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The Impact of the contextual factors on the success of

e-government in Lebanon:

Context-System Gap

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Abstract

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The Impact of the contextual factors on the success of e-government in Lebanon: Context-System Gap

Keywords: Acceptance, Citizens, Context, E-government, Implementation, Trust.

Purpose: The relationship between context and e-governance has been gaining a significant momentum in academic circles due its social and technical complexities. There are many challenges posed by the disparity between the context and the system when it comes to e-governance in developing countries. This research aims to reveal more successful adoption of e-governance initiatives and exposes factors that hinder its implementation. We develop a conceptual framework showing the reciprocity between the context and the system or what is termed "Context-System Gap". Therefore, this research will study the appropriateness of the context and its influence on the system and the influence of the system on the context.

The purpose of this research is to explore the factors that enable successful e-government adoption in Lebanon, where e-governance is still at its initial stage. Most empirical research and theories on the implementation of e-governance in developing countries remain at the macro-level and miss out on the complexities of the context of deployment and the role of the gap between the citizens and the government. The purpose of this thesis is to provide an empirical model differentiating between the electronic context and the electronic system and shed a light over a new gap, government-citizen gap, in the adoption of e-government.

Design/methodology/approach: Following previous research on e-government services adoption, this study uses several technology use and acceptance models and literature to examine the elements behind the adoption and use of e-government services in Lebanon from citizen and government perspectives. The research strategy is a quantitative method approach employing questionnaire. Quantitative data will be collected from e-government users (citizens) and statistical tests will be conducted in order to examine the relation between variables.

Practical implications: The findings are useful for policy-makers and decision-makers to develop a better understanding of citizens' needs. The proposed model can be used as a guideline for the implementation of e-government services in developing countries.

Originality/value: This study is the only one to examine the dimensions influencing citizens' adoption of e-government technologies in developing countries using a unified model merging context and system elements.

Dedications

This thesis is dedicated to my family, who exerted so much efforts in helping me and provided more support to make me full of confidence and proud of what I have achieved.

To my mother Amina Mohammad who dedicated her life for me and my siblings, who used to save money in hard times to buy her children books and stories. Nothing would have been achieved without her support and prayers.

To my father, Ali Ahmed Chamas, the one who inspired me through his hard work and patience, who fought life and suffered a lot to afford our expenses and provide a decent living and high education, no matter how I try to thank you and do for you, no words can describe how proud I am because you are my father.

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Finally, this thesis is devoted to all who have faith in the fruitfulness of knowledge.

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List of Abbreviations

ATUT: Attitude

B2B: Business-to-Business

B2C: Business-to-Consumer

BI: Behaviour Intention

C2C: Customer-to-Customer

D&M IS: Success DeLone and McLean IS Success Model

DOI: The Diffusion of Innovations Theory

E-Business: Electronic Business

E-Commerce: Electronic Commerce

E-Gov: eGovernment/Electronic Government

E-Government: Electronic Government

E-Services: Electronic Services

FC: Facilitating Conditions

G2B: Government-to-Business

G2C: Government-to-Citizen

G2E: Government-to-Employee

G2G: Government-to-Government

GOF: Goodness-of-Fit

ICTs: Information Communications Technologies

IQ: Information Quality

ISs: Information Systems

IT: Information Technology

LISREL: Linear Structural Relationship Analysis

MIS: Management Information System

OECD: Organization for Economic Co-Operation and Development

PE: Performance Expectancy

PEOU: Perceived Ease of Use

PSQ: Perceived Support Quality

PU: Perceived Usefulness

SEM: Structural Equation Modelling

SI: Social Influence

SN: Subjective Norm

TAM: Technology Acceptance Model

TPB: The Theory of Planned Behaviour

TRA: Theory of Reasoned Action

UN: United Nation

UTAUT: The Unified Theory of Acceptance and Use of Technology

WWW: World Wide Web

Publications

- Hussain,Z. Baz Chamas, H. Abdi, R (2016) A study looking at the influence of context on implementation of e-governance: What comes first - Context or System?. In Proceedings of the 2016 *UKAIS Conference*, Oxford, UK: AIS electronic library.

- Baz Chamas, H. (2014) The political and legal challenges limiting e-government implementation in developing contexts. Post-Graduate Research Conference. University of Bradford. 31st of October 2014

- Hussain,Z. Baz Chamas, H. Abdi, R (2016) A study looking at ways to increase acceptance of E-Government systems in Developing Countries: A focus on The Context-System Gap. In Proceedings of the 2016 *BAM Conference*, New Castle, UK

- Baz Chamas,H. (2016) E-Government System Acceptance in Developing Countries. BAM & UKAIS seminar; University of Salford Manchester

After the submission of the thesis, two papers are being compiled and submitted to international journals.

Chapter One: INTRODUCTION

1.1 Introduction

This chapter provides an introduction to the thesis entitled "A study looking at the influence of context on implementation of e-governance: What comes first, Context or System?" It serves as a map to this thesis and it is comprised of: Section 1.2 provides the research background, while Section 1.3 states the incentives for the research. Section 1.4 introduces the e-government adoption theories. Sections 1.5 and 1.6 present the research problem and research questions, and the aim and objectives of the study, respectively. Section 1.7 details the research methods adopted. Section 1.8 outlines the necessary context of the country in which this study was undertaken. Finally, an outline of the thesis is presented in Section 1.9.

1.2 Research Background

E-government has emerged as a substantial domain within Information Systems research and a central component of public service. Increasingly, e-governance receives more consideration and thoughtfulness from both practitioners and researchers each year (Carter et al. 2014). Governments have realized the need to go much further than technological improvement to achieve what they are seeking from implementing electronic government. Some countries were able to embed ICTs swiftly and successfully in their governmental administrative operations, but many developing countries have been struggling to transform this necessity into fact (Gebba and Zakaria 2012). One of the major challenges regarding the implementation and use of e-government services is characterized by the citizen's behaviour toward e-government services. Thus, this research offers an initiative for decision makers in public sectors, especially in developing countries to consider the context of implementation and the different variables embraced in it throughout the process of creating an enhanced e-government system to escalate the acceptance and adoption of e-government services among citizens and achieve successful implementation.

E-commerce implementation in business and its attraction for customers has encouraged the exploitation of this concept in public administration to

enhance the provision of services. The success of E-commerce led to the emergence of E-government (Moon 2002a; Bhatnagar 2004). Computers or information and communication technologies in general were seen as a way of making organizations more efficient and effective (Orlikowski and Baroudi 1991; Walsham 1995; Chen and Hirschheim 2004; Heeks 2006, Nograšek and Vintar 2014; Mirza and Reshadatjoo 2016). Three distinct and yet complementary paradigms emerged: using IT for efficiency in services, using IT for social development, and the emerging of governmentality (Inda 2005; Bang and Esmark 2010; McIntyre and Murphy 2012). In the 1990s another dimension came into the picture, which is becoming more user-friendly or citizen-friendly in the services that the governments provide electronically (Muhammad Ovais et al. 2013).

E-government looks at a citizen as a consumer or as a transactional partner, as it aims to lower administrative costs, becomes more efficient, and maintain transparency in governmental organizations. Governments have realized the need to go much further than technological improvement to achieve what they are seeking from implementing e-government. Some countries were able to embed ICTs swiftly and successfully in their governmental administrative operations, but many developing countries have been struggling for decades to transform this necessity into a fact (Dada 2006; Gebba and Zakaria 2012; Alateyah et al. 2014). Additionally, many projects either completely failed or partially failed and did not meet the objectives of e-government in achieving efficiency and transparency (Heeks 2001; Heeks 2005a; Hawari and Heeks 2010).

E-government is defined as the use of information and communication technologies (ICTs), and in particular the Internet, to attain better government or in other words conducting different government transactions through the electronic network (OCDE 2003; Alzahrani.M.E 2012). The application of internet based commerce in society for transactions between citizens, businesses, and governmental departments is also described as e-government. E-government is seen as a revolution in the field of public administration, it added new concepts such as: transparency, accountability, and citizen participation in the evaluation of government performance

(Salamat et al. 2011; Al-Khouri 2012). According to Philip *et al.,* (2007), in addition to the role e-government played in transforming the approach wherein services and information are facilitated, also it presents a significant contribution in renovating the vital interactions between the government and its stakeholders.

Developing countries have recognized the importance of e-government as a fundamental tool for modernisation, improvement, and reformation (Singh et al. 2010; Al-Khouri 2012; Al-Mamari et al. 2013). Thus, International Organizations such as the World Bank have been providing support and resources to help many developing countries (Colesca 2009; Elbahnasawy 2014; Pascual 2014). E-government can serve a variety of purposes including better delivery of government services to citizens, improved interactions with businesses and industries, citizen empowerment through access to information, and more efficient government management (Min et al. 2013; Veeckman and Shenja van der 2015). As a result, e-government can potentially reduce corruption, decrease poverty, and heighten the delivery of public services. E-government is capable of establishing a trustable relationship between government and citizens and helps in minimizing corruption and increasing transparency (Ionescu 2011; Ionescu 2013b).

1.2.1 The Foundation of E-government

We are living in an information age that has forced societies to meld their minds with technology in order to perform efficiently and effectively continuous demanding tasks. We have progressed from the agricultural age that lasted to the late 1800s, and the industrial age that endured until the 1960s, and now we have the emergence of the IT age. This was followed by the evolution of electronic commerce (e-Commerce) in the private sector and, subsequently, electronic government has occurred. As a result, electronic government (e-Government) and its many synonyms became a natural extension of the technological revolution that has led the IT age (Heeks 2002; Muhammad Ovais et al. 2013). The e-government field emerged in the late 1990s as a

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context within which different practitioners shared experiences (Inda 2005; Bang and Esmark 2010; McIntyre and Murphy 2012). Since then, governments have launched e-government projects in order to provide electronic information and services to citizens.

Simply stated, e-Government is a phenomenon linked to the information and services provided to the public on government websites. It is concerned with business transformation between the government and its citizens through the Internet or other digital means (West, 2004). While a variety of definitions of e-Government have been suggested in the literature, this study uses that first recommended by Layne and Lee (2001: p123), who defined it as *"government's use of technology, particularly web-based Internet applications to enhance the access to and delivery of government information and service to citizens, business partners, employees, other agencies, and government entities."* This definition indicates the importance of IT tools and applications, which adopt the mediation role between governments and other entities (i.e. citizens, businesses and governments' agencies) by creating new partnerships within civil society. Although the web is not the only application of the Internet, it is the one that defines clearly many of the e-government aspects. Nevertheless, the perception of e-Government is broad and contains several different principles and approaches. The concept of e-Government is a multidimensional and complex one (Ndou 2004). Consequently, the perception of e-Government requires greater understanding of the nature of its perception in order to be able to design and implement a successful plan.

1.2.2 Trends in E-government initiatives

Technology has transformed the way governments deliver services to its citizens (Norris and Reddick 2013). Governments began to realize the potential of the digital revolution through information communication technologies (ICTs) that could be utilized to improve efficiency and effectiveness. With the proliferation of ICTs, public sectors around the globe have invested increasingly in them to improve the quality of their services, productivity and efficiency in line with lower budgets. Keeping up with the

evolution of technology, e-Government creates a positive image of modern and progressive government (Siddiquee 2016). An expanding array of government services is now available on-line presenting services to their citizens. For example, in the public sector, connected services range from providing the latest policy information to downloadable forms for license renewals and filing taxes. Consequently, this technological progression has enabled citizens to access public services and interact more easily with their governments (Reddick et al. 2017).

E-government has the potential to reshape both the public sector and the relationships between citizens, businesses and the government by enabling open communication, participation, transparency and public dialogue in formulating national regulations (Bhattacharya, Gulla and Gupta, 2010; Reddick et al. 2017). E-government projects are capable of creating numerous benefits and opportunities for both governments and citizens worldwide. Governments have realized cost reductions and improved efficiency, while citizens receive faster and more convenient services. The benefits of e-Government are enormous, and can be classified as: (1) easy accessibility benefit - citizens may access 24-hour on-line services; (2) economic benefits - eliminating the need to physically visit government offices; (3) transparent benefits; (4) equitable benefits - all citizens can access the services on-line; and (5) convenience and comfortable benefits - accessible from anywhere using the latest technologies, such as mobile devices (Misra, 2008). Likewise, the benefits of e-Government to governments are massive: (1) best policy-making and development function as a result of improved and up-to-date information; (2) storage and retrieval of data leading to the best decision-making; (3) best management of government processes; (4) superior performance in regulatory functions (that is, taxation); and (5) improved performance in social sectors (for example, education, health and social security) (Thierry at al. 2017).

1.3 The Research incentives

Generally, IS research requires high level of attention and concentration due to the complication of the topic (Roushdy 2012; Matavire and Brown 2013).

As stated by Brown and Garson (2013),the narrow delineation and the lowly understanding of procedures, real concepts, and functions of e-government systems are considered ones of the reasons of the failure of e-government initiatives. The evaluation of success or failure of e-government implementation in developing countries is still considered problematic and challenging due to the absence of evidences and data obtained from the governments in developing nations (Heeks 2002; Muhammad Ovais et al. 2013). Additionally, researchers are still looking up till now at the various reasons behind the success and failure of e-government projects in developing countries; to name a few, (Dada 2006; Zhao et al. 2012; Nirmaljeet Singh and Ravi 2013; Alghamdi et al. 2014), and Alateyah et al. (2014). As a result, emphasizing on the aims and motives behind the adoption of e-government services by citizens in developing countries may offer the understanding required to achieve successful implementation of e-government projects.

Therefore, a great deal of research related to ICT is being conducted in developing countries regarding the enhancement of government services delivery to citizens (Kumar and Best 2006; Harby et al. 2012; Roushdy 2012; Venkatesh et al. 2014). In view of that, one of the most popular research topics within the area of ICT for the last decade has been the research on e-government adoption and service enhancement (Bélanger and Carter 2008; Lee and Levy 2014; Anthopoulos et al. 2016). Government support and citizens acceptance of innovative technology play a major role in the success of e-government adoption. As said by Kumar et al. (2007: p.41) adoption is "*at the outseen, a simple decision of using, or not using, online services*". According to Heeks (2010), 35% of e-government projects were total fail and 50 % of the projects partially failed, while only 15% of projects implemented have been successful. Studies have found that most of e-government unsuccessful projects are embarking from developing countries (Faaeq et al. 2015; Meftah et al. 2015), keeping in mind that the level of e-government adoption in all over the world is low (Bélanger and Carter 2008; Muhammad Ovais et al. 2013). Therefore, many countries are facing low adoption of e-government services and waste of funds and resources.

1.4 E-government Models

Technology adoption is defined by Agarwal (2000), as the process of using or accepting innovative modernised approaches of new technologies used for production or services. Various models and theories are being held for supporting varied point of views, and perceiving the elements of understanding the essential usage of technology in both Information Technology and Information System research.

In order to identify the actual issues that primarily influence the real attention of adopting information technology, various approaches have been developed. To name a few, Davis and Bagozzi et al (1898) acknowledged, the technology acceptance model (TAM) which models behaviour and system usage intentions or attitude as a meaning of perceived ease of use and perceived usefulness (Davis and Venkatesh 1996; Venkatesh and Davis 2000). Also, the Unified Theory of Acceptance and Use of Technology (UTAUT) is one of the theories used in the research of e-government implementation. UTAUT is an integrated model of eight theories explaining the acceptance and use of technology and it has been used in several studies explaining the adoption of technology in different contexts (Al-Qeisi et al. 2015; Parameswaran et al. 2015). Venkatesh et al. (2003) he was the first to formulate UTAUT based upon empirical and conceptual similarities and differences across eight prominent models: the theory of reasoned action (TRA); the technology acceptance model (TAM); the motivational model (MM); the theory of planned behaviour (TPB); a model combining the theory of planned behaviour and the technology acceptance model (C-TAM-TPB); the model of PC utilisation (MPCU); the innovation diffusion theory (IDT), and the social cognitive theory (SCT) (Venkatesh et al. 2003).

However, the use of technology in developing e-government services in a specific country has to reflect and take into consideration the context of implementation. According to Fountain (2004) technology can be divided into *enacted technology* and *objective technology.* The first characterizes the specific design, perception, use and implementation of e-government technology in a particular setting. The second is the software, hardware, and

mainly the internet or any set of technology accessible to decision makers in e-government before any use or customizations (Schellong 2007). Founded on this, Heeks (2005a) argues that the context of implementation of e-government is neither similar to the context of design nor to the context of invention. The attention to the differences among design, invention, and context are crucial to the successes of e-government systems. As a result, e-government application is not to be viewed in a simple-minded, basic manner but in a complete manner as a set of associated elements that are acquired from the context of which that technology is designed.

1.5 Research Question

The context of e-government implementation is considered to be one of the most vital causes of failure in developing countries (Heeks 2002, Faaeq 2015). In addition, the relation between governments and citizens or what is referred as government-citizen gap has become a serious matter within e-government implementation due to the absence of face to face interaction between citizens and public administration and the conflict of interest between them. Several cases in developing countries have revealed that information system in general and e-government in particular is subjected to a high rate of failure and not only e-government. As stated by Dada 2006, there are some fruitful cases of information system applications in developing countries; but still the majority of computerization projects implemented failed. This is a frustrating reality, mainly because developing countries do not have excess of funds to spend on fruitless projects and therefore cannot afford failure. Government-Citizen gap is the new uncovered archetype in the field of e-government. Among all the journal articles and literature covering the topic of e-government, none has explicitly mentioned government-citizen gap as a significant component in determining the outcome of e-government projects. Many examples from developing countries have shown that e-government projects are not successful due to the reason that citizens are seen as customers. The government officials or decision makers in developing countries have relatively little information about the needs of the

citizens. Coming from political background, from specific social classes and with education, their systems of knowledge and perceptions are quite different from the majority of the people who are anticipated to use e-government technology. The decision makers thus agree on e-government project, basing their decision on a reflective image emerging from their own insights about the system and not based on the reality of the context. Due to lack of accurate data mirroring the social, demographic, and economic situation in developing countries decision makers are not able to take precise decisions. Therefore, imprecise and inadequate information will have devastating effects on decision making and planning activities.

Although there have been several studies on the adoption of e-government technology in developing nations, little is known about the role of implementation context on the subject of e-government implementation. Citizens need constant assistance throughout their interaction with online services. Citizens are expecting enhanced services from government similar to the quality of services offered in private sector. The adoption of e-government varies considerably between developed and developing economies because of the usual lack of the necessary financial, legal, and physical resources required for e-government in developing countries. A review of literature on e-government adoption reveals that there are limited number of studied conducted on e-government adoption in developing countries compared with the developed countries, and even less in the Middle East, including the Republic of Lebanon.

Cantered on the objectives of the current research, the research problem is identified as: Investigating the role of the context of e-government implementation and explaining the context-system gap and government-citizen gap of e-government services in developing countries. The review of the literature is directed based on the comprehensive research problem and, therefore, the research problem is divided into the following particular research questions:

RQ 1: What impact does the context of deployment of e-government system has towards behavioural intention and, ultimately, the actual usage of e-government systems?

RQ 2: What role does the government-citizen gap focused on the trust dimension plays in the success or failure of e-government?

Additionally, the current research provides a proposed model demonstrating the gap between the context of e-government implementation and the context through analysing 10 hypotheses related to the constructs of the model showing the relationship between the context and the system:

H1: Culture is related significantly to Behavioural intention to use e-government system.

H2: Social influence is related significantly to perceived ease of use of e-government system.

H3: Social influence is related significantly to perceived usefulness of e-government system.

H4: facilitating conditions is related significantly to perceived usefulness of e-government system

H5: facilitating conditions is related significantly to perceived ease of use of e-government system

H6: Trust is related significantly to perceived risk of e-government system

H7: Trust is related significantly to behavioural intention to use e-government system

H8: Trust is related significantly to information quality of e-government system

H9: perceived risk is related significantly to behavioural intention to use e-government system

H10: information quality is related significantly to behavioural intention to use e-government system

1.6 Research Aim and Objectives

The current aim of this research is to enhance the understanding on how to implement e-governance for the benefit of citizens and governments alike. Additionally, strengthen our knowledge in e-government adoption by providing an empirical model including context and system dimensions and explaining the context-system and government-citizen gaps.

The objectives of the research are:

- To undertake a literature review on e-government in the electronic business field. Particular focus will be on technology acceptance.
- To identify key findings of former research and pinpoint issues that influence e-government uptake.
- To identify a theoretical framework to expose the usage and adoption of e-governance.
- To identify the key constructs and reasons of behavioural intention to use e-government system,
- Empirically validating and evaluating the proposed framework, as well as testing the constructs of the system towards the constructs of the context of e-government.
- Explaining practical and hypothetical insinuations of the research outcomes in order to heighten the implementation of e-government services.
- To point out recommendation to achieve a more successful e-government system.

1.7 Research Methods

The current research is considered a scientific research that encompasses an orderly practice which is centred on objectivity. This research adopts a positivist paradigm, which falls under the quantitative research approach. In social science research, the positivist paradigm focuses on the application of objective scientific methods to test a theory or any social phenomena related to human affairs (Hollis 1994; Blaikie 2007). Positivist studies help mainly in testing theory in order to make a phenomenon understandable. As stated by

Orlikowski and Baroudi (1991), information system studies are classified as positivist if they meet the following criteria: hypothesis testing, quantifiable measures of variables, evidence of formal proposition, and the drawing of implications about a phenomenon from the sample to a stated population. Thus, perceiving phenomena in a positivism paradigm is mainly a challenge of measurement and forming a proper set of methods in order to encapsulate the dimensions of the phenomena.

In this research primary data was collected from 647 respondents which 634 were usable. The targeted sample was Lebanese citizens who were potential users of e-government system and have experience with the traditional public administration. According to The World Bank (2016), 74 % was the percentage of internet users in Lebanon in 2015 which is considered one of the highest rates in Arab countries. However, obtaining an accurate sample about the number of e-government users from officials was not possible due to security and sensitivity reasons surrounding e-government services. Therefore, to achieve a suitable sample frame for this study, it was decided to consider the non-probability sampling techniques; specifically, the convenience sample. Thus, the overall methodology is one based on positivism philosophy. It takes an empirical approach and it is objective rather than subjective (the researcher is an outside expert). It is deductive in terms of theory testing and quantitative approach, collecting primary data using a survey method. The present research led self-administered questionnaires wherein participants responded to the questions directly without the attendance of the investigator or researcher (Saunders et al. 2011). The choice of answers was fixed (close-ended) in advance. Respondents are asked to fill in the questionnaire in Arabic language. Several computer applications and programs are available for conducting high-quality quantitative analysis; for example, SPSS(PASW), STATA, & SAS (Johnson and Young 2011). Therefore, to make sense of the data, the current study utilizes one of the most popular software SPSS. SPSS, which is stands for Statistical Package for the Social Sciences, is possibly the most widely used computer software for the analysis of quantitative data for social scientists

(Bryman 2012). Therefore, the data was coded and grouped using SPSS 23.0. In addition to this statistical application, Qualtrics survey software was utilized as a data collection tool and SMART PLS 3 as software for structural equation modeling.

1.8 Context of the Study

In order to be able to evaluate the success of IS truthfully and completely, it is very important to recognize the features and the tasks that any application intends to deliver (e-government application in this case) (DeLone and McLean, 2003). Consequently, the current research assesses the complete set of e-government implementation in Lebanon (ex: e-government Lebanese portal, Dawlati) filling a gap in technology acceptance literature by enlightening the role of context of e-government implementation on the success of the system and its impact on behavioral intention to use e-government system. To the best of the author's knowledge, the context-system gap and the government-citizen gap were never discussed previously in any information system and technology acceptance setting. The study supports that the context of e-government implementation should be regarded as one of the key factors in determining the success or failure of e-government projects. Also, some of the context dimensions are considered more significant than others due to their high influence on the dimensions of the system. These dimensions were evaluated in the present research and discussed in details to demonstrate the influence of the context on the system and provide a critical understanding of the context of implementation. This study is the first to introduce the context-system which integrates new constructs such as trust, facilitating conditions, and social influence.

"*Research relating to IS success within the context of developing countries, particularly, in the Arab countries is rare and lacks the capability to propose an appropriate assessment criterion for Arab organizations*" (AlKhatib 2013: p.16). Governments in all over the world have tried to improve governance in public administrations through the implementation of management techniques and methods in an attempt to provide a good government and public service model. Developed countries were able to take advantage of

the management knowledge and the electronic tools available to accelerate the process and enhance their administrative operations. Many developing countries have also exerted effort to establish an e-government portal and they found through the availability of information and communication technology the best way to accomplish this necessity arising from public demand. In view of that, it is vital for developing countries to take into consideration the issues that fuel the citizens to implement and use e-government services, since the conditions and characteristics are distinct from one country to another. The Republic of Lebanon is a developing country in the Middle East and the Arab World, which is suitable for the current requirements of the research. It has a digital divide and in the process of implementing e-government services and technology in public administrations. Thus, the focus on this study is on Lebanon e-government official portal (Dawlati).

The present study aims to enhance our knowledge in e-government fields by providing an empirical model including context and system factors and explaining the context-system and government-citizen gaps. This study is very significant to understand the importance government-citizen gap and context-system gap as two key gaps hindering the success of e-government in developing countries. Therefore, the significance of the present study is based on the value of the proposed research model, which permits academics and researchers to find issues that were possibly not identified in previous works.

1.9 The Outline of the Research

In a few words, the current research has a unified structure. Firstly, Chapter one presents the aims and objectives, research questions, and research problem of the study and demonstrates the outline of the study. In chapter 2, an overview of the context of e-government deployment the Republic of Lebanon is presented and all the challenges or barriers of e-government adoption in the Lebanese environment are discussed. Also, the major projects and efforts exerted in enhancing e-government implementation in

Lebanon have been highlighted and thoroughly presented in this chapter. Chapter 3 provides a review of the literature surrounding Electronic Government (e-government) (as highlighted in chapter 1) which encapsulates the area of research. Chapter four presents the data collection and research methods embraced in researching the acceptance and adoption of electronic government while Chapter 5 reveals the findings of the research. In Chapter 6 the findings of the current research are discussed in details with regard to the proposed hypothesis and the research questions. Finally, Chapter 7 summarizes the focal findings of the current research, together with the directions and limitations for future studies about technology acceptance and e-government system implementation in developed and developing countries.

1.10 Conclusion

This chapter placed the bases of the research. First, the researcher began with research background including introduction and motivation for the research. Next, the research questions and the research problem are highlighted and expressed. Then, the study was defensible by asserting its aims and objectives. A momentary description of research methodology was followed after. To end with, the research contributions, the context of the study and the outline of the study were concisely defined.

Chapter Two: Context of Study

2.1 Introduction

In this chapter, an overview of the context of deployment or implementation of e-government in the Republic of Lebanon is presented and the challenges of e-government adoption in the Lebanese environment are discussed. Also, the major projects and efforts exerted in enhancing e-government implementation in Lebanon are highlighted and thoroughly presented in this chapter. The context of study chapter offers a brief understanding of the Lebanese context from different edges such as socially, economically, and politically. The aim of this chapter is to make the reader familiar with the nature of the context and the challenges that e-government implementation may face in a particular context. Moreover, this chapter provides a thorough understanding of the current situations in Lebanon and its impact on the implementation of e-government in developing country and in particular the Lebanese context.

Due to social, political, economic, and legal set of factors related to e-government implementation, Lebanon is still slow in adopting e-government technologies and limited in progressing to the transactional phase of e-government in public administration (Fakhoury and Aubert 2015). The adoption of e-government varies considerably between developed and developing economies because of the usual lack of the necessary financial, legal, and physical resources required for e-government in developing countries (Nograšek 2011). In Lebanon, as any developing country, e-government implementation is dependent on the readiness of the society and the infrastructure in addition to other factors that will be discussed mainly in chapter three.

2.2 E-governance in Lebanon

For many years Lebanon undertakes a series of projects to develop strategies for the use of information and communication technologies (ICT) that helped in developing the e-government technology in the country. Introducing such technology in the Lebanese society will help the government in the reformation process, where corruption in the public administration will be reduced. However, such project requires significant steps such as

establishing a legal framework that will permit the use of electronic processes in conducting business, as well as refining the communication infrastructure and making it more modern and faster in order to facilitate the use and implementation of e-government technology. According to the 2016 United Nations E-government Development Index (EGDI), Lebanon is ranked 73 among 183 countries worldwide showing 0.5646 EGDI which is considered a high level. However, Lebanon is ranked 90 in the E-Participation Index (EPI) showing 0.4915 EPI (UNEG 2016).This ranking position puts Lebanon in a moderate stage of applying e-government. Accordingly, e-government development and use is witnessing an excessive sum of improvements and enhancements due to the new technologies and government investment in this sector.

Lebanon passed through many wars that affected negatively its economic and infrastructure development and led to frail practices in policy and governmental institutions which delayed reformation. Nevertheless, in recent years, public administrations have witnessed new programs that aim to enhance transparency, avoid corruption, and improve operations in governmental institutions. One of these programs is Dawlati which represents the Lebanese e-government portal managed by The Office of Minister of State for Administrative Reform (OMSAR), it was established in 1993 to lead e-government initiatives through technical assessment, preparations of specifications, and outsourcing functions. OMSAR helped to strengthen the relation between the government and its citizens as well the private sector (Harfouche and Robbin 2015). Dawlati is an electronic service website launched by the Office of the Minister of State for Administrative Reform (OMSAR) in Lebanon. Aims to provide citizens with the information they need to complete public administrative procedures.

The government recognized that an efficient administration, as well as the development of a sound legal and regulatory environment, was essential for attracting domestic and foreign private investment and for successful reconstruction and recovery. The Government's overall objective was a very lean and efficient public administration able to provide basic services to the

economic agents and citizens, in line with the Lebanese tradition of a predominant private sector. The Government has made some initial efforts to rehabilitate the administration and enable it to carry out long-term reform. The Council of Ministers entrusted the Minister of State for Administrative Reform with the responsibilities to coordinate these efforts. The Minister of State has formed in May and December 1994, with UNDP support, a small nucleus consisting of an Institutional Development Unit (IDU) to coordinate longer-term reforms and a Technical Cooperation Unit (TCU) to guide and implement the rehabilitation activities. The Council of Ministers also created four inter-ministerial committees to examine the salary scale, compensation, job classification, and organizational structure of specific ministries. With the assistance of the World Bank (through the 1994 Revenue Enhancement and Fiscal Management Technical Assistance Project), the Government was rehabilitating the Ministry of Finance in the areas of tax and customs administration, cadaster and land registration, and public expenditure management. A policy and Human Resources Development (PHRD) grant for technical assistance in the amount of $485,000 from the Government of Japan was used to develop a program closely conforming to Lebanon's urgent needs for administrative reform.

In addition to OMSAR, International Financial Institutions such as the World Bank and Intergovernmental Organizations such as the UNDP (United Nations Development Program) also, have been contributing to e-government projects in developing countries. The main aim is to promote modernization and development processes within the public administration and keep the public aware of these achievements through various communication channels. Consequently, Lebanon is working seriously on establishing an e-government portal that will aid citizens to conduct quality governmental services and transactions with less time, costs, and efforts; and maintain well relations between the government and citizens. These e-government activities can be utilized through government official websites, OMSAR, OGERO, DAWLATI, ISF etc..... These establishments help to

enhance the e-government practices in the country where it offers a huge variety of services that help citizens to finish work easier and faster.

The decades of civil war in Lebanon have thwarted the development of an efficient administration with modern facilities and skillfully executed functions. This has hampered economic recovery and stability. Consequently, the Office of the Minister of State for Administrative Reform (OMSAR) in Lebanon must play a crucial role by acting as an agent of change. Building the Government's physical and administrative infrastructures will have a profound effect in improving the productivity of the Ministries and Public Agencies - and ultimately benefit citizens.

