender, in view of recent research findings (Suha AlAwadhi & Anne Morris, 2008; Alshehri et al., 2012) and the fact that respondents in the current research are actual users with prior computer and Internet knowledge, the non-moderating effects of gender confirm the conceptualisation that, under discretionary conditions and with increased experience, gender differences tend to fade away. The gender results in the current study confirm findings reported in similar conditions.

With respect to education, on the structural weight invariance, the research model showed invariance between the two groups of education, and it can be concluded that education is not a moderator for the study sample. This result is perhaps a product of there being no difference in the groups' ranges among the lower education group (high school and diploma levels), whereas this group comprised (bachelor, master and PhD) qualifications are not highly different and both are more than adequate to ensure the respondents have knowledge and ability to utilise computers. Perhaps the wider variation in the lower level enabled a more emphatic comparison for the two education groups.

With respect to income, the structural weights are invariant and showed that income is not a moderator for the study sample. A possible explanation for such a result is that respondents were actual users and apparently educated and computer literate regardless of their earning power. Moreover, the reported effect of income as a moderator in

previous research is specifically inferred from research related to the banking options preferred by different income spectrums.

For age, the findings are in line with those of a previous study (Alshehri et al., 2012). The results can be interpreted in light of the age ranges comprising the two groups in the country sample. The lack of a wider range for age groups makes the comparison less effective. The age groups are within close ranges, which might be the reason behind the non-invariance results in both structural models.

9.3.3 Interview Findings

The results of the case study were presented and discussed in Chapter 7. This section summarises the outcomes of the interviews reflecting the perspectives of e-government officials regarding e-government adoption in Saudi Arabia.

Interviewees reported several factors affecting citizens' adoption of e-government services in Saudi Arabia (demand side).These factors are trust and privacy, citizen awareness of the available e-government services, culture, information security and privacy, service quality, ease of use, and ICT literacy.

Figure 8.1 demonstrates the findings from both the survey and the case study. As the figure shows, the common factors are effort expectancy, social influence, culture, privacy and trust. It can be noted that some other factors were obtained from the case study, such as citizen awareness, age and service quality. These factors may complement the research model to explain the citizen adoption of e-government services.

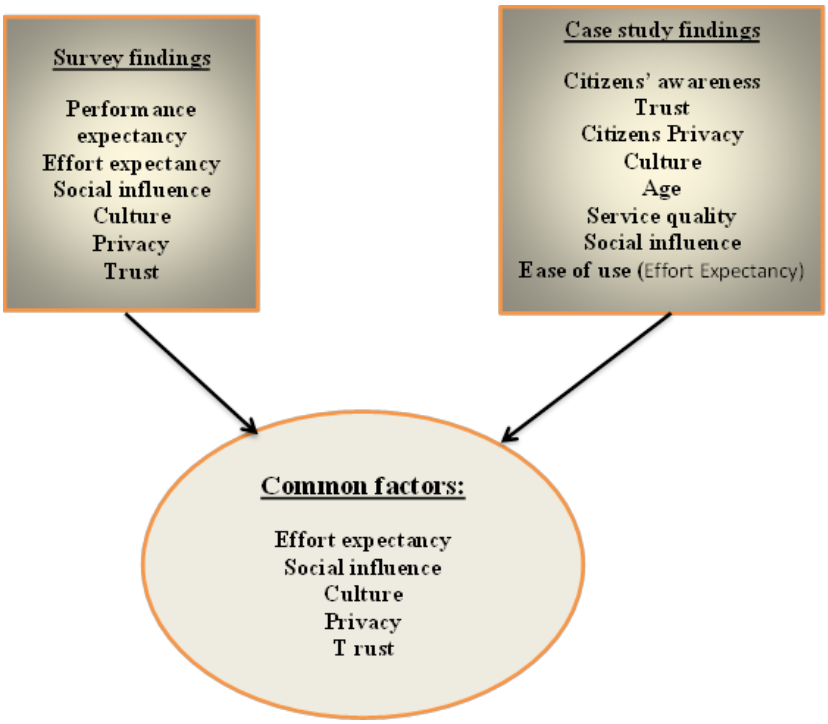

Figure 9-1: Findings from the Survey and Case Study

As mentioned earlier, the research model explains only 42 per cent of the variance of citizen intentions to use an e-government service. Therefore, these factors should be considered in the future research.

9.3.4 Non common factors

There were some non-common factors resulted from the research. These factors are performance expectancy from quantitative stage which was discussed in section 8.3.2, as well as citizens' awareness, age and services quality from qualitative stage which will be discussed in the following.

Citizens' awareness

Officials pointed out to the important of people's awareness about e-government services as influence factor for citizen adoption. They admitted insufficient efforts either from the relevant ministries or from government in general. In addition, the awareness barrier existed from inside the government as government employees lack awareness regarding the potential of e-government services and the added value that they offer to

citizens. However, interviewees have noted that the importance of this factor has lessened during the past few years, since the government has motivated its employees to attend awareness events and extend their knowledge on e-government services and the new generation of public servants are, in general, more familiar with e-government service concepts.

This finding supports studies conducted by (Altameem et al., 2006; Maher, Robert, Patrick, & Gary, 2008; Yining, Chen, Russell, & Wayne, 2007) which revealed that citizen's awareness about e-government is a crucial factor in e-government services adoption. In addition Choudrie and Dwivedi (2005) examined the citizens' awareness and adoption of e-government initiatives in the United Kingdom. The findings revealed that citizens with home broadband access are more likely to be aware of and adopt e-government services. The study also found that the demographic characteristics of citizens such as the age, gender, education, and social class have an imperative role in explaining the citizen's awareness and adoption of e-government services.

Furthermore, AlShihi (2006) studied factors affecting adoption of e-government in Oman. He revealed that people have a low awareness about the e-government services, which is a negative influence on their willingness to use e-government.

For this study, it can be claimed that various mass media channels such as TV, newspapers and radio stations, which are operated by governments are able to deliver reports and news about e-government services and hence influence citizens' views about the technology. other solution may be outsourcing the awareness marketing, meaning letting the mobile network companies, for example, advertise their provision of governmental e-services through their network. Other solutions may include holding seminars in universities, printing relevant information and the government website on tickets, document and brochures that people use on a daily basis and word of mouth from government employees to citizens when they come to receive the service through the traditional way.

Age

In the qualitative stage, officials of e-government program noticed Age as an important and influential direct factor in the adoption of e-government services by citizen. While this research uses age as a component of the demographic moderating factor in the quantitative stage discussion earlier in this chapter.

This finding is consistent with prior e-government adoption literature (AlShihi, 2006) who found a direct factor between age and e-government adoption, people aged between 20 and 40 years old are likely to adopt e-government faster than others.

For this study, the typical explanation for the importance of the age factor on using e-government services may stem from that fact that is the proportion of young people more than 60% in Saudi Arabia. Where Saudi Arabia ranked the first level globally deservedly in the proportion of use of mobile phones, according to the study carried out recently by the United Nations Conference on Trade And Development (UNCTAD, 2012) where the achieved percentage of 188% of the total population.

The report has been reported that the use of mobile phones is spreading widely among young people who did not exceed the age of twenties due to the ease of use of Internet service in Saudi Arabia. Since the Internet is the main source of hundreds of thousands of programs that are downloaded on smart devices such as social networking, business applications, processors texts, chat programs, protection tools, games and many others, as it allows the user to smartphones viewed somewhat similar to browsing on PC . Consequently, this gives an indication to the big transformation to digital community in Saudi Arabia. Thus, officials in e-government program exploit of this digital transformation for the benefit of the use of e-government services has become urgent based on such key indicators.

Services Quality

In qualitative research and through the point of view of e-government officials found that services quality is affected factor on citizen adoption for e-government services. This result is consistent with previous studies (Al-Ghaith, Sanzogni, & Sandhu, 2010;

Almahamid, Mcadams, Al Kalaldeh, & AL-Sa'eed, 2010; Colesca & Dobrica, 2008; Susanto & Goodwin, 2010), which found that quality of e-services (e.g. creativity, transparency, availability, functionality, accessibility, timeliness, support, interactivity, responsiveness, etc) has a direct positive impact on the adoption and use of e-government services and applications in different contexts. In contrast, this result was inconsistent with a study of Lai and Pires (2009), which found that quality of e-services has an indirect impact on citizen's intention to adopt e-government services and applications in Macao.

9.4 Summary

This chapter summarised and discussed the main findings of the empirical research, which involved administering a survey and conducting a case study. A list of the main factors that affect G2C e-government adoption in Saudi Arabia was obtained and discussed. In the following chapter, the contributions, implications and limitations of the study, and future research, and are all discussed.