2.3 History of Lebanon

Lebanon is a traditional country from more than 7,000 years of existence and interaction. Most of the population is of Arabs Muslims and Christians. Many civilizations have passed across Lebanon and shaped its culture. Such as Romans, Byzantines, Ottomans, Egyptians and many other civilizations to name few. One of the main historical incidents that still has an influence on the Lebanese current situation is the French mandate in Lebanon that lasted for over 20 years. During these years Lebanon was called the State of Greater Lebanon. This mandate also affected the Lebanese political and economic system, where France divided Lebanon in 1920 into separate colonial administrations. The first Lebanese constitution was promulgated during that period and amended several times and still used in recent days (Rolland 2003).

 In 1943 Lebanon was declared an independent country and Beirut its capital. In 1975 the civil war between the Muslims and Christians sparked and kept Lebanon in a state of war for more than 20 years. The struggling between religious groups and sects persist in addition to a rivalry among the Marionette (Christian sect) parties fighting on the authority. Additionally,

Israel invaded Lebanon and reached the capital Beirut in 1982. The infrastructure and economy of Lebanon was completely destroyed in the war period leading into high rates of immigration from the country. In 1989 the "TAIF Agreement" which took place in the Taif city in Saudi Arabia put an end to this war (Ibp 2012). This agreement was made between all the Lebanese parties that where engaged in the civil war, it tackled many essential points from the constitution to the political system and the sovereignty of the Lebanese state (Rolland 2003). In 1990 all religious militias engaged in the civil war were dissolved.

This agreement acted as the second constitution of Lebanon, reshaped Lebanese political statuses and laid the foundations for political reforms. Taif Accord put the principles and general reforms and led to dismantle the militias and the extension of Lebanese sovereignty over all Lebanese territory. Post-war Lebanon has witnessed urban movement active and displaced all scenes of destruction, but the repeated Israelis' violations led to the destruction of infrastructure repeatedly which commissioned Lebanon over the past years significant financial and human costs. Lebanon was liberated from the Israeli occupation in 2000 and of the Syrian mandate in 2005.

Lebanon is recently witnessing a continuous turbulence due to the tension between Israel and Hezbollah (an armed Lebanese political party) which is also affecting the Lebanese political and economic stability. Nowadays, Lebanon is also facing a severe security risk because of the Syrian unrest on the Lebanese borders and terrorists attacks in the country problem which is disturbing the Lebanese stability. Additionally, the disagreement in the points of views between the Lebanese political parties regarding the situation in Syria has led to vacancy in the presidency chair for over two and a half years after the last president Michael Suleiman left office in June 2014. These situations that Lebanon passed through led to delay in being ahead of development and modernization and driven corruption extensively in public administration. Additionally, it turned the attention of the Lebanese governors and decision makers away from reformation through e-government implementation.

Major Historical events in Lebanon (BBC 2016):

- *" 1516-1918 - Lebanon part of the Ottoman Empire.*
- *1920 -The State of Greater Lebanon consisting of Mount Lebanon, north Lebanon, south Lebanon and the Bekaa.*
- *1926 May - Lebanese Representative Council approves a constitution and the unified Lebanese Republic under the French mandate is declared.*
- *1943- Lebanon gains its independence 22, November, 1943.*
- *1958, The US sends marines, to preserve Lebanon independence, they was asked by Camille Chamoune.*
- *1967- During the Arab –Israel war the Palestinian use as a base for attack on Israel.*
- *1975- The Lebanese civil war*
- *1976- Syrian troops entered Lebanon.*
- *1978- First Israeli invasion.*
- *1982-Second Israeli invasion*
- *1985- Israel pulls back to self-declared security zone*
- *1989 - Parliament meets in Taif, Saudi Arabia, "Taif Agreement" was the way for the civil war end.*
- *1990 the Lebanese civil war ended.*
- *1996-. UN base at Qana is hit, killing over 100 displaced civilians. I*
- *2000- Israel pulls out of south Lebanon, and Lebanon celebrate Israel retreat in 25 May.*
- *2005- Prime Minister Rafic Al Hariri was killed by a car bomb in Beirut.*
- *2005-The Syrian withdrew under international pressure.*
- *2006-The war between Israel and Hezbollah July 2006.*
- *2007- May-September - Siege of the Palestinian refugee camp Nahr al-Bared following clashes between Islamist militants and the military.*
- *2007- UN Security Council votes to setup a tribunal to investigate the assassination of ex-premier Hariri.*
- *2012- Summer - The Syrian conflict that began in March 2011 spills over into Lebanon in deadly clashes between Sunni Muslims and Alawites in Tripoli and Beirut.*

- *2013 -September - The United Nations refugee agency says there are at least 700,000 Syrian refugees in Lebanon.*
- *2015 -January New restrictions on Syrians entering Lebanon come into effect, further slowing the flow of people trying to escape the war"*

Figure 2.1 1975 Lebanese Civil War (Al Arabiya 2007)

2.4 Geography of Lebanon

The Republic of Lebanon is one of the 22 Arab countries in the Middle East region located in the South West of the Asian continent. Arabic is the official language, although English and French are widely used. Lebanon is bordered by Syria to the north and east, and the Palestinian occupied territories from the South and overlooking from the west side to the Mediterranean Sea. Lebanon's surface is 10452 km^2 and can topographically be divided into four longitudinal sections from north to south, parallel to the Mediterranean: the coastal plain, Mount Lebanon, the central plains and the mountains of Lebanon East, the interior is high plateau with height ranges from sea level between 450 and 2000 meters. Lebanon is divided into six

provinces: the province of Beirut, Mount Lebanon, North Lebanon, South, Nabatieh and the Bekaa. Every province is divided to a number of districts.

Lebanon location has a historical significance since Phoenicians being on the Silk Road, and was considered as an important trade spot (Ibp 2012). This significance sustained and Lebanon was considered the "pearl of the middle east" and "Switzerland of the east" until the occurrence of the civil war. Before the civil war, the strategic location of the country in the heart of the Middle East and close to North Africa and Europe turned Lebanon into a business hub and center for international companies looking for expansion in the Middle East.

Nowadays, Lebanon main income is coming from tourism due to its nice moderate weather and the Lebanese diaspora sending money to their families. Its ski resorts in winter season and beautiful beaches and villages in summer season attract tourists from the Gulf countries nearby and the Lebanese who comes to visit their families. In addition, Lebanon have many historical and natural monuments that was nominated for the new 7 wonders of the world and considered as natural reserves by the United Nations. Additionally, Lebanese economy benefits from services such as transit, banking sector, and agriculture in Bekaa valley.

Figure 2.2 Lebanon Map (Atlas 2015)

2.5 Lebanese Political Situation

The readiness of e-government infrastructure or e-government adoption may depend on the legislations, public policies, and the ability of the government to support the use and development of new technology (Ebrahim and Irani 2005; Irani et al. 2006; Allahawiah and Alsaraireh 2014). In addition, corruption and political instability may restrict the expansion and diffusion of technology adoption and any kind of innovation in public administration (Roushdy 2012; Muhammad Ovais et al. 2013).E-government infrastructure is shaped by range of factors, and political factors have a say in its existence.

2.5.1 Corruption and Political Instability

High levels of corruption and political instability have vital impacts on economic growth and investments. Lack of political accountability and ineffectiveness of legal mechanism are positively correlated with corruption level in a society (Ionescu 2013a). Corruption is very important indicator of the readiness of any kind of development and innovation. Due to its contribution to poverty, income inequality, and illicit payoffs in obtaining government permits and licenses, corruption and political instability may limits innovation and prevents reformation (Lash & Batavia, 2013). Therefore, corruption and political instability are destructive for e-government implementation (Jun et al. 2014) and prevent government from adopting e-government technologies. As a result of political tension among Lebanese parties, several wars between Lebanon and Israel, and the high level of corruption in the public administrations, Lebanon has been witnessing regression in the economic growth and the infrastructure on all levels. "*The economic situation in Lebanon has undergone many difficulties due to several economic and political events which unexpectedly have been occurring at internal and external levels since 1975*" (Saad 2012: p.134). Lebanon is ranked 123 out of 168 countries according to the Corruption perception index for 2015 scoring 28 over 100 (LTA 2015). Additionally, the turbulence taking place in Syria has been affecting the political stability in Lebanon and causing unrest that leaded into vacancy in the presidency (Central Intelligence Agency, 2016). Taking into consideration the country's limited resources and low economic growth, the political situation in Lebanon is unfavourable for exerting efforts by the government on e-government projects. Since 1975 the civil war, followed by 1982, 1993, 2000, 2006, the Lebanese Israeli wars, and now the Syrian war on the borders, all of these make the government far away from thinking about e-government adoption seriously and busy in building the country infrastructure from electricity, water, transportation..etc.

2.5.2 Legislation

The development of e-government infrastructure requires legal standards to control and organize the e-government transactions (Al-Omari and Al-Omari 2006; Almarabeh and AbuAli 2010). In Lebanon, the legal framework requires amendment to suit the rapid expansion of internet technologies and use. In many cases, the government policies and regulations are unsettled with the adoption of e-government. Legal factor is considered as part of the setup costs in creating an efficient e-government technology adoption (Zhao et al. 2012). Legislation is a major political factor and a main concern for e-government adoption.

The Lebanese government recognized the importance of e-government as an innovative tool in order to help in controlling corruption and accelerating pubic transactions and processes (OMSAR 2007).According to the Ministry of Economy and Trade (M.O.E.T, 2011), the European Commission funded the EcomLeb project which covers all sides of trading and internet interactions; also it includes the drafting of a comprehensive legal and regulatory frame work for e-business including e-government project. The 1.7 million Euros grant from the European Commission aided in proposing 200 articles under nine titles related to both e-government and e-business legislation in Lebanon. The first three titles compose the Lebanese internet code. They concentrate on Privacy and Data Protection, Service Providers and Electronic Communication, and the Securitization of Digital Signatures as well as the Electronic writings. The six remaining titles address the use of electronic means for commercial exchanges and communications in addition to electronic writing. They include E-commerce and Online Commercial Transactions, Burden of Proof and Online-Contacts, Cyber Related Crimes, Intellectual Property Rights, Consumer Protection in Electronic Contracts, and finally, a title related to Domain Names Allocation. "*The legal framework proposed is based on the following principles*" (M.O.E.T, 2011):

- *"Liberty of carrying out electronic communication and writings*
- *"Security issues for all electronic communication and writings"*
- *"Coherence with the EU legal system"*

- *"Compatibility with the Lebanese existing laws"*

The regulation and legislation that the government put into practice will increase the trust of the citizens and businesses in e-government and will encourage on its adoption. However, several years have been passed since 2004 and it is fundamental to update and check the legislation regularly. In addition, proposing a regulation and legislation framework is not enough, but it should be applied and empowered in order to gain trust.

2.5.3 Public Policies

In the context of e-government, public policies discuss the government incentives of e-government adoption and the support of electronic transactions (Rose 2005; Koong et al. 2013).All the e-government studies, training programs, and the ICT infrastructure development done by the government determine its public policy toward e-government adoption. To understand the e-government barriers in Lebanon, and to work on finding prospective solutions able to assist in e-government expansion, Dawlati project by the Office of the Minister of State for Administrative Reform conducted several studies and research (OMSAR 2014). As a result, the project was able to identify the main barriers related to e-government in Lebanon such as: internet and telecommunication infrastructure, high cost and expenses, lack of regulation and legislation, and lack of trust. Therefore, the government took the first step by working on the legal framework and formulating user protection regulations. Also, awareness campaign was organized to address the lack of confidence and trust in e-government (OMSAR 2014). The awareness campaign objective was to spread information about e-government technologies and its advantages for citizens and public administration. The Lebanese government paid momentous attention to enhance the communication infrastructure and offer its requirements. For instance, the Telecom Regulatory Authority exerted significant efforts in modernizing the communication infrastructure and developing a national broadband strategy (El-Baba 2015). In addition, Partnership for Lebanon (PFL) has supplied Lebanon with its first Internet Exchange Point to assist in increasing the speed of the Internet. Moreover,

PEL in coordination with the Office of the Prime Minister worked on endorsing the integration of ICT in schools by lunching two projects "Dialogue on Education" and "School in a Box" in order to support workforce training and education (El-Baba 2015)

2.6 Lebanese Economic Situation

The level of economic growth in a country influences its prosperity, living standards, and trade with other countries (Kagochi et al. 2013). It should be no surprise that the economic situation of a country plays a vital role in applying new projects and investing in technological innovation as e-government technology. Many barriers to e-government adoption in Lebanon are related to the economic factors. To elaborate, lack of financial resources and allocating most of the public funds to other public services such as education and healthcare, in addition to poverty and debt, hinder e-government adoption in public administrations (Roushdy 2012; Sebastian and Supriya 2013). Furthermore, the delicate commercial infrastructure and the financial deficit in Lebanon may be inadequate for maintaining an upward and constant adoption of e-government technologies (Raven, et al 2007; Diehl, et al 2013).

2.6.1 Poverty in Lebanon

According to national reports on living conditions and poverty revealed by the United Nations Development Programs (UNDP) and the Ministry of Social Affairs, 28% of the population in Lebanon is considered living in poverty, whereas 8% out of them are living in extremely poor conditions. Worryingly, almost 300,000 Lebanese citizens are not capable to encounter their basic needs from food and non-food (Saab 2009). The majority of poor people are concentrated in four areas across Lebanon: Baalbek, Hermel, Saida, Dennieh, Akkar, Jezzine, and Tripoli (El Laithy et al. 2008; Einav 2015). Although these areas contribute to one third of the entire population, half of the population living under poverty threshold is residing in them.

What makes the situation worse and put Lebanon under more pressure is the presence of more than one million Syrian refugees on its land and in particular in the most poor regions because of the civil war occurring in the neighbour country Syria (UNHCR 2015). The refugees is causing a lot of economic pressures on the government and leading to unemployment among the Lebanese citizens. The economic and financial developments in the country have since been influenced by the unstable political situation in the region. According to the UNDP report, five main pillars necessary to reduce poverty and fuel growth, including, stimulating secure regional development, escalating educational opportunities, accomplishing continual progression, redirecting funds on poor families and monitoring outcomes (Saab 2009).

2.6.2 Commercial Situation

"*Lebanon has a free-market economy and a strong laissez-faire commercial tradition. The government does not restrict foreign investment; however, the investment climate suffers from red tape, corruption, arbitrary licensing decisions, complex customs procedures, high taxes, tariffs, and fees, archaic legislation, and weak intellectual property rights*" (Central Intelligence Agency 2016; p.16). All of these factors related to the economic situation in Lebanon affect the ease of reformation and pull development, innovation, and governmental transparency backward. Also, the commercial infrastructure in Lebanon is susceptible nowadays due to the slow economic growth in the last two years to 1-2% range, after it was 8% average growth in 2007-2010 (The World Bank 2016). As a result, international organizations which supply financial aid and funds reformation projects for the Lebanese government are focusing on funding the current Syrian refugees' camps in Lebanon and giving it more priority than anything else. Moreover, taxpayers are suffering from recession limiting their financial contributions to the national budget which in turn limits the government from working on costly investments such as e-government implementation. Due to the current commercial infrastructure and poor economic practices in Lebanon, the Lebanese

government has limited use of technology in most of its public administrations and unwilling to spend more on e-government.

2.7 Lebanese Information and Communication Technology

In most developing countries, the implementation of Information and Communication Technology (ICT) in general and e-government technology in particular are still limited to some extent (Pons 2004; Alghamdi et al. 2014).The development of ICT is considered an essential enabler for e-government adoption. Changes in public administration demand technology, and technology drives change (Barba-Sánchez et al. 2007). Therefore, to facilitate the use of ICT in public administrations and raise e-government adoption rates in the society, the technical infrastructure must be qualified and maintained. Governments in developing countries realized that the adoption of e-government technologies is also influenced by technology infrastructure (Ebrahim and Irani 2005). Few technological barriers in Lebanon presented below are considered the barriers of e-government adoption.

2.7.1 Telecommunication infrastructure

E-government is unable to exist and function properly without adequate and robust telecommunication infrastructure. *"Information and communication technology infrastructure development is at the heart of successful deployment and sustainability of e-government programs"* (Schware and Deane 2003: p.10). The more the telecommunication infrastructure in a country is advanced, the more e-government applications will be used and adopted. Undoubtedly, users need bandwidth in order to perform business transactions and transmit information to the governmental institutions (Okoli et al. 2010).

Lebanon has been working on reconstructing the telecommunication infrastructure after it was completely damaged in the 1975 civil war (Ibp 2012).Lebanon current average internet speed is 2.52 megabits per second and ranked 151st internationally; which was ranked 161st in the last year (El

Amin, 2014). Nevertheless, Lebanon is working on developing the internet speed and services through expanding the fibre optics infrastructure. In April from 2013, the Lebanese Ministry of Telecoms and the Telecommunication Authority in Cyprus declared sharing capacity on the ALEXANDROS submarine cable subsystem between France, Egypt, and Cyprus (El Amin, 2013). As a result, the internet speed rose to 20 Mbps leading into more satisfaction and subscription in the network. Additionally, Lebanon has signed an agreement with Cyprus for the EUROPA system construction. The EUROPA system, a high capacity underwater cable, will enhance the internet network and provide a better connectivity between the Middle East and Europe at the end of the project in 2015.

Due to the monopoly exercised by the Lebanese government over the telecommunication sector, internet infrastructure in Lebanon has been lacking improvements and expansion. The Lebanese government through the Ministry of Telecommunication is the owner of all the networks in Lebanon and the only provider for all kinds of telecommunication services (IDAL 2016). Also, OGERO which is a state-owned institution is the only provider of ADSL service creating by that a monopoly over the bandwidth (TRA 2016). Additionally, limited number of Internet Service Providers (ISPs) and Data Service Provides (DSPs) and the high bureaucracy facing new entrants lead into lack of growth and development in this sector keeping government far from innovation and improvements.

2.8 Lebanese Cultural Impact

Although it has been projected that cheaper and wider access to information technology in developing countries will accelerate e-government adoption, evidence shows that social and cultural factors in developing countries also have pivotal role in enabling successful and gainful e-government adoption (Evans and Yen 2005; Al Nagi and Hamdan 2009; Khalil 2011). Thus, technology infrastructure is not the only factor that has a direct impact on e-government adoption. E-government adoption and implementation critically depends on social and cultural factors along with the political, economic, and technological factors that must be looked in any context implementing e-

government. By means of understanding the Lebanese culture and society, the government will be able to make knowledgeable decisions about e-government implementation which will serve the society more efficiently and effectively. Culture factors related to e-government adoption identified from the non-technological limitations of e-government are trust (Warkentin et al. 2002; Carter and Weerakkody 2008) and ICT skills and education (Ndou 2004; Bélanger and Carter 2009; Turban et al. 2015)

2.8.1 Trust

Certain cultures have high uncertainty evasion and are most likely to have a non-trusting attitude toward e-government technologies; especially in developing countries with the lack of face-to-face interaction (Hofstede 1991, Stonecipher 1998; Carter and Weerakkody 2008). E-government is open to uncertainty and concerns related to the security and reliability of the system. These matters may lead to fraudulent actions and fake transactions using e-government (Garcia et al. 2005; Colesca 2009; Bertot et al. 2010; Colesca 2015). Therefore, trust is crucial for electronic transactions and interactions between the government and citizens, and it encourages the society to move toward e-government adoption (Roushdy 2012). Poor trust in e-government technologies prevents the public from interacting electronically with the government.

E-government implementation in Lebanon is still in its initial phase and therefore citizens and all other parties are not willing to place trust in it. As a result, citizens feel cautious of sharing personal information or paying their taxes over the internet. "*They see electronic payment as being prone to theft, fraud and invasion of privacy*" (Roushdy 2012: p.49). Accordingly, building trust between the government and its citizens is one of the basics upon which the success of e-government adoption depends.

2.8.2 ICT Skills and Education

Availability of skilful workforce and the level of education in a society act as indicators of social readiness of e-government implementation (Ndou 2004; Ngulube 2007; Bélanger and Carter 2009). First, e-government implementation requires IT skills and knowledge among citizens and public servants. However, most of developing countries lack specialist staff due to restricted resources and limited use of technology (Grindle 2004; Dada 2006). Users engaged in this implementation such as citizens and governments in developing countries have to gain much training and experience in e-business technologies, so that they are able to adopt it confidently. Second, education level and literacy are fundamental factors for e-government implementation (Jukic et al. 2008). An educated society is able to move much easier toward e-government use and adoption. E-government adoption tends to be more rapid in countries where people have IT literacy and skills (Bwalya 2012; Reddick 2012). As long as the public has a high literacy rate, then they have the capability to use the internet and benefit from e-government for communicating and interacting with the government. Therefore, higher level of education and technical skills will lead to higher level of e-government adoption (Carter and Weerakkody 2008).

In Lebanon, literacy and education levels are relatively high among the public and hold a potential for successful e-government implementation. Literacy rate for people age 15 and over is 93.9%, 96% for males and 97.8% for females (Central Intelligence Agency, 2016) and the total Number of Internet Users per 100 people is 75.9 which is considerably high (Intenet World Stats 2016; UNEG 2016). However, the Lebanese public school system has been suffering from crucial challenges since the outburst civil war in 1975. Due to the poor maintenance of the infrastructure and the low quality of education in public schools, approximately two-third of Lebanese students get their education in pricey private schools; this results in enlarged gaps between more economically fortunate youth and their poorer peers who cannot afford quality private education (USAID 2016).The majority of the Lebanese schools focus on English and French education from an early age, and Arabic language which is the official language comes in the second or third place.

Education, literacy, and language status in Lebanon strengthen the e-government adoption and encourage its use. However, the only problem the government in Lebanon could face as anywhere else in the developing world is the lack of e-government knowledge and specialists required to maintain adequate e-government adoption (Heeks 2005b).

2.9 Conclusion

E-government implementation and development in Lebanon faces limitations related to political factors, economic factors, technological factors, and social factors. These factors are the key drivers for e-government adoption in any country and their absence hinder its development and growth. Political factors are needed for successful e-government adoption and it includes legislation, public policies, and corruption and political instability. First, Legislation is the set of rules and regulation that control and organize online interaction and transactions and relations between citizens and government. Second, public policies are the government incentives and programs to support and enhance the expansion of e-government technologies. Third, corruption and political instability determine the readiness of the public administrations and political environment in Lebanon toward e-government implementation. Other crucial factors in the e-government implementation are the economic factors. Poverty in Lebanon is one of the economic factors that hold back e-government progression. Additionally, the current commercial situation from recession and inflation obstructs investments and innovation which supports e-government technologies.

As well, Lebanon limited resources and financial deficit could interrupt e-government implementation. Moreover, information and communication technology (ICT) are said to be the pivot of e-government technology adoption. The telecommunication infrastructure is the networks and services required for e-government implementation. Likewise, the high cost of technology and the poor internet services provided to the public in Lebanon leads into low rate of adoption and slow development in e-government services. Moreover, the social and cultural willingness and acceptance of e-government such as trust and IT skills and education have a vital role to play

in enabling and accelerating e-government adoption. To elaborate, citizens need to trust e-government applications in order to use it. Furthermore, the usage of internet and the implementation of e-government request technical knowledge and skills. All these factors combined offer an overview about the Lebanese current statues regarding e-government implementation and its electronic readiness that must be deeply researched and comprehended in order to achieve successful and robust implementation.

Chapter Three: E-government literature review

3.1 Introduction

This chapter provides a review of the literature surrounding Electronic Government (E-government) (as highlighted in chapter 1) which encapsulates the area of research. This involves paying attention to the following areas of literature through critical approach: First by discussing the evolution and development of e-government after the success of e-commerce. Secondly by presenting the definition and the different categories of e-government services, to be exact, government to citizen (G2C), government to employee (G2E), government to business (G2B), and government to government (G2G). Thirdly, this chapter deliberates on one of the most significant e-government implementation models, namely Gartner maturity model and its four phases alongside with other core maturity models considered in the literature. The main challenges of Gartner Maturity Model and the different method of evaluating e-government progress are also presented in this chapter. Additionally, the status of e-government in developing countries and the impact of culture on the implementation and adoption of e-government in a particular context are highlighted and stressed. Finally, the central theories concerning the adoption of technology are introduced. This chapter concludes that the influence of e-government on the society and the adoption and implementation of e-government by the society in developing nations still need further exploration and investigation in order to cover the knowledge gap in this area.

Most of the developing countries are still facing numerous numbers of matters that impede the fruitful implementation and adoption of e-government services and technology. Since each country has a different structure, culture or social characteristics, no particular implementation or evaluation model is definitive and the need for more studies in the field of e-government is crucial. The contributing factors of acceptance in a particular culture or society as elements of success and failure of e-government adoption are relatively new and exposed for additional discussion (Malinauskiene 2013; Alateyah et al. 2014; Al-Qeisi et al. 2015; Faaeq et al. 2015; Gherib 2015). The following chapter will clarify these topics and other related concerns in the domain of e-government.

3.2 Evolution of E-government

E-government has emerged from the notion or ideology concerning the digitization of society and has materialised into a major economic force for over recent decades (Chee-Wee et al. 2007; Anthopoulos et al. 2016). E-commerce implementation in business transactions and its attraction for an extensive number of customers (Turban et al. 2009) and the emergence of e-procurement, e-marketing, e-commerce management (Greasley et al. 2006) encouraged the exploitation of the same concept in public administration to enhance the provision of services. The success of E-commerce led to the emergence of e-government (Moon 2002a; Bhatnagar 2004). In 1960s and 1970s, computers or information and communication technologies in general were seen as a way of making government bureaucracy more efficient and effective. Three distinct and yet complementary paradigms emerged: using IT for efficiency in services, using IT for social development, and the emerging of governmentality (Inda 2005; Bang and Esmark 2010; McIntyre and Murphy 2012). In the 1990s another dimension came into the picture, which is becoming more user-friendly or citizen-friendly in the services that the governments provide electronically (Muhammad Ovais et al. 2013).

This is just one very specific ways of looking at how government interact with society, because it looks at the citizen as a consumer or as a transactional partner with the government which aims to lower administrative costs and becomes more efficient (Shan et al. 2011; Shannak 2013). However, governments have realized the need to go much further than technological improvement to achieve what they are seeking from implementing electronic government. Some countries were able to embed ICTs swiftly and successfully in their governmental administrative operations, but many developing countries have been struggling until now to transform this necessity into fact (Gebba and Zakaria 2012). Additionally, many projects either completely failed or partially failed and did not meet the objectives of e-government in achieving efficiency and transparency.

3.3 Definitions of E-government and E-governance

The notion of e-government is constantly evolving and this clarifies the desire by the scholars to determine the full extents of its conception. Understanding the concept of government in general is required for a better identification of the concept of e-government (Almarabeh and AbuAli 2010). Government is the foundation itself; however governance is a wider notion related to the practices of governing which may not be only under the control of the official government (Saxena 2005). According to Pardo (2000:p2) government is defined as forceful combination of structures, functions, and goals. The word government is derived from the word govern and it means to exercise supervisory, administrative, and sovereign power through a set of legislations (Jamool 2012). These definitions indicate that e-government is not only about email, websites, or various transactions being processed through the internet. Hence, e-government is about managing the structures and the functions in a government electronically through the use of ICT in order to achieve its goals such as improved public services.

E-government and e-governance are identified as two distinct functions of the government-technology relationship (D'Agostino et al. 2011). E-government emphasizes on services that are provided electronically to the citizens by the government while e-governance undertakes a cooperative dynamic between government frontrunners and the community. The conception of governance refers to the practices and actions that permit the implementation of authority and control by the numerous components of the social order, and thus impact the governance strategies as a whole; In contrast, the conception of the government raises to the instrument that is deployed to execute the processes and events of government, explicitly the employment of guidelines underneath the sunshade of the foundations in public administration (Kustic-Lipicer and Kovac 2008).

Numerous definitions have existed for e-governance since its commencement; however, it is still difficult to find an overall definition that embraces all the different extents of e-governance and therefore receives the

legitimacy and acceptance from all academics and researchers. In this research the term e-government is used as an outcome of e-governance implementation. The researcher is aware that e-government is a "*form of electronic business in governance and refers to the processes and structures needed to deliver electronic services to the public, collaborate with business partners and to conduct electronic transactions within an organizational entity*" (OECD 2007: p.21). Also, e-governance is considered as a deliberate tactic that simplifies and improves governance for all parties including businesses, citizens, and government (Singh et al. 2010).

E-government is defined as the use of information and communication technologies (ICTs), and in particular the Internet, to attain better government or in other words conducting different government transactions through the electronic network (OCDE 2003; Alzahrani.M.E 2012). As detailed by Turban et al. (2015: p.324), "*e-government is the use of information technology in general, and e-commerce in particular, to improve the delivery of government services and activities in the public sector, such as: providing citizens and organizations with more convenient access to government information and services, and to providing effective delivery of public services to engage citizens and businesses partners, as well as improving the performance of government employees".* The application of internet based commerce in society for transactions between citizens, businesses, and governmental departments is also described as e-governance. E-government is seen as a revolution in the field of public administration, it added new concepts such as: transparency, accountability, citizen participation in the evaluation of government performance (Salamat et al. 2011; Al-Khouri 2012). According to Philip *et al.*, (2007), in addition to the role e-government plays in transforming the approach in which services and information are facilitated, also it presents a significant contribution in renovating the vital interactions between the government and its stakeholders.

Therefore, countries have recognized the importance of e-governance as a fundamental tool for modernisation, improvement, and reformation (Singh et al. 2010; Al-Khouri 2012; Al-Mamari et al. 2013). Thus, international institutions such as the World Bank have been providing support and

resources to help many nations, including Lebanon. For example, *according to the World Bank: "e-government can serve a variety of purposes including better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, and more efficient government management (Min et al. 2013: p.63).* As a result, e-governance can potentially reduce corruption, decrease poverty, and heighten the delivery of public services. E-governance is capable of establishing a trustable relationship between government and citizens and helps in minimizing corruption and increasing transparency (Ionescu 2013b).

E-governance gained legitimacy and popularity among policy makers in governments based on its desired strategic objectives in simplifying and supporting governance for all stakeholders from businesses, citizens, and government. The implementation of ICTs in government processes enables quick, transparent, effective and efficient interaction with the organizations, citizens and other parties (Singla 2005). E-government supports collaboration and interaction between government and its public subordinates in terms of information interchange, communication, system incorporation and transactions. By all means, e-government utilizes information and communication technologies to achieve good governance. Thus, the objectives of good governance and e-government are the same. However, e-government objectives are divided into external strategic objectives focused on services and internal strategic objectives focused on processes. The external objective of e-government is to adequately accomplish the needs of the citizens and meet their prospects on the front-office side, by making their interaction with different web based services easier and simpler (Ionescu 2013b). Equally important, the internal objective of e-government in the operations of public administration is to construct a rapid, accountable, transparent, efficient and effective practice for performing government services in the back-office side, achieving reduction in public expenditure and cost saving in governmental operations (Ionescu 2013b). As it can be seen, the success of e-governance is not determined by the number of websites and services available online. Thus, it is determined by the ability to

accomplish social, economic, technological, and political reformation as its ultimate goal.

3.4 E-Governance Categories

Governments in all over the world have tried to improve governance in public administrations through the implementation of management techniques and methods in an attempt to provide a good government and public service model. Developed countries were able to take advantage of the management knowledge and the electronic tools available to accelerate the process and enhance their administrative operations. Many developing countries have also exerted effort to establish an e-government portal and they found through the availability of information and communication technology the best way to accomplish this necessity arising from public demand.

Information and Communication Technology (ICT) has allowed governments to embrace a complete tactic by linking different divisions and units as never before; it has also delivered exterior connections simplifying the exchange of information with other organs of the civil society and in turn publicizing data and information globally (Sinha 2006). E-government is implemented in order to enable a transparent, friendly, rapid and cheaper ways of interaction between government and business organizations (G2B); government and citizens (G2C); government and employees (G2E); and various government departments and units internally and externally (G2G) (Bhatnagar 2004; Milakovich 2012; Saeed et al. 2012; Singh 2014; Turban et al. 2015).

Government to Business (G2B): ICT has considerably accelerated the bureaucratic managerial process in public administrations. E-government has made direct and indirect tax collection and customs declaration such as corporation tax and VAT easier and less complicated. In addition, developing countries have extended G2B services to enable the online registration of new businesses and the social contribution of employees saving by that time and cost.

Government to Citizens (G2C): With the purpose of simplifying and improving the interaction between public administrations and citizens for providing better public services, governments have facilitated electronic data capture and storage in e-governance as G2C services. This has led into substantial enhancements in the quality of numerous numbers of services such as passport issuance, property registration, income tax declaration, vehicle registration, job search services, and social security contributions etc.

Government to Employees (G2E): Internal efficiency and effectiveness or G2E stand for the simulated connection between public administration's institutions and their workforces(Lee et al. 2005). Through the usage of the internet, employees are provided by their governments with comprehensive information concerning labour rules, pay dates, training programs and employee's benefits. Also, G2E interactions can develop the running of procurement, civil service recruitment and inner communications between government employees and non-government servicers serving as, arbitrators, consultants and chief agents (Milakovich 2012).

Government to Government (G2G): governments have established electronic connection in different administrative and legislative data centres to enable data processing and interaction among various state departments within the same government and its offices abroad. For instance, on form of G2G services is the exchange of information between foreign ministry and the embassies abroad. More applications can be named and more is being created that will transfer the government into smarter and interconnected government.
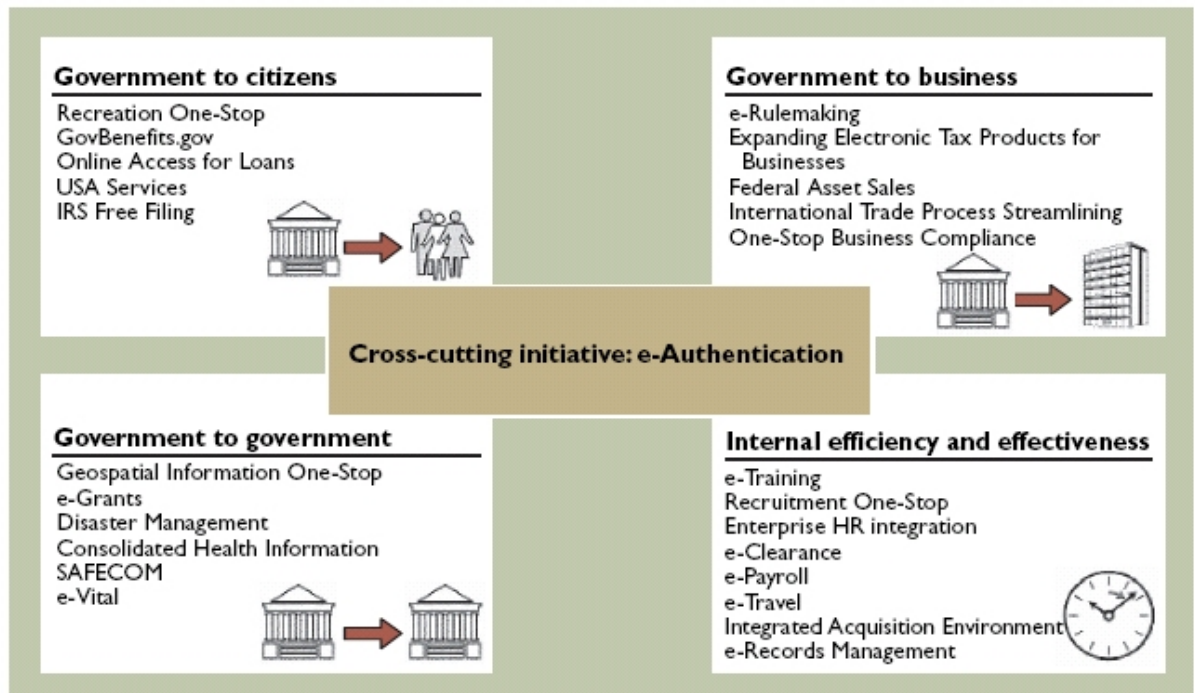
Source: GAO. Icons by Nova Development Corporation.

Figure 3.3 E-government Categories (Nova Development Corporation, 2006)

In recent years, people expectation of governments has enduringly transformed due to numerous reasons such as: security concerns, elderly population, better services expectations, competitive private sector, and financial strains that forces government to be more efficient and effective in running public services and administrations (Sinha 2006; Giritli Nygren et al. 2012; Jun et al. 2014). Given these points, e-government services are becoming one of the most powerful instruments for governments to utilize in accomplishing sincere renovation as they continue to offer public services in our time.

3.5 E-government Implementation Models

Governments around the world who were concerned about e-government implementation have adopted various models to provide electronic services. Three different models of e-government have been identified (Sinha 2006; Bannister and Connolly 2012).

The first one is the "New Economy" or in other word "Knowledge-based economy" model that acquires its characteristics and features from e-

business and shapes it in e-government concentrating on providing better public services and empowering citizens in terms of self-service, which will shrivel the scope of the country over time. This model is also considered a provincial and a local instrument for economic development (Chen 2008). The UK, France, and USA are among the countries that implement this model to name some.

The second model is called "E-community" which is preferred in continental European cultures more than anywhere else, in particular societies with a high level of edification and technology diffusion, liberty of information and robust tradition of civil society, and a moderately distribution of wealth such as Scandinavian countries or Netherland. E-community model permits extensive access and devotes citizens as co-producers of services leading into prospective social innovations (Whiteduck 2010).

The "Planned Economy" model is the third model acknowledged by Oakley (2002), this model is implemented mainly in Asian tigers such as Hong Kong, Singapore, South Korea, and Taiwan, which usually use interfering public sector means to outline and escort private sector investments and activities. Similar to the "New Economy" model, economic growth is an essential driver in the "planned economy", however the government is held responsible to maintain and develop information and communication infrastructure in the country and originate the required IT skills (Oakley 2002). These three models presented show that different countries and regions follow different models in e-governance implementation based on their needs, viability, and socio-economic nature. Each model is characterized differently from the other and it is selected by governments based on its suitability to the chosen environment.

3.5.1 Gartner Maturity Model
E-government starts by offering information to citizens online before the demand of more advanced services by the public and inner administrative units. E-government services twitch to appear gradually and become available for users stage by stage. This happens due to public demand and

cost saving aspects which are the two major leading and driving forces for e-governance implementation. Gartner, an international e-business research consultancy group, has created an implementation e-governance model devised of four phases. As stated by Gartner, e-governance will mature according to the four-phase e-governance maturity model; these phases have been identified based on experiences with e-commerce and e-governance in Europe and other western regions (Soliman and Affisco 2012).

Phase❶: Presence

E-government in the first phase is characterized by web existence in order to support businesses (G2B) and citizens (G2C) with information and instructions. Initially, e-government websites in the information phase are similar to online leaflets or brochures with descriptive processes and guidance. This phase provides the public with the required legislative knowledge and minimizes ignorance and corruption. Also, the government may broadcasts information among all governmental departments (G2G) using the internet.

Phase❷: Interaction

In the *interaction phase* the communication between government and the public (G2C and G2B) is stirred with several applications. Citizens are able to inquire about legal and governmental issues through e-mail, search engines and all kinds of downloadable documents and contact forms. These applications save money and time and enhance transparency. Thus, applications can be completed online at any time with no place or time restrictions. Besides G2C and G2B services in the interaction phase, G2G facilitates email, intranets and Local Area Networks to exchange data and interconnect. The implementation of electronic interaction services accelerates the internal public administration practices. Yet, in this phase citizens and businesses are compelled to go to public administration offices to submit evidences, sign papers, finalize transactions or pay fees.

Phase❸: Transaction

The complication of technology is growing in phase three heightening the value of G2C and G2B e-government services. Whole transactions can be completed at any time and from anywhere. E-government transaction phase enables services such as visa applications, extending and renewal of licenses, declaration of income tax, and voting online. The most considerable challenges in the transaction phase are data security and privacy concerns. In this phase digital signatures, biometrics and e-procurement applications are enabled as (G2C) and (G2B) amenities. On the other side, G2G services have to undertake reorganization in its processes in order to match the transaction phase. New legislations need to take place that will accept digital signatures and legal certifications from paperless transactions.

Phase❹: Transformation

All information systems and electronic applications are integrated in the transformation phase. The ultimate goal of the fourth phase is to provide G2C and G2B services to populations and organizations from one cybernetic virtual counter or one single point of contact in other words. The internal side within the government is the most difficult side to attain the goal of transformational governance (t-governance). Achieving single virtual counter demands dramatic change in the processes, culture, and responsibilities within the public administrations (G2G). Government employees in various divisions are requested to cooperate in a swift and unified mode so that they can reach the peak in efficiency, public satisfaction, and cost saving in this phase.
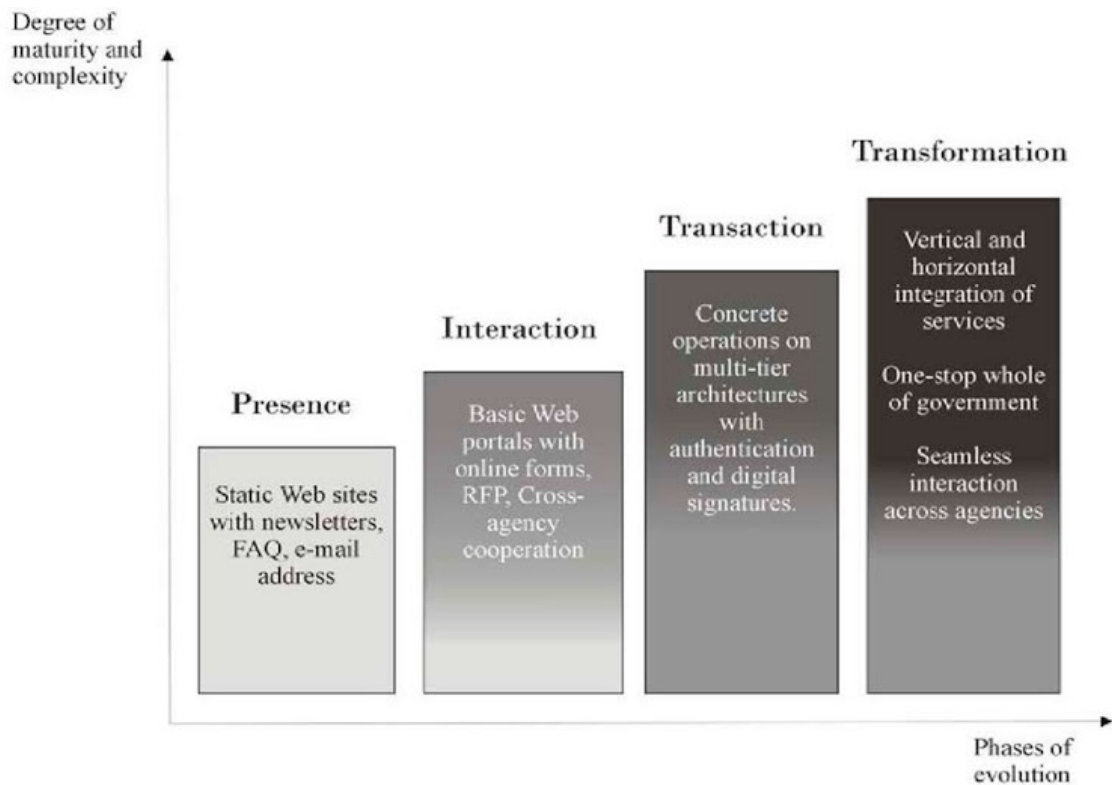
Figure 3.4 E-government maturity model based on Gartner Research 2000

In the early 1990s, governments started providing legal guidance and information by publishing websites on the internet establishing by that an online presence. After mid-90s, e-government embraced a new option represented by interacting and communicating with users through emails, contact forms, and online interaction applications. From the 2000, e-government services permitted complete transactions including financial payments to take place online without any difficulty. However, e-government had been lately replaced by t-government (Kinga and Cotterill 2007), with scholars currently showing transformational government as the premier or last phase of e-government (Hermana and Silfianti 2011; Al-Mamari et al. 2013). T-government is an enhanced and progressive virgin of e-government and it is built on the same basis. States implementing e-governance services are not all in the same phase of the implementation model. Some developed countries are in the transformation phase and other developing countries are still lagging behind in the presence phase. Additionally, one department in

the same government may be in the first phase and another department may be in the third phase. This will depend on the applicability and usefulness of each phase in the operations of a particular department.

3.5.2 Challenges of Gartner Maturity Model

The North Carolina Information Resources Management Commission (2001), in a report to the state's General Assembly, identified the challenges of each phase of the Gartner Group model of e-governance implementation (Soliman and Affisco 2012). The report acknowledged that content management, responsibilities and tasks of backend support, and performance hierarchy constitute the main challenges encompassed in the presence phase. In the interaction phase the major challenges are written off as the availability of qualified practical support team for maintaining and creating databases and managing public records. The challenges become more complicated in the third phase of the maturity model (transaction phase) which entail high investments in technology. The transaction phase challenges are internal integration, data security and privacy, recovery and backup to name a few. However, the maximum complexity is reached in the last phase or in other words the transformation phase. Challenges in this phase consist of intergovernmental collaboration, reorganization of business procedure, and accountability and performance programs. These challenges strain that accomplishing transformation phase of e-governance obliges a key governance progressions, change in the organizational structure, and a major cultural rise in business practices.

3.5.3 E-governance Maturity Models

In addition to the Gartner Group model of e-government, researchers have studied and discussed several other models of e-government development stages in the literature. This paragraph will demonstrate a numerous number of models suggested by researchers in the field of e-business or in particular e-government. Howard (2001) specified that e-government evolves among

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the following three stages: Publish stage, Interact Stage, and Transact Stage. Howard focused on the technological side and the development of ICT which will significantly influence the transformation of government from one phase to another (Irani et al. 2006; Shareef et al. 2011). In contrast, some intellectuals have not only focused on the technological aspect, but also have paid significant attention to the importance of managerial and organizational features in the evolution of e-governance. For instance, Layne and Lee (2001) put emphasis on the development of e-government through four simple stages as following (Figure 3.5): cataloguing, transactions, vertical integration, and horizontal integration. In stage one (Cataloguing) the government works on founding robust online presence. In the transaction-based stage the government enables transaction online services and database search supported by official confirmations. In stage three managerial and organizational sides appear to integrate different governmental bodies and connect them. Finally, integration across different functions and services is performed in the last stage titled horizontal integration.

Moon (2002) specified that the maturity of e-governance passes through five phases. These phases concentrate on the level of collaboration with users and technological complexity. The phases suggested by Moon are specifically simple information dissemination phase, request and response phase, service and financial transactions phase, integration and political participation phase. The first phase is one way communication where only the government communicate with the public. In the second and the third phase both the government and the public communicate with each other (two-way-communication). The organizational integration in the last phase is horizontal and vertical integration in the public administration (Moon 2002b). Nonetheless, these phases illustrating the evolution of e-governance are of theoretical nature and not practical; therefore, it does not have to match the actual process of e-government implementation.

E-government development or evolution proceeds from one stage to another in an attempt to attract public interaction and enhance electronic services in order to meet its objectives. However, there is a strong believe that it is not

indispensable for e-governance evolution to embark on this route to achieve its objectives in providing better services to the public. According to Soliman and Affisco (2012), some e-government models could reach their planned goals at the first or second phase and there is no need to proceed to the final stages. As the mainstream of models are grounded on current e-government uses, which certainly have been established on an incomplete bases, little thought has been given to the development of a coherent strategic portfolio of applications. As a result, a model that begins to approach this concern is profoundly wanted in the expansion of the literature at this time.
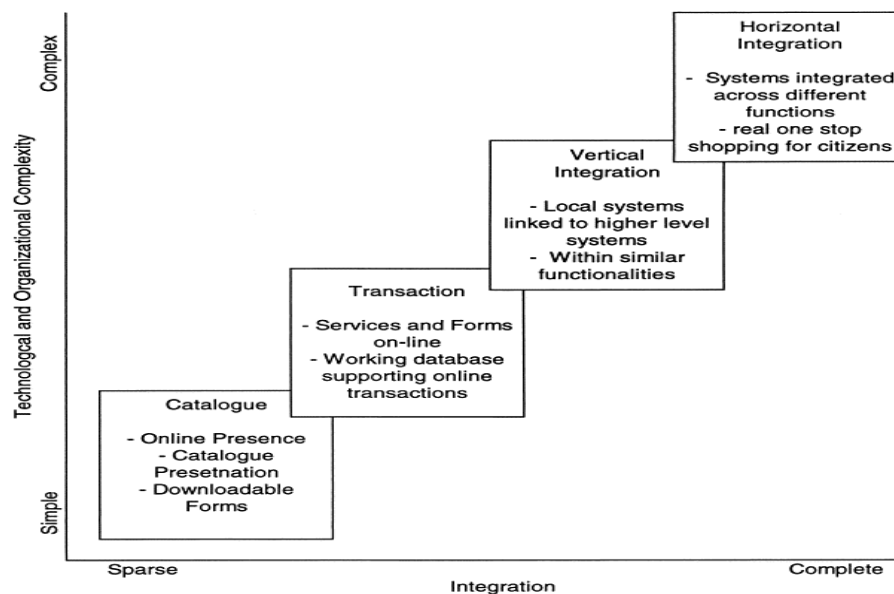
Figure 3.5 Dimensions and stages of e-government development

3.6 Evaluating E-government Progress

In order to comprehend the progression of e-governance in developing nations, Al-Dosari and King (2007) suggested three comprehensive categories to evaluate the development of e-governance implementation. The first category is milestones which consist of establishing an e-government body, creating a safe authentication system, launching a protected payment gateway, and founding an electronic law. Secondly, the category of advanced

technology features which consists of single point of access for electronic services, single sign-on counter, and several contact channels with e-government. The last category is the services category which includes a number of advanced communication and information services in addition to developed transactional services. Nevertheless, these categories are represented in four stages of e-government evolution as following: Initial stage, Developing stage, Advanced stage and Optimal stage (Al-Dosari and King 2007).

Likewise, six stages of e-governance progress in Asia Pacific Region were presented by Wescott (2001) built on his understanding of e-governance implementation. The stages were proposed in order to enable horizontal and vertical integration and interconnect different governmental agencies in a single web portal to provide electronic services to the public in the most effective and efficient procedure. The stages are: Setting up an intranet system and email network, Permitting organisational and public admittance to data and information, Authorizing collaborative interaction (G2B, G2C...), Facilitating payment transactions and value exchange to offer flexibility and suitability for citizens and organizations conducting business with governmental bodies, Electronic democracy, and lastly Joined-up government (Wescott 2001).

Most researchers believe that the features of electronic services and the nature of it are considered to be effective measurement tool of the development of e-governance in a particular region. Yet, Al-Dosari and King (2007) argued that the evolution from one phase to another in e-governance development is not only determined by the technological status but also by other characteristics such as public administration readiness, facility precedence system, and the implementation plan duration (long-term or short-term). At the national level, these features are considered essential requirements for the implementation of fruitful e-governance model in developing countries. Nonetheless, a significant attention has to be paid to the change management in the implementation of e-governance and in the transition from one phase to another in the process. It is of great importance to focus on the complexity of each stage and enable horizontal

transformation in e-government to reach the current research aims to enhance our knowledge in e-governance adoption by providing an empirical model including context and system dimensions and explaining the context-system and government-citizen gaps. In fact, additional models of e-governance implementation have been created by researchers and available in the literature. Yet, some of these models are of descriptive nature and some have provided constructive strategies for successful e-governance implementation and development.

Most of e-governance models named formerly in this research propose a timeline phases that evolve in line with the evolution of e-governance; starting with dissemination, moving to transactions, and lastly administrative integration. On the other hand, the fruitful implementation and execution of e-government applications and services implicate an understanding of the notion of structural transformation and concentrating on the users as a crucial partner in the course of change. Also, cooperating with the appropriate governmental bodies will lead to an enhanced level of approval and acceptance from the public to achieve e-government services.

3.7 Barriers of E-government Adoption

Several models have been proposed in the literature pinpointing the barriers hindering the development of information system infrastructure (Shang and Seddon 2000; Themistocleous et al. 2001; Ebrahim and Irani 2005). Some of the barriers facing the adoption of e-government implementation are similar to those facing e-commerce and e-business adoption (Chaffey 2007; Turban et al. 2009). These barriers (Management structures, experienced and qualified staff, etc...) are not permitting public administration from achieving successful implementation and anticipating the benefits of e-government technologies. In this section, e-government barriers in public sector are discussed and analysed.

The success of e-government is not only depended on technology. However, effective support and IT training in public sector, skilful IT staff, public support (facilitating condition), adequate infrastructure, and sufficient resources play a

major role in the success or the failure of e-government (Themistocleous et al. 2001; Muhammad Ovais et al. 2013).

3.7.1 IT Infrastructure

One of the major barriers of e-government and e-business adoption is characterized by a suitable IT infrastructure (Heeks 2001; Layne and Lee 2001; Moon 2002b; Chaffey 2007). The IT infrastructure is constituted of software and hardware that offer employees, businesses, and citizens secure electronic services. It includes all the technologies required for effective and reliable e-government services to the public. Several scholars in their research have regarded that the lack of technical infrastructure is considered a key barrier to the ability of public administration in providing online transactions and services (Al-Dosari and King 2007; Alateyah et al. 2014; Allahawiah and Alsaraireh 2014). Likewise, inadequate IT is believed to have a negative impact on the performance of e-government in public administrations (Dillon and Pelgrin 2002; Ebrahim and Irani 2005; Roushdy 2012).

As a result, the availability of IT infrastructure and network capacity establishes the base for an integrating and robust e-government system (Layne and Lee 2001; Dillon and Pelgrin 2002). Consequently, the implementation of an adequate IT infrastructure is essential to achieve successful e-government implementation strategy. This infrastructure determines the quality of the service and it is necessary to maintain accessibility to services, responsiveness, and integration.

- "*Accessibility represents the degree to which a system and the information it contains can be accessed with relatively low effort*" (Nelson et al. 2005: p.206). Adequate IT infrastructure is necessary to permit users to access information through the internet at any time and from anywhere.

- "*Responsiveness or Response time refers to the degree to which a system offers quick (or timely) responses to requests for information or action*"

(Wixom and Todd 2005: p.90). The response time of the system depends on the capacity of the server which is responsible for handling communication through government systems and providing high speed access to public administration services and information.

- "*Integration refers to the degree to which a system facilitates the combination of information from various sources to support business decisions*" (Nelson et al. 2005: p.206). In order to integrate different government organizations together and provide citizens with information in real-time manner, adequate IT infrastructure is essential to develop communication and connectivity among different public administrations and enhance planning process and resources sharing (Ebrahim and Irani 2005).

3.8 E-government in Developing Countries

Government support and citizens acceptance of innovative technology play a major role in the success of e-government implementation. As said by Kumar et al. (2007: p.44) adoption is "*at the outseen, a simple decision of using, or not using, online services*". According to Heeks (2010) 35% of e-government projects were total fail and 50% of the projects partially failed, while only 15% of projects implemented have been successful. Studies have found that most of e-government unsuccessful projects are embarking from developing countries (Faaeq et al. 2015; Meftah et al. 2015), keeping in mind that the level of e-government adoption in all over the world is low (Bélanger and Carter 2008; Muhammad Ovais et al. 2013). Many countries are facing low adoption of e-government services. There seems to be difficulties with the adoption of e-government services by people. Even though e-government services are being improved and enhanced by governments, tradition ways of communication are still favoured by citizens in developing nations (Kumar et al. 2007; Bélanger and Carter 2008).

The majority of the developed nations have gained benefits from e-government application services, but then again there is still sizeable

vacancy for enhancement and improvement. Similar to any form of transformation, e-government amenities generate a sum of challenges for governments, in addition to citizens. These challenges encompass lack of accessibility into e-government applications, privacy and security concerns, digital divide, and trust issues (Venkatesh et al. 2011; Harby et al. 2012; Muhammad Ovais et al. 2013). In developing countries, the desires and the needs of citizens are not similar to those in developed countries and ignoring this formulates one of the significant reasons behind the low level of e-government adoption (Muhammad Ovais et al. 2013).

For developing countries, e-government is not only an upcoming reality but an existing one needed for progression. However, most e-government initiatives fail (Kalsi et al. 2009; Abaza and Saif 2015). Dada (2006) delivered a paper on the failure of e-government in developing countries. Relying on substantial research steered by Richard Heeks (2001, 2005, 2006), Dada suggested that there is a presence of vast gaps between the future of e-government systems and the recent reality in developing countries (Kalsi et al. 2009; Nirmaljeet Singh and Ravi 2013). These gaps are: a hard-soft gap, indicating a gap between the social environment of implementation and technology; a private-public gap, proposing that what works in the public sector doesn't necessary work in private sector; and a country context gap, which raises from the implementation of identical e-government systems and applications for both the developed and developing countries (Dada 2006).

The economic and cultural differences between developing and developed nations have steered the objectives of e-government implementation according the context of each country. Most of e-government services in developing countries are limited by the second and the third phase of the maturity model where they put widespread of administrative information online and they enable simple transactions to take place through websites with a slight change in the governmental process and structure (Thanh 2008; Singh et al. 2010; Miscione 2011). The challenge in developing countries is represented by receiving a considerable online interaction from the public or in other word attracting e-government users; however this hindrance is minimal in developed countries, as the majority of the public is aware of e-

government services and applications and have the willingness to use it (Veljkovic et al. 2012).

E-government has yet to take essence in the Republic of Lebanon. The fruitful enactment of technology is substance to a diversity of powers acting toward its adoption (Pons 2004; Nograšek and Vintar 2014; Mirza and Reshadatjoo 2016). A steadiness has to exist in deploying technology to promote growth in communication while maintaining steady and secure infrastructure to empower such technologies. There are numerous issues that have distressed the progression of e-government in most developing countries and Lebanon in particular, which remain to impact the acceptance of e-government services. At a high level, these issues embrace public administration structure, communication infrastructure, socio-cultural approaches, educational and governmental systems, and information security (Chen et al. 2007; Roushdy 2012; Alghamdi et al. 2014). As such, the projected literature in this research sheds the light on some of the issues identified in e-government implementation, while going beyond and considering citizens, context, and government readiness.

3.9 E-government in Context

The relationship between social context and technology is reciprocal: the social context of implementation has an influence on the technology throughout implementation (Heeks 2005a). To illustrate, an electronic payroll and personnel management system was deployed in the Cameroon Ministry of Public Service and Administrative Reform (Tazo 2003). Most of the employees in the Bureau were resisting the new administrative system and the innovative slant to management it introduced. The implementation of the system was a partial failure due to the refusal of using the system by the staff. "*E-government is connected to the social context in which it is deployed. This can be seen firstly in the way that technology can impact that social context*" (Heeks 2005a: p.26). It has been perceived in a number of research that e-government applications have influenced the business environment surrounding it (Madon 2008; Miscione 2011). For instance, COMPRASNET in Brazil, an e-procurement system using a computerised

reverse auction system, has condensed the charges of participation in public procurement leading into growth in the number of SMEs' input (Almeida 2002).

It is a misconception to consider the interrelation between the social or the organizational context and technology as some kind of simple duality (Orlikowski 1992; Heeks 2005a). Therefore, the use of technology in developing e-government services in a specific country has to reflect and take into consideration the context of implementation. According to Fountain (2004) technology can be divided into *enacted technology* and *objective technology.* The first characterizes the specific design, perception, use and implementation of e-government technology in a particular setting. The second is the software, hardware, and mainly the internet or any set of technology accessible to decision makers in e-government before any use or customizations (Schellong 2007). Founded on this, Heeks (2005a) argues that the context of implementation of e-government is neither similar to the context of design nor to the context of invention. The attention to the differences among design, invention, and context are crucial to the successes of e-government systems. As a result, e-government application is not to be viewed in a simple-minded, basic manner but in a complete manner as a set of associated elements that are acquired from the context of which that technology is designed.

Contextual dimensions that are engraved in the e-government system determine the extent of success and failure of e-government adoption and usage. In simple words, seven dimensions have been considered as a model for a complete set of e-government projects (Heeks 2002; Heeks 2005a).

1. Information, such as data flows and stores
2. technology, including software and hardware
3. Processes, front end and back end users' activities
4. Values and objectives, is considered the key dimension which include clear factors such as views and culture
5. Skills and staffing, including both the qualitative and quantitative abilities.
6. Management structures and systems, such as plans

7. Other resources, such as financial resources and time.
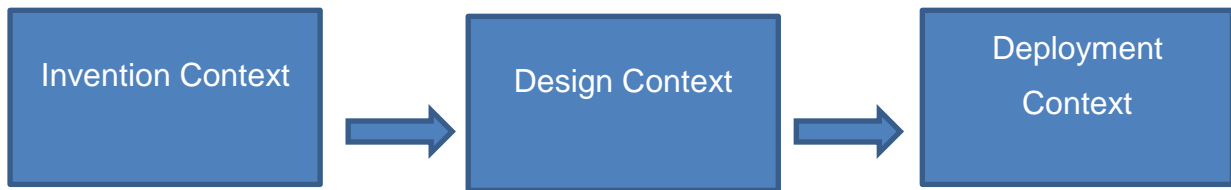
Figure 3.6 E-government Context (Heeks 2005a)

Most of these elements in the model differ from one context to another. For instance, the assumptions that the inventor or the designer of the e-government system builds his system according to the context in which the e-government will be implemented may not be true. The 7 dimensions are constructed based on the perception of the designer and the insights that he/she has about the world of the user (Dada 2006). Furthermore, most of the e-government technology applications and systems are invented and designed in developed countries and intended to be used in developing countries which may lead into failure due to the country context gaps as described by Heeks (2003). Another gap that exists at the same level because of the differences between developed and developing countries is the hard-soft gap.

- Hard-Soft Gap: The dissimilarity between the real technology (hard) and actuality of the social context (culture, people, policies etc.) in which the e-government or any system functions (soft) (Heeks 2005a; Dada 2006). Designing e-government projects for users in developing countries without incorporating the human issues (soft) their cause an unfavourable effect once implemented.
- Country Context Gap: the gap that occurs when using the e-government technology applications in both developed and developing context. It results from the gap between a project designed according to the standards and dimensions of developed country and the reality in a developing country in which the e-government project is deployed (Heeks 2005a; Dada 2006). For

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instance, most of developing countries lack a robust telecommunication infrastructure which is required for a successful e-government implementation (Tapscott 1996).

Hard-Soft Gap and Country Context Gap indicate that the differences between developed and developing countries in terms of mind-set, culture, policies, regulations, infrastructure, etc… may lead into failure of e-government implementation in developing countries if the gaps aren't addressed and studied precisely. Additionally, any two parties concerned with the implementation of e-government projects (designer, inventor, and user in this case) have to be familiar with the seven dimensions of the end users in the deployment context and maintain a full understanding of it.