Chapter 10: Conclusions and Future Work

10.1 Overview

This chapter concludes this thesis by addressing the main contributions of this research. It outlines the research findings and the main academic contributions, and then delves into their theoretical and practical implications. Finally, it highlights the limitations of this research, and then discusses and provides guidelines for future work.

10.2 Summary of the Results

As outlined in Chapter 1, this study considered the problems associated with the low response of citizens to the adoption of e-government in developing Arab countries, with a predominant focus on Saudi Arabia. E-government services cannot improve public service delivery if they are not used by the public. Therefore, the principal objective of this research was to gain a better understanding of the factors that influence citizens' adoption of e-government services. Identifying such factors will improve the likelihood of increasing the adoption rate of these services by deepening the knowledge about the factors that facilitate, or hinder, the adoption process.

Moreover, this study discovered a lack of empirical e-government services adoption research that focuses on the adoption of such services in the Muslim and Arab world, including Saudi Arabia. Therefore, filling this gap in the literature was one of the motivations for conducting this study in a country such as Saudi Arabia, with different cultural and social values.

Because the phenomenon is complex, it was decided to undertake this task in three main phases in order to gain a complete picture of the issues that surround the study. Therefore and according to this choice, the first phase aimed to understand the current practice of e-government services, including the e-government concept and categories and the various stages of existing e-government models. Because it was decided to conduct the empirical work of the study in Saudi Arabia, which is a country that has distinct cultural characteristics, it was considered essential to gain enough knowledge

about the context of the field study. The last components of the literature review sought to derive the key factors of adoption by reviewing well-known theoretical models in the literature of IT acceptance and related empirical studies and addressing the surrounding issues of privacy, trust and culture in technology adoption. The investigation was narrowed down to a survey on the literature of citizen adoption of e-government services.

As a result of the literature review, this study developed a theoretical model grounded in the UTAUT model. The model integrates UTAUT with other variables identified in the literature. Specifically, privacy, trust and the national culture were analysed.

To test the proposed model empirically, an online survey was employed, and data were gathered from a random sample of citizens in Saudi Arabia. In addition, qualitative research was employed through a case study, which included semi-structured interviews with the e-government officials in the MCIT's e-government program Yesser in Saudi Arabia. These enabled the researcher to understand, in depth, the factors that influence the adoption of e-government services by the Saudi citizen from a managerial perspective. The case study analysis also enabled a comparison of the theoretical findings with the actual practice.

The proposed model includes seven independent variables: performance expectancy, effort expectancy, social influence, facilitating conditions, privacy, trust and culture. The model was validated using the SEM technique. The findings showed that both measurement and structural models exhibit good model fit to data. The study showed that all constructs satisfied the criteria of construct reliability and convergent and discriminant validity. The results of this study revealed that the research model explained 42 per cent of the variance in citizens' behavioural intention to use e-government services. In addition, the path estimations showed that of the 10 designed relationships, eight paths relationships were found to be significant and the other two paths were rejected. All factors were significant except facilitating conditions, and the moderators' factor (gender, education, income and age) remained insignificant.

10.3 Answers to Research Questions

This section highlights the major findings of this study with respect to answering the research questions of this study (presented in Section 1.7).

Q1. What are the definitions and models of e-government?

The study provides the answers regarding e-government definitions and models in Sections 2.2 and 2.4 respectively.

Q2. What is the current situation regarding ICT and the e-government program in a developing country?

The study details the current situations of e-government in Chapter 3.

Q3.What is a suitable model for understanding technology adoption and citizen acceptance of e-government services in a developing country?

The results of the investigation into the literature review on a suitable theoretical framework showed that the UTAUT model was the appropriate candidate model for the study. The structured model showed that privacy, trust and culture dimensions were potential issues of e-government adoption.

The SEM technique was employed to assess the model's overall performance. The structural model included eight variables. The results show that the model fit indices were acceptable and within the range of suggested criteria, indicating that the assessed model had an adequate fit. Further, the study showed that the validated model explained about 42 per cent of the variance on the intention to use e-government services from citizens' viewpoints. Consequently, the model appears to have a desirable predictive power. This implies that the study succeeded in validating the model to the population of Saudi Arabia that was drawn from the Yesser data with respect to the adoption of e-government service applications.

Q4.What factors influence citizen's acceptance and adoption of e-government services in a developing country?

This research found and suggested seven affective factors that influence an individual's intention to use e-government services: performance expectancy, effort expectancy, social influence, facilitating conditions, privacy, trust and culture. The definition of each factor was presented in Chapters 4 and 5.

With respect to the factors, the results of the hypotheses testing show that behavioural intention is formed by all factors except facilitating conditions. The study suggests that performance expectancy has the most influential effect on behavioural intention followed by effort expectancy. It implies that citizens are more inclined to adopt e-government services when they develop positive images towards the technology and have the capability and necessary skills to use such services. However, the results show that facilitating conditions have an insignificant effect on citizens' intentions to use e-government services. In addition, the results exhibit no moderating effect, for the Saudi citizen sample, in the context of the extended UTAUT. Chapter 9 discussed all these finding in details.

Q5.What is the relative importance of these factors and the relationship between them?

For more interaction data, the research included the relationships among the three factors culture, privacy and trust, as discussed in Chapter 5. The empirical results exhibit that Saudi culture contributes about 29 per cent of the variance on privacy. In addition, the analysis showed that the privacy factor contributes 24 per cent of the variance on trust, as shown in Chapter 7 (see Figure 7.14). Chapter 9 discussed all these relationship finding in detail.

Q6.What should the Saudi Government and other Middle Eastern countries with similar characteristics do to ensure widespread adoption of e-government services by citizens?

The answer to this question can be found in Section 10.5.

10.4 Academic Contributions of the Study

The outcomes of the research contribute to the understanding of the drivers of e-government adoption from the demand-side perspective, which examines the factors that influence citizens to adopt and use e-government services. The study conducted a literature review to address the gap in the knowledge in the field of citizen acceptance of e-government and outline the key elements of the adoption. Consequently, it has succeeded in developing and validating an integrated model based on well-known theories of technology acceptance and incorporating privacy, trust and a culture factor. The findings of this study are supported by empirical evidence and a literature review, which generated the following contributions:

1. The core element of the contribution provides a better understanding of citizen acceptance of e-government services, particularly in Saudi Arabia. The study extends the body of knowledge of the UTAUT model by applying and validating the model for Saudi Arabian e-government users. The findings support the applicability of the developed model outside Western culture and lifestyle, and its robustness for different samples and innovations for measuring individuals' acceptances of technology. Lastly, it succeeds in revealing the key factors that affect citizen acceptance of e-government services in Saudi Arabia.
2. This study differs from other studies (Schaupp et al., 2010; Susanto & Goodwin, 2011) in the literature. Whilst the previous studies focusing on specific application in e-government services program, this study has investigated a broader set of e-government services from the demand-side perspective.
3. The study stresses the importance of including the component of privacy in the acceptance of online public services. The findings show that the privacy factor is an important determinant of behavioural intention to use e-government services. Moreover, to the best of our knowledge, privacy has never been tested in the model of UTAUT and for e-government services in citizen adoption. In addition, the study investigated the relationship between culture and privacy, and the outcomes show that culture might affect the privacy of e-government users in Saudi Arabia. This finding could benefit future IS research into an individual's privacy perspectives, as well as benefit governments by prompting them to take

these cultural effects into account when implementing the privacy policy of their e-government services websites.

4. With respect to the effect of moderators: the research model exhibited absence of the moderating effect of gender, education, income and age.
5. The study succeeded in developing and validating an Arabic instrument for e-government adoption. The validated instrument is reliable for conducting future studies in technology acceptance because it is based on rigorous validation and previous validated instruments in the literature of IS.

10.5 Practical Implications

The success of e-government is contingent upon citizens' willingness to use e-government services. Governments should give significant consideration to developing IT projects to transfer traditional services to online form. The developed model includes a set of factors for promoting e-government acceptance. An understanding of the relevant factors of citizen acceptance of e-government can provide policymakers with a set of strategic implications to build greater acceptance of these services. The results of this study have significant managerial implications for government policymakers, government agencies and system developers who are working on web-based e-government services. In particular, developers of new web-based e-government services can use these results to predict the acceptability of the new service. Existing services can be evaluated to identify reasons for user non-adoption.