"Our technologies mirror our societies. They reproduce and embody the complex interplay of professional, technical, economic and political factors" *(Bijker and Law 1992: p.3)*

It is also right to say that our societies mirror our technologies. Users, inventors, and designers are all part of a particular context and influenced by that context. Therefore, designers and inventors embed their own cultural perceptions and values in the design and invention of e-government system (Shields and Servaes 1989; Braa and Hedberg 2000); however, users expect their own cultural perceptions and values to be embedded in the system and their own interests to be served. Consequently, the disparity of cultural values, perceptions, objectives, and expectations between any two sides concerned with the implementation of e-government system leads into failure.

Designer/Developed Infrastructure, cultural values, perceptions,	Gap	User/Developing Infrastructure, cultural values, perceptions,
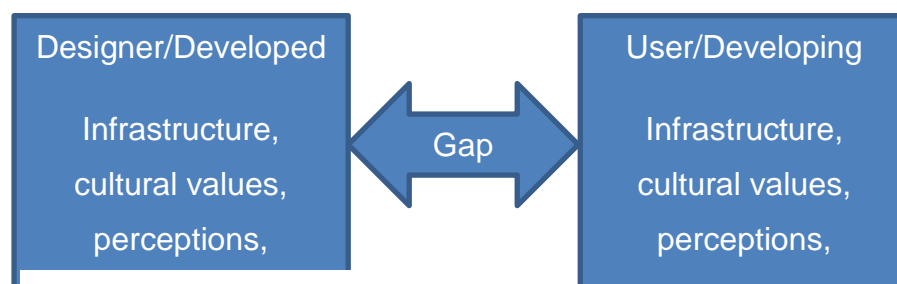
Figure 3.7 Designer User Gap

All things considered, differentiating between the context of implementation/user and the context of design/designer is a crucial step in creating a successful e-government project. The design context may be completely separate from the deployment context. Accordingly, the design process is often conducted without any direct influence from the user context. Alternatively, the inscriptions of the design are either derived directly from the designer context or as insights from the designer regarding the context of deployment and using e-government.

Given these points, there is a risk of incompatibility between the realities of the users' context and the design of the e-government application created according to the designers' perceptions. Therefore, a significant attention is required to the designers of e-government and their context in order to minimize the gap between the two contexts; mainly the seven dimensions mentioned previously which influence their perceptions and values. These difference all lead to one gap represented in this research as the context-system gap. When the context of implementation does not fit the context of design or the context of developing the system a new gap is formulated as the context-system gap. This gap is defined as the dissimilarity between the technology infrastructure, culture, conditions, and values available in the context of implementation and the infrastructure, culture, conditions, values required for the system "e-government" to function in the designated manner.

3.10 Government-Citizen Gap

At this point of the literature review, it is applicable to institute an understanding of the reasons of failure of e-government technologies in developing countries. Several cases in developing countries have revealed that information system in general is subjected to a high rate of failure and not only e-government (Hawari and Heeks 2010; Heeks 2010; Zhao et al. 2012). As stated by Avgerou and Walsham (2000) and Roushdy (2012) ,there are some fruitful cases of information system applications in developing countries; but still the majority of computerization projects

implemented failed. This is a frustrating reality, mainly because developing countries don't have excess of funds to spend on fruitless projects and therefore can't afford failure. Consequently, this paragraph contributes to the topic through pitching in depth in the relationship between the government and the citizen and revealing the issues attached to e-government implementation in developing countries.

Government-Citizen gap is the new uncovered archetype in the field of e-government. Among all the journal articles and literature covering the topic of e-government, none has explicitly mentioned government-citizen gap as a significant component in determining the outcome of e-government projects. Government is the public administration and institutions setting policies and procedures and government officials involved in decision makings. Citizens are the public from individuals, groups, and organizations living under the authority of the government and subjected to its rules, policies and procedures. Cecchini and Raina (2004) suggest that the technology in e-government projects should be established to serve the needs of the community and be developed in cooperation with native staff. while, governments in developing countries develop most of the projects, not only e-government projects, regardless of citizens' expectations and perceptions and without consulting or involving the public in the decision making process. As stated earlier, citizens expect e-government projects to enrich governmental services, minimize corruption, increase transparency, and enhance democracy. However, implementing e-government technologies in developing countries may not always lead into good and more efficient governance; a military or bureaucratic administration will not immediately turn into efficient and transparent administration as a result of e-government applications (Ciborra 2005). By the same token, bribery and favouritisms will be simply handled by new intermediaries, easy access to the service will be granted to privileged segments of the population, and democracy will remain restricted. Many examples from developing countries have shown that e-government projects are not successful due to the reason that citizens are seen as customers (Ciborra and Navarra 2005; Dada 2006; Alateyah et al. 2014).
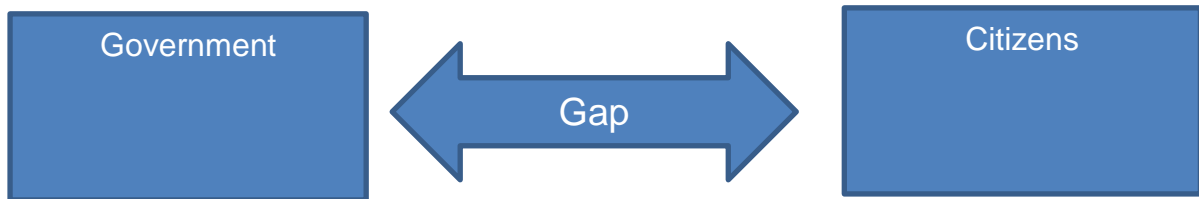
Figure 3.8 Government-Citizens Gap

The government officials or decision makers in developing countries have relatively little information about the needs of the citizens. Coming from political background, from specific social classes and with education, their systems of knowledge and perceptions are quite different from the majority of the people who are anticipated to use e-government technology. The decision makers thus agree on e-government project, basing their decision on a reflective image emerging from their own insights about the system and not based on the reality of the context. Due to lack of accurate data mirroring the social, demographic, and economic situation in developing countries decision makers are not able to take precise decisions. Therefore, imprecise and inadequate information will have devastating effects on decision making and planning activities. According to Mennecke and West Jr (2001), two most prominent factors limiting the success of planning efforts in less developed countries (LDCs) are the lack of adequate data and a shortage of trained decision makers. As a matter of fact, officials and decision makers in developing countries would not be able to maintain their power and privileges if e-government technology is implemented. For instance, citizens in developing countries rely on their official representatives and political parties to conduct any dealings with public administrations, which enable officials and political parties to sustain their power and authority through keeping the need of the public to their services (Olken and Pande 2011).

The main aims behind the implementation of e-government technology and its creation are minimizing corruption, enhancing transparency, connecting citizens with the government, etc… (Layne and Lee 2001; Veljkovic et al.

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2012; Allahawiah and Alsaraireh 2014). Yet the question is, is it really that all developing countries in the process of e-government implementation are aiming for these outcomes? Developing countries, especially countries with slow economic growth and high poverty rate, are always under pressure by the United Nation institutions and the international community to reform and enhance transparency. However, these countries view e-government as a way to attract foreign aid and funds and not as a way to enhance democracy and transparency. Additionally, developing countries fear that e-government technology could be used by the west to serve as a "technology of control" and establish a monitoring and self-regulating system of authority in developing countries where there is a potential of international security threats (Ciborra 2005; Dada 2006). Eventually, the concept of e-government adoption by itself is not enough for developing countries to gain the related outcomes. Hence, internal and external changes are needed beside the adoption of Information technology. These changes will be required to bridge the gap between the citizen and the state or the government and bring both parties into a common understanding of e-government function.

3.11 E-government and Trust in Government

The ability of e-government in leading reformation in public administration will enhance the trust of the citizen in his/her government and the services provided by it (Ionescu 2013b). On the other hand, several scholars have argued that trust in government is a positively related with trust in e-government services; therefore, citizens are willing to use e-government services just in case a trustable relationship is established between them and the government providing this service (Welch et al. 2005; Teo et al. 2008). Trust has been considered one of the key factors for e-government and any virtual means (McKnight and Chervany 2000). This significant attention to trust in e-government and virtual intermediaries is gained due to the lack of face to face interaction over the internet and due to the many security and fraudulent concerns associated with this interaction. As a result, we can notice that trust in government is important factor in the success of e-

government projects, as well as trust in e-government services leads to trust in government. However, trust is not a simple attribute in individuals or users of a certain technology that is subjected to internal assumptions. Trust is shaped and acquired based on external assumptions that the user has experienced and that are able to construct his/her thoughts and perceptions.

According to Zucker (1986: p.54) "*trust is a set of expectations shared by all those in an exchange*". Trust has a main influence on the relationships between the interacting parties. Therefore, the trust between the government and the citizen is a crucial factor in influencing the trust in e-government services and impact its success. Citizens' Trust in e-government is directly associated with citizens' trust in government. Scholars have suggested that trust in a service provider is clearly related to trust in the service provided (Turel et al. 2008). For example, customers tend to shop online from vendors they either know from before or because they have a pleasant experience gained from previous successful transactions. In the context of e-government, government provide e-government services to the citizens in order to facilitate the interaction and communication with public administrations. Therefore, if the citizens have a pleasant experience with the government's services and public administrations, they are more likely to trust innovative services and tend to use e-government portals and the opposite is true. "*E-government is a government sponsored initiative, hence, trust in an e-government Web site emanates from the trust in government*" (Teo et al. 2008: p.14).

Many researchers have linked the use and acceptance of technology and information system to different theories and models such as the TAM, UTAUT, and TRA (Ajzen and Fishbein 1980; Davis 1985; Venkatesh and Davis 2000). Trust in technology appeared later to occupy its place in the field and to be recognized as an essential factor in the use of technology. According to Warkentin et al. (2002), trust in e-government, perceived ease of use, and perceived usefulness, influence the intention of the citizens to use or not to use e-government services. Warkentin added trust to the TAM model in an attempt to make it more inclusive. However, trust is not a standing alone factor; thus, it is a result of different factors experienced

throughout this interaction between the citizen and the government leading to the adoption. Consequently, trust alone as a terminology could guarantee the acceptance or the rejection of e-government services. For example, no individual can mistrust a service and rely on it or trust a service and doesn't use it.
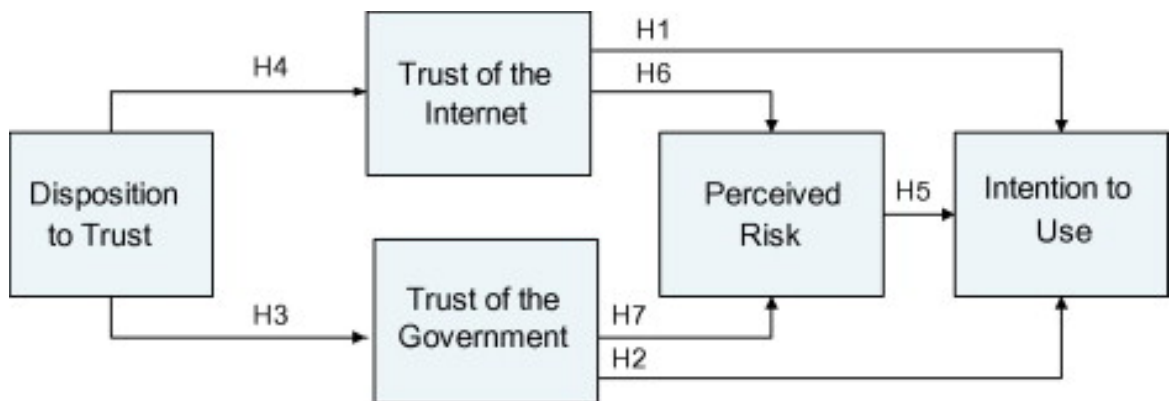
Figure 3.9 Trust and risk in e-government adoption (Bélanger and Carter 2008)

3.12 Technology Adoption

Technology adoption is defined by Agarwal and Karahanna (2000), as the process of using or accepting innovative modernised approaches of new technologies used for production or services. Various models and theories are being held for supporting varied point of views, and perceiving the elements of understanding the essential usage of technology in both Information Technology and Information System research.

In order to identify the actual issues that primarily influence the real attention of adopting information technology, various approaches have been developed. To name a few, Davis et al. (1989) acknowledged, the technology acceptance model (TAM) which models behaviour and system usage intentions or attitude as a meaning of perceived ease of use and perceived usefulness (Davis and Venkatesh 1996; Venkatesh and Davis 2000). While the theory of Planned Behaviour (TPB) discussed by Icek Ajzen is one of the most predictive persuasion theories in-which beliefs, attitudes and behaviours of users are linked to improve the perceived ability (Fishbein and Ajzen 1975;

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Ajzen and Fishbein 1980; Ajzen 2011); the unified theory of acceptance and use of technology (UTAUT) is one of the most workable models of technology acceptance that was created by Venkatesh in 2003 that explains users' intentions for effective information systems and followed user behaviour and attitudes.

3.12.1 Theory of Reasoned Action (TRA)

Theory of Reasoned Action or TRA (Ajzen and Fishbein 1980) which is considered a well adaptive theory utilized in many research to understand and study human's behaviour toward a widespread of available choices (Fawzy and Eman Mohamed Abdel; Davis et al. 1989; Abaza and Saif 2015; Gherib 2015). This theory argues that the attitude of the user toward certain behaviour which is driven by his/her own believes and evaluation and the subjective norms which is basically the social influence from people around the user determine the behavioural intention of the user which in turns leads to the actual behaviour. Attitudes toward behaviour are a meaning of beliefs about the behaviour and evaluating its consequences. Attitude is the positive or negative approach an individual evaluates the consequences of an outcome of a given behavior (Ajzen 2011). The attitude of a person toward behaviour is compiled of two constituents: first, his/her behavioural beliefs about the consequences and results a behaviour is thought to produce; second, his/her assessment of these consequences and results (are the results and consequences favourable or unfavourable)(Park 2000). Subjective norms are the social influences of other significant people (parents, friends, etc.) on the individual. In other words, it is the individual's belief about how his behaviour is viewed by others which lead him/her to perform certain behaviour. (Venkatesh et al. 2003) defines subjective norms as the degree to which an individual perceives that important others believe he or she should use the new system. Consequently, the subjective norms (social influence) and the individual's attitudes toward the behaviour (favourable or unfavourable consequences of the outcome) determine the behavioural intention. According to (Venkatesh et al. 2003: P448),

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behavioural intention is *"the degree to which a person has formulated conscious plans to perform or not to perform some specified future behaviour"*.

For example: Let's say that you want to read this article to figure out all the more about the TRA and how it could apply to your work. To attempt and predict whether you would really read the article, the TRA would investigate your attitude about perusing and reading the standards that you see from individuals around you, about whether this would be something good and worth to do. Based on TRA, mentality and standards, norms are the primary impacts on proposition, which, is the fundamental and main motivator of behaviours. Finally, as both Ajzen and Fishbein discussed this issue, there are only two possibilities that influence behavioural intention, personal attitudes and subjective norms that unionized a final way of persuading others , thus if anyone who is highly concerned in what and how others would perceive his-her performance outcome negatively or positively, he-she may perform as his-her personal behaviour.
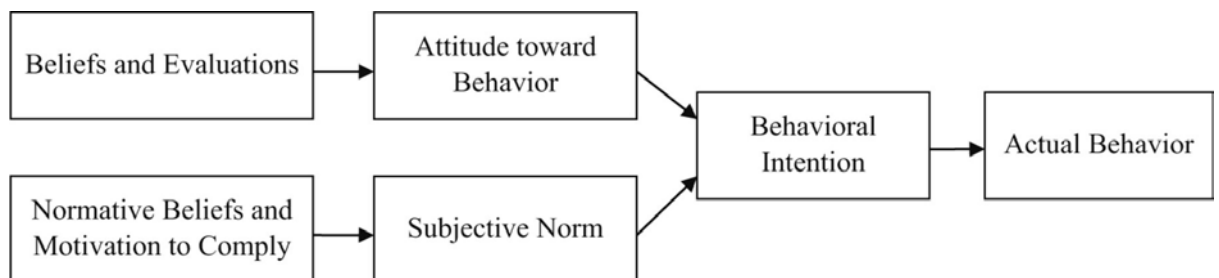
Figure 3.10 Theory of Reasoned Action (Fishbein and Ajzen 1975)

- Attitude: "*constitutes a predisposition to respond in a generally favourable or unfavourable manner with respect to, or in the presence of, the object*" (Ajzen and Fishbein 1977: p.23).

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- Subjective Norms: "*the degree to which an individual perceives that important others believe he or she should use the new system*" (Venkatesh et al. 2003: p.22).

- Behavioural Intention: *"the degree to which a person has formulated conscious plans to perform or not to perform some specified future behaviour" (Venkatesh et al. 2003: p.19).*

3.12.2 Technology Acceptance Model (TAM)

Technology acceptance model (TAM) is one of the well-recognized models in the field of technology acceptance and use. the model was first constructed by (Davis 1986) as a theoretical model which aims to predict and explain individuals' behaviour toward the acceptance and use of information technology. According to (Ajzen and Fishbein 1980), technology acceptance model is regarded as a prominent extension of theory of reasoned action (TRA). TAM provides a foundation defining that belief, intention to use and attitude are influenced by external variable. The two perceptive beliefs speculated by TAM are: perceived usefulness and perceived ease of use. TAM suggests that perceived ease of use of the system and perceived usefulness of the system influence the attitude and the behavioural intentions of the user which lead to the actual system use.

- Perceived usefulness is defined as "*the degree to which a person believes that using a particular system would enhance his or her job performance*" (Davis 1989: p.320).
- Perceived ease of use is defined as "*the degree to which a person believes that using a particular system would be free of effort*" (Davis 1989: p.320).
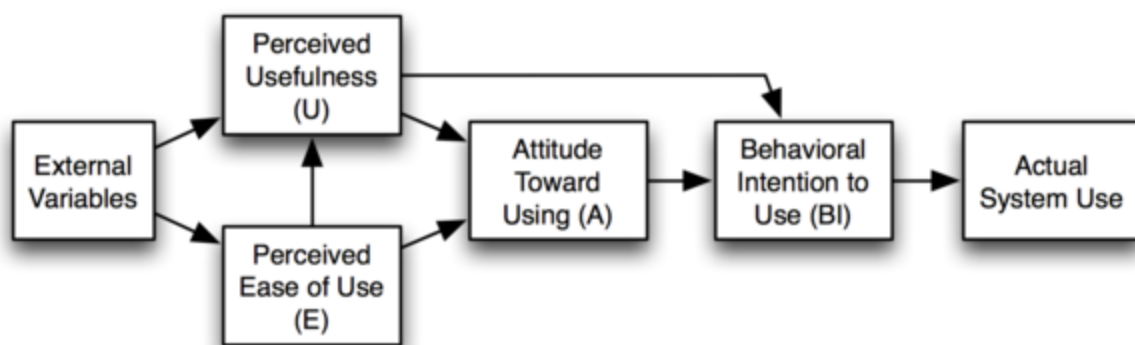
Few scholars have added elements from different models to TAM or extended it with other important dimensions from the literature and other studies (Venkatesh and Davis 2000; Bélanger and Carter 2008). Subsequently, it is a simple and flexible model used in substantial number of research studying the acceptance and adoption of information system and its application in different contexts.

3.12.3 Unified Theory of Acceptance and Use of Technology

The unified theory of acceptance and use of technology (UTAUT) is an integrated model of eight theories explaining the acceptance and use of technology and it has been used in several studies explaining the adoption of technology in different contexts (Al-Qeisi et al. 2015; Parameswaran et al. 2015). Venkatesh et al. (2003) he was the first to formulate UTAUT based upon empirical and conceptual similarities and differences across eight prominent models: the theory of reasoned action (TRA); the technology acceptance model (TAM); the motivational model (MM); the theory of planned behaviour (TPB); a model combining the theory of planned behaviour and the technology acceptance model (C-TAM-TPB); the model of PC utilisation (MPCU); the innovation diffusion theory (IDT), and the social cognitive theory (SCT) (Venkatesh et al. 2003). The main objective of UTAUT is to provide a better and complete understanding of individual acceptance of new information technology. Through the study of the constructs of other technology acceptance and use theories and exploring their differences and

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similarities, Venkatesh conceives that four constructs are the key determinants of user acceptance and usage behaviour and influence individual's behaviour intention to use technology. The four key constructs are: performance expectancy, Effort Expectancy, Social Influence, and facilitating condition. In addition to these factors there are in the ATAUT other factors of voluntariness of use, age, gender and experience.

- 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: p.447).
- Effort Expectancy is defined as "*the degree of ease associated with the use of the system*" (Venkatesh et al. 2003: p.450).
- 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: p.451).
- Facilitating conditions are defined as "*the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system*" (Venkatesh et al. 2003: p.453).
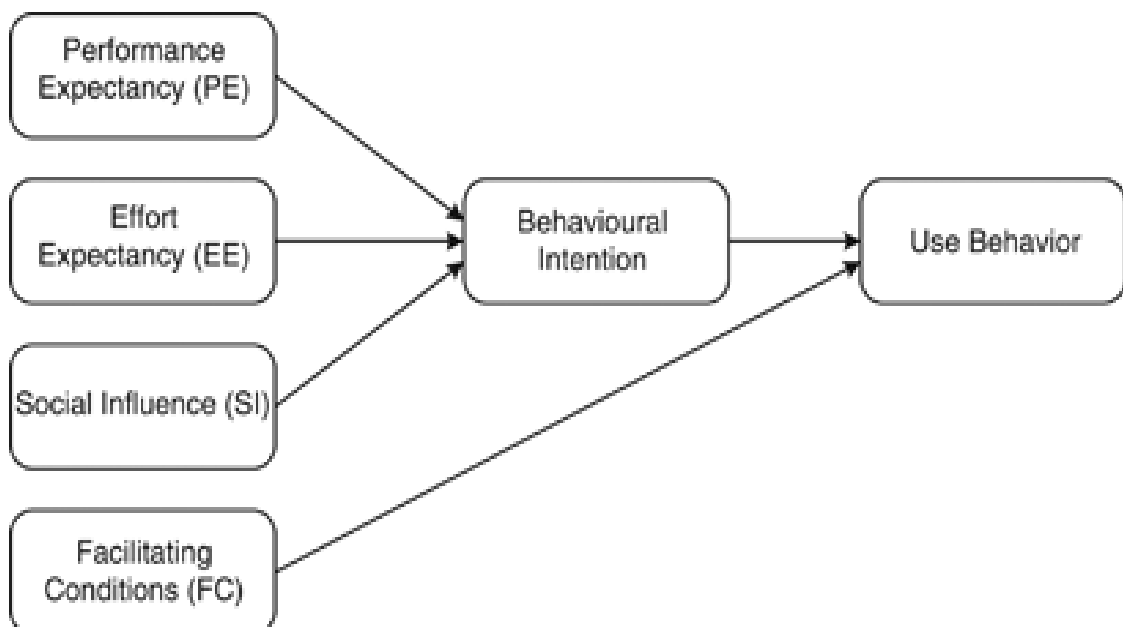
Figure 3.12 Unified Theory of Acceptance and Use of Technology

Figure 3.13 Context-System Model

H1: Culture is related significantly to Behavioural intention to use e-government system.

H2: Social influence is related significantly to perceived ease of use of e-government system.

H3: Social influence is related significantly to perceived usefulness of e-government system.

H4: facilitating conditions is related significantly to perceived usefulness of e-government system

H5: facilitating conditions is related significantly to perceived ease of use of e-government system

H6: Trust is related significantly to perceived risk of e-government system

H7: Trust is related significantly to behavioural intention to use e-government system

H8: Trust is related significantly to information quality of e-government system

H9: perceived risk is related significantly to behavioural intention to use e-government system

H10: information quality is related significantly to behavioural intention to use e-government system

3.13 Conclusion

In this chapter the researcher has been able to outline the theoretical framework of the thesis throughout pinpointing the main theories and concepts influencing e-government use and adoption. Additionally, the main actions and the key performers involved in the implementation process.

The researcher was able to examine and detect gaps in the e-government literature, wherein inadequate and insufficient studies have been conducted, particularly in the side of differentiating between the several users of e-government in developing countries and identifying their characteristics. I attempted to search the theories and models proposed for the adoption or implementation of information technology in general, and e-government in particular in developing countries.

The researcher developed the conceptual framework through integrating the various theories concerning the acceptance and use of technology with the external barriers of e-government adoption, which relates with the seven dimensions and gaps between the design of the technology itself and reality of the context (Heeks 2005a; Dada 2006).The Leavitt's Diamond framework defined by Bostrom and Heinen (1977) was also merged with the conceptual framework, where I include the culture, structure, processes, and mind-set (Kifle and Low Kim Cheng 2009) as a social requirement for e-government adoption in order to fit with the context of implementation, and to hypothesize a deliberate framework for identifying a roadmap for e-government implementation in the developing countries.

In this chapter the researcher determined the main theories and frameworks of e-government implementation and highlighted the importance of other factors such as organizational issues and availability of information. The grouping of these components together and considering the key performers (citizens and government) and their characteristics were also diagrammed. As a result, the

proposed conceptual framework combines all these elements covered in the literature that influence e-government implementation in developing countries.

The review of the literature exposed that perceived behavioural, usefulness, and attitude are all part of the core crucial elements that effects e-government implementation course. Thus, the researcher assumes that recognizing the importance of these elements and bridging the existing gaps between that various theories and frameworks would direct the actors, decision makers, governments, and any party who shows interest in e-government technology all through implementation and evaluation process

Therefore, moving from a widespread perspective of e-government research to a more detailed perspective, that is, successful implementation of e-government technology in developing countries, this research aims to disclose the differences that exist between the government and citizens as the primary users of e-government technology in the same context and address that gap which exist due to these difference in the elements mentioned priory.

Chapter Four: Research Methodology

4.1 Introduction

Chapter four presents several philosophical paradigms that could be embraced in researching the acceptance and adoption of electronic government. The main aim of the research is to evaluate and asses the success and the influence of e-government technology on societies in developing countries, using the Lebanese Republic for collecting data. Based on previous literature, a conceptual model has been developed for this research work to validate and test the relationship between e-government acceptance and the social context.

In order to analyse the relationship between e-government technology acceptance and adoption and the context in which e-government adoption is deployed, a quantitative methodology research approach has been used in this research. Quantitative data is collected using survey research method in order to produce rich results. In chapter four, research methods and methodologies such as data collection techniques, research instruments, and various methods deployed in answering the research questions are discussed. The chapter elaborates on matters related to the research design, research methods, epistemological stances and research strategies. The selection of research methods and approaches has to be in line with the philosophical, epistemological, and ontological assumptions of the scholar.

The chapter begins by presenting the research paradigms and the philosophical stance of the researcher including epistemological question, ontological question, and methodological question. Next, the research approach is presented and the adoption of quantitative research method approach is justified. Thirdly, it discusses the research design and details the methods and techniques deployed in sampling and data collection in the current research. Finally, the chapter ends with a brief summary emphasizing on the main points of the research methodology.

4.2 Research Paradigm

"A paradigm is a way of thinking about and conducting a research. It is not strictly a methodology, but more of a philosophy that guides how the research is to be conducted" *(Gliner et al. 2000: p.17).* Research paradigm is best defined as a comprehensive structure which embraces the basic beliefs, perceptions, and assumptions toward practices and theories that exist in the world we live in and that we use to conduct research (Cohen et al. 2003; Denzin and Lincoln 2005). Therefore, research paradigm outlines the identity of the researcher and shapes his/her views and thoughts in perceiving reality and creating knowledge. By the same token, it influences the researcher argument and impacts the outcome of the research. The development of research design, the way in which data is collected and analysed, and the results of the study are all influenced by the research paradigm. Moreover, research paradigm shapes the kinds of research questions that are valid, determine the best conduct in answering these questions, and decide the context in which the research questions are interpreted (Gliner et al. 2000). Thus, the importance of the research paradigm is derived from its role in influencing both the assumptions underlying the perceptions of the researcher and the selection of the research design, especially the research approach that follows. As a result, research paradigm is a basic set of perceptions and beliefs that direct action (Denzin and Lincoln 2011). Also, it can be considered as a defined practice, which encompasses several stages through which a scholar generates a connection between the research questions and the research objectives.

There are three fundamental questions or assumptions that shape our thoughts and beliefs toward the use of any research paradigm in perceiving reality: the ontological question, epistemological question, and the methodological question (Guba and Lincoln 1994).

- The ontological question: this question is concerned with the nature of being and existence. Ontological questions inquire the nature and the form of reality. These questions provide answers about the reality of social phenomena that exist in this world (Guba and Lincoln 1994). An ontological question could ask, "Is reality a product of people's mind or external from their conscious?" (Burrell and Morgan 1979). For instance, realists assume that the real world exists regardless of human's perception and beliefs of it. On the other hand, nominalists claim that the social world and the reality are constructed by the thoughts, beliefs, and norms of individuals in a society (Burrell and Morgan 1979).

- The epistemological question: this question is concerned with the scope and nature of knowledge in order to identify what is considered as adequate and inadequate knowledge (Denzin and Lincoln 2011). How to verify untruth from truth? Is knowledge experienced or acquired? What forms of knowledge are obtainable? All these questions are considered to be epistemological with the proviso that they are questioning the nature, origin, and limits of knowledge (Burrell and Morgan 1979). Additionally, the epistemological stance is constrained by the ontological stance of the inquirer or the researcher. Therefore, the answer that can be specified to the epistemological question is dependent on the nature of the answer given to the ontological question (Guba and Lincoln 1994). That's why realists and nominalists perceive reality and knowledge differently.

- The Methodological question: this question is concerned with finding the most appropriate method for collecting information and revealing the truth (Cohen et al. 2003). How can the inquirer or the researcher starts looking for whatever he/she considers can be known? The answer to this question is constrained by answers given to the ontological and epistemological questions that determine which methodology is suitable (Guba and Lincoln 1994). For instance, objectivists rely on common laws so that they clarify reality and identify relationships between different variables in order to acquire knowledge. On the contrary, subjectivists

consider reality more relativistic; thus, they concentrate on how people understand, modify, and create the world that they are living in (Burrell and Morgan 1979).

The philosophical paradigm of the research plays a crucial role in guiding the researcher to the most appropriate research design. As stated by Collis et al. (2003), a research paradigm is a philosophical frame that guides the researcher through conducting a scientific research. Due to the systematic emergence of thoughts and perceptions by scholars creating knowledge through research and studies, different research paradigms have emerged and used instead of former paradigms. Different inquires about the nature of social science and social research led social scientists to develop new philosophical research paradigms (Collier 1994; Bhaskar 1997; Sayer 2000). Generally speaking, three research paradigms are widely used in information system research: positivism, interpretivism and critical (Orlikowski and Baroudi 1991; Walsham 1995; Chen and Hirschheim 2004; Heeks 2006). These paradigms can be used in combination with each other or separately.

4.2.1 Positivist Paradigm

The positivist paradigm focuses on the application of objective scientific methods to test a theory or any social phenomena related to human affairs (Hollis 1994; Blaikie 2007). Positivists assume that the social world and the "reality" are rooted in social phenomena which could be studied objectively using adequate scientific methods by neutral researcher. Followers of this paradigm believe that the only knowledge that can be created from social phenomena is the one that is scientifically measured and verified. According to Hughes (1980), positivists distinguish between two forms of knowledge that can be considered as a genuine knowledge which are: "Logical Knowledge" and "Empirical Knowledge". Logical knowledge is characterized by mathematics and logic while empirical is signified

by the natural science. Additionally, positivism considers that our sensory experience of the world creates our ideas, and any knowledge that is not sensed and experienced is not considered to be a genuine knowledge. In line with this, Giddens (1978) claims that reality is accessible through the ability of the senses. In positivism, the object of study and the subject (researcher) are independent entities and therefore the subject is able to study the object objectively without influencing it or being influenced by it (Guba and Lincoln 1994; Weber 2004). This paradigm uses quantitative method and statistical data for studying and analysing social phenomena.

Positivism studies in information system are based on the presence of a former permanent relationship within objects that are usually studied using quantitative methods (Chen and Hirschheim 2004). These studies help mainly in testing theory in order to make a phenomenon understandable. As stated by Orlikowski and Baroudi (1991), Information System studies are classified as positivist if they meet the following criteria: hypothesis testing, quantifiable measures of variables, evidence of formal proposition, and the drawing of implications about a phenomenon from the sample to a stated population. Positivist Information system researchers believe an impartial social and physical world exists, and its nature can be fairly measured and characterized independent of individuals (Orlikowski and Baroudi 1991). For instance, societies are thought to have a reality and order beyond the behaviour of the social agents living in it. Consequently, the job of the researcher is to examine the social phenomena thru the use of accurate methods that will measure and sense the scopes of reality which are of an interest to the researcher. Thus, perceiving phenomena in a positivism paradigm is mainly a challenge of measurement and forming a proper set of methods in order to encapsulate the dimensions of the phenomena. In this research, positivism is considered the most appropriate paradigm for a sequential design mostly focusing on quantitative method.

4.2.2 Interpretivist Paradigm

Interpretivist paradigm attempts to understand social phenomena through accessing the social constructions of knowledge such as shared meanings, language, consciousness, and experience (Walsham 1995; Myers and Avison 1997). Interpretive researchers bank on meanings that people assign to social phenomena in order to understand these phenomena. The meanings assigned to social phenomena are shared by group of individuals who produce moral codes, laws, religious beliefs, and linguistic symbols through acting together in a particular society (Hughes 1980). Accordingly, reality in interpretive paradigm is subjective and socially constructed by individuals sharing mutual meanings enacted by them. In other words, "*Interpretivism asserts that reality, as well as our knowledge thereof, are social products and hence incapable of being understood independent of the social actors (including the researchers) that construct and make sense of that reality*" (Orlikowski and Baroudi 1991: p.32). Researchers undergoing interpretive research seek to find out how individuals in an organization or society, throughout their involvement in social practices, endorse their actual reality and assign meanings to it, and to reveal how these meanings support in instituting individuals' social behaviour. The interpretive paradigm is grounded on the ontological assumption that the social world (organizations, societies, social interaction...) is not given. Instead, the social world is constructed and shaped by individuals through their act and collaboration (Chen and Hirschheim 2004). Epistemologically, interpretive research believes that the social process could not be measured hypothetically. Rather, the social process is understood through stepping inside the world of the humans producing it (Rosen 1991).

Due to the change in information system concentration to behaviour subjects such as: acceptance, use, adoption, usefulness, of technology in societies and organizations (Dada 2006; Alghamdi et al. 2014), the interpretivist paradigm has witnessed an unprecedented popularity among researchers in IS (Mingers 2003; Chen and Hirschheim 2004; Walsham 2006; Muhammad Ovais et al. 2013).

According to (Klein and Myers 1999) information system research is said to be interpretive if it considers that knowledge of reality is acquired solely through shared meanings, consciousness, language, and other social constructions. Interpretive information system researchers attempt to explore reality through the meanings that humans assign to it; they intend to create knowledge about the process and the context where information system is influencing and getting influenced (Walsham 1993). Accordingly, interpretive research requires detailed analysis of the context of information system whether it is an organization or society.

4.2.3 Critical Paradigm

Critical theorists concerned with social studies, directed reasonably to the inevitability of founding exposed structures of analysis built on an engrained philosophy of social criticism. Initially the critical theorists adopted the Marxian point of view on the relation between a philosophy of beliefs parallel with a philosophy of production (Corradetti 2007). As a result, socialism, capitalism and different social ideologies that were prevalent at that time have influenced critical theorist and constructed the method of social criticism.

"The facts which our senses present to us are socially performed in two ways: through the historical character of the object perceived and through the historical character of the perceiving organ; both are not simply natural; they are shaped by human activity, and yet the individual perceives himself (sic) as receptive and passive in the act of perception" (Horkheimer 1976: p.86; Carr 2006). The knowledge of an individual is created by encountering facts that are socially formed. Social behaviour constantly involves the application of the existing knowledge of an individual. Consequently, the perceived fact, to an extent, is dependable on the social world and is built on trusting it (Horkheimer 1964).

"Social phenomena such as actions, texts, and institutions are concept-dependent. We therefore have not only to explain their production and material effects but to

understand, read or interpret what they mean" (Sayer 1992: p.5).The interpretation of social phenomena or knowledge depends on the values and ideas of the researcher even though they exist irrespective of social researchers' perspectives. Knowledge can only be obtained by co-dependent entities within the context of study (Rapaczynski 1982; Held 1990). Thus, Critical Theory aims to abandon the fault notion of objectivity and impartiality in knowledge.

"It is certainly true that social activities, and therefore social structures, necessarily involve the agents' conceptions of what they are doing" (Collier 1994: p.7). Society is therefore shaped by the perceptions of human agents, and in order to understand any social phenomena we have to examine these perceptions critically. According to Danermark (2002), the fact is that the entire knowledge is inevitably socially strong-minded theoretical structures. As a result, explanatory critiques are made possible due to this point which also deserts the possibility of objectivism.

4.2.4 Nomothetic and Ideographic Research

Nomothetic research is about attempting to establish general laws and generalisations (Cohen et al. 2013). The focus of the nomothetic approach is to obtain objective knowledge through scientific methods. Hence quantitative methods of investigation are used, to try and produce statistically significant results. The subsequent laws that are created can be categorised into three kinds: classifying people into groups, establishing principles and establishing dimensions (Orlikowski and Baroudi 1991). The methods of investigation used by the nomothetic approach collect scientific and quantitative data. To do this, experiments and observations are used, and group averages are statistically analysed to create predictions about people in general. The nomothetic approach is considered scientific due to its' precise measurement, prediction and control of behaviour, investigations of large groups, objective and controlled methods allowing for replication and generalisation (Lee and Baskerville 2003; Sarantakos 2012).

The idiographic approach, unlike the nomothetic approach, focuses on a particular case. It suggests that everyone is unique and therefore everyone should be studied in a specific way related to the case under investigation (Benbasat et al. 1987). Due to this, no general laws are possible. The methods of investigation, by this approach tend to collect quantitative data, investigating the case. Case studies are the most common method, but other research methods include: unstructured interviews, self-reports, autobiographies and personal documents (Benbasat et al. 1987). Unlike the nomothetic approach, this provides a more complete understanding of the individual (Tsoukas 1989). As a result of this focus the individual is more likely to feel valued and unique. Also despite claims, that this approach is unscientific, it does satisfy some of the key aims of a science i.e. description and understanding. However as subjective experience cannot be empirically tested, it remains unscientific. Despite this it is difficult to generalise from subjective knowledge of one person, no matter how detailed it is.

As it stands, the nomothetic and idiographic approach, both make valid contributions to research (Gable 1994). However the relative value of each approach depends upon the purpose of the research. The idiographic approach is better suited to description, while idiographic is suited to predictions (Hermans 1988). The two approaches can be seen as complementary, idiographic research can further develop a nomothetic law. It may also serve as a source of ideas and hypotheses for later study. In this research, nomothetic approach is used in order to obtain objective knowledge through using survey method. Consequently, statistically significant results related to the hypotheses listed have been obtained after investigating the topic using quantitative method allowing generalizability of the results.

Approach	Description	References
Positivist	The positivist paradigm focuses on the application of objective scientific methods to test a theory or any social phenomena related to human affairs (Hollis 1994; Blaikie 2007). Positivists assume that the social world and the "reality" are rooted in social phenomena which could be studied objectively using adequate scientific methods by neutral researcher.	(Hollis 1994; Blaikie 2007) (Chen and Hirschheim 2004)
Interpretivist	Interpretivist paradigm attempts to understand social phenomena through accessing the social constructions of knowledge such as shared meanings, language, consciousness, and experience. Interpretive researchers bank on meanings that people assign to social phenomena in order to understand these phenomena. The meanings assigned to social phenomena are shared by group of individuals who produce moral codes, laws, religious beliefs, and linguistic symbols through acting together in a particular society.	(Walsham 1995; Myers and Avison 1997) (Hughes 1980)
Critical	Critical theorists concerned with social studies, directed reasonably to the inevitability of founding exposed structures of analysis built on an engrained philosophy of social criticism. Initially the critical theorists adopted the Marxian point of view on the relation between a philosophy of beliefs parallel with a philosophy of production.	" *(Horkheimer 1976)* *(Carr 2006)*
Nomothetic	Nomothetic research is about attempting to establish general laws and generalisations. The focus of the nomothetic approach is to obtain objective	(Cohen et al. 2013).

	knowledge through scientific methods.	
Idiographic	Unlike the nomothetic approach, focuses on a particular case. It suggests that everyone is unique and therefore everyone should be studied in a specific way related to the case under investigation.	(Benbasat et al. 1987).

4.3 Research Methodology

This research on e-government adoption and acceptance is characterized by the range of its sensitivity and flexibility at the same time. E-government issues have been discussed within many disciplines beside IS including Operation Management, Political Science, HRM, and Public Service just to list a few (Alateyah et al. 2014; Al-Qeisi et al. 2015; Turban et al., 2017; Mills 1956; Elbahnasawy 2014; Nica 2015). The interdisciplinary disposition of this topic made the choice of a proper research approach and strategy mainly challenging. According to Galliers (1992) there is no definite approach presented to group all the knowledge required for studying IS or issues related to it. Consequently, the selection of the most useful methodology is dependent on the nature of the research question related to the acceptance and adoption of e-government and finding the most suitable approach in providing reasonable answers.

Research methodology plays a major role in the development of any research through ensuring that the studied topic is being processes in a systematic and relevant manner (Kothari 2004). According to Remenyi (1998) research methodology is the procedural structure within which the study is performed. The selection of the most appropriate and suitable research methodology is essential for the reliability and validity of the results of the research. Research methodology supports creating knowledge of the current research through managing the process of collecting data, analysing data, reporting results, and drawing conclusions (Fielding and Gilbert 2006). A number of elements must be

deliberated prior to the choice of the appropriate research methodology. Therefore, the placement of a particular research strategy is highly influenced by the features of the research inquiry (DePoy and Gitlin 2005). These features encompass the research objectives, research questions, research topic, and the character of the research gap; in addition to numerous factors such as: data access and availability, time limits, and skills and knowledge of the researcher.

The research topic addressed in this study is acknowledged as exploring the relationship between e-government technology applications and the context in which it is implemented. The study will focus on the usage and acceptance of e-government services in developing countries. In deductive research, the researcher starts by locating a research gap or a problem and addresses it by a research question (Creswell, 2014). All of the literature review, research methodology, research design, and research strategy are built on the research question and provided to support a valid and suitable answer. As said by Mayo et al. (2013: p.17) *"An optimal research question sets out what the investigator wants to know, not what the investigator might do, nor what the results of the study might ultimately contribute".* In view of that, the gap of the research is molded in a research question that defines the scope of the study and aids in the choice of quantitative, qualitative, or mixed research methods (Blaikie 2007).

The importance of the research methodology in founding a solid and robust piece of research and answering the research question is equivalent to the importance of the research design. Thus, the role of the research design in the research is presented next. Figure 4.1 summarizes the basic choices of the current research.

Positivism

Experiment

Realism

Research philosophy

Survey

Deductive

Interpretivism

Mono method

Case study

Research direction

Cross sectional

Objectivism

Action research

Sampling
Secondary data
Observation
Interviews
Questionnaires

Mixed methods

Subjectivism

Research methods

Grounded theory

Hypothetico-deductive

Pragmatism

Longitudinal

Ethnography

Functionalist

Choices

Multi-method

Time horizons

Archival research

Interpretive

Inductive

Radical humanist

Data collection methods

Radical structuralist

Figure 4.1 The Research Process 'Onion' Saunders et al. 2011

4.3.1 Research Design

Research design is concerned with the comprehensive strategy that the researcher selects to incorporate the different modules of the research in a logical and coherent manner, in so doing, the researcher makes sure that the research questions are addressed effectively; it institutes the plan of collecting, measuring, and analysing the data (De Vaus 2001). The research design adopted in the research is reliant on the research problem or question and not the opposite. Therefore, the research design is said to be a group of instructions and guidelines which are followed by the researcher while conducting his/her study. In this research, the study tackles the extent of reciprocal influence between the contexts of deployment of e-government in Lebanon and the adoption and acceptance of this technology by citizens in different regions. The aim of the current research is to numerically highlight the essential factors obstructing or prompting the adoption of e-government technology in Lebanon. This aim will be accomplished through integrating numerous factors impacting the acceptance and adoption of e-government in a single framework. The results of the study will be useful for

governments in developing countries looking for implementing e-government or in the process of implementation and for organizations and people working in the field of information system, especially in Lebanon.

Four basic principles followed by researchers (Crotty 1998; DePoy and Gitlin 2005; Creswell 2012) for the sake of creating an appropriate research design: First, selection of the research paradigm. Second, the choice of the research approach. Third, the definition of the research strategy, and finally, selecting the research method for data collection consistent with the research philosophy, approach, and strategy. In a like manner, the same principles are followed in developing a research design in this research.

Accordingly, based on the purpose of this study, this research falls primarily under descriptive research, which seeks to determine the answers to 'what' and 'how' research questions (Hair *et al.* 2003; Churchill 1995). Descriptive studies involve designing and collecting data; checking for errors; and coding and storing data (Hair *et al.* 2003). They also contain a structured questionnaire in which respondents select from a fixed number of choices. Unlike exploratory researches, descriptive researches are often confirmatory; in other words, they are used to test the prior formulation of specific hypotheses (Hair *et al.*, 2003). It begins with a defined structure and proceeds to actual data collection in order to describe the phenomenon under scrutiny (Hair *et al.* 2003). Descriptive studies aim to justify if there exists a relationship, which is inherently objective and can be answered by empirical observation. Consequently, hypotheses related to the topic under investigation were formulated in Chapter 3, and these will be tested and analysed in Chapter 5 and discussed in Chapter 6. Thus, the current descriptive research contains a cross-sectional study that takes a snapshot of a situation in time (Hair *et al.*, 2003). The study examines how something is done at the time of the research by using the survey technique of collecting data from a range of respondents.

4.4 Research Approach

Research approach serves as an effective approach to answer the research questions or to fill the knowledge gaps about the investigated topic; also, it is considered to be an essential strategy proliferating the validity of social research (Patton 2002; Creswell and Clark 2011). It is an orderly and systematic approach followed throughout the collection and interpretation of data. Research approaches are techniques and strategies for studies that bridge the distance from general conventions to specified methods of data collection, interpretation, and analysis. The most appropriate research approach which should be adopted while investigating a topic is determined by the research design, the research philosophical paradigm, and the research methods of data collection, interpretation, and analysis (Creswell 2014). Moreover, the choice of a research approach is premised on the personal experience of the researcher, the nature of the research topic or problem under investigation, and the research's targeted audience (Yauch and Steudel 2003).

In this section, three research approaches are presented: the qualitative approach, the quantitative approach, and the mixed methods. In addition to all the factors mentioned prior, the selection between these approaches is based on the aims and objectives of the researcher from conducting his/her study. Qualitative and quantitative approaches should not be considered as mutually exclusive, separate approaches, or opposites (Verma and Mallick 1998). The qualitative approach is mainly used to interpret and observe reality so that a theory is developed out of the experience knowledge. However, the quantitative approach is adopted when a researcher tests a hypothesis or theory for either confirmation or disconfirmation (Newman 1998; Neuman 2006). Mixed methods research embraces both approaches in which elements of quantitative and qualitative are combined with the purpose of in-depth and detailed understanding (Creswell and Clark 2011).

4.4.1 Qualitative Research Approach

Qualitative research approach explores the meanings, definitions, concepts, metaphors, characteristics, codes, and descriptions that people share in a particular context. Qualitative researchers attempt to find answers to their questions of what, where, when, and how through understanding the social context and the people living within this context (Berg 2009). In qualitative research, the subject (researcher) and the object (participants) subjective knowledge, experiences, and practices turn out to be fundamental part of the research (Flick 2014). In view of that, the observations and the actions of the researchers in the field of study, including their feelings, thoughts, and impressions are reflected in the research as data available for analysis. Qualitative research is characterized by subjective and empirical nature; it is predominantly used in describing events and interpreting people's actions and behaviour (Flick et al. 2004). In addition to that, qualitative research approach is concerned with the qualities of the studied phenomena such as the nature, properties, and value of it, and not with the quantities and statistical principles. As stated by Silverman and Marvasti (2008), focusing on qualitative research at times entails prevention or avoidance of quantitative methods and statistical techniques used in demography or survey research. However, the connection between theory and research in qualitative research is to some extent more confusing than in quantitative research (Bryman 2012).

Qualitative research approaches is being used more and more in organizational research and information system studies (Kaplan and Maxwell 2005; Venkatesh et al. 2013).The objective of qualitative approach is to comprehend certain problems or issues by studying the viewpoints and actions of individuals facing these issues and the setting in which they interact. Qualitative data are collected mostly from documents, interviews, texts, and observations, and are interpreted by a selection of systematic methods (Myers and Avison 1997). Overall, the preference of qualitative research approach dwells in its effectiveness in understanding the

setting and the meanings of the phenomena investigated, and the actual actions and activities that structure these phenomena over time.

4.4.2 Quantitative Research Approach

Quantitative research approach is a structured and organized approach which explains phenomena through providing numerical data for analysis. Quantitative research is about collecting numerical data to explain a specific topic (Black 1999). This approach is mainly used to find general patterns, test theories, and make predictions (Miller and Brewer 2003b). Quantitative research is predominantly premised on a survey conducted on a representative sample of the population studied (Yates and Open University 2004; Creswell 2014). The statistical results from this survey provide, after analysis, the extent of the phenomenon. Quantitative research studies are intended to provide statistical figures whose representativeness can be evaluated with accuracy. Quantitative approach is useful for researchers working on pulling results from an extensive amount of qualitative data (Maxwell 2012). Research methods used in quantitative approach are of great value in defining concepts and reflecting strength of views, perceptions, opinions, and attitudes toward a particular phenomenon. According to Black (1999: p.215) "*This involves trying to measure and quantify how intensely people feel about issues, as opposed to what they know or can do*". Quantitative approach is deductive in nature, and it has incorporated the practices and norms of the natural scientific model and of positivism in particular; and embodies a view of social reality as an external objective reality (Smith 1983; Teddlie and Tashakkori 2009).

Quantitative research approach has been used in information system research for confirmatory purposes, such as testing theories and hypotheses (Venkatesh et al. 2013). The objective of quantitative approach is to assist researchers in collecting data from many participants concerning different aspects of a particular issue. This approach is useful in testing hypothetic-deductive theory and collecting numerical

data objectively. According to Chen and Hirschheim (2004), quantitative researchers employ objective measurement to collect research evidence. However, quantitative approach failed to provide in-depth understanding on the setting of IS adoption and to capture the insights of humans toward this adoption (Venkatesh et al. 2013).

4.4.3 Mixed Methods Approach

The mixed methods approach combines elements of both quantitative and qualitative methods and incorporates the two forms of data in one study. The use of mixed methods entails theoretical assumptions, personalized understandings, data gathering and analysis techniques, variety of philosophical paradigms, value commitments, and methodological traditions (Greene 2007; Hesse-Biber 2010). The main objective behind this combination of qualitative and quantitative approaches in mixed methods is offering a further comprehensive understanding of the phenomena being studied and the research problem than what each approach can offer alone. For instance, the use of mixed methods approach guarantees that the common subjectivity of one method is minimized by the advantages of the other (Gray 2014) .Thus, using multiple methods enhance the validity of the finding since the results are supported by quantitative and qualitative methods. The popularity and influence of this approach have been considerably increasing and its research designs have been used across several disciplines over the years (Cameron 2011; Ågerfalk 2013; Kipo 2013; Lee and Levy 2014). Qualitative and quantitative methods are not always interdependent in mixed design. These two approaches can be conducted independently or precede each other according to the research objective (Plano Clark and Creswell 2008; Lederman and Lederman 2013). The researcher can either conduct quantitative methods to support the conduct of qualitative method and vice versa, or he/she can conduct them freely in any order to answer the research questions. Researchers proposed several terms in identifying the combination of qualitative

and quantitative methods such as: triangulation, multi-method studies, and mixed methods (Bryman 2012; Venkatesh et al. 2013; Flick 2014).

Although combining qualitative and quantitative methods in IS research provides a better interpretation and more valid results (Maxwell et al. 1986; Sommer and Subramanian 2013), there is a limited number of research on IS that use mixed methods approach (Kaplan and Duchon 1988; Mingers 2003). Therefore, implementing diverse methods for gathering data from various sources leads to a wider picture about the phenomena studied which could not be achieved through implementing one method. Because of the rapid change and development in the field of IS, researchers in this domain face situations in which the use of qualitative or quantitative approach is not satisfactory in providing a full understanding of the phenomena. "*Mixed methods design strategies provide a powerful mechanism for IS researchers to deal with such situations and subsequently make contributions to theory and practice*" (Venkatesh et al. 2013: p.24). Yet, the choice of mixed methods approach in research must be contingent with the research aims, context, and question as any other approach.

4.4.4 Adoption of Quantitative Methods

The body of literature on the topics discussing the factors influencing the adoption and implementation of e-government in developing world has been tremendously growing in the past few years (Bélanger and Carter 2008; Chan et al. 2010; Muhammad Ovais et al. 2013). Most of these studies have focused on traditional models such as technology acceptance model (TAM), unified theory of acceptance and use of technology (UTAUT), and diffusion of innovation (DOI) in addition to other factors like trust, security, and privacy. However, except for few studies (Heeks 2005a; Dada 2006), the phenomena of e-government in developing countries still lack empirical studies explaining the factors required for a successful implementation and adoption in developing countries. Hence, the research method chosen has to best serve the research aim in creating an

evaluation framework able to identify the status of each factor in the literature. In order to choose the most appropriate method, quantitative, qualitative and mixed methods were reviewed and weighed. Although, the Combination of qualitative and quantitative approaches in one research provides better understanding of the studied phenomena and delivers better results (Ivankova et al. 2006; Sommer and Subramanian 2013). However, quantitative method approach is selected because it is believed to be the most effective and efficient one due to the nature of the data required in answering the research questions and the time and resources limits. Additionally, taking appointments to interview government officials and politicians is very difficult and requires a lot of efforts and connections.

As stated by several scholars, there is no one ideal research approach suitable for all studies, but there is one approach more appropriate than the others in serving the research objectives (Prabhu 1990; Patton 2002). Due to the nature of the study focus on evaluating the factors influencing the implementation and adoption of e-government in developing countries, quantitative methods approach is considered to be the most appropriate. Eventually, quantitative method is selected because of the following reason:

- E-government studies still lack empirical research and integrative approaches in examining e-government models and theories in developing countries (Zhao et al. 2012). Therefore, quantitative methods approach is adopted in this study in order to obtain a numerical understanding of the factors influencing the adoption of e-government and driving its success. Quantitative methods enable the researcher to examine the impact of the context of implementation on e-government system obtaining statistical figures and graphs.

- Using quantitative methods enhance the validity of the findings since the results are supported by numerical and statistical figures. This will enrich the quality of the research outcome and aid in developing the proposed model.

- Due to the considerable number of studies in e-government that have used quantitative methods approach (Venkatesh and Davis 2000; Chan et al. 2010; AlKhatib 2013; Alateyah et al. 2014), there is a strong need for scholars studying e-government in developing countries to employ quantitative methods in their research. Especially that quantitative methods approach is useful in explaining and understanding multifaceted social and governmental issues (Muhammad Ovais et al. 2013).

Although, mixed methods research can attract more than one paradigm while studying a particular phenomenon. Paradigms are described as framework for thinking, worldviews, and shared believes among a group of scholars regarding the nature of reality, values, and knowledge (Morgan 2007). People share different values and beliefs and this is why they experience the world and think about it differently leading into variety of research paradigms. Therefore several researchers consider that multiple paradigms can serve as the basis for mixed method research (Plano Clark and Creswell 2008; Teddlie and Tashakkori 2009). However, after evaluating the advantages and disadvantages of qualitative, quantitative, and mixed methods approaches and reviewing the literature, the researcher is contented that quantitative methods approach is the most appropriate approach in conducting the study on e-government adoption and acceptance factors. Nevertheless, quantitative methods have been criticized by some authors because of the lack of interpretive analysis and depreciating results related to social justice, such as involving participants in channels of communication, reassuring an independent character for contributors, and understanding individuals in their identifiable expressions (Denzin 2010; Tashakkori and Teddlie 2010).

4.5 Research Strategy

Research strategy is described as a roadmap that direct and guide the researcher while conducting research. Research strategy is considered one of the core pillars

in the construction of a robust research methodology. As stated by Bryman (2012) a research strategy is a general orientation to the conduct of social research. The nature of the research question determines which research strategy has to be adopted (Noor 2008).

Creswell (2014) identified several research strategies or what he asserted as strategies of inquiry that offer precise direction for processes in a research design. Creswell divided the strategies of inquiry into types of qualitative, quantitative, and mixed methods strategies.

Table 4.2 Strategies of Inquiry

Quantittaive	Qualitative	Mixed Methods
Experimental design	Narrative research	Sequential
Non-experimental design	Phenomenology	Concurrent
Survey Research	Ethnographies	Transformative
	Grounded theory	
	Case study	

A number of scholars such as Yin (2003) and Denscombe (2010) concentrated on four key research strategies that could be practically adopted as: experimental study, survey research, historical research, and case study. However, several authors have stated that each research strategy has pros and cons; no research strategy is more suitable for all research purposes then all other strategies (Benbasat et al. 1987). The choice of the research strategy is influenced by the nature of the research topic and the objectives of the researcher. Consequently, in this section the main research strategies adopted by researchers in the study of information system and management through survey research.

Following the identification of the research problem and selection of the research design, the choice of research strategy is the most important decision that a researcher must make. This refers to the logics of enquiry that are used to answer the research questions (Blaikie, 2007). The main division between forms of reasoning made in philosophy is between two different world views: deductive and inductive reasoning (Blaikie, 2007). Table 4.3 illustrates the differences between both strategies. Nevertheless, most social research involves both inductive and deductive reasoning processes for some time in the project; from theories to observations and back to theories (Trochim, 2006).

Table 4.3 Difference between Inducted and Deductive Strategies

Research Strategies	Methods Of Reasoning	Source
Inductive Reasoning	-Referred to as a theoretical approach in which the theorist reflects on ideas through the writings of others & through discourse with informed individuals that can comment on the subject area & using researcher's intellectual capabilities constructs a different view of the situation, which sometimes may be regarded as a new theory. -The aim is to explain the characteristic of people & social situations & then to determine the nature of the patterns of the relationships between these characteristics. Thus, it is a study in which theory is developed from the observation of empirical reality. -More exploratory, especially at the	(Collis and Hussey, 2009; Blaikie, 2007; Bryman and Bell, 2007; Remenyi *et al.*, 1998).

	beginning. Starts with the collection of data, followed by data analysis, & then proceeds to develop generalisations using inductive logic in which theory is the outcome of the research. -Most commonly is associated with qualitative research	
Deductive Reasoning	-Is narrower in nature & is concerned with testing or confirming hypotheses. -Works from the more general to the more specific. -Referred to as a "top-down" approach. -Referred to as empirical research & is basically rooted in theories. -Most commonly is associated with quantitative research. -Leads to test hypotheses with specific data. Then, confirmation or rejection of the original theories.	(Collis and Hussey, 2009; Blaikie, 2007; Trochim, 2006).

The current research falls under the deductive strategy, in which a theoretical framework was developed in chapter 3 based on the literature review presented in Chapter 2. Deductive reasoning is narrower in nature and is concerned with testing or confirming hypotheses; works from the general to the more specific and is referred to as a "top-down" approach (Collis and Hussey, 2009; Blaikie, 2007; Trochim, 2006). This type of reasoning is assigned to empirical research and basically rooted in theories and *directed by "the results of observation or experiment only"* (Remenyi *et al.* 1998: p31).

4.5.1 Survey Research

Survey research provides a numeric or quantitative narration or data about attitudes, trends, or views of a population by studying a sample of the whole population through the use of interviews or questionnaires. According to Babbie (1990), a survey strategy includes longitudinal and cross-sectional studies to determine whether the data collected from a sample of a population is generalizable or specific. The adoption of survey strategy allows the researcher to collect data about real world situations and to study additional variables at once than is usually possible in field or laboratory experiments (Krosnick 1999; Punch 2003). Survey research is suitable for studying perceptions of a community, characteristics of a population, and documenting current situations (Rea and Parker 2012). However, the difficulty in understanding the insights related to the causes of the studied phenomena is considered one of the key weaknesses in survey strategy. Additionally, survey research strategy may endure several lashes subject to the nature of the selected sample and the interval of conducting the survey which may lead to subjectivity and bias in the final results. "*Two of the most consistent flaws included (1) disregard for sampling error when determining sample size, and (2) disregard for response and nonresponse bias*" (Kotrlik et al. 2001: p.43). Generally, survey research is thought to be well understood and applied by academics in the field of information system and many other fields (Pinsonneault and Kraemer 1993; Chen and Kotz 2000; Bhattacherjee 2001). This strategy has been conducted for a number of years and it has specific technique which, when applied carefully, result an easily interpretable and valid data. Yet, fulfilling the objectives of the research requires a significant attention in designing the survey and choosing the sample from the population. The current research used survey research strategies in order to collect data and answer the research questions. The researcher found in this research strategy the relevance and suitability to conduct as robust quantitative positivist research and provide contribution to knowledge in the designated field.

4.5.2 Case Study

Case study is a research strategy in which a phenomenon, activity, event, process, or an entity or few entities (individuals, organizations, and groups) are explored in depth by the researcher. Case studies are limited by action and time; researchers adopting case study strategy gather detailed information over a continued period of time using a range of data collection methods (Yin 2003). Case study is mainly suitable for particular types of research in which the study and the concept in the research are at their primary and foundational stages (Baxter and Jack 2008). It is appropriate for practice based problems where the setting of act is critical and the knowledge of the actors is significant (Benbasat et al. 1987). Therefore, case research strategy is suitable in apprehending the experience and the knowledge of academics and developing models and concepts from it. Given these points, case study is a feasible research strategy in information system because of the following three main reasons. First, researcher can learn about the status of the problem, study information system in an open set, and produce theories from application. Second, the case study research strategy enables the researchers to understand the complexity and quality of the practices happening through answering "how" and "why" questions. Third, a case study research strategy is a well-suited approach to study a topic in which limited few research have been conducted. However, the current research does not fall under this research strategy as it used survey research for the purpose of generalizability of the results.

4.5.3 Experimental Study

Experimental research is defined simply as "*a study in which participants are randomly assigned to groups that undergo various researcher-imposed treatments or interviews, followed by observations or measurements to assess the effects of the treatments*" (Leedy and Ormrod 2010: p.108). The complete control of the researchers over the research is the most significant factor to an experimental

research since it enables them to diversify the participants in the study in order to achieve enhanced evaluation to the conducted actions. Experimental research seeks to verify if an outcome is influenced by a particular action (Creswell 2012). The influence is measured by providing a specific treatment or taking an action toward one entity without doing the same for another and then observing the outcome of both entities. Experimental study research strategy includes both categories: field and laboratory experiment (Keppel 1991). Experiment research has offered a strong foundation for development in the field of science and has proven to be a solid strategy in this field. Nevertheless, giving a significant weight for experimental studies in information system studies is a possible route for progression and advancement (Levy and Ellis 2011). Overall, researchers may still be able to reveal useful knowledge from conducting experiments. Experiments used in life sciences, applied sciences, physical sciences and social sciences have provided proofs and evidences leading to numerous decisions. When in fact few experiments have been conducted in the field of information system, those conducted where limited by research concerning virtual teams and group support systems (GSS) (Paul et al. 2004) (Levy and Ellis 2011).