The citizens' survey showed that the performance expectancy, effort expectancy, social influence, facilitating conditions, privacy, trust and cultural dimensions—power distance, uncertainty avoidance, masculinity/femininity and individualism/collectivism contribute significantly to citizen adoption of e-government services in Saudi Arabia.

In addition to these factors, interviews with e-government senior managers in Saudi Arabia showed other important factors such as citizen awareness of the available e-government services and service quality.

Saudi Arabia is representative of the Arab and Islamic states from a cultural perspective and the Gulf states from an economic one, which are facing the problem of a low level of citizen adoption of e-government services. The research outcomes can assist e-government officials and policymakers from Saudi Arabia, and any other country with similar characteristics, to position their strategies better to encourage faster and more efficient adoption of these services.

The significant effect on behavioural intention highlights the importance of citizens' attitudes towards the technology. It is essential for governments to work on stimulating positive intentions towards using e-government programs to ensure successfully accepted projects. They can operate on the significant performance expectancy among citizens, which should facilitate the adoption of e-services. This may eventually lead to the development of personal perceptions of positive behavioural intention towards online government services compared with the traditional ones. In order to build positive intention to use e-government services, it is important for the government agencies to incorporate useful information and services into their websites. In addition, these agencies should employ training and promotion approaches to develop citizens' beliefs on the usefulness and the value of the e-government services. For instance, citizens can be expected to develop a positive intention when they recognise the superior benefits of e-government services compared with traditional ones. Policymakers in governments could launch a marketing campaign focusing on the wide variety of the project's benefits for its citizens through various media channels. It is crucial to promote the benefits of utilising e-government services rather than the traditional ways. In addition to the benefits, it is considered appropriate to emphasise the compatibility of e-government usage with lifestyles, religion, values and traditions of the target population. In order to make the e-government services useful, it is important to ensure that these services are easy to use and trustworthy.

The findings of the study show that effort expectancy has significant effects on intention. It is fundamental that practitioners aim at overcoming any potential barriers towards utilising the services effectively. For instance, if the developers want to boost confidence and familiarity in using e-government services among citizens, they could advertise demonstrations of how to use these services through various media channels. Government should work on facilitating access to the Internet and its usage for the

different sectors of its society. In addition, it could provide online tutorials through the e-government websites to illustrate how citizens can use and transact with these services. Government agencies should also improve help and search facilities on their websites to enable citizens to find the relevant information effectively. In addition, citizens' feedback about e-government websites should be elicited and analysed. This will enable government agencies to redesign their websites to present e-government services and information in a way that is easy for citizens to use.

Moreover, the privacy factor had a significant effect on citizens' behavioural intention; therefore, government agencies should increase the perception of privacy by adopting and strategically communicating its information security policy on the government websites. In addition, the government of Saudi Arabia needs to consider updating its legislation that protects e-government users and organise exchange of information over their websites.

In terms of trust, the results show the importance of trust for e-government adoption by citizens. The government should continue to focus on building positive relationships with its citizens. It is considered important to have the necessary skills and expertise to conduct the project. Further, co-operating with competent, well-known businesses in the area should enhance citizen trust in e-government services. It is imperative for developers to implement the latest advanced security standards and post graphical representations for security seals to promote security and privacy. Failure to protect the system could cause loss of trust and confidence in the government's ability to carry out such projects. The government should aim to educate citizens about the services provided by e-government technology, which may provide the confidence and overcome the barriers between individuals and the technology.

The outcomes of this study suggest that e-government officials need to pay attention to the dominant culture. For example, providing the necessary training to alleviate anxiety could lead to better acceptance of IT and IS applications such as e-government.

As the qualitative research shows, service quality and citizen awareness of the e-government services have a significant effect, so the government of Saudi Arabia needs to take into account for these factors the following:

1. Maintaining the quality of e-government services by fast responses to citizens' calls, enabling citizens to track their queries until they are resolved without difficulty, having e-government services and applications available 24 hours seven days a week, having a single point of access to all government information and services, and enabling better interaction with the government (e.g. online feedback, knowledge sharing) may ensure a high level of satisfaction among citizens in the adoption and implementation of e-government services and applications.
2. Increase citizens' awareness of e-government services and applications by providing incentives and rewards, intensifying promotional campaigns through various communication media, particularly SMS-based e-government marketing because of high mobile penetration in Saudi Arabia. In such contexts, focusing on e-government via mobile is likely to be a key way forward, particularly in the medium term.

10.6 Limitations of the Research

Like any other study, this research has some limitations, which can be summarised in as follows:

1. This study adopted a cross-sectional design. This cross-sectional study represents a slice of time, and does not show how citizens' behavioural intention may change over time. Further study employing a longitudinal design would ascertain whether citizens' attitude towards using e-government services had changed over time.
2. This study applied Hofstede's national culture framework. Although it has been widely applied and cited, several researchers have criticised this framework because of some methodological weaknesses (Baskerville, 2003; Fang, 2003).
3. This research aimed to explain the behavioural intention of Saudi citizens towards the adoption and implementation of e-government services and applications in general, without focusing on specific services or applications that may be of more value to citizens than others and thus affect their decisions to take advantage of these new services and applications. Future research can focus

on such specific services, for example, fee transactions and sales services, which are very important for the citizen.

4. The research relied upon a single case study to identify factors that affect e-government adoption in Saudi Arabia. It is better to use multiple case studies to generate a diverse set of factors affecting e-government adoption.
5. Finally, this research included only factors specific to the UTAUT in addition to privacy, trust and culture but did not test the universal set of antecedents or mediators such as those listed in Section 9.7. Future research can include such factors for instance website quality, system efficacy and utilitarian versus artistic.

10.7 Future Directions

The study presented a model built on an extended the UTUAT model by integrating relevant e-govenrment factors such as privacy, culture and trust. In so doing to developed a comprehensive model of citizen adoption of e-government services by integrating the adoption and e-government literatures. drawn from well-known theories of technology acceptance and validated on the citizens and key e-government officials of Saudi Arabia for the adoption of e-government services by utilising SEM. Despite the statistical outcomes providing significant results in both stages of the measurement and structural models analysis, including other factors in the model would increase our understanding of the phenomenon. For instance, Islamic religion factors are suggested for inclusion in further studies to examine the effect of the religion dimension on the adoption.

Moreover, the discussion revealed a need for further investigation into the role of experience in technology acceptance modelling, especially because an alternative model apparently produced better explanatory power when experience was linked directly to usage behaviour.

In addition, additional research designs might strengthen the understanding of the aggregated model. This study examined a cross-section of individuals within the e-government services usage context. Other studies might study more controlled subsets

of users and contexts to identify constraints and exceptions with respect to usage behaviour, website quality dimensions and the integrated model. It would also be beneficial to perform longitudinal studies that test the proposed relationships as they unfold over time. It would be advantageous to include other sets of antecedents or moderators such as system efficacy, and utilitarian versus artistic aspects of website design quality.

Another area for future investigation is the effect of moderators such as gender, education, income and age on usage behaviour. The current study results regarding the non-moderating effects of gender, education, income and age suggest further investigation for situations in which gender equality might be more prevalent. Prior research on technology acceptance behaviour has focused on gender differences in the workplace. However, the prevalence of Internet usage on the personal level as well as the work level requires more research on gender as a determinant of usage behaviour in discretionary contexts. Likewise, further investigation is needed with respect to range of age that might be considered when examining technology acceptance behaviour, especially because the current generation of users are savvy, young and educated, whereas most research to date has focused on age ranges within the workplace (usually older). This suggests that more research with younger users and potential adopters is likely to be fruitful. Such demographic profiles would enable marketers to target defined segments appropriately with respect to technology-based products and services.

The UTAUT model is an aggregated form of eight dominant TAMs. Considering it is a parsimonious model similar to TAM and acknowledging that researchers have worked diligently to extend TAM, the aggregated model deserves the same attentive work, especially because most current research is still focused on TAM compared with the UTAUT model. The current research models enhance focusing on UTAUT; however, there is a need to add some constructs to UTAUT as antecedents to performance expectancy and effort expectancy and related to usage behaviour, for example, website quality aspects.

Lastly, although the Arabic version of the research instrument was drawn from validated studies, further studies can improve the existing version for future research. Moreover, it would be interesting to carry out additional comparative studies covering a

larger population including the rural areas. It may be appropriate to recommend further research by including non-Internet users to examine any difference in the result. To enhance the results generalisability, additional studies are encouraged in technology acceptance in the Middle East and, in particular, the Arabian Gulf countries.

Indeed, this study makes a vital contribution in understanding citizen adoption of e-government services in developing countries and paves the way for future e-government research particularly in Middle Eastern countries.