4.5.4 Grounded Theory

Grounded theory is a research strategy in which the researcher develops and builds a theory of an action, interaction, or process grounded in the opinions of participants regarding a specific topic (Creswell 2014). This strategy includes applying several phases of data collection and the interrelationship and refinement of sets of data (Strauss and Corbin 1990; Charmaz 2011). Grounded theory is different from other qualitative strategies because it derives a theory after collecting and systematically analysing the data. This strategy could be used with a variety of data collection methods and it provides a guideline for conducting qualitative inquiry as it offers useful strategies for collecting, managing and analysing qualitative data (Charmaz 2014). Therefore, grounded theory is

considered one of the most important strategies in qualitative approaches in different fields of research. It has been used extensively by information system researchers (Orlikowski 1993; Hughes and Jones 2003; Matavire and Brown 2008). According to Orlikowski (1993), the grounded theory methodology is useful since it permits concentration on both procedural and contextual elements; also, it allows concentrating on the behaviour of main players related to elements of organizational change that are seldom considered in information system research. In the information system domain there is opening to construct theories in both well-researched and emerging fields. Consequently, grounded theory approach offers information system scholars a method to discover and produce theories related to the field. Even more, a substantial number of information system studies have been using grounded theory in building IS theories (Glaser and Strauss 2009; Matavire and Brown 2013).

As suggested by Yin (2003), the choice of an appropriate research strategy is based on the following three conditions: the nature of the research question, the researcher's limit of control over particular activities, and the extent of concentration on historical or contemporary events. In a like manner, Saunders et al. (2011) specifies that the selection of research strategy for any study has to be in line with the research question and objectives, the obtainable resources and time limits, the extent of knowledge available on the researched topic, and the researcher's philosophical foundations. Therefore, it is a misconception to favour research strategies on one another since each one is appropriate in a particular setting taking into consideration the factors mentioned prior.

4.6 Research Methods

Research methods are defined as techniques that are used to collect data in order to explain and analyse particular phenomena (O'Leary 2004; Blaikie 2007). The current research adopts explanatory strategy utilizing quantitative surveys in the current research. Sequential methods are used by researchers seeking to

illustrate or elaborate on the outcomes of one method with another method (Creswell 2014). This study commences with a quantitative method (surveys) in which the proposed model with all the factors explaining the implementation of e-government and the relationship between its constructs are tested. Yet, the study could be followed by a qualitative phase (interviews) in which the reciprocity between e-government adoption and public administrations is examined. This process will determine the factors that both the decision makers in the government and the public agree on and the factors that they don't agree on which form the gap between both. However, due to limited time and specificity the researcher focused on the quantitative survey without turning into qualitative phase.

The sequential explanatory strategy begins by collecting and analysing quantitative data of the research, and then it is followed by the collection and analysis of qualitative data. This strategy is a common strategy for mixed methods designs that is based on the result of the quantitative data prior to analysing the qualitative data. The focus is mainly allocated to the quantitative data, and the second phase of the strategy related to qualitative data follows when the quantitative outcomes enlighten the qualitative collection. Therefore, the two procedures of data are isolated but related. The direct nature of the sequential explanatory strategy is one of its central characteristics. It is easily deployed because the stages follow separate and clear steps. Additionally, it explores the quantitative data in-depth and reports them straightforwardly. However, the main limitations of this design are the extensive time required for collecting both types of data and the feasibility of resources (Creswell and Clark 2007; Tashakkori and Teddlie 2010).

4.6.1 Interviews

Qualitative research interviews enable the researcher to understand the meaning of what the interviewee says. It is central to most qualitative data collection efforts and flexible as interviewer can adapt the situations to each

subject. Interviewer also has the benefit of following up on incomplete or unclear responses by asking additional probing questions and it has a high response rate since most people will agree to be interviewed (Kvale 1996; Miller and Brewer 2003a; Teddlie and Tashakkori 2009).

Scholars have classified three styles of conducting interviews: unstructured – open-ended questions, that allow researcher to observe the direction the interviewees take things in their response; unstructured interview is used where the interviewer is able to probe into answers and adapt to different interviewees and situations; semi-structured are focused interviews, having predetermined questions for all respondents to answer in similar way, with opportunity to complete open-ended questions (Whipp 1998; Saunders et al. 2011; Bryman 2012).

In similar vein, Lareau and Horvat (1999) emphasized interviews are useful particularly for obtaining the story behind a participant's experiences and they enable interviewer to pursue in-depth information around the topic. The researcher plan was to conduct semi-structured interviews with government officials and decision makers involved in the practical implementation of e-government system in Lebanon. Although this step will allow verification of the research question and objectives and in-depth understanding of the topic studies, interviewees were not conducted because of the continuous delays in obtaining appointments from government officials and decision makers in the Republic of Lebanon due to other priorities they have especially that throughout my research, Lebanon was passing in a very sensitive situation caused by the security and political instability in the region.

4.6.2 Questionnaire

Questionnaire is a research instrument consisting of a series of questions for the purpose of gathering information from respondents. It was initially designed for

statistical analysis but it is now being used for other types of analysis. It has the advantage of flexibility in collecting data for both scientific investigations and as an economic method. Questionnaires are used to measure attitudes, facts, or values held by individuals. It is the right technique for obtaining data in relation to citizens' perception of e-government implementation in the context of government to citizens (G2C). Thus quantitative data are collected through closed and limited number of open-ended sets of questions in the questionnaire (Tashakkori and Teddlie 2010; De Vaus 2013).

The questionnaire was developed based on the literature and it was modified by reviewing the proposed model. It is a self-reporting data collection instrument that enables the respondents to complete a survey as part of the research study. The essence of the questionnaires was to collect relevant information about the respondents' thoughts, attitudes, belief, values, perceptions, and behavioural intentions; and to measure many different kinds of demographic and social characteristics. The questionnaire is completely dependent on the response of the respondents (Collis et al. 2003; Ghauri and Grønhaug 2005). The present research led self-administered questionnaires wherein participants responded to the questions directly without the attendance of the investigator or researcher (Saunders et al. 2011). The choice of answers was fixed (close-ended) in advance. Respondents are asked to fill in the questionnaire in Arabic language. In general, surveys are administered either in print via the postal mail, in person (facet) or by telephone (Denscombe 2014). However, in the last decade, the widespread availability of Internet access has enabled surveys to be conducted on-line; via e-mail and/or electronic web-surveys (Dillman et al. 2014). Therefore, the current study employed the following methods to distribute the questionnaire: (1) hard copies; (2) e-mail; and (3) web-based surveys.

Due to the growing computerization and the availability of Internet access, web surveys have become a practical and accepted means of administering

questionnaires among student researchers (Denscombe 2014; Dillman et al. 2014). Additionally, the current study focuses on technology adoption factors; thus, it was appropriate to consider web-surveys method for this study due to the lack of response rate using hard copies. Thus, a citizen with previous experience of the e-government system was an obligated condition prior to answering the questionnaire. Since the sample of the unit was users of the internet, respondents are expected to have a minimal knowledge of computer use. As a result, several publications over the last decade have reported the use of the Internet to conduct survey research (Dawkins et al. 2013; Alateyah et al. 2014; Christenhusz et al. 2015). There are many advantages to conducting web-based surveys. Internet-based questionnaires are capable of reaching a worldwide audience immediately and the reduced cost yields higher response rates than the usual survey modes. Automated data entry is another advantage of using web-based surveys; that is, data files are in Excel format that can be imported directly from the survey vendor to software analysis programs, such as the Statistical Package for the Social Sciences (SPSS).

Scales were required to assess the 10 variables for this study. In developing an instrument with which to measure a concept, it is always suggested to use previously developed scales (Hair *et al.*, 2003). Hence, all the variables selected are widely documented widely in IS literature. The survey questionnaire method was used based on previously reported instruments from IS literature to represent the constructs in the proposed research model. To design the questionnaire and develop suitable reliable scales with which to measure the 10 constructs, this research follows the procedures recommended by Churchill, both in his book, which was published in 1995, and his well-followed article, published in 1979.

Churchill (1979) offers researchers a procedure for developing measures of multiple-item constructs. His article was cited 2056 times in the literature in different journals and fields both in marketing and in social science. To develop the measures of the constructs, Churchill (1979) suggests a diagram of a

sequence of steps that can be followed. To the best of the author's knowledge, no previous study has so far produced a valid, reliable scale on which to measure perceived support quality in e-Government contexts. Figure 4.14 demonstrates the 12 steps taken to develop the survey questionnaire.

1. Specify Domain of the Construct

2. Deciding the type of the Questionnaire & Method of Administration

3. Generate Sample of Items

4. Deciding on Rating Scale

5. Deciding on Data Analysis Technique & Software's choice

6. Determine Question's Wording

7. Translation of the Instruments and Culture Consideration

8. Determine Layout & General Appearance of the Questionnaire

9. Purifying the Measures through Pilot Testing

10. Modify the Questionnaire then, Data Destitution

11. Ethical Considerations

12. Collection of Data

Figure 4.14 Steps for Developing the Survey Questionnaire for the Current Study

Source: Adapted from Churchill (1995) and Churchill (1979) to Fit the Study.

4.6.2.1 Context-System Model's Constructs

With the aim of creating frontiers for the constructs which consists the proposed model, an inclusive review of the literature concerning the theories and models of e-government acceptance and implementation was undertaken. As said by Churchill Jr (1979) Churchill (1979), researcher must be precise in explaining what is included and excluded in the definitions of the constructs. Therefore, it is crucial to define the variables in quantitative research. In view of that, nine independent variables (namely: culture, facilitating conditions, social influence, trust, perceived risk, perceived ease of use, perceived usefulness, information quality, and attitude) and one dependent variable (Behavioral intention to use e-government system) were defined and expressed in the research. Table 4.4 reveals the variables framed in the proposed model and provide the original definitions used by previous studies and research either in e-government or in information system in general. The definitions of some constructs such as culture and information quality were copied from culture and service quality studies. After reviewing the literature, all variables were defined with some adaptations. Nevertheless, information quality, perceived risk, and trust have not yet been studied empirically in the context of e-government. For that reason, the present research skims the aforementioned literature review in the e-government and information system, and pinpoints the focal elements used formerly by researchers to measure technology acceptance and use in information system literature.

Table 4.4 Definitions of the variables used in the study

Variables	Original Definition
Culture	"*Culture is a set of beliefs and shared values. It is a collective programing of the mind that discerns the member of one group of people from another and shapes values, beliefs, assumptions, expectations, perceptions, and behavior*" (Khalil 2011: p.389; Hofstede 1991)
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: p.451).
Facilitating Conditions	"*The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system*" (Venkatesh et al. 2003: p.451).
Trust	"*Trust is defined as an expectancy that the promise of an individual or group can be relied upon. This definition is rooted in social learning theory which suggests that experiences of promised negative or positive reinforcements vary for different individuals*" (Belanger and Carter 2008: p.166).
Perceived Ease of Use	Perceived ease of use is defined as "*the degree to which a person believes that using a particular system would be free of effort*" (Davis 1989: p.320).
Perceived Usefulness	Perceived usefulness is defined as "*the degree to which a person believes that using a particular system would enhance his or her job performance*"

	(Davis 1989: p.320).
Information Quality	"*Measures the desirable characteristics of the system outputs; that is, management reports and Web pages*" (Petter, Delone and Mclean 2008: 239).
Attitude	"*Constitutes a predisposition to respond in a generally favorable or unfavorable manner with respect to, or in the presence of, the object*" (Ajzen and Fishbein 1977: p.154).
Behavioral Intention	"*The degree to which a person has formulated conscious plans to perform or not perform some specified future behavior*" (Venkatesh et al. 2008: p.484).
Perceived Risk	"*Perceived risk refers to certain types of financial, product performance, social, psychological, physical and time risks when consumers make transactions online. Perceived risk is defined as a consumer's belief about the potential uncertain negative outcomes from the online transaction*" (Hsin Chang and Wen Chen 2008: p.410)

4.6.2.2 Rating Scale

The variables were measured using 5-point scales with anchors ranging from strongly disagree to strongly agree. In which '1' equals the negative end and '5' the positive end of the scale for all model components. All the elements in the framework were measured using the 5-point Likert-type scales. "*Increasing the number of scale points reduces the rounding error as a benefit, but may also increase cost of administration, nonresponse bias, and respondent fatigue. Since averaging tends to reduce the rounding error, when scales are to be averaged the costs of in- creasing the number of scale points will usually out- weigh the benefits. When individual scales are to be analysed, using a minimum of 5 to 6 scale points is probably necessary to get an accurate measure of the variable and hence the benefits of increasing the number of scale points will often outweigh the costs*" (Lehmann and Hulbert 1972: p.446).

Additionally, Neuman (2006) recommends researchers to use a 5-point Likert scale instead of the 7-point scale, especially when attitudinal research is being conducted. According to Cox (1980), an odd, rather than even number of response alternatives, is preferable under circumstances in which the respondent can logically adopt a neutral position. The decision to choose the Likert scale points is a matter of debate (Cox Iii 1980). For example Hartley and MacLean (2006) found that using 5-point scales often increases the response rates of any study by up to 90 per cent. Using a 5-point scale makes it is relatively easier for the participants to read out the complete list of scale descriptors (Dawes 2008)

4.6.2.3 Software Selection

Due to the mathematical complexities of estimating and testing relationships, computer software is essential for processing quantitative data and analyzing it. Several computer applications and programs are available for conducting high-quality quantitative analysis; for example, SPSS(PASW), STATA, & SAS (Johnson and Young 2011). Therefore, to make sense of the data, the current study utilizes

one of the most popular software SPSS. SPSS, which stands for Statistical Package for the Social Sciences, is possibly the most widely used computer software for the analysis of quantitative data for social scientists (Bryman 2012). Therefore, the data was coded and grouped using SPSS 23.0. In addition to this program, Qualtrics survey software was utilized as a data collection tool and SMART PLS 3 as a software for structural equation modeling.

4.6.2.4 Wording Questions

Negatively worded items were considered during this stage. (Barnette 2000: P361) outlines that "*negatively worded items are those phrased in the opposite semantic direction from the majority of the items on a measure*". According to Cronbach (1950), some bias is evident when answering a questionnaire; they tend to favor an answer to agree or to disagree and vice versa. For this reason, negatively worded items are advisable in surveys; nevertheless, the inconsistent answers switching from positively worded to negatively worded items could be attributable to confusion answering the survey (Colosi et al. 2005). Therefore, only few questions out of the whole survey were asked in a negative way to ensure that the respondents were following the questionnaire well. In order to make sure that the participants answered the questionnaire genuinely and faithfully, four questions were negatively worded in the questionnaire. 3 items were in the perceived ease of use construct and one item in the trust construct. The researcher re-coded the following negatively worded items "Q31-4, Q26-1, Q26-2, Q26-3" using SPSS 22.0 software.

4.6.2.5 Sampling Methods

Since collecting data from the entire population is an impossible task, obtaining a sample from the population is considered an appropriate approach for this study. The sampling method chosen for this study was based on three aspects: (1) the nature of the study; (2) the objectives of the study; and (3) the time and budget

available (Hair Jr et al. 2015). There are two main types of sampling techniques in the literature available that may be employed to collect data for the present study: (1) probability (random) technique and (2) nonprobability (non-random) technique. Probability sampling is the most representative sampling technique, and it is associated largely with survey based studies (Saunders et al. 2011).The objective of probability sampling is that the selection of respondents should be based on random procedure, which gives respondents a non-zero chance of being selected (Hair Jr et al. 2015). The most commonly-utilized probability sampling techniques are: (1) simple random sampling; (2) stratified sampling; (3) cluster sampling; and (4) systematic sampling (Hair Jr et al. 2015).

Conversely, non-probability technique provides a range of alternative techniques based on subjective judgment, which is chosen usually during the exploratory phases and during protesting of survey questionnaires (Saunders et al. 2011). The most frequently used nonprobability sampling techniques are: (1) convenience sampling; (2) judgment sampling; (3) quota sampling; and 4) snowball sampling.

It is frequently difficult to obtain a sample, particularly if the researcher is dealing with sensitive issues (Collis et al. 2003), such as the data required for the current study. Therefore, to achieve a suitable sample frame for this study, it was decided to consider the non-probability sampling techniques; specifically, the convenience sample. Convenience, sometimes called haphazard or accidental, sampling involves selecting the most available sample elements to participate in providing the information needed for the study and, accordingly, it defines ranges of alternatives of responses (Hair et al. 2010).This process is continued until the required sample-size was accomplished.

Researchers, especially student researchers, tend to favor this technique as it helps to complete a large number of completed surveys, offers an easy way to obtain raw data and saves time without incurring significant costs (Hair Jr et al. 2015). Thus, a number of studies in literature have used convenience samples; for

example, Peterson and Merunka (2014) and Worrell et al. (2013). Nonetheless, the main limitation of convenience sampling is the issue of results' generalization. However, the greater the sample-size, the lower the likelihood of the occurrence of generalized errors (Saunders et al. 2011; Bryman 2012). Moreover, according to Walliman (2004), the greater the accuracy required in the true representation of the population, the larger the sample must be. As a result, the researcher aimed to increase the response rate to overcome the generalization abstract.

4.6.2.6 Pilot Study

Pilot study is a technique used to test the design or instrument prior to carrying out a research. It involves pre-testing a research tool such as new data collection, or testing an idea of hypothesis. The advantage is that it increases the likelihood of success in the main study.

For the purpose of this research study, a pilot test of the questionnaire was conducted using both online 'web-based' and paper-form in order to check if there is need to refine it and to ensure the questions capture the research questions and objectives (Collis et al. 2003; Ghauri and Grønhaug 2005; Saunders et al. 2011). The pilot testing provided the researcher the opportunity to identify and make corrections on a wide range of potential problems with the research questionnaire. These problems included refining questions that the respondents could not understand. The web-form questionnaire was completed and returned by few family members who were asked to take part in the survey. This enabled the researcher to revise the questionnaire and make it more user-friendly, with some open–ended questions that would enable the respondent give their opinion and thoughts on the current issues impacting on e-government implementation. According to Churchill Jr (1979), the purpose of the pilot test is: (1) to purify the questionnaire to avoid problems while respondents answering the questions; (2) to avoid problems in recording the data; and (3) to obtain some assessment of the questions' validity and reliability of the data.

4.6.2.7 Sample of Items

Churchill Jr (1979: p.68) advises that researchers should put emphasis on the primary phases of item generation: *"would be to develop a set of items, which tap each of the dimensions of the construct at issue".* Referred to this phase as construct validity; *"The purpose of validation is to give researchers, their peers, and society as a whole a high degree of confidence that positivist methods being selected are useful in the quest for scientific truth* (Straub et al. 2004: p.102). Consistent with Peter (1981) , in order to attain a scientific research, the items used for measurements must show a high degree of validity. Yet, it is not possible to represent the concept perfectly using one single item (Bryman 2012). Consequently, researchers use a sample of items to measure a particular concept instead of using all the items. This is done after checking reliability, validity, and Common Method Variance (CMV). The common method bias means that the covariance among measured items is driven by the fact that some or all the responses are collected with the same type of scale (Hair Jr et al. 2015).

Accordingly, the researcher has revised the definitions of the variables in the literature and the number of dimensions embraced by each variable. The dimensions that were selected incorporated furthermost elements, which have an impact on the perception of the constructs being studied and the the initial survey shaped was made of 66 items, after amendments based of CFA and reliability test, 35 items were used to measure the 10 constructs in the conceptual model. A set of items was identified for an enhanced scale measurement of the construct to fit the proposed model. The following sections illustrate the constructs and their measurements from the literature. The items used in this research were adapted mainly from previous studies, mostly, from IS literature to consider the constructs for both the context and the system. Additionally, the scale items have been revised to fit the context of the current study. Table 4.5 represents the measurement scale and items' codes including all the dimensions of the constructs used in the proposed model of the current study. The questions or

items were modified according to the topic under investigations and all resources from which the items were taken are cited in the reference column. Each construct was defined and followed by its dimensions. The dimensions were also defined and followed by the items that are related to its measurement scale.

Item Code	Questions After Modifications	References
Culture		
Power Distance: The extent to which the members of a society expect power to be distributed equally. It reflects the degree to which a community maintains inequality among its members by the stratification of individuals and groups with respect to power, authority, prestige, status, wealth, and material possessions (Hofstede, 1980,Hofstede, 1991 and House et al., 2004).		
CPD1	In Lebanon, citizens are expected to obey the government's officials without questioning	(Zhao,2011) (house et al.,2004)
CPD2	In Lebanon, government online services will not privilege one group on the others	(Zhao,2011) (house et al.,2004)
Uncertainty Avoidance: The extent to which individuals in a society rely on social norms, rules, and procedures to alleviate unpredictability of future events. It reflects the attempts of people to avoid vague situations by providing norms, values, and beliefs in a form of rules, laws and regulations (Hofstede, 1980,Hofstede, 1991 and House et al., 2004).		
CUA1	Most people expect government online services to be a structured application with few unexpected issues.	(House et al. 2002)
CAU2	In Lebanon, societal requirements and instructions are spelled out in detail so citizens know what they are expected to do.	(House et al. 2004)
Future Orientation: The extent to which individuals engage in future-oriented behaviors such as delaying gratification, planning and investing in the future. It reflects the degree to which a community places a higher priority on long term success, have a strong capability and willingness to imagine future contingencies, formulate future goals, and seek to achieve goals and develop strategies for meeting their future aspirations (Javidan and House, 2001 and Ashkanasy et al., 2004).		
CFO1	More people live or should live for the future rather than for the present.	(House et al. 2002)

CFO2	In Lebanon, people place more emphasis on solving current problems/ planning for the future	(House et al. 2004)
Assertiveness: The degree to which individuals are assertive, confrontational, and aggressive in their relationships with others. It refers to the degree to which individuals in a society are assertive, tough, dominant, and aggressive in social relationships (Khalil 2011).		
CA1	People are or should be generally dominant in their relationships with each other.	(House et al. 2004)
CA2	In Lebanon, people are generally tender/tough	(House et al. 2002)
Social Influence		
Subjective Norm: The person's perception that most people who are important to him think he/she should or should not perform the behavior in question (Ajzen and Fishbein 1980; Davis et al. 1989)		
SSN1	People who influence my behavior think that I should use government online services (Dawlati)	(Venkatesh et al. 2003)
SSN2	I use government online services (Dawlati) because my friends and colleagues use it	(Venkatesh et al. 2003)
Social Factors: The individual's internalization of the reference group's subjective culture, and specific interpersonal agreements that the individual has made with others, in specific social situations (Thompson et al. 1991)		
SSF1	I use government online services (Dawlati) because of the proportion of citizens who use this services	(Thompson et al. 1991; Venkatesh et al. 2003)
SSF2	In general, the Lebanese government has supported the use of the government online services (Dawlati).	(Thompson et al. 1991)

Image: The degree to which use of an innovation is perceived to enhance one's image or status in one's social system (Moore and Benbasat 1991).		
SI1	Citizens who use government online services have a high profile and more prestige than those who don't	(Moore and Benbasat 1991; Venkatesh et al. 2003)
SI2	The ability to use the government online services is a status symbol in Lebanon	(Moore and Benbasat 1991; Venkatesh et al. 2003)
Facilitating Conditions		
Perceived Behavioral Control: Reflects perception of internal and external constraints on behavior and encompasses self-efficacy, resources facilitating conditions, and technology facilitating conditions (Ajzen and Fishbein 1980; Taylor and Todd 1995a; Taylor and Todd 1995b).		
FBC1	I have the knowledge necessary to use government online services on my own	
FBC2	Given the resources, opportunities and knowledge it takes to use the system. It would be easy for me to use the government online services (Dawlati).	
Facilitating Conditions: Objective factors in the environment that observers agree make an act easy to do, including the provision of computer support(Thompson et al. 1991). Such as responsiveness and reliability. Responsiveness: Deals with customer perceptions about the willingness of the service provider to help customers and not shrug off their request for assistance (Gefen 2002).		

Reliability: This dimension deals with providing the service on time and as ordered (Gefen 2002).		
FFC1	I find it easy to use government online services due to the availability of specialized instructions.	(Thompson et al. 1991; Venkatesh et al. 2003)
FFC2	Guidance was available to me in the selection of government online services (this construct is deleted due to low Cronbach's Alpha)	(Thompson et al. 1991; Venkatesh et al. 2003)
FFC3	A specific person (or group) is available for assistance with system difficulties	(Thompson et al. 1991; Venkatesh et al. 2003)
Compatibility: The degree to which an innovation is perceived as being consistent with existing values, needs, and experiences of potential adopters (Moore and Benbasat 1991; Venkatesh et al. 2003)		
FC1	Using government online services (Dawlati) is compatible with all aspects of my work	(Venkatesh et al. 2003)
FC2	Using government online services (Dawlati) fits well with my lifestyle	(Venkatesh et al. 2003)
Trust		
Trust of the government (TOG): Refers to one's perceptions regarding the integrity and ability of the agency providing the service (McKnight et al. 2002; Bélanger and Carter 2008)		
TOG1	I think I can trust state government agencies	(Bélanger and Carter 2008)
TOG2	State government agencies can be trusted to carry out online transactions faithfully	(Bélanger and Carter 2008)
TOG3	I trust state government agencies keep my best interests in mind	(Bélanger and Carter 2008)

TOG4	In my opinion, state government agencies are not trustworthy	(Bélanger and Carter 2008)
Trust of the Internet (TOI): IS consistently identified as a key predictor of e-service adoption. This type of trust is frequently labeled institution-based trust. Institution-based trust refers to an individual's perceptions of the institutional environment, including the structures and regulations that make an environment feel safe (McKnight et al. 2002; Bélanger and Carter 2008).		
TOI1	The internet has enough safeguards to make me feel comfortable using it to transact personal business with state government agencies	(Bélanger and Carter 2008)
TOI2	I feel assured that legal and technological structures adequately protect me from problems on the internet	(Bélanger and Carter 2008)
TOI3	In general, the Internet is now a robust and safe environment in which to transact with state government agencies.	(Bélanger and Carter 2008)
Disposition to trust: Disposition to trust is defined as one's general propensity to trust others. It is composed of two concepts: faith in humanity and trusting stance. Faith in humanity assumes others are good-natured and dependable. Trusting stance assumes better outcomes result from dealing with people as if they are well meaning and reliable (McKnight et al. 2002; Bélanger and Carter 2008).		
DT1	I generally don't trust other people	(Bélanger and Carter 2008)
DT2	I generally have faith in humanity	(Bélanger and Carter 2008)
DT3	I feel that people are generally reliable	(Bélanger and Carter

		2008)
DT4	I generally trust other people unless they give me reason not to	(Bélanger and Carter 2008)

Perceived Risk: Is defined as the citizen's subjective expectation of suffering a loss in pursuit of a desired outcome (Warkentin et al. 2002; Bélanger and Carter 2008)

PR1	The decision of whether to use government online services is risky	(Bélanger and Carter 2008)
PR2	In general, I believe using government online services is risky	(Bélanger and Carter 2008)

Perceived Ease of Use

PEU1	I often become confused when I use government online services.	(Davis Jr 1986; Davis et al. 1989)
PEU2	I make errors frequently when using government online services.	(Davis Jr 1986; Davis et al. 1989)
PEU3	Government online services are rigid and inflexible to interact with.	(Davis Jr 1986; Davis et al. 1989)
PEU4	I find it easy to get government online services to do what I want it to do.	(Davis Jr 1986; Davis et al. 1989)
PEU5	My interaction with government online services is easy for me to follow.	(Davis Jr 1986; Davis et al. 1989)
PEU6	It is easy for me to remember how to perform tasks using government online	(Davis Jr 1986; Davis et

	services after time away from using it.	al. 1989)
PEU7	It would be easy for me to become skillful at using government online services quickly.	(Davis Jr 1986; Davis et al. 1989; Venkatesh et al. 2003)
Perceived Usefulness		
PU1	Using government online services saves me time then doing the traditional paper process.	(Davis Jr 1986; Davis et al. 1989)
PU2	Government online services enables me to access information and services when I need then 24 hours/day, 7days/week	(Davis Jr 1986; Davis et al. 1989)
PU3	Government online services make communication with public administration easy	(Davis Jr 1986; Davis et al. 1989)
PU4	Using government online services reduces the time I spend on gathering state government information.	(Davis Jr 1986; Davis et al. 1989)
PU5	Using government online services makes it easier to complete tasks with public administrations	(Davis Jr 1986; Davis et al. 1989)
PU6	Using government online services enables me to carry out any transaction with the government quickly and efficiently.	(Davis Jr 1986; Davis et al. 1989)
PU7	Using government online services allows me to accomplish more work than would otherwise be possible.	(Davis Jr 1986; Davis et al. 1989)
PU8	I find government online services useful and provide citizens with a wide range of information just "one click" away.	(Davis Jr 1986; Davis et al. 1989)

Information Quality		
Accuracy: The user's perception that the information is correct (Wixom and Todd 2005)		
IQ1	Information on government online services is free from errors	(Wixom and Todd 2005)
IQ2	Information on government online services covers all information needed	(Wixom and Todd 2005)
Timeliness/Currency: The user's perception of the degree to which the information is up to date (Wixom and Todd 2005)		
IQ3	Information on government online services is up-to-date.	(Nelson et al. 2005)
Relevancy: the degree of congruence between what the user wants or requires and what is provided by the information products and services.		
IQ4	Information presented on government online services is relative to my needs	(Bailey and Pearson,1983)
Perceived Risk		
Performance risk: The possibility of the product malfunctioning and not performing as it was designed and advertised and therefore failing to deliver the desired benefits		
PR1	Online government services' servers may not perform well because of slow download speeds, the servers' being down or because the web site is undergoing maintenance.	(Pires et al. 2004; Lee 2009)
PR2	Online government servers may not perform well and process payments incorrectly.	(Pires et al. 2004; Lee 2009)
Financial Risk: The likelihood of suffering a financial loss due to hidden costs, maintenance costs or lack of warranty in case of faults.		
FR1	When transferring money on Internet, I am afraid that I will lose money due to careless mistakes such as wrong input of account number and wrong input of the	(Pires et al. 2004; Lee 2009)

	amount of money.	
FR2	When transaction errors occur, I worry that I cannot get compensation from government.	(Pires et al. 2004; Lee 2009)
Security/Privacy Risk: Potential loss of control over personal information, such as when information about you is used without your knowledge or permission. The extreme case is where a consumer is ''spoofed'' meaning a criminal uses their identity to perform fraudulent transactions		
SR1	I would not feel totally safe providing personal privacy information over the government online services (Dawlati).	(Pires et al. 2004; Lee 2009)
SR2	I'm worried to government online services because other people may be able to access my account.	(Pires et al. 2004; Lee 2009)
SR3	I would not feel secure sending sensitive information across the government online services	(Pires et al. 2004; Lee 2009)
Attitude Toward Using Technology		
ATT1	Using government online services is a good and wise idea	(Fishbein and Ajzen 1975; Davis 1989; Taylor and Todd 1995a; Venkatesh et al. 2003)
ATT2	Government online services make communicating with the government more interesting	(Fishbein and Ajzen 1975; Davis 1989;

		Taylor and Todd 1995a; Venkatesh et al. 2003)
ATT3	Working with government online services is fun	(Fishbein and Ajzen 1975; Davis 1989; Taylor and Todd 1995a; Venkatesh et al. 2003)
ATT4	I like using government online services for interacting with public administration	(Fishbein and Ajzen 1975; Davis 1989; Taylor and Todd 1995a; Venkatesh et al. 2003)
Behavioral Intention		
BI1	I intend to continue using government online services for the next 4 weeks	(Venkatesh et al. 2003; AlKhatib 2013)
BI2	I plan to continue using government online services website in the coming 3 months	(Venkatesh et al. 2003; AlKhatib 2013)
BI3	I plan to continue using government online services in the future	(Venkatesh et al. 2003; AlKhatib 2013)

Table 4.5 The measurement scales for constructs of the study

4.7 Ethical Considerations

Ethics incorporates perceptions and values of right manner (Singh 2012). Morality or ethics imply concerning the welfare of human while conducting research of any kind and not causing any act that purposely and certainly harms people (Ellis and Becker 1982; Harris 2011). Different principles form the researcher's ethical values in research embrace objectivity, carefulness, openness, respect for intellectual property, confidentiality, anonymity, and responsible publication to mention some (Stanley and Wise 2010). Therefore, ethical consideration must be addressed when conducting a primary research in an academic setting.

The researcher is expected to address the following key principles of ethical research by the economic and social research council (ESRC) (Stanley and Wise 2010): First, the assurance of quality, integrity, and transparency in the design, revision, and commencement of the research. Second, full information about the research must be provided to the participants and the staff involved. Third, the anonymity of participants and the confidentiality of their responses must be valued and secured. Fourth, contributors must choose to volunteer in the study free from any pressure. Fifth, avoidance of harm to researchers and participants is a must in all instances. Sixth, research independency must be clear. Throughout the research, I will make sure to follow these principles and commit to the rights of the participants in doing no harm.

The researcher is aiming to conduct an empirical research in order to evaluate and identify issues influencing the implementation of e-government technology in developing countries, taking Lebanon as an example. Mainly, participants are adults who choose to take part in this research voluntarily. Additionally, the researcher intends not to cause any harm of any kind not physical nor emotional to the participants before, after, and during the research process. Participants were provided with a brief explanation about the research topic written at the top of the survey whether it is web-based or paper-based and they are free to

withdraw from the data collection process at any point with no conditions. Anonymity of participants and confidentiality of data are protected and secured in the best manner as the names of the respondents will not be required to complete the survey.

Accordingly, prior to starting data collection and launching the survey, researchers are advised to be familiar with the ethical guidelines of their university. The Research Ethics Panel at the University of Bradford protects both the researcher and the university against any possible legal consequences of ignoring to address vital ethical issues of respondents in the research. Consequently, the University of Bradford established a Research Ethics Panel to review data collection methods and strategies with respect to the ethical issues. The panel decides if there are any other action needed to assure the rights and safety of both researcher and participants of the study. For that reason, a reproduction of the survey was submitted to the University of Bradford established a Research Ethics Panel and was accordingly accepted for distribution. Both Arabic and English versions of the survey were created according to ESRC ethical guidelines.

The participants were informed that their answers of the survey will be kept confidential and anonymous. Also, participants were informed about the purpose and nature behind the current research. As well, they were notified completely that their contribution is free from any pressure and voluntarily. The survey was reviewed, intended and conducted to ensure reliability, transparency, and integrity. A cover letter was included on the top of the questionnaire explaining the aim of the research with a short summary and how the contribution of the participants will help in enhancing the understanding of the topic. Moreover, the cover letter in the questionnaire included the contact details (name and e-mail addresses) of the researcher in case respondents have any ethical worries and they need to ask or discuss.

4.8 Data Analysis Phase

In quantitative research, different statistical methods can be applied to analysis data. Therefore, to make sense of the data under investigation, two main steps are involved in the current study: (1) descriptive statistic, which is used to obtain a descriptive overview of the data; and (2) statistical testing using SEM, which is used for hypothesis testing (Hair et al. 2010).

4.8.1 Phase One: Data Preparation and Descriptive statistics

Data examining is an initial step in any analysis procedure: screening the data; handling missing values and data; coding and cleaning the data; evaluating the impact of missing data; identifying outliers; testing for the assumptions' underlying most multivariate techniques; and testing common method variance (CMV) (Hair *et al.* 2010). Accordingly, as suggested by (Hair *et al.* 2010), the researcher examined the data for completeness and consistency prior to analyzing the data. The procedures are explained in more detail in Chapter 5.

There is a set of statistical tools that help researchers to describe accurately a large volume of data with just a few values (Brace, Kemp and Snelgar 2009). Descriptive statistics aid in describing the characteristics of the sample in the method section of the report (Pallant 2010; Field, 2009). Descriptive data include: (1) measure of central tendency (for example, mean); (2) measures of variability (for example, standard deviation); and 3) tables, charts and graphs used to summarize the data by category. The descriptive statistics results are presented in Chapter 5.

4.8.2 Phase Two: SEM

SEM is a family of statistical techniques and one of the most popular statistical methodologies adopted in quantitative research (Kaplan 2009). It has become a commonly-used tool for explaining theoretical models within the social and behavioral sciences (Janssens *et al.* 2008; Worthington and Whittaker 2006). Since its introduction in the marketing field, SEM with latent variables has become one of the most used multivariate data analysis techniques in IS research, and has

been used extensively in measurements and hypotheses testing in the literature (Bagozzi and Yi 1988). The major feature of SEM is that it takes into account measurement error, typically contains latent variables (Raykov and Marcoulides 2006) and allows complex relationships between one or more independent variables and one or more dependent variables (Byrne 2010; Kaplan 2009). To ensure a degree of success, the assessment of SEM requires a convergence of three activities: (1) theoretical; (2) methodological; and (3) statistical analyses (Byrne 2010).

There are two basic types of variables, unobserved and observed (Kline 2011; Hair *et al.,* 2010; Schreiber 2008). An observed variable can be measured relatively easily, and for that reason it is also regarded as a measured, indicator or manifest variable (Schreiber 2008), while unobserved variables are termed latent factors or constructs and are not directly observable. Instead, they are hypothesized to underlie the observed variables (Kline 2011; Schreiber *et al.* 2006).

There are two other terms associated with SEM: exogenous variables, which are similar to the independent variables; and endogenous variables, which are similar to the dependent outcome variables (Schreiber 2008). Hair *et al.* (2010: p.634) outline that in a SEM, it is essential to *"test multiple interrelated dependence relationships in a single model; the interrelated relationships indicate that the dependent variable in one equation can be the independent variable in another equation".*

SEM consists of two parts: (1) the measurement, which links observed variables to latent variables via a confirmatory factor analysis (CFA); and (2) a structural model (SM), which links latent variables to others via systems of simultaneous equations and uses maximum likelihood estimation as an estimation of the model parameters (Byrne 2010; Kaplan 2009). As recommended by Anderson and Gerbing (1988), a two–step approach was adopted to perform SEM analysis in the current study. The first step consists of the measurement model while the second consists of the SM related to the dependent and independent variables.

Latent variables are theoretical and hypothetical constructs in social sciences and, therefore, the argument of SEM is to determine if a theoretical model is supported by the data collected (Kline, 2011; Hair *et al.*, 2010; Hair *et al.*, 2010; Schreiber, 2008). Thus, the SM should be based on a theoretical sounding. Nonetheless, when using SEM, reliability and validity measures are compulsory and should be assessed (Shook *et al.*, 2004).

4.9 Chapter Conclusions

The present research was undertaken to generate a body of knowledge by attempting to understand the content of the context and the system behind the continued use or the lack of e-government usage. Consequently, this chapter has explained the various options available for carrying out the research project and the logic for the selection of the specific approach, strategy and methods applied. Technology adoption research is a well-established field within the literature.

Therefore, in order to achieve the research aim and meet the objectives, the current study focuses on measurement techniques to understand the behavior intention to use e-government systems and their sustained use. Hence, a quantitative empirical approach was best suited to this approach, considering the 'what' and the 'how' research questions. Accordingly, the study is categorized under the scientific method following a hypothetical-deductive approach. From the perspective of the philosophy of science, the validation of the positivist research instruments is a necessity for discovering the truth (Nunnally and Bernstein 1994). Therefore, in line with the positivist paradigm, a deductive research would be an applicable approach when considered against its philosophical background.

As a result, this research sought a theoretical argument through the deduction of a sequence of hypotheses. These are identified as important variables according to Wixom and Todd's tested theory by applying those variables in the e-government context and then, collecting appropriate data via questionnaire to be analyzed empirically in the following chapter. The aim of the methodology is to ensure

systematic and relevant research into the phenomena under investigation. The following bullet points summarize the main outcomes of the research methodology:

- The main outcome of the present research is to help develop a theory that attempts to describe and predict the use of e-government systems, mainly, in developing countries.

- This research uses a deductive reasoning strategy in which a theoretical framework was developed, and hypotheses were deducted.

- A quantitative empirical approach to collecting data using a survey is best suited to this approach considering the 'what' and the 'how' research questions.

- The present research falls primarily under descriptive research and somehow under exploratory studies gathering information about a practical problem (that is, lack of use of e-government systems).

- Given the research problem outlined in Chapter 1, the best fit was to follow the positivist paradigm, which considers the world as external and objective. It focuses on facts by formulating a hypotheses deduction procedure along with operationalizing concepts to be measured.

- To test hypotheses, the present study utilizes SEM techniques.

- Data was coded and analyzed using two software packages: (1) SPSS 22; and (2) SmartPLS 3.

In summary, the overall methodology is one based on positivism philosophy. It takes an empirical approach and it is objective rather than subjective (the

researcher is an outside expert). It is deductive in terms of theory testing and quantitative approach, collecting primary data using a survey method. The following chapter presents the empirical analysis employed utilizing SEM technique.

CHAPTER 5: Statistical Analysis

5.1 Introduction

This chapter utilizes the Statistical Parcel for the Social Sciences in order to present description for the raw data collected from the survey and the statistical software for structural equation modelling (SmartPLS) to present the Structure Equation Modelling (SEM). The major statistical findings of the current study are presented in this chapter.

5.2 Pilot Study

5.2.1 Results of the Reliability Test

A pilot study is well-defined as transitory initial survey (Bryman 2012). In order to evaluate the validity and reliability of the complete constructs used in the survey, a pilot study was conducted. Based on the outcomes of the pilot study, some of the items were revised whereas others were totally abolished.

Cronbach's alpha or coefficient alpha (α) is used to measure the class of internal consistency. It is not difficult to figure and it is the most popular method employed in assessing the reliability of a construct (Churchill Jr 1979; Nunnally and Bernstein 1994). According to Tavakol and Dennick (2011) there are dissimilar views around the satisfactory values of Cronbach's α ranging from 0.70 to 0.95. The value of α is affected by the item dimensionality and inter-relatedness and the number of test items; the value of alpha could be small if the construct is heterogeneous, items are poorly related, and/or the number of questions is low (Tavakol and Dennick 2011). Some of the Items should be discarded or revised if alpha shows a low value due to poor correlation. The simplest technique to revise or discard some items is to calculate the correlation of the total score test with each test item; items with low correlations (approaching zero) are removed. High value of coefficient alpha propose that some of the items in the construct are very similar to each other as they are addressing the same question but in a different format.

Table 5.6 Cronbach's alpha values for Internal Consistency (George 2003)

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

The internal reliability of all constructs needed for the study is tested using IBM SPSS Statistics 22 software. The test of reliability produces the number and percentage of valid cases considered for the test. Additionally, the Cronbach's alpha is calculated for the given number of items in a particular construct. The mean, standard deviation and number of respondents of each item is also found. Also, the item-total statistics table including scale mean if item deleted, scale variance if item deleted, corrected item total correlation, and Cronbach's alpha if item deleted; and the scale statistics table including mean, variance, standard deviation, and number of items are demonstrated in the reliability test.

As revealed in Table 5.6, the Cronbach's alpha of all the constructs after recoding some of the items and editing others exceeded 0.70 showing that the internal consistency of the construct is acceptable and good (George 2003). Therefore, the constructs adopted in the survey are considered reliable after the pilot study. Table 5.5 presents the result of the reliability of internal consistency of the constructs used in the survey of the current study.

Table 5.7 Reliability Test (N=41)

Construct	No of items	Cronbach's (α) Before Item Deletion	Cronbach's (α) After Item Deletion
Culture (Future Orientation)	2	0.819	0.819
Social Influence	5	0.679	0.768
Facilitating Conditions	6	0.816	0.816
Trust	7	0.675	0.841
Perceived Ease of Use	6	0.761	0.761
Perceived Usefulness	8	0.887	0.887
Information Quality	4	0.845	0.845
Perceived Risk	9	0.869	0.869
Attitude	4	0.852	0.852
Behavior Intention	3	0.851	0.851

5.2.2 Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) technique is used in the assessment and development of scales; in specific, scales that are used to collect data for the first time. It is a statistical technique deployed to disclose the

fundamental structure of a relatively large set of variables (Hair et al. 2010). According to (Finch and West 1997) EFA must be performed when the examiner has no a former hypothesis about patterns or factors of measured variables. EFA techniques are extra precise when every factor is signified by several measured variables in the analysis. However, the constructs of the current research were postulated to be measured as single-item indicator founded on the literature. Therefore, there is no need to use EFA on the constructs of the study as all of them were adapted from the literature and used in other studies discussing the adoption and use of systems in general and e-government in particular. Table 5.7 below shows the sources of each construct used in the current study.

Table 5.8 Sources of the research construct

Construct	References
Culture	(House et al. 2002) (House et al. 2004)
Social Influence	(Thompson et al. 1991; Venkatesh et al. 2003)
Facilitating Conditions	(Thompson et al. 1991; Venkatesh et al. 2003)
Trust	(Bélanger and Carter 2008)
Perceived Ease of Use	(Davis Jr 1986; Davis et al. 1989)
Perceived Usefulness	(Davis Jr 1986; Davis et al. 1989)

Information Quality	(Wixom and Todd 2005)
Perceived Risk	(Pires et al. 2004; Lee 2009)
Attitude	(Fishbein and Ajzen 1975; Davis 1989; Taylor and Todd 1995a; Venkatesh et al. 2003)
Behavior Intention	(Venkatesh et al. 2003; AlKhatib 2013)

5.3 The Main Survey

Descriptive statistics are statistical method that defines the basic characteristics of the information collected from a survey in a study; they offer brief summaries and describe data about the measure and sample (Kremelberg 2011). In the following sub-sections the demographic characteristics of the respondents of the survey are presented. The survey questions are presented in Appendix A.

5.3.1 Demographic Variables

The percentages and frequencies of the demographic variables (gender, marital status, age group, level of education, and province) associated with the sample of the population studied are displayed in this section. Table 5.8 presented below shows the demographic variables that are obtainable from the survey and provides the number of people responded to each variable. "Valid" indicates the number of people chose a usable option and "Missing" indicates the number of either no response or unfeasible option. For example, 995 of the contributors show a gender either male or female and 75 chose not to respond to the question.

Frequency Table for each demographic variable:

Statistics

	Gender	Marital Status	Age Group	Level of Education	Province
Valid	995	999	994	984	989
Missing	75	71	76	86	81

Table 5.10 Gender of Respondents

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	484	45.2	**48.6**	48.6
	Female	511	47.8	**51.4**	100.0
	Total	995	93.0	**100.0**	
Missing	System	75	7.0		

Total   1070   100.0

Figure 5.15
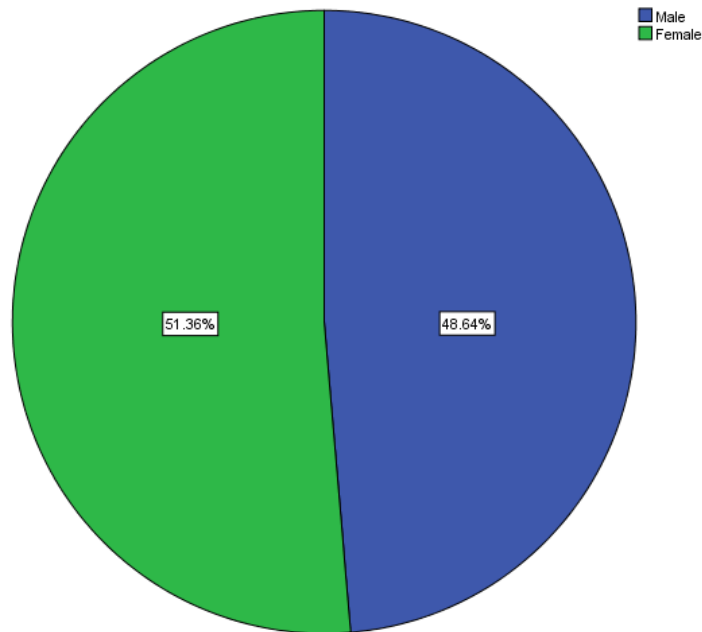
Figure 5.14 and Table 5.9 shows that males constitute 48.6% of the whole population and females 51.4%. The total number of male respondents is 484 and the number of female respondents is 511. The number of people who did not give a valid answer for this question is 75. The percentage considered is the valid percentage which is calculated by ignoring the missing respondents.

In this section will examine another independent variable which is the age groups of respondents in the survey.

Age Group of Respondents:

Table 5.11 Age Group of Respondents

Age Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	570	53.3	**57.3**	57.3

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	25-34	332	31.0	**33.4**	90.7
	35-44	60	5.6	**6.0**	96.8
	45-54	15	1.4	**1.5**	98.3
	55-64	11	1.0	**1.1**	99.4
	65+	6	.6	**.6**	100.0
	Total	994	92.9	**100.0**	
Missing	System	76	7.1		
Total		1070	100.0		
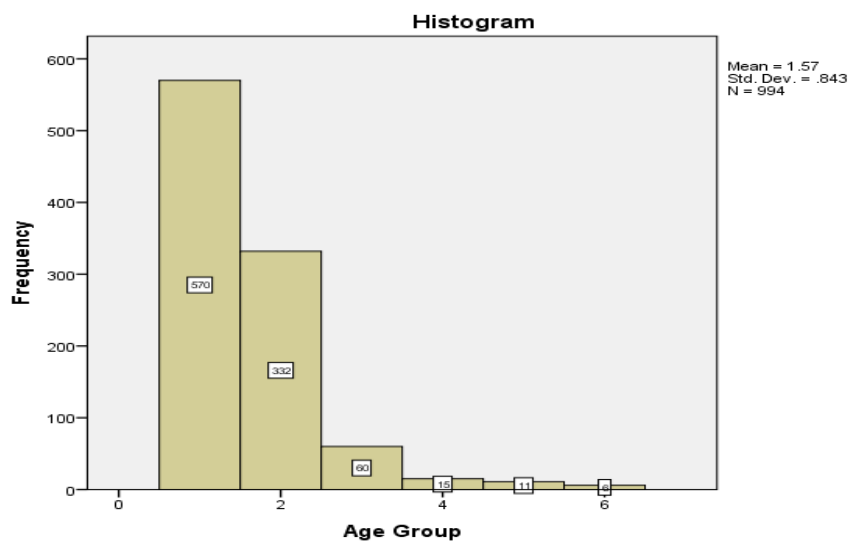
Figure 5.16 Percentage of Age Groups

The respondents of this survey are divided into six age groups. The age group 18-24 which represents mostly school and university students is the dominant group in the survey constituting 570 respondents or 57.3%. As represented in figure 5.15, with the increase of the age group the percentage of the participants declines. 25-34 age group is 33.4% followed by 6% for 35-44 age group, 1.4% for 45-54 age group, 1.1% for 55-64, and 0.6% for participants above 65 years old.

The age group variable was recoded into age categories presenting three age categories young, mature, and old in table 5.11. This process will make the analysis easier and simpler.

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Age Categories

Table5.12 Age Categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Young	902	84.3	**90.7**	90.7
	Mature	75	7.0	**7.5**	98.3
	Old	17	1.6	**1.7**	100.0
	Total	994	92.9	**100.0**	
Missing	System	76	7.1		
Total		1070	100.0		
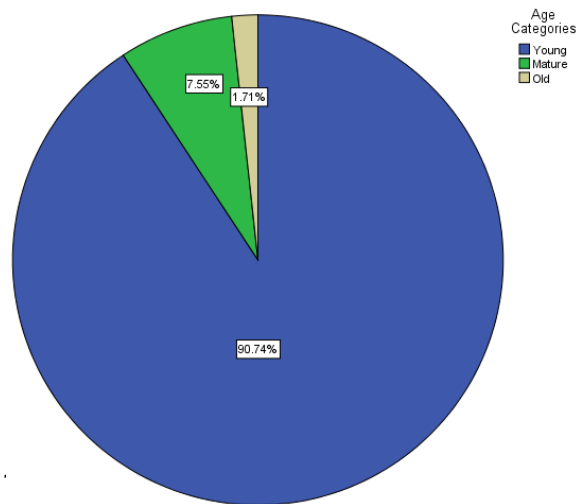
Table 5.   survey are 902 or 90.7% while mature and old people are 92 or 9.3% of the whole valid population.   the age categories data

Figure 5.17 Age Categories

proportionally. The blue colour accounts for the young participants and it dominates the figure.

Other Demographic Variable

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The findings of the Province of the respondents, Level of Education, and Marital Status are demonstrated in the table 5.12 below. Table 5.12 exhibits the frequency and valid percentage of each of the demographic variables listed formerly.

Table5.13 Other Demographic Variables (N=1070)

Variable	Frequency	Valid Percentage%
Province		
Beirut	244	24.7
Bekaa	26	2.6
North	15	1.5
South	298	30.1
Mount Lebanon	340	34.4
Nabatieh	66	6.7
Marital Status		
Single	826	82.7
Married	162	16.2
Divorced	11	1.1
Level of Education		
Not Educated	2	0.2
High School or below	44	4.5
Bachelor	685	69.6
Post Grad	221	22.5
Other	32	3.3
Occupation		
Unemployed	38	3.8
Student	426	42.9
Employee	299	30.1

	Department Manager	59	5.9
	General Manager	1	.1
	Self Employed	93	9.4
	Business Owner	29	2.9
	Other	49	4.9

5.3.2 Computer and Internet Knowledge Variables

The findings in Table 5.13 show that the mainstream of participants considered themselves as having a good to very good computer knowledge (90.7%). Likewise, the most of the respondents considered their Internet proficiency as good to very good (92.7%). The majority specified that they had been using the Internet for more than three years (96.5%) and (98%) indicated that they use the internet on a daily basis.

11 people answered the question that they don't use e-government and then they said that they will use it in the future. So the survey influenced a positive behaviour.

Table5.14 Computer and Internet Knowledge Variables (N=1070)

Variable		Frequency	Valid Percentage %
Computer Knowledge			
	Very Poor	0	0.0
	Poor	5	0.5
	Moderate	88	8.8
	Good	350	35.0
	Very Good	556	55.7
Internet Proficiency			
	Very Poor	0	0.0

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	Poor	5	0.5
	Moderate	68	6.8
	Good	332	33.2
	Very Good	594	59.5

Length of Internet Use			
	I don't use the internet	0	0.0
	Less than one year	10	0.1
	1-2 years	5	0.5
	2-3 years	20	2.0
	More than 3 years	164	96.5

Internet Use			
	Daily	969	98.0
	Once a week	20	2.0
	Once a month	0	0.0
	Less than once a month	0	0.0

Internet Use Per Day			
	Less than 1 hour	26	2.6
	1-2 hours	86	8.7
	2-4 hours	241	24.2
	More than 4 hours	641	64.5

5.3.3 The use of Internet and E-government Services

As Table 5.14 shows, social networks overlook the use of internet in general with a percentage of 85.8% which means that 843 out of the 983 who answered this question use the internet mainly for social networking.

Social network is followed by information search 72% and then email 58.6%. The services with the minimum use were entertainment, work, and online shopping with 46.2%, 46.1%, and 29.7% respectively. The users of e-government are 72.3% (valid percent) of respondents who answered this question as shown in table 5.14. 58.5% of the users of E-government services who participated in this study use e-government mainly to check vehicle violations such as over speeding. 47.2% of the users search for job vacancies on the Civil Service Council websites and 45.6% they use e-government to inquire about regulations and laws. Additionally, the least percentages are for the use landline e-payment 15.9% and declaring and paying taxes 12.2%.

Table 5.15 General Purpose of Internet and E-government Use

Variable		Frequency	Percent of Cases
General Purpose of Internet Use (N=983)			
	Email	576	58.6%
	Information Search	708	72.0%
	Shopping Online	292	29.7%
	Entertainment	454	46.2%
	Social Networks	843	85.8%
	Education	544	55.3%
	Work	453	46.1%
Purpose of Use of E-government (N=655)			
	Inquiring About Regulations and Laws	299	45.6%
	Landline E-payment	104	15.9%

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	Checking Car Speed fines	383	58.5%
	Declaring and Paying Taxes	80	12.2%
	Searching Job Vacancies through Civil Service Council	304	47.2%
	Applying For Jobs in Public Administration	127	19.4%
Have you ever used any of E-government Services (N=906)			
	Yes	655	72.3%
	No	251	27.7%

5.3.4 Behavioural Intention toward the Use of E-government

The responses for the behavioural intention toward the use of e-government construct are revealed in Table 5.15 below. In all the three scales, the majority of the respondents chose that they will continue using e-government online services. For instance, 73.3% of the respondents either agree or strongly agree that they intent to use e-government in the future as shown in table 5.15. Table 5.16 summarizes the median and the mean for the behavioural intention to use government online services in the next four weeks, the next three months and the future. The median for all of the variables is 4.00 and the mean for use in the future is 3.79; the mean for use in the next three months is 3.42; and the mean for use in the next four weeks is 3.47. Therefore, the behavioural intention of respondents to use the government online services through the different time points is approximately similar.

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Variables			Frequency	Valid Percent %
In the Next Four Weeks (N=496)				
	Strongly Disagree		10	2.0
	Disagree		54	10.4
	Neutral		155	31.3
	Agree		246	49.6
	Strongly Agree		31	6.3
Coming Three Months (N=501)				
	Strongly Disagree		10	2.0
	Disagree		59	11.8
	Neutral		170	33.9
	Agree		236	47.1
	Strongly Agree		26	5.2
In The Future (N=502)				
	Strongly Disagree		10	2.0
	Disagree		25	5.0
	Neutral		99	19.7
	Agree		296	59.0
	Strongly Agree		72	14.3

Table 5.17 Statistics Table for Behavioural Intention Variables

Statistics

		In the next 4 months	Coming three months	In the future
N	Valid	496	501	502
	Missing	574	569	568
Mean		3.47	3.42	3.79
Median		4.00	4.00	4.00

5.4 Common Variance Method

Common method variance (CMV) is a method that refers to the extent of spurious covariance pooled amongst variables because of the common method deployed in collecting data (Malhotra et al. 2006). The method biases linked to CMV are considered problematic as the specific research under investigation becomes very difficult to distinguish from measurement items (Avolio et al. 1991). The common method bias means that "*the covariance among measured items is driven by the fact that some or all the responses are collected with the same type of scale*" (Hair et al., 2006:833). Data are prospect to be subject to CMV in classic survey research tool for data collection since the participants responds to the questions in a particular survey at the same period of time. As a result, CMV is one of the most regularly cited concerns among researchers in general and particularly among information system researchers (Malhotra et al. 2006).

In this research Harman's (1967) single factor test is conducted through SPSS 22 in order to test the presence of CMV bias among the measures in this survey. The process entails that an un-rotated factor analysis to be

applied on all items asked in the survey using Principal Component Analysis (PCA). The test reveals existence of CMV among variables if most of the covariance of covariation or 50% of variance is explained by one general factor. Harman's single factor test showed that there is no significant existence of CMV among variables in the current study. As it is indicated in Table 5.17, the percentage of variance for one component is 22.676% which is less than 50%. Therefore, the results of Harman's single factor test showed that the variables have no substantial presence of CMV. Accordingly, there is no worry about CMV bias in this study (Refer to Appendix B).

Table 5.18 Common Method Variance

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.338	22.676	22.676	11.338	22.676	22.676

The two key data analysis phases conducted in the current research will be revealed next. The first phase includes the data preparation and assumptions of normality; whereas the second phase demonstrates the use of SEM as a tool for data analysis.

5.5 Data Preparation and Assumptions of Normality

The first step in any analysis practice is examining the data (Hair et al. 2010). Therefore, the data collected was inspected by the researcher for consistency and completeness afore performing the analysis. Furthermore, every single statistical test serves the researcher in

providing answers to the research questions and attaining the objectives of the current study. The importance and objective of each test have been explained. Also, descriptive statistics have been conducted to determine whether the data is normally distributed.

5.5.1 Screening and Coding the Data

After collecting the data and presenting it in SPSS data view, the dataset was checked for errors before the analyses. Three key stages are involved in the data screening procedure: screening for errors; pinpointing errors in the worksheet; and finally correcting the errors in the worksheet (Pallant 2013). Consequently, abiding by the stages suggested by (Pallant 2013), the dataset was screened for errors and rectified. Additionally, the responses of the participants were coded into numerical values as it is demonstrated in the data view of the SPSS file (Appendix C). For instance, the responses of the gender question "Female and Male" were coded into numbers "1 for male and 2 for female". Coding data is the practice of allocating a particular number to a particular response in a construct (Hair Jr et al. 2015). Moreover, to make sure that the participants answered the questionnaire genuinely and faithfully, four questions were negatively worded in the questionnaire. 3 items were in the perceived ease of use construct and one item in the trust construct. The researcher re-coded the following negatively worded items "Q31-4, Q26-1, Q26-2, Q26-3" using SPSS 22.0 software. After re-coding the items and aligning them with other items in the construct, the Cronbach's Alpha of the scale will increase and the item total correlation has to be a positive value.

5.5.2 Missing Values

In order to perform analysis on the data and the conceptual framework using Structural Equation Modelling (SEM), data has to be complete and cleared out of missing values so the researcher is able to run multivariate methods (Hair Jr et al. 2015; Kline 2015). The main cause of missing data is the issues that occur throughout data entry and data collection (Hair et al. 2010). In the current research, there is a significant number of missing data because the participants have not answered all the items. The researcher kept the freedom to the participant to skip and answer the questions he/she wants with no obligations due to ethical concerns. The online application Qualtrics that was used for data collection allowed respondents to go over the survey and answer the questions they want with no restrictions. Therefore, a considerable number of the respondents skipped a number of questions required for the analysis. However, all respondents who did not provide a valid answer for the dependent variable about the behavioural intention of using e-government services were excluded from the data used to run SEM.

During data collection, information on some of the variables in the dataset are shown as missing values due to actions applied by the respondents answering the survey (Howitt and Cramer 2008). In order to solve the problem of missing values, it is desirable to simply abolish the respondents in case it will not affect the reliability and validity of the data. The most common method used in processing missing values in a dataset is referred to as case deletion; known as complete-case analysis and listwise deletion (LD) (Schafer and Graham 2002). Through the use of LD, a complete case is omitted from the analyses if any particular value is missing. Therefore, the researcher implemented LD method in order to handle the missing data in the dataset. Additionally, when using SPSS 22.0 for advanced modelling procedures such as correlations, regression, factor, and ANOVA, the software will automatically perform listwise deletion of records with missing data. LD is an "*ad hoc method of dealing*

with missing data in that it deals with the missing data before any substantive analyses are done. It is considered the easiest and simplest method of dealing with missing data" (Carter 2006: p.4). This method excludes all the records that contain variables with missing data from the dataset. The technique is forthright and involves the elimination of incomplete cases. Since the current study obtained a considerable sample size for data analysis, excluding incomplete cases and eliminating missing records on any variables have no impact on the result (Hair et al. 2010).