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Appendices

Appendix A: The Study Cover Letter and Questionnaire—English Version

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LETTER OF INTRODUCTION

Dear Sir/ Madam

This letter is to introduce Mr Mohammad Alzahrani who is a PhD student in the School of Computer Science, Engineering and Mathematics at Flinders University.

He is undertaking research leading to the production of a thesis or other publications on the subject of "Technology adoption and Determinants of E-government Services Acceptance in Saudi Arabia"

He would be most grateful if you would volunteer to assist in this project, by completing this survey which covers certain aspects of this topic. This survey will investigate the factors influencing the adoption of e-government services in Saudi Arabia. No more than 30 minutes is required to complete the survey.

A summary of the results will be sent by email to interested respondents.

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications. You are, of course, entirely free to discontinue your participation at any time or to decline to answer particular questions.

Any enquiries you may have concerning this project should be directed to me at the address given above or by telephone on (+61 8) 8201 3113, by fax on (+61 8) 8201 2904 or by email (Robert.goodwin@flinders.edu.au).

Thank you for your attention and assistance.

Yours sincerely

Dr. Robert Goodwin
Senior Lecturer
School of Computer Science, Engineering and Mathematics

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 5254). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au..

Part One. **Citizen demography: Please choose the most appropriate answer for the following items.**

Q1) Gender

❍ Male ❍ Female

Q2) Marital status

❍ Single ❍ Married ❍ Divorced ❍ Other

Q3) What is your age?

❍ Less than 18 ❍ 18–30 ❍ 31–40 ❍ 41–50 ❍ 51–60 ❍ Above 60

Q4) What is your education level?

❍ High school ❍ Diploma degree ❍ Bachelor degree ❍ Master degree ❍ Doctorate or higher

Q5) What is your monthly income range?

❍ Less than 2,000 SAR
❍ 2,000–5,000 SAR
❍ 5,001–10,000 SAR
❍ 10,001–15,000 SAR
❍ More than 15,000 SAR

Q6) What is your occupation?

❍ Private employee
❍ Public employee
❍ Student
❍ Other _____

Q7) How long have you been using computers?

❍ Under 3 years ❍ 3–5 years ❍ More than 5 years

Q8) How often do you use the Internet?

- ❍ Once a month
- ❍ A few times a month
- ❍ A few times a week
- ❍ Once a day
- ❍ Several times a day

Q9) Have you ever heard of e-government before this time?

- ❍ Yes
- ❍ No (Go to Q12)

Q10) How did you learn about the Saudi e-government services?

- ❍ Mass media (TV, newspapers, etc)
- ❍ Friend or relative
- ❍ Through the Internet
- ❍ From Saudi government
- ❍ Other ……

Q11) Have you ever used any e-government services (i.e. using the Internet to acquire services or information from the government)?

- ❍ Yes
- ❍ No

Q12) Is it going to be helpful to Saudi Arabia?

- ❍ Yes
- ❍ No (why)…….

……

……

……

……..

Q13) Are you willing to use it?

- ❍ Yes
- ❍ No (why) ……

……

……

……

…….

Q14) Select the type of device that you normally use when you surf the Internet and e-government sites.

❑ Desktop computer ❑ Laptop ❑ Mobile

Q14.1) Select the type of connection that you use normally when you surf the Internet and e-government sites.

❍ Fixed-Line ❍ Wireless

***Part Two.* Saudi Culture: Please choose the degree to which you agree with the following statements. There is no right or wrong answer. Thus, please give your real opinion.**

Q15) Managers should be careful not to ask the opinions of subordinates too frequently; otherwise, the manager might appear to be weak and incompetent.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q16) Managers should make most decisions without consulting subordinates.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q17) Employees should not question their manager's decisions.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q18) Managers should not ask subordinates for advice, because they might appear less powerful.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q19) Individual rewards are not as important as group welfare.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q20) Group success is more important than individual success.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q21) Working within a team is better than working alone.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q22) It is preferable to have a man in a high-level position rather than a woman.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q23) Men usually solve problems with logical analysis.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q24) Women usually solve problems with intuition.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q25) Solving organisational problems usually requires an active forcible approach that is typical of men.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q26) It is important to have job requirements and instructions spelt out in detail so that

people always know what they are expected to do.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q27) Rules and regulation are important because they inform workers what the organisation expects of them.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q28) Order and structure are very important in a work environment.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q29) Working in a structured environment is better than working (rules and regulations) in an unstructured work environment.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Part Three. **Performance Expectancy: Please choose how much you agree with each of the statements within your general experience with the Saudi E-government website.**

Q30) Using e-government services on government websites enable me to access government services more quickly.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q31) Using e-government services on government websites enhances my effectiveness in accessing government services (e.g. find the most relevant information about a service).

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q32) Using e-government services on government websites allows me to access more government services than would otherwise be possible.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q33) Using e-government services on government websites to access government services increases my productivity (e.g. find information about services within shortest time frame).

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q34) Overall, I find e-government services on government websites useful for me to access government services.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Part Four. **Effort Expectancy: Please choose the degree to which you believe that using e-government services would be free of effort.**

Q35) Learning how to use e-government services on government websites to access government services is easy for me.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q35) I find it easy to use e-government services on government websites to find what I want.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q36) My interaction with e-government services on government websites to access government services is clear and understandable.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q37) E-government services on government websites are flexible to interact with.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q38) Overall, I find using e-government services to access government services easy to use.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Part Five: **Social Influence. Please choose the degree to which you agree with the following statements.**

Q39) People who influence my behaviour think that I should use e-government services on government websites.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q40) People who are important to me think that I should use e-government services on government websites.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q41) I would use the e-government services if my friends used them.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Part Six: **Facilitating Conditions. Please choose the degree to which you agree with the following statements.**

Q42) I have the resources necessary to use e-government services on government websites.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q43) I have the knowledge necessary to use e-government services on government websites.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q44) I have enough Internet experience to use e-government services on government websites.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q45) I would find it difficult to use e-government services on government websites due to lack of time.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q46) I think that using e-government services on government websites fits well with the way I like to work.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Part Seven: Privacy. **Please choose the degree to which you agree with the following statements.**

Q47) I feel that my privacy is very important to me.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q48) I feel that my control over my personal information is very important to me.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q49) I feel it is important to avoid having personal information released that I think could be financially damaging.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q50) I feel it is important to avoid having personal information released that I think could be socially damaging to me.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q51) I feel that the use of personal information that has been released by me but is used in a manner not intended by me is unacceptable.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q52) I feel that the release of personal information to entities where I feel as though I am anonymously providing the information is unacceptable.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Part Eight: Trust. **Please choose the degree to which you agree with the following statements.**

Q53) The used technology (Web-based) has enough safeguards to make me feel comfortable using it to access e-government services.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q54) I feel assured that legal and technological structures adequately protect me from problems on the used technology for e-government services.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q55) In general, the used technology is now a robust and safe environment in which to transact with e-government services.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q56) In general, I think I can trust e-government services on government websites.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q57) In my opinion, e-government services on government websites are trustworthy.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Part Nine: Behavioural Intention. **Please choose the degree to which you agree with the following statements.**

Q58) I intend to use the e-government services on the government website to access government services frequently.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q59) I predict that I should use the e-government services on government website(s) to access government services in the future.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Q60) I predict I will continue to use the e-government services on government website(s) to access government services on a regular basis.

❍ Strongly Disagree ❍ Disagree ❍ Neutral ❍ Agree ❍ Strongly Agree

Thank you very much for your time and valuable contribution to this research.

- If you have any further comment or suggestion, please include it in the following space:

……
……
……
……
……

- If you are interested in receiving the results of this study or participating further please add your email. You can leave it empty if not.
  ……
  ……
  ……

Appendix B: The Study Cover Letter and Questionnaire—Arabic Version

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CRICOS Provider No. 00114A

خطاب تعريف

عزيزي / عزيزتي المحترم/ة

السلام عليكم ورحمة الله وبركاته ..... وبعد

هذا الخطاب لتعريف الطالب : محمد بن عيد الزهراني والذي تم ترشيحه لدرجة الدكتوراه في قسم علوم الحاسب الآلي والهندسة والرياضيات في جامعة فلندرز في أستراليا .

يقوم المرشح حاليا بإجراء الدراسات المتعلقة ببحثه بغرض الحصول على رسالة درجة الدكتوراه أو بغرض نشر أبحاث أخرى حول موضوع "تبني التقنية ومحددات مدى قبول الخدمات الإلكترونية الحكومية في المملكة العربية السعودية ".

هو سيكون ممتن جدا لو تفضلتم بالتطوع والمساعدة في هذا المشروع البحثي من خلال إكمال هذا الاستبيان الذي يغطي جوانب معينة من هذا البحث . هذا الاستبيان سيحقق في العوامل المؤثرة على تبني خدمات الحكومة الإلكترونية في المملكة العربية السعودية . إجابة هذا الاستبيان لن يأخذ من وقتكم الثمين أكثر من 30 دقيقة.

سيتم إرسال ملخص نتائج البحث عن طريق البريد الإلكتروني إلى المشاركين المهتمين لهذا البحث.

كن متأكدا من أن أي معلومات مقدمة منكم ستعامل في سرية تامة وأنه لن يتم تحديد أو تمييز أياً من المشاركين في البحث بشكل فردي في نتائج الرسالة أو التقارير أو غيرها من الأبحاث المنشورة .

يحق لك بالطبع التوقف عن المشاركة في هذا البحث في أي وقت تشاء كما يحق لك أيضاً رفض الإجابة عن أسئلة معينة في الإستبيان .

أية إستفسارات لديكم بشأن هذا البحث يجب أن توجه إلى العنوان المذكور أعلاه أو عن طريق الهاتف على 8201 (8 61+) 3113 أو عن طريق الفاكس على 2904 8201 (8 61+) أو عن طريق إرسال إيميل إلى العنوان Robert.goodwin@flinders.edu.au

أشكركم على اهتمامكم ومساعدتكم .

تقبلوا فائق تحياتي واحترامي

د.روبرت قودوين

قسم علوم الحاسب الآلي والهندسة والرياضيات

لقد تمت الموافقة على هذا المشروع البحثي من لجنة أخلاقيات البحث بجامعة فلندرز (رقم المشروع : 5254) لمزيد من التفاصيل بشأن الموافقة الأخلاقية للمشروع يمكن الاتصال بالمسؤول التنفيذي للجنة على الهاتف 82013116 (618+) أو عن طريق الفاكس على 82012035 (618+) أو عن طريق إرسال إيميل إلى العنوان

human.researchethics@flinders.edu.au

الجزء الأول : المعلومات العامة

الرجاء اختيار ماتراه مناسبا لك من العناصر التالية

س1) الجنس

❍ انثى ❍ ذكر

س2) الحالة الإجتماعية

❍ أعزب ❍ متزوج ❍ مطلق ❍ أخرى

س3) حدد عمرك من التالي :

❍ أقل من 18سنة ❍ 18-30 ❍ 31-40 ❍ 41-50 ❍ 51-60 ❍ أكبر من 60

س4) ما هو أعلى مؤهل تعليمي حصلت عليه ؟

❍ الثانوي ❍ شهادة دبلوم فنية أو مهنية (لم يتم الحصول على درجة البكالوريوس) ❍ درجة البكالوريوس ❍ درجة الماجستير ❍ الدكتوراه

س5) ما هو مدى دخلك الشهري ؟

❍ أقل من 2000 ريال سعودي
❍ 2000 – 5000 ريال سعودي
❍ 5001 – 10000 ريال سعودي
❍ 10001- 15000 ريال سعودي
❍ أكثر من 15000 ريال سعودي

س6) ما هي وظيفتك ؟

❍ موظف في قطاع الحكومة
❍ موظف في قطاع خاص
❍ طالب
❍ أخرى_____

س7) منذ متى وأنت تستخدم جهاز الكمبيوتر ؟

❍ أقل من ثلاث سنوات ❍ 3-5 سنوات ❍ خمس سنوات فأكثر

س8) كم عدد مرات استخدام الانترنت ؟

❍ مرة واحدة في الشهر ❍ عدة مرات في الشهر
❍ عدة مرات في الأسبوع ❍ مرة واحدة في اليوم
❍ عدة مرات في اليوم

س9) هل قد سمعت عن برنامج التعاملات الإلكترونية (الحكومة الإلكترونية) قبل هذه المرة ؟

❍ نعم ❍ لا (إذهب للسؤال 12)

س 10) كيف تعرفت عن خدمات الحكومة الإلكترونية السعودية ؟

❍ وسائل الإعلام (تلفزيون ،صحف،إلخ) ❍ صديق أو قريب
❍ من خلال الانترنت ❍ من الحكومة السعودية
❍ أخرى.....

س11) هل سبق وأن قمت بأية إجراء معاملة حكومية إلكترونية (مثال : أخذ مواعيد للأحوال المدنية ، إنجاز معاملات الجوازات أو معاملات وزارة التعليم العالي أو الخدمة المدنية إلخ)، عن طريق الانترنت

❍ نعم ❍ لا

س12) هل ستكون خدمات الحكومة الإلكترونية مفيدة للملكة العربية السعودية ؟

❍ نعم ❍ لا (لماذا)

.....
.....
.....
.....
.....

س13) هل أنت على استعداد لاستخدام الحكومة الإلكترونية وما تقدمه من خدمات ؟

❍ نعم ❍ لا (لماذا)

.....

.....

.....

.....

.....

س14) حدد الجهاز الذي تستخدمه عادة في تصفح الانترنت ومواقع الحكومة الإلكترونية للاستفادة من خدماتها

❑ الكمبيوتر المكتبي ❑ اللاب توب ❑ الجوال ذو القدرات الحاسوبية مثل-HTC –iPhon NokiaN8)

س14.1) حدد نوع الاتصال الذي تستخدمه عادة أثناء تصفحك للانترنت أو استخدام مواقع الحكومة الإلكترونية للأستفاده من خدماتها

❍ الخط الثابت (المودم متصل بالكيبل للجهاز) ❍ الشبكة اللاسلكية

الجزء الثاني : الثقافة السعودية

هنا مجموعة من العبارات والتي تعبر عن قياس الثقافة العامة . حيث لا يوجد إجابة صحيحة أو خاطئة

الرجاء منك هو اختيار ما يتوافق مع وجهة نظرك بكل صراحة وأريحية تامة

س15) ينبغي على المدير أن يكون حذرا بحيث لا يسأل موظفيه عن أرائهم بشكل دائم ، وإلا يمكن أن يظهر ضعفه وعدم كفاءته

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س16) ينبغي على المدير اتخاذ أغلب القرارات دون استشارة مرؤوسيه

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س17) ينبغي على الموظفين عدم مناقشة قرارات مديرهم

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س18) ينبغي على المدراء أن لا يطلبوا النصيحة من المرؤوسين لأن ذلك قد يظهرهم أقل قوة

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س19) بشكل عام ، تكون الكلمة الأخيرة للمدير وليس للموظفين

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س20) سلطة اتخاذ القرار يجب أن تبقى لدى الإدارة العليا في المنظمة وأن لا يوفوض موظفي المستوى الأدنى

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س21) المكافآت الفردية ليست أهم من رفاهية المجموعة

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س22) نجاح المجموعة أكثر أهمية من نجاح الفرد

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س23) من الأفضل أن يكون الرجل في مناصب المستوى الأعلى أكثر من المرأة

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س24) الرجال في الغالب يحلون المشاكل عن طريق التحليل المنطقي

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س25) النساء في العادة يحلون المشاكل عن طريق التخمين

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س26) حل المشاكل التنظيمية غالبا تتطلب نهجا نشيطا وقويا ، والذي يتوفر أصلا عند الرجال

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س27) من الأهمية أن يكون هناك متطلبات وتعليمات للعمل موضحه بشكل دقيق ، وبذلك يعرف الناس ما هو متوقع منهم عمله

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س28) الأنظمة والقوانين مهمة لأنها تُبين وتُعلم الموظفين والع ما الذي تتوقعه المُنَظمة منهم

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س29) يجب على الناس تجنب التغييرات عندما تكون نتائج هذه التغييرات غير مؤكدة

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س30) النظام والهيكل التنظيمي مهم جدا في بيئة العمل

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س31) من الأفضل العمل في منظمة ذات قوانين وتشريعات محددة في مقابل منظمة أكثر مرونة

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س32) العمل في بيئة منظمة (ذات قوانين وتشريعات) أفضل من العمل في بيئة غير منظمة

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س33) إحترام التقاليد يعيق الأداء في العمل

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س34) تبادل الهدايا والخدمات ليس ضروريا للتميز

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س35) تأييد الآخرين للفرد يؤثر بشكل طفيف على تحقيق الأهداف

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

الجزء الثالث : الأداء المتوقع

الرجاء الإختيار بما تعبره عن موافقتك من العبارات التالية من خلال خبراتك العامة في استخدام مواقع الحكومة .الألكترونية على الإنترنت

عند الإجابة استحضر المقارنة بين الطرق التقليدية والإلكترونية في التعاملات والخدمات الحكومية ، التقليدية)مثل (الذهاب شخصيا للدوائر والمؤسسات الحكومية ، أو عن طريق مكتب خدمات أو صديق وغيرها

س 36) استخدام خدمات الحكومة الإلكترونيةمواقع الوزارات على الانترنت) تمكنني من الوصول إلى الخدمات الحكومية بسرعة أكبر من الطرق التقليدية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س37) استخدام خدمات الحكومة الإلكترونية يعزز وصولي إلى الخدمات الحكومية بفاعلية (مثال : الحصول على المعلومات المرتبطة بالمعاملة الحكومية أو إنهاء اجراء المعاملة بشكل أسرع)

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س38) استخدام خدمات الحكومة الإلكترونية يسمح لي الوصول إلى عدد أكبر من الخدمات الحكومية مقارنة بالطرق التقليدية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س39) استخدام خدمات الحكومة الإلكترونية للوصول للخدمات الحكومية تزيد من انتاجيتي (على سبيل المثال : أجد المعلومات حول الخدمة أو المعاملة في وقت أقصر)

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س40) بشكل عام ، أجد خدمات الحكومة الإلكترونية مفيدة لي في الوصول إلى الخدمات الحكومية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

الجزء الرابع: الجهد المتوقع

الرجاء الإختيار عن مدى ما يعبر به موافقتك على كل عبارة من العبارات التالية وذلك من خلال خبرتك وتجربتك العامة مع خدمات الحكومة الإلكترونية السعودية

س41) تعلم كيفية استخدام خدمات الحكومة الإلكترونية للوصول إلى الخدمات الحكومية سهل بالنسبة لي

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س42) أجد من السهل استخدام خدمات الحكومة الإلكترونية للحصول على ما أريد

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س43) تفاعلي مع خدمات الحكومة الإلكترونية للحصول على خدمات الحكومة واضحة ومفهومة

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س44) وجدت مرونة عند تعاملي مع خدمات الحكومة الإلكترونية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س45) استخدام خدمات الحكومة الإلكترونية يتطلب الكثير من الوقت في القيام بعمليات ميكانيكية (مثل إدخال البيانات والتحقق منها

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س46) بشكل عام ، أجد سهولة في استخدام خدمات الحكومة الإلكترونية للوصل للخدمات الحكومية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

الجزء الخامس: التأثير الإجتماعي.

الرجاء اختيار ما يعبر عن مدى موافقتك على كل عبارة من العبارات التالية

س 47) الناس الذين لهم تأثير على سلوكي يعتقدون بأنه يجب علي استخدام الحكومة الإلكترونية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س48) الناس المهمين بالنسبة لي يعتقدون أنه يجب علي استخدام خدمات الحكومة الإلكترونية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س49) سوف أستخدم خدمات الحكومة الإلكترونية فقط إذا كنت بحاجة لها

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س50) سوف استخدم خدمات الحكومة الإلكترونية إذا استخدمها أصدقائي

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

الجزء السادس: الحالة الميسرة .

الرجاء اختيار ما تعبر به عن مدى موافقتك على كل عبارة من العبارات التالية

س51) لدي الموارد اللازمة (جهاز حاسب- شبكة انترنت سلكية أو لاسلكية - طابعة .. إلخ) لاستخدام خدمات الحكومة الإلكترونية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س52) لدي المعلومات والمعرفة اللازمة التي تجعلني أستخدم خدمات الحكومة الإلكترونية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س53) لدي الخبرة الكافية لاستخدام الانترنت التي تجعلني استخدم خدمات الحكومة الإلكترونية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س54) سوف أجد صعوبة في استخدام خدمات الحكومة الإلكترونية بسبب ضيق الوقت

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س55) أعتقد بأن استخدام خدمات الحكومة الإلكترونية تتناسب تماما مع الطريقة التي أحب العمل بها

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

الجزء السابع: الخصوصية

الرجاء إختيار ما تعبر به عن مدى موافقتك على كل عبارة من العبارات التالية

س56) أشعر بأن خصوصيتي مهمة جدا بالنسبة لي

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س57) أشعر بأن تحكمي على معلوماتي الشخصية مهمة جدا بالنسبة لي

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س58) أشعر أنه من المهم عدم الكشف عن معلومات حساسة إلى أي وحدة أو قسم في الدوائر الحكومية والمؤسسات

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س59) أشعر أنه من المهم تجنب نشر المعلومات الشخصية التي أعتقد أن تكون مدمره لي مالي

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س60) أشعر أنه من المهم تجنب نشر المعلومات الشخصية التي أعتقد أن تكون مدمره لي إجتماعيا

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س61) أشعر بأن نشر معلوماتي الشخصية للأفراد الذين تربطني بهم علاقة متينة أمر غير مقبول

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س62) أشعر بأن استخدام معلوماتي الشخصية التي قمت بنشرها ولكنها تستخدم بطريقة غير التي نشرت من أجلها أمر غير مقبول

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س63) أشعر بأن نشر معلوماتي الشخصية من قبل الدوائر والأقسام كمعلومات لشخص مجهول أمر غير مقبول

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

الجزء الثامن: الثقة

الرجاء الاختيار عما تعبر به عن مدى موافقتك على كل عبارة من العبارات التالية

س64) التكنولوجيا المستخدمة (على شبكة الإنترنت، الجوال) يحتوي على ضمانات كافية لتجعلني اشعر بالراحة

في استخدامها للوصول إلى خدمات الحكومة الإلكترونية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س65) أشعر بارتياح مؤكد بأن الهيكلة التنظيمية القانونية والتقنية تحميني بشكل كاف من المشاكل المترتبة على استخدام خدمات الحكومة الإلكترونية

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س66) بشكل عام التكنولوجيا المستخدمة التي أتعامل بها في خدمات الحكومة الإلكترونية ذو بيئة قوية وآمنة

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س67) بشكل عام , أعتقد أنه يمكن الثقة بخدمات الحكومة الإلكترونية على مواقع الحكومة الإلكترونية في الانترنت

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س68) في رأيي، خدمات الحكومة الإلكترونية على مواقع الحكومة في الانترنت جديرة بالثقة

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

الجزء التاسع: النية السلوكية:

الرجاء الاختيار عما تعبر به عن مدى موافقتك على كل عبارة من العبارات التالية

س69) إنني أنوي استخدام خدمات الحكومة الإلكترونية على مواقع الحكومة في الانترنت للوصول للخدمات الحكومية في كثير من الأحيان

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س 70) أتوقع أنني يجب أن استخدم خدمات الحكومة الإلكترونية على مواقع الحكومة في الانترنت للوصول للخدمات الحكومية في المستقبل.

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

س 71) أتوقع أنني سوف أستمر في استخدام خدمات الحكومة الإلكترونية على الحكومة في الانترنت للوصول للخدمات الحكومية بشكل منتظم .

❍ أوافق بشدة ❍ أوافق ❍ محايد ❍ لا أوافق ❍ لا أوافق بشدة

شكرا جزيلا على إعطاءنا من وقتك الثمين ومشاركتك في هذه الدراسة

- اذا كان لديك أية تعليق أو اقتراح الرجاء إضافته و كتابته في الأسطر التالية :

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- إذا كنت مهتما بنتاج البحث أو بالمشاركة مستقبلا في هذا الرجاء إضافة إيميلك أو تركه فارغا

.....
.....
.....

Appendix C: The Ethics Committee Approval

Flinders University and Southern Area Health Service

SOCIAL AND BEHAVIOURAL RESEARCH ETHICS COMMITTEE

Research Services Office, Union Building, Flinders University
GPO Box 2100, ADELAIDE SA 5001
Phone: (08) 8201 3116
Email: human.researchethics@flinders.edu.au

CONDITIONAL APPROVAL NOTICE

Principal Researcher:	Mr Mohammad Alzahrani
Email:	alza0022@flinders.edu.au
Address:	School of Computer Science, Engineering and Mathematics
Project Title:	Technology adoption and Determinants of E-government Services Acceptance in Saudi Arabia
Project No.:	5254

The Social and Behavioural Research Ethics Committee is satisfied that in most respects the above project meets the requirements of the *National Statement on Ethical Conduct in Human Research (March 2007)*. However, some further clarification is needed prior to the commencement of data collection.

The project has been given **conditional approval** subject to:

(i) Confirmation that data collection has not commenced given that the date that data collection is due to commence was listed as the 1st of July 2011. Please be reminded that projects may not commence without prior written approval from the Social and Behavioural Research Ethics Committee (see paragraph 2 under 'When is ethical review needed?' in the section called 'Purpose, Scope and Limits of this Document' in the *National Statement on Ethical Conduct in Human Research)* (item A3).

(ii) Provision of more detailed information regarding what participants will be asked to do as insufficient detail was provided (item C5).

(iii) Clarification of why part 2 of the survey is necessary for the purposes of the research. Why is this cultural information required and how will requesting this information address the research objectives (item C5)

(iv) Provision of more information regarding how the questions asked of participants will address the research objectives (item C6).

(v) Provision of more detailed information regarding the potential participants, including the basis for their recruitment (item D1(a)).

(vi) Clarification of the size of the population pool from which participants will be drawn, or an approximation if an exact number is unknown (item D1(b)).

(vii) Confirmation that translated copies of participant documents provided represent an accurate translation of the information presented to the Committee (item D3).

(viii) Provision of more detailed information regarding how participants will be contacted and recruited for both interviews and surveys as insufficient detail was not provided (item D4).

(ix) Clarification of whether the same participant documentation will be provided to respondents participating in interviews and/or questionnaires. If not, then please provide a clear outline of what information the two participant types will receive (item D5).

Appendix D: Approvals and Correspondence Letters to Conduct the Study from MCIT

الرقم
التاريخ
المرفق

e-GovernmentProgra

سعادة الدكتور محمد بن عيد الزهراني حفظه الله

السلام عليكم ورحمة الله وبركاته ،

إشارة إلى خطابكم رقم (بدون) وتاريخ ٢٠١٠/٣/٢٧ م والمتضمن رغبتكم في توجيه رسالة الدكتوراه لأحد تحديات تطبيق التعاملات الإلكترونية الحكومية e-Government Challamges فتجدون برفقه بعض المقترحات آملين ان تساهم في تيسير بحثكم ، راجين ان تزودنا بنسخة إلكترونية من الرسالة بعد إعدادها للإستفادة منها في مسيرتنا. علما بأننا مستعدين للمساهمة في المراجعة والتعليق على أي إصدار من الرسالة سواءا باللغة العربية أو الإنجليزية.

جدير بالذكر أن العناصر المذكورة مع كل مقترح ليست شاملة ولا كاملة وقابلة للتغيير والتبديل حسب توجه الدارس والمشرفين على الدراسة وعمق البحث الميداني للمقترح.

المقترح الأول : التكامل المعلوماتي في التعاملات الإلكترونية الحكومية e-Services Integration Between Government Sectors

- عنصر التحدي الأول – غياب التعريفات الموحدة للوحدات الأساسية Entity Definition.
- عنصر التحدي الثاني – عدم وضوح ملكية المعلومة وحالتها لكل وحدة أساسية وتوابعها Entity Ownership.
- عنصر التحدي الثالث – تكرار التخزين لنفس المعلومة في أكثر من جهة Data Replication.
- عنصر التحدي الرابع – تباين المعلومات المخزنة في الجهات المختلفة لنفس الشخص او الوحدة Data Consistency.
- عنصر التحدي الخامس – تباين مستوى الميكنة للتعاملات من جهة لأخرى Automation Level.

Kingdom of Saudi Arabia - Riyadh, Al Muroorj - King Abdul Aziz Communications Complex, eGovernment Program (Yesser) - Tel: 4922572 - Fax: 4922553 - Riyadh 1111
www.yesser.gov.sa

- **المقترح الثاني : الموازنة بين التحول الكامل للتعاملات الإلكترونية الحكومية والخصوصية الشخصية Balance Between e-Transformation & Privacy**

- عنصر التحدي الأول – التباين الكبير جدا في تعريف الخصوصية الشخصية بين الأفراد والمنظمات والحكومة Definition of Privacy.
- عنصر التحدي الثاني – صعوبة الموازنة بين التعاملات الإلكترونية الشاملة والتي تعتمد على الشفافية الكاملة في المعلومة وبين المحافظة على الخصوصية الشخصية Balance between comprehensive e-Services and privacy.
- عنصر التحدي الثالث – التعارض الكامل بين متطلبات الجهات الأمنية في حجب الكثير من المعلومات وبين متطلبات الشفافية في المعلومات لإكمال التحول الشامل للتعاملات الإلكترونية e-Services Against e-Security.
- عنصر التحدي الرابع – التعارض الواضح بين معايير الأمم المتحدة في التشديد على التحول الكامل للتعاملات الإلكترونية بشفافية وبين متطلباتهم للمحافظة على الخصوصية الشخصية UN Conflicting Demands for E-Services & Privacy.

وتقبلوا سعادتكم فائق التحية والتقدير ،،

المدير العام لبرنامج
التعاملات الإلكترونية الحكومية
علي بن صالح آل صمع

وزارة الاتصالات وتقنية المعلومات
Ministry of Communications and Information Technology

برنامج يسر
رقم الصادر: ٦/٦١٠
التاريخ: ١٤٣٢/٠٥/٠٨ هـ
المرفقات:

سعادة الملحق الثقافي في سفارة المملكة العربية السعودية في استراليا حفظه الله

السلام عليكم ورحمة الله وبركاته،

نحيطكم علماً بأن الطالب محمد بن عيد الزهراني تقدم لبرنامج التعاملات الالكترونية الحكومية (يسّر) بطلب موافقة على تنفيذ دارسة ميدانية بعنوان " تبني التقنية ومحددات مدى قبول الخدمات الإلكترونية الحكومية في المملكة العربية السعودية" من خلال زيارته لمقر البرنامج في مدينة الرياض ومقابلة عدد من منسوبي برنامج التعاملات الإلكترونية الحكومية (يسّر)، لجمع عدد من البيانات التي تتعلق بمجال بحثه في مجال (الحكومة الإلكترونيّة)، لنيل درجة الدكتوراه من جامعة (فلندرز)،

وعليه يفيد برنامج التعاملات الإلكترونية الحكومية بقبول طلب الطالب محمد بن عيد الزهراني زيارة البرنامج ومقابلة عدد من منسوبي برنامج التعاملات الإلكترونية الحكومية بالتنسيق مع إدارة مركز التميز للأبحاث والتطوير بالبرنامج، وقد مُنح هذا الخطاب بناء على طلبه وذلك لتقديمه إلى (الملحقية الثقافية السعودية في أستراليا).

وتقبلوا سعادتكم فائق التحية والتقدير ،،،

مستشار الوزير والمدير العام لبرنامج
التعاملات الإلكترونية الحكومية

علي بن صالح آل صمع

ص. مركز التميز

المملكة العربية السعودية - الرياض ١١١١٢ - هاتف : ٤٥٢٢٢٢٢ - فاكس : ٤٥٢٢٢٢٠ - الموقع الإلكتروني : www.mcit.gov.sa
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Appendix E: Information Sheet for Interview

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INFORMATION SHEET

Title: 'Technology adoption and Determinants of E-government Services Acceptance in Saudi Arabia'

Investigators:
Mr Mohammad Alzahrani
PhD student in the School of Computer Science, Engineering and Mathematics
Flinders University
Email: alza0022@flinders.edu.au

Description of the study:
This study is part of the project entitled 'Technology adoption and Determinants of E-government Services Acceptance in Saudi Arabia'. This project will investigate the factors influencing the adoption of e-Government services in Saudi Arabia.

Purpose of the study:
This project aims to:

- Contribute towards understanding the low level of citizen adoption of e-government services.
- Identify the factors that influence citizen adoption of e-government services in the Kingdom of Saudi Arabia.
- Facilitate Saudi's government to increase citizens' adoption of its online services and to expose unseen problems
- Develop and examine an adoption model of e-government with and without using mobile channel from the citizen perspective.

What will I be asked to do?
You are invited to attend a one-on-one interview with a PhD student who will ask you a few questions about your views about E-government Services. The interview will no more than one hour require. The interview will be recorded using a digital voice recorder to help with looking at the results. Once recorded, the interview will be transcribed (typed-up) and stored as a computer file and then destroyed once the results have been finalised. This is voluntary.

What benefit will I gain from being involved in this study?

Interview questions

1. Question about background information will be used with all interviewees, for example age, education level, income status, position status, experience and anything related to the study.

2. Could you tell me about the e-government services In Saudi Arabia?

3. Could you tell me about the possibilities of adoption and using the e-government services as individual and organizations? And how culture can influence that

4. How do you think the privacy influence the adoption and using of e-government Services?

5. How do Citizens perceive e-government services compared to traditional government services?

6. What kind of strategies the Government should use to change Citizens attitudes toward e-government services?

7. Could you tell me about the citizens' attitude and behavior toward using the e-government services?

8. How could the government adopt and motivate the citizen to use e-government services?

9. What we can do to help the Individuals and Organizations to accelerate the adoption of e-government services?

10. What do you need in order to use the e-government as your regular way for government transactions?

11. How do you think the Trust influence the adoption and using of e-government Services?

Appendix F: Exploratory Factor Analysis (EFA) for Pilot Study

Performance Expectancy:

Correlation Matrix

		PE1	PE2	PE3	PE4	PE5
Correlation	PE1	1.000	.705	.602	.612	.643
	PE2	.705	1.000	.671	.691	.745
	PE3	.602	.671	1.000	.687	.646
	PE4	.612	.691	.687	1.000	.676
	PE5	.643	.745	.646	.676	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.889
Bartlett's Test of Sphericity	Approx. Chi-Square	2017.035
	df	10
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.673	73.462	73.462	3.673	73.462	73.462
2	.430	8.594	82.056			
3	.349	6.985	89.041			
4	.306	6.129	95.169			
5	.242	4.831	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
PE1	.829
PE2	.892
PE3	.840
PE4	.855
PE5	.867

Extraction Method: Principal Component Analysis.

Effort Expectancy:

Correlation Matrix

		EE1	EE2	EE3	EE4	EE5	EE6
Correlation	EE1	1.000	.675	.632	.507	.328	.587
	EE2	.675	1.000	.688	.550	.288	.697
	EE3	.632	.688	1.000	.627	.325	.650
	EE4	.507	.550	.627	1.000	.327	.636
	EE5	.328	.288	.325	.327	1.000	.375
	EE6	.587	.697	.650	.636	.375	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.876
Bartlett's Test of Sphericity	Approx. Chi-Square	1333.069
	df	15
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.704	61.726	61.726	3.704	61.726	61.726
2	.811	13.510	75.236			
3	.527	8.781	84.016			
4	.375	6.255	90.272			
5	.329	5.490	95.762			
6	.254	4.238	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
EE1	.806
EE2	.852
EE3	.853
EE4	.784
EE5	.505
EE6	.854

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
EE1	.806
EE2	.852
EE3	.853
EE4	.784
EE5	.505
EE6	.854

Extraction Method: Principal Component Analysis.

		EE1	EE2	EE3	EE4	EE6
Correlation	EE1	1.000	.675	.632	.507	.587
	EE2	.675	1.000	.688	.550	.697
	EE3	.632	.688	1.000	.627	.650
	EE4	.507	.550	.627	1.000	.636
	EE6	.587	.697	.650	.636	1.000

a. 1 components extracted.

Component Matrix[a]

	Component
	1
EE1	.801
EE2	.865
EE3	.847
EE4	.789
EE6	.823

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Social Influence:

Correlation Matrix

		SI1	SI2
Correlation	SI1	1.000	.664
	SI2	.664	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	367.682
	df	1
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.664	83.217	83.217	1.664	83.217	83.217
2	.336	16.783	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
SI1	.912
SI2	.912

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Facilitating Conditions:

Correlation Matrix

		FC1	FC2	FC3	FC4	FC5
Correlation	FC1	1.000	.485	.530	.406	.325
	FC2	.485	1.000	.658	.531	.375
	FC3	.530	.658	1.000	.498	.394
	FC4	.406	.531	.498	1.000	.381
	FC5	.325	.375	.394	.381	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.825
Bartlett's Test of Sphericity	Approx. Chi-Square	894.651
	df	10
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.856	57.113	57.113	2.856	57.113	57.113
2	.717	14.336	71.448			
3	.592	11.830	83.279			
4	.501	10.022	93.300			
5	.335	6.700	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
FC1	.727
FC2	.826
FC3	.834
FC4	.748
FC5	.625

Trust:

Correlation Matrix

		TR1	TR2	TR3	TR4	TR5
Correlation	TR1	1.000	.621	.568	.465	.484
	TR2	.621	1.000	.661	.559	.508
	TR3	.568	.661	1.000	.698	.676
	TR4	.465	.559	.698	1.000	.819
	TR5	.484	.508	.676	.819	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.813
Bartlett's Test of Sphericity	Approx. Chi-Square	1913.918
	df	10
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.433	68.665	68.665	3.433	68.665	68.665
2	.713	14.252	82.917			
3	.394	7.875	90.793			
4	.286	5.719	96.511			
5	.174	3.489	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
TR1	.743
TR2	.803
TR3	.876
TR4	.864
TR5	.850

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Privacy:

Correlation Matrix

		PR1	PR2	PR3	PR4	PR5	PR6	PR7	PR8
Correlation	PR1	1.000	.812	.301	.527	.512	**.206**	.432	**.292**
	PR2	.812	1.000	.323	.523	.530	**.245**	.424	.302
	PR3	.301	.323	1.000	.379	.387	.475	**.247**	**.208**
	PR4	.527	.523	.379	1.000	.792	.376	.492	.342
	PR5	.512	.530	.387	.792	1.000	.411	.523	.343
	PR6	.206	.245	.475	.376	.411	1.000	.348	.300
	PR7	.432	.424	.247	.492	.523	.348	1.000	.484
	PR8	.292	.302	.208	.342	.343	.300	.484	1.000

After eliminating PR6, PR7 and PR8

Correlation Matrix

		PR1	PR2	PR3	PR4	PR5
Correlation	PR1	1.000	.812	.301	.527	.512
	PR2	.812	1.000	.323	.523	.530
	PR3	.301	.323	1.000	.379	.387
	PR4	.527	.523	.379	1.000	.792
	PR5	.512	.530	.387	.792	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.731
Bartlett's Test of Sphericity	Approx. Chi-Square	1686.059
	df	10
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.080	61.608	61.608	3.080	61.608	61.608
2	.832	16.647	78.255			
3	.692	13.836	92.091			
4	.213	4.250	96.341			
5	.183	3.659	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
PR1	.823
PR2	.831
PR3	.557
PR4	.838
PR5	.837

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Culture :

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.818	13.418	13.418	2.818	13.418	13.418
2	2.388	11.370	24.788	2.388	11.370	24.788
3	1.622	7.722	32.509	1.622	7.722	32.509
4	1.415	6.737	39.247	1.415	6.737	39.247
5	1.277	6.079	45.325	1.277	6.079	45.325
6	1.080	5.143	50.468			
7	1.018	4.846	55.315			
8	.892	4.249	59.564			
9	.865	4.121	63.684			
10	.846	4.029	67.713			
11	.811	3.863	71.576			
12	.750	3.573	75.149			
13	.735	3.500	78.650			
14	.667	3.175	81.824			
15	.646	3.075	84.899			
16	.634	3.020	87.919			
17	.611	2.908	90.828			
18	.584	2.782	93.610			
19	.514	2.449	96.059			
20	.451	2.147	98.205			
21	.377	1.795	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component				
	1	2	3	4	5
C_PD1	–.097	**.571**	.355	.153	–.066
C_PD2	–.158	**.521**	.180	–.033	.001
C_PD3	–.145	**.520**	.291	–.087	–.022
C_PD4	–.152	**.587**	.263	.183	–.029
C_PD5	.191	**.455**	**.**332	–.327	.110
C_PD6	.181	**.543**	.320	–.107	.032
C_IVC7	.070	.141	–.026	–.026	**.691**
C_IVC8	.310	–.002	–.125	–.039	**.477**
C_MF9	.311	.385	**.414**	–.299	–.088
C_MF10	.361	–.326	**.446**	–.269	.110
C_MF11	.281	–.516	**.434**	–.064	.045
C_MF12	.344	–.378	**.475**	–.122	–.177
C_UA13	**.627**	–.259	.224	–.029	.110
C_UA14	**.707**	–.235	.235	.019	.019
C_UA15	**.341**	.247	–.093	.284	–.224
C_UA16	**.703**	–.093	.146	.130	–.075
C_UA17	**.462**	.134	.101	.103	–.281
C_UA18	**.694**	–.085	.150	.208	–.077
C_LT19	–.156	.145	–.180	**.620**	.133
C_LT20	.049	.096	.183	**.532**	**.**142
C_LT21	–.022	.167	–.269	**.583**	.212

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

Behavioural Intention:

Correlation Matrix

		BI1	BI2
Correlation	BI1	1.000	.676
	BI2	.676	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	385.305
	df	1
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.676	83.791	83.791	1.676	83.791	83.791
2	.324	16.209	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
BI1	.915
BI2	.915

Extraction Method: Principal Component Analysis.

a. 1 components extracted.