Moreover, to make sure that participants responded to the survey in a proper manner, a manipulation check procedure was adopted for the soft and hard copies of the questionnaire. For instance, respondents were asked if they have ever used any of the e-government services before (question number 20) and those who answered "No" and completed other questions related to the use of e-government services were excluded from the dataset. 11 respondents (excluded from the study) answered "No" to question number 20 about the use of any of the e-government services and they continued to select one of the e-government services that they used from before (question number 25). Also, respondents who did not provide a valid answer or simply did not answer the dependent question (Behavioural Intention BI1/Q31-1, BI2/Q31-2, and BI3/Q31-3) were also excluded from the study through using the "select cases" option in SPSS 22.0. For example, all the cases that have a missing data in all the BI items were excluded from the dataset. All the system missing data in the behavioural intention construct were recoded into a numerical value equal to "999" and eliminated from the dataset used for regression analysis as shown in table 5.18.

Table5.19 Elimination and Recoding

	29_7	Q29_8	Q30_1.0	Q30_2.0	Q30_3.0	Q30_4.0	Q31_1.0	Q31_2.0	Q31_3.0	Q32	agecat	filter_$
550	.	.	.	.	.	.	999	999	999	.	1.00	0
551	.	.	.	.	.	.	999	999	999	1	1.00	0
552	.	.	.	.	.	.	999	999	999	.	1.00	0
553	.	.	.	.	.	.	999	999	999	.	1.00	0
554	.	.	.	.	.	.	999	999	999	.	1.00	0
555	.	.	.	.	.	.	999	999	999	.	1.00	0
556	.	.	.	.	.	.	999	999	999	.	1.00	0
557	.	.	.	.	.	.	999	999	999	.	1.00	0
558	.	.	.	.	.	.	999	999	999	.	1.00	0
559	.	.	.	.	.	.	999	999	999	.	1.00	0
560	.	.	.	.	.	.	999	999	999	.	1.00	0
561	.	.	.	.	.	.	999	999	999	.	1.00	0
562	.	.	.	.	.	.	999	999	999	.	1.00	0
563	.	.	.	.	.	.	999	999	999	.	1.00	0
564	.	.	.	.	.	.	999	999	999	.	1.00	0
565	.	.	.	.	.	.	999	999	999	.	1.00	0
566	.	.	.	.	.	.	999	999	999	.	1.00	0
567	.	.	.	.	.	.	999	999	999	.	1.00	0
568	.	.	.	.	.	.	999	999	999	.	1.00	0
569	5	3	4	4	2	2	1	1	1	1	1.00	1
570	5	3	4	4	2	2	1	1	1	1	1.00	1
571	5	3	4	4	2	2	1	1	1	1	1.00	1
572	5	3	4	4	2	2	1	1	1	1	1.00	1

5.5.3 Screening for Outliers

Outliers are cases representing observation points that are substantially distant (higher or lower) from the rest of the observation points in a specific dataset (Byrne 2008; Kline 2015). An outlier case signifies values that are different from other cases in the same sample. According to Grubbs (1969: p.1) "*An outlying observation may be merely an extreme manifestation of the random variability inherent in the data. ... On the other hand, an outlying observation may be the result of gross deviation from prescribed experimental procedure or an error in calculating or recording the numerical value*". Dataset with cases flagged as outliers are expected and normal in considerably sizable data sample as the one used for the current research (N=647). However, outliers can have negative impact on the quality of data analyses. Osborne and Overbay (2004) stated three deleterious effects of outliers on statistical analyses: First, they can extremely influence or bias evaluations that may be of fundamental interest. Second, they normally act to decrease the power of

statistical tests and maximize error variance. Third, if non-randomly distributed they can reduce normality (and in multivariate analyses, violate assumptions of sphericity and multivariate normality), altering the odds of making both Type I and Type II errors. In order to detect the outlier and abstract them from other cases, the researcher computed the Mahalanobis Distance D_2 through SPSS 22.0. The Mahalanobis distance D2 measure the distance between the mean of a distribution of cases and a case in the distribution; it measures the number of standard deviations from a point P to the mean of a distribution D (Field 2009).

$$\underline{x} = \left(x_1, x_2, x_3, \ldots, x_N\right)^T \text{Or Point P (The Mahalanobis distance of an}$$
observation)

$$\underline{\mu} = \left(\mu_1, \mu_2, \mu_3, \ldots, \mu_N\right)^T \text{(The mean of a set of observations)}$$

$$D^2 = (N-1)\left(h - \frac{1}{N}\right).$$

Multivariate outliers are conditioned as Mahalanobis distance at $p \leq 0.001$ (Zaouali et al. 2005). A case is said to be a multivariate outlier if the probability allied with its D2 is equal to or less than 0.001. D2 trails a chi-square distribution with degrees of freedom equal to the number of variables included in the calculation (De Maesschalck et al. 2000). After running the Mahalanobis distance test in SPSS 22.0 the result indicates the presence of univariate outliers among the data. As a result, 13 cases were abandoned from the dataset through applying multiple regressions.

5.5.4 Assessing Univariate Normality

In order to find out whether the data is normally distributed, the researcher performed descriptive statistics. Since normal data is a fundamental notion in parametric testing, valuation of the normality of

data is essential for many statistical tests. Normality discusses the shape of the data distribution for a single metric variable and its equivalence with normal distribution (AlKhatib 2013). However, a normality test is not compulsory in SEM because the sample size is considerably big, as in the current study, and the outcomes of statistical tests would be declared unacceptable (Hair et al. 2010).

Kurtosis and Skewness measures are executed in the present study to provide a characterization of the data and describe the shape of its distribution. Skewness is a measure of symmetry, or more specifically, the lack of symmetry. A distribution is symmetric if the right side from the center point looks exactly the same as the left side of the centre point (Mardia 1970). Moreover, Kurtosis is a measure of whether the data are heavy-tailed or light-tailed relative to a normal distribution. Namely, Datasets with small kurtosis incline to lack outliers and have light tails, while datasets with bug kurtosis incline to have outliers and heavy tails (Mardia 1970).

- For univariate data Y_1, Y_2, ..., Y_N, the formula for skewness is: $g1 = \frac{\sum N_{i=1}(Y_i - \bar{Y})3/N}{s3}$

"$\bar{Y}$ is the mean, **s** is the standard deviation, and N is the number of data points. Note that in computing the skewness, the s is computed with N in the denominator rather than N − 1" (NIST 2003).

- For univariate data Y_1, Y_2, ..., Y_N, the formula for kurtosis is: $kurtosis = \frac{\sum N_{i=1}(Y_i - \bar{Y})4/N}{s4}$

"$\bar{Y}$ is the mean, **s** is the standard deviation, and N is the number of data points. Note that in computing the kurtosis, the standard deviation is computed using N in the denominator rather than N − 1" (NIST 2003).

Skewness and Kurtosis may happen either together or independently in a particular variable (Kline 2015). Therefore, the distribution of the variables in the current study was evaluated for normality through the calculation of skewness and kurtosis values. Also, the histogram is a real graphical practice to show the skewness and kurtosis of each of the items and visually assess their normality. Table 5.19 reveals the skewness, kurtosis, mean, and standard deviation for each of the items and their latent variables used in the study.
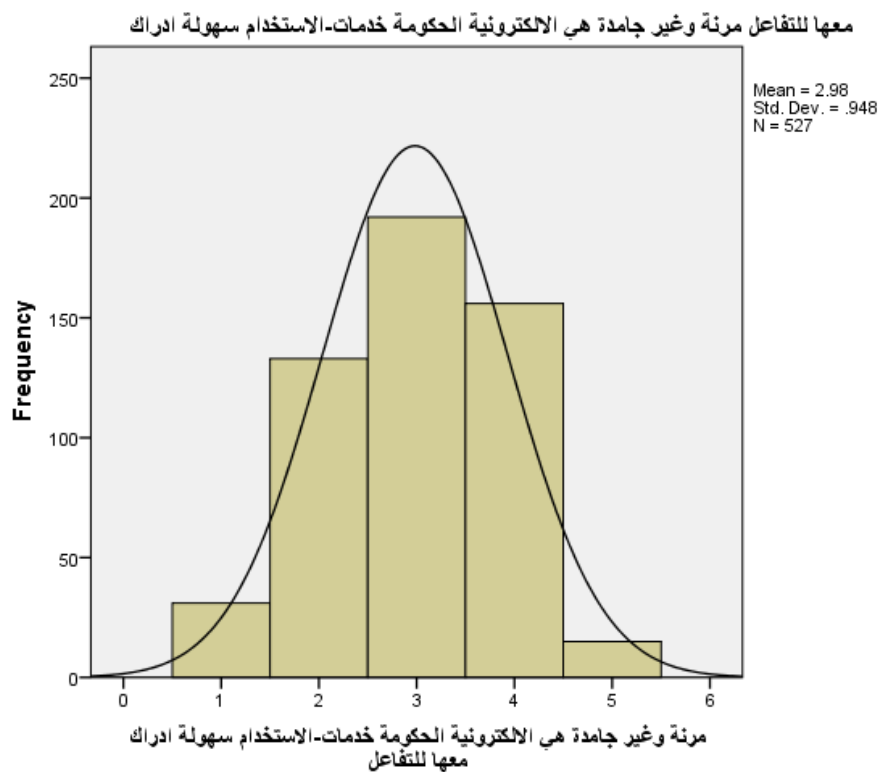
Figure 5.18 "Government online services are rigid and inflexible to interact with" Variable Curve. (Q26-3; PEU3)

Table 5.20 Descriptive Statistics for Variables

Variable Name	Skewness	Kurtosis	Mean	Std. Deviation
Culture (Future Orientation)	-0.481	-0.788	3.26	1.162
CFO 1	-0.418	-1.067	3.26	1.283
CFO 2	-0.469	-0.988	3.25	1.249
CFO3	-0.423	-0.864	3.26	1.251
Social Influence	0.045	0.169	2.66	0.624
SSN1	-0.307	-0.255	2.79	0.869
SSN2	0.289	-0.886	2.47	0.951
SSF1	0.407	-0.788	2.52	1.017
SSF2	0.095	-0.569	2.60	0.969
SI1	0.410	-0.651	2.52	1.035
Facilitating Conditions	-0.844	1.685	3.44	0.736
FBC1	-0.598	-0.310	3.50	1.061
FBC2	-1.00	0.945	3.72	0.972
FFC1	-0.662	-0.098	3.39	0.940
FFC3	-0.305	-0.490	3.10	1.068
FC1	-0.442	-0.147	3.41	0.965

FC2	-0.705	0.558	3.63	0.903
Trust	-0.139	-0.627	2.7162	0.801
TOG2	-0.324	-1.073	2.90	1.134
TOG3	0.426	-0.889	2.33	1.069
TOG4	0.586	-0.544	2.35	1.161
TOI1	-0.188	-0.931	2.90	1.044
TOI2	0.056	-0.961	2.78	1.073
TOI3	-0.233	-0.933	3.04	1.116
Perceived Ease of Use	0.081	0.058	2.68	0.662
PEU2	0.165	-0.858	2.78	0.952
PEU3	0.138	-0.641	2.67	0.909
PEU4	-0.181	-0.593	2.98	0.998
PEU5	0.172	-0.762	2.89	0.992
PEU6	0.343	-0.562	2.61	1.009
PEU7	0.616	-0.375	2.17	0.865
Perceived Usefulness	-0.052	-0.179	3.93	0.631
PU1	-0.984	0.807	4.28	0.778
PU2	-0.175	-0.764	3.63	1.015
PU3	-1.006	1.077	3.96	0.886
PU4	-0.497	0.182	4.14	0.714

PU5	-0.449	0.128	4.11	0.714
PU6	-0.797	0.886	3.91	0.841
PU7	-0.488	-0.233	3.88	0.858
PU8	-0.460	-0.336	3.56	1.036
Attitude Toward Using Technology	-0.539	0.445	3.77	0.74
ATT1	-0.902	1.220	3.88	0.92
ATT2	-0.608	0.413	3.94	0.76
ATT3	-0.440	-0.232	3.45	0.97
ATT4	-0.918	0.733	3.77	0.91
Behavioural Intention	-0.743	1.386	3.567	0.756
BI1	-0.647	0.278	3.47	0.845
BI2	-0.584	0.150	3.42	0.839
BI3	-0.997	1.648	3.79	0.822

Table 5.21 Perceived Ease of Use Descriptive Statistics generated by SPSS 22.0

Statistics

		PEU	PEU2	PEU3	PEU4	PEU5	PEU6	PEU7
N	Valid	538	537	532	527	532	533	527
	Missing	532	533	538	543	538	537	543
Mean		2.6865	2.78	2.67	2.98	2.89	2.61	2.17
Std. Deviation		.66240	.952	.904	.948	.942	1.009	.865
Skewness		.081	.165	.138	-.181	.172	.343	.616
Std. Error of Skewness		.105	.105	.106	.106	.106	.106	.106
Kurtosis		.058	-.858	-.641	-.593	-.762	-.562	.375
Std. Error of Kurtosis		.210	.210	.211	.212	.211	.211	.212

The histogram in Figure 5.17 shows the normal curve for one of the variables (PEU3) under the construct perceived ease of use. This figure is an operative graphical demonstration to show the skewness and kurtosis of a particular variable in a data set. Figure 5.17 is an example of one histogram from the many histograms that were conducted for this study. Additionally, Table 5.20 give an example of one of the descriptive statistics' tables about perceived ease of use variables generated by SPSS 22.0 and shows the skenwess, kurtosis, Std. deviation, and mean of the variables numerically. All these numerical values were then copied and pasted in table 5.15 showing descriptive statistics for all the variables used in the current study. According to George and Mallery (2010), the values of skewness and kurtosis between -2 and +2 are deemed satisfactory so as to verify normal univariate distribution. All the values of the skewness and kurtosis of the variables demonstrated in table 5.19 are within the acceptable range [-2 and +2].

5.5.5 Assessing Multivariate Homoscedasticity, Linearity, and Normality

The ultimate stage in examining the data is running analyses for the norms inspiring the statistical roots for multivariate analysis; for instance, homoscedasticity, linearity and Normality (Hair et al. 2010). Multivariate statistical approaches regularly involve the postulation of multivariate normality because of the convolution of the relations that process a big number of variables (Hair *et al.*, 2010). Before undertaking any analyses of the variables in the data set, it is vital to make sure that multivariate normality has been encountered. Multivariate normality indicates that all variables used in a particular study are scattered normally in relation to each other's. Multivariate normality of data is one of the most fundamental requirements for the application of SEM analyses; especially if SmartPLS 3 is deployed in the general conduct (Byrne 2013). In the current study, the research used SPSS 22 regression program in order to

consider multivariate normality. The assumption of multivariate normality is fulfilled when the standardized residuals are scattered normally and the dots are bundled near the line in a normal probability plot (Norusis 2008).

As presented in the normal probability plot Figure 5.18, the standardized residuals are clustered towards the line in the graph. Additionally, the standardized residuals are distributed normally, as shown in Figure 5.19. Therefore, the rule of multivariate normality is confirmed. The rules of homoscedasticity and linearity are evaluated by implementing a regression method. In both figures 5.18 and 5.19, behavioural intention was considered the dependent variable and culture, social influence, facilitating conditions, trust, perceived ease of use, perceived usefulness, information quality, attitude, and perceived risk were considered independent variable. The analyses was conducted after selecting regression and then linear via SPSS. Because the plot produces a random scatter (rather than a funnel-like shape or u-shaped), the norms of homoscedasticity and linearity are fulfilled (Norusis 2008).

Figure 5.19 Normal P-P Plot of Regression Standardized Residual
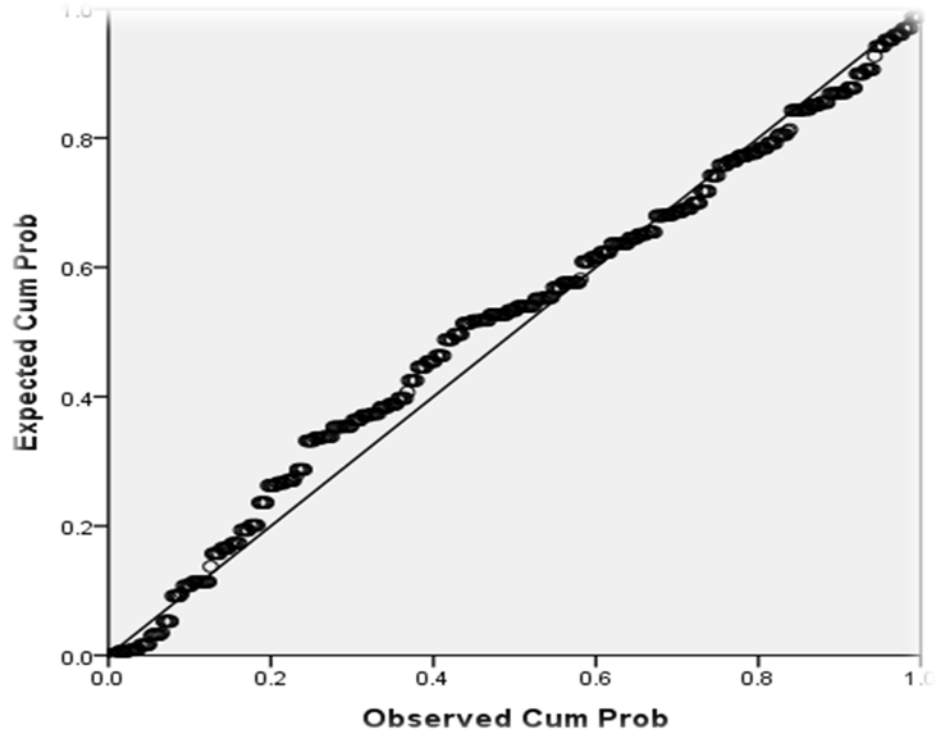
Figure 5.20 Histogram of the Standardized Residuals

Mean = 3.23E-15
Std. Dev. = 0.990
N = 450

Regression Standardized Residual
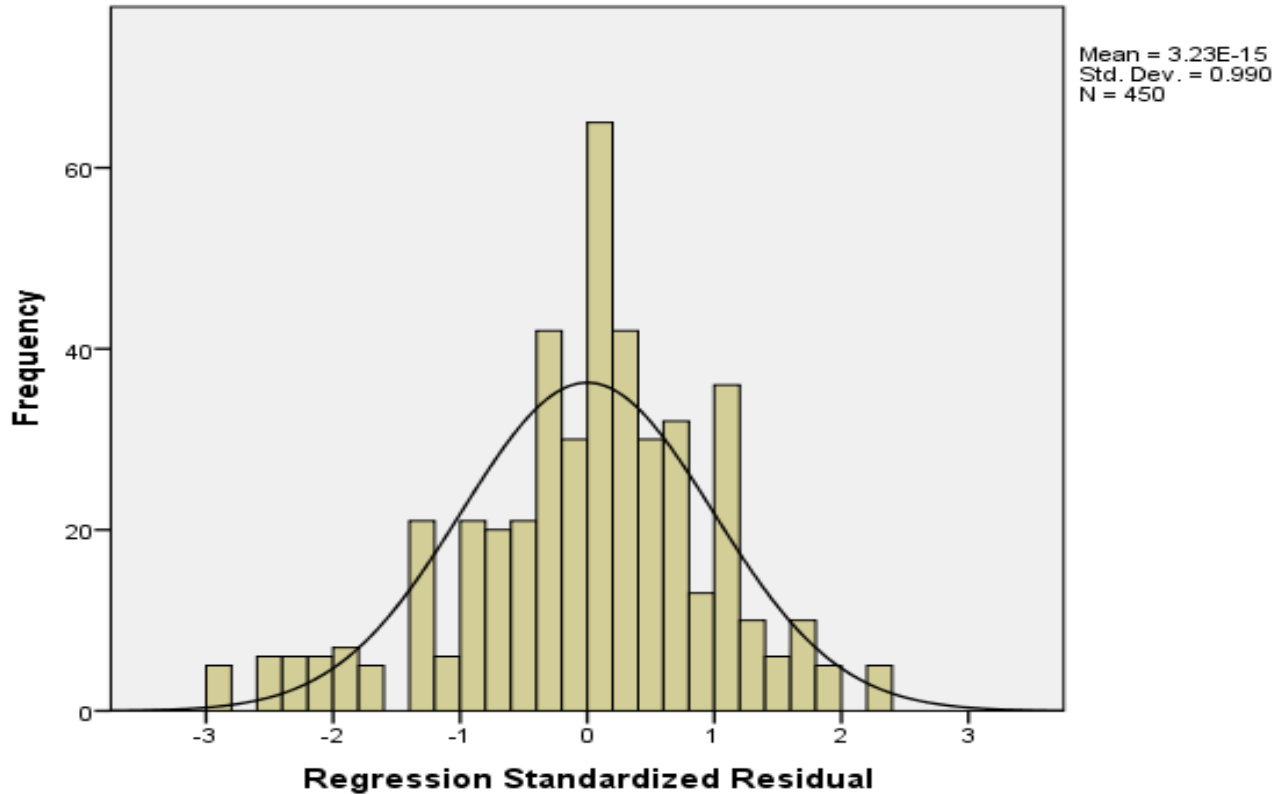
5.6 Structural Equation Modelling

The current study adopted a two-step approach in order to apply SEM analysis shadowing the commendation of Anderson and Gerbing (1988). The first step encompasses the measurement model of the current research; whereas the structural model associated with the dependent and independent variables is incorporated in the next step. In the first step of this chapter, the researcher provided a basis for assessing the validity of the factor structure through performing a confirmatory factor analysis (CFA) relying on the interdependencies between latent variables and observed indicators. One of the main qualities of SEM is the illustration of latent variables established on their relativity to detected indicator (Garson 2012). In the second step of the chapter, the hypotheses listed in the model are tested in relation to the dependent and independent variables in the study.

5.6.1 Confirmatory Factor Analysis

"*Confirmatory factor analysis (CFA) is a statistical technique used to verify the factor structure of a set of observed variables. CFA allows the researcher to test the hypothesis that a relationship between observed variables and their underlying latent constructs exists. The researcher uses knowledge of the theory, empirical research, or both, postulates the relationship pattern a priori and then tests the hypothesis statistically*" (Suhr 2006: p.231). The latest approach in piloting CFA in social science is the deployment of SEM (Worthington and Whittaker 2006). The majority of statistical approaches only use single statistical test to conclude the connotation of the analysis. On the other hand, Structural Equation Modelling (SEM), CFA in particular, depends on a number of statistical tests in order to conclude how well the model fit to the data (Suhr 2006). Listed below are a number of statistical tests determined by CFA:

- **Chi-squared test**

"*The chi-squared test indicates the difference between observed and expected covariance matrices. Values closer to zero indicate a better fit; smaller difference between expected and observed covariance matrices*" (Suhr 2008: p.2).

- **Root mean square error of approximation**

Root mean square error of approximation (RMSEA) tells us how well the model, with unknown but optimally chosen parameter estimates would fit the population's covariance matrix….RMSEA of between 0.08 to 0.10 provides a mediocre fit and below 0.08 shows a good fit .However, more recently, a cut-off value close to .06 or a stringent upper limit of 0.07

seems to be the general consensus amongst authorities in this area (Hooper et al. 2008: p.54; Kenny et al. 2015).

- **Goodness of fit index and adjusted goodness of fit index**

The goodness of fit index (GFI) is a measure of fit between the hypothesized model and the observed covariance matrix. The adjusted goodness of fit index (AGFI) corrects the GFI, which is affected by the number of indicators of each latent variable (Baumgartner and Homburg 1996).

- **Comparative fit index**

The comparative fit index (CFI) analyzes the model fit by examining the discrepancy between the data and the hypothesized model, while adjusting for the issues of sample size inherent in the chi-squared test of model fit (Gatignon 2010), and the normed fit index (Bentler 1990). CFI values range from 0 to 1, with larger values indicating better fit; a CFI value of .90 or larger is generally considered indicating acceptable model fit (Hu and Bentler 1999).

The aim of the current SEM is not to show if the consigned items measure one factor or a number of factors as the items are constrained to load on a single factor in CFA (Worthington and Whittaker 2006). However, CFA intends to test the hypothesis that shows the existence of a relationship between latent constructs and observed variables and confirm to which extent the theoretical model, derived from unified theory of acceptance and use of technology and other theories, of the research is valid in the new sample data (Suhr 2006). As a result, CFA is performed in this study to approve academically-driven factors without the necessity of using of EFA.

5.6.2 Measurement Model Tests

In order to evaluate the proposed theoretical model, two fundamental bundles of statistical approaches are utilized. The first one is goodness of fit (GOF) criteria indices; the next one is the validity and reliability of the theoretical model (AlKhatib 2013).

5.6.2.1 Goodness-of-Fit Criteria Indices

The goodness of fit index (GFI) is a measure of fit between the estimated population covariance matrix or the hypothesized model and the observed covariance matrix; corrected GFI results the AGFI (adjusted goodness of fit index), which is influenced by the number of items related to each latent variable (Baumgartner and Homburg 1996; Levine, 2016).

GOF indices reveal the discrepancies between the expected values in the proposed theoretical model and the observed values. Consequently, the primary mission of model fit practice is to indicate the GOF between the sample data collected and the theoretical model specified for the current research (Byrne 2013). CFA is applied on the proposed theoretical model before performing the path analysis. CFA is conducted on the 10 latent variables and their items that form the components of the theoretical model. The theoretical model proposed for the study utilized 54 items extracted from information system literature and other social sciences research as represented in Table 4.4. Table 5.21 exhibits the latent variables and the items used in CFA.

Table 5.22 Latent Variables and the items used

Latent Variable	Number of Items	Codes of items
Culture	2 (future	CPD1,CPD2,CUA1,CUA2,CFO1,CFO2,CAI1,CA12

	orientation) 6 (to the rest of the elements)	
Social Influence	5	SSN2,SSF1,SSF2,SI1,SI2
Facilitating Conditions	6	FBC1,FBC2,FFC1,FFC3,FC1,FC2
Trust	7	TOG1,TOG2,TOG3,TOG4,TOI1,TOI2,TOI3
Perceived Ease of Use	6	PEU1,PEU2,PEU3,PEU4,PEU6,PEU7
Perceived Usefulness	8	PU1,PU2,PU3,PU4,PU5,PU6,PU7,PU8
Information Quality	4	IQ1,IQ2,IQ3,IQ4
Perceived Risk	9	PR1,PR2,FR1,FR2,SR1,SR2,SR3,DR1,DR2
Attitude	4	ATT1,ATT2,ATT3,ATT4
Behavior Intention	3	BI1,BI2,BI3

5.6.2.2 The Theoretical Model

The proposed theoretical model in this study is evaluated through utilizing the maximum likelihood estimation (MLE) analysis properties offered by SMARTPLS 3. Each of the GOF indices, determined by running SEM, provides a distinctive evaluation and description of the model fit of the proposed model. The model fit results and indices related to the theoretical model of the current study are displayed in Table 5.22 whereas the whole model is demonstrated in figure 5.20. After selecting

the minimization history, standardized estimates, squared multiple correlation, residual moments, and modification indices from the output of SMARTPLS 3, the proposed model is not considered of a good fit to the data. GFI (0.876) and AGFI (0.887) are not acceptable according to the benchmarks but close to it. RMSEA (0.058), TLI (0.86), and normed chi-square are not within the acceptable range (Kline 2015).

Table 5.23 Chi-square and GOF Indices

Chi-Square (χ2)= 1867.872, P=0.000							
	Df	χ2/df	GFI	RMSEA	TLI	CFI	AGFI
Benchmark		<5.00	≥0.90	<0.05	≥0.90	≥0.95	≥ .90
Obtained	549	3.40	0.876	0.058	0.86	0.87	0.88

Note: χ2 = Chi-square; df = degree of freedom; Normed chi-square or ratio of likelihood (χ2) to degrees of freedom=χ2/df; GFI = Goodness of fit index; RMSEA = Root mean square error of approximation; SRMR= The Standardised Root Means Square Residual; TLI= Tucker–Lewis Index; CFI = Comparative fit index; AGFI – Adjusted goodness of fit index.

Figure 5.21 Standardised Coefficients for the Proposed Conceptual Model

5.6.2.3 The Revised Model

The measurement model was revised for construct validity and reliability following the approach suggested by Anderson and Gerbing (1988). The evaluation criteria of the reliability is composite reliability >0.7 (Nunnally and Bernstein 1994). Additionally, the construct validity was assessed based on convergent validity and discriminant validity. The criteria of convergent validity is factor loading > 0.7 and significant (Hair Jr et al. 2013) and the Average Variance Extracted (AVE) > 0.5 (Fornell and Larcker 1981). However, the criteria of discriminant validity is square root of the AVE > inter-correlations of the construct with any other construct (Fornell and Larcker 1981; Wong 2013). Similar criteria have been used in several information system studies and research over the last years (Prasad and Green 2015; Chiu et al. 2016; Mirza and Reshadatjoo 2016). Items that did not match the criteria mentioned prior were aborted from the conceptual model in order to achieve better validity, reliability and model fit (Hair et al. 2010) (AlKhatib 2013). A list of the items deleted and their factor loading are represented in table 5.23.

Table 5.24 Factor loading for all the items in the theoretical model

	AT	BI	C	FC	IQ	PEU	PR	PU	SI	T
ATT1	0.87									
ATT2	0.916									
ATT3	0.788									
ATT4	0.817									
BI1		0.889								
BI2		0.927								
BI3		0.87								
CFO1			0.917							
CFO2			0.903							
DR1							0.601			

DR2						0.597		
FBC1				0.651				
FBC2				0.788				
FC1				0.553				
FC2				0.82				
FFC1				0.756				
FFC3				0.781				
FR1						0.59		
FR2						0.602		
IQ1					0.809			
IQ2					0.883			
IQ3					0.875			
IQ4					0.769			
PEU1						0.611		
PEU2						0.65		
PEU3						0.654		
PEU4						0.747		
PEU6						0.786		
PEU7						0.758		
PR1						0.569		
PR2						0.632		
PU1							0.71	
PU2							0.681	
PU3							0.862	
PU4							0.851	
PU5							0.867	
PU6							0.862	
PU7							0.825	

PU8								0.668		
SI1									-0.028	
SI2									-0.545	
SR1							0.784			
SR2							0.771			
SR3							0.741			
SSF1									0.612	
SSF2									0.533	
SSN2									0.585	
TOG1										0.628
TOG2										0.808
TOG3										0.559
TOG4										0.448
TOI1										0.811
TOI2										0.792
TOI3										0.784

*__Note:__ *AT=Attitude; BI=Behavioral Intention; C= Culture; FC= Facilitating Conditions; IQ= Information Quality; PEU: Perceived Ease of USE; PR: Perceived Risk; PU: Perceived Usefulness; SI= Social Influence; T= Trust.*

Table 5.24 summarizes the revised model's fit indices which show a good fit. RMSEA is lower than 0.05 and CFI, TLI, and AGFI are within the adequate benchmarks. Also, the value of the normed chi-square is acceptable. Moreover, all the outer loading of the items to their particular constructs are above 0.7 with t-value greater than 1.96 as specified by (Wong 2013). Additionally, the outer model residual scores are in the range of (± 2.5) as stated by Hair et al (2010). As a result, all loadings were statistically significant and in the expected direction. The factor loadings and their error terms are displayed in Table 5.23, whereas the revised model is represented in Figure 5.21.

Table 5.25 Chi-square Results and GOF Indices for the Revised Model

Chi-Square (χ2)= 1287.68, P=0.000							
	Df	χ2/df	GFI	RMSEA	TLI	CFI	AGFI
Benchmark		< 3.00	≥0.90	<0.05	≥0.90	≥0.95	≥ .90
Obtained	439.4	2.98	0.92	0.048	0.91	0.96	0.92

*Note: χ2 = Chi-square; df = degree of freedom; Normed chi-square or ratio of likelihood (χ2) to degrees of freedom=χ2/df; GFI = Goodness of fit index; RMSEA = Root mean square error of approximation; SRMR= The Standardised Root Means Square Residual; TLI= Tucker–Lewis Index; CFI = Comparative fit index; AGFI – Adjusted goodness of fit index.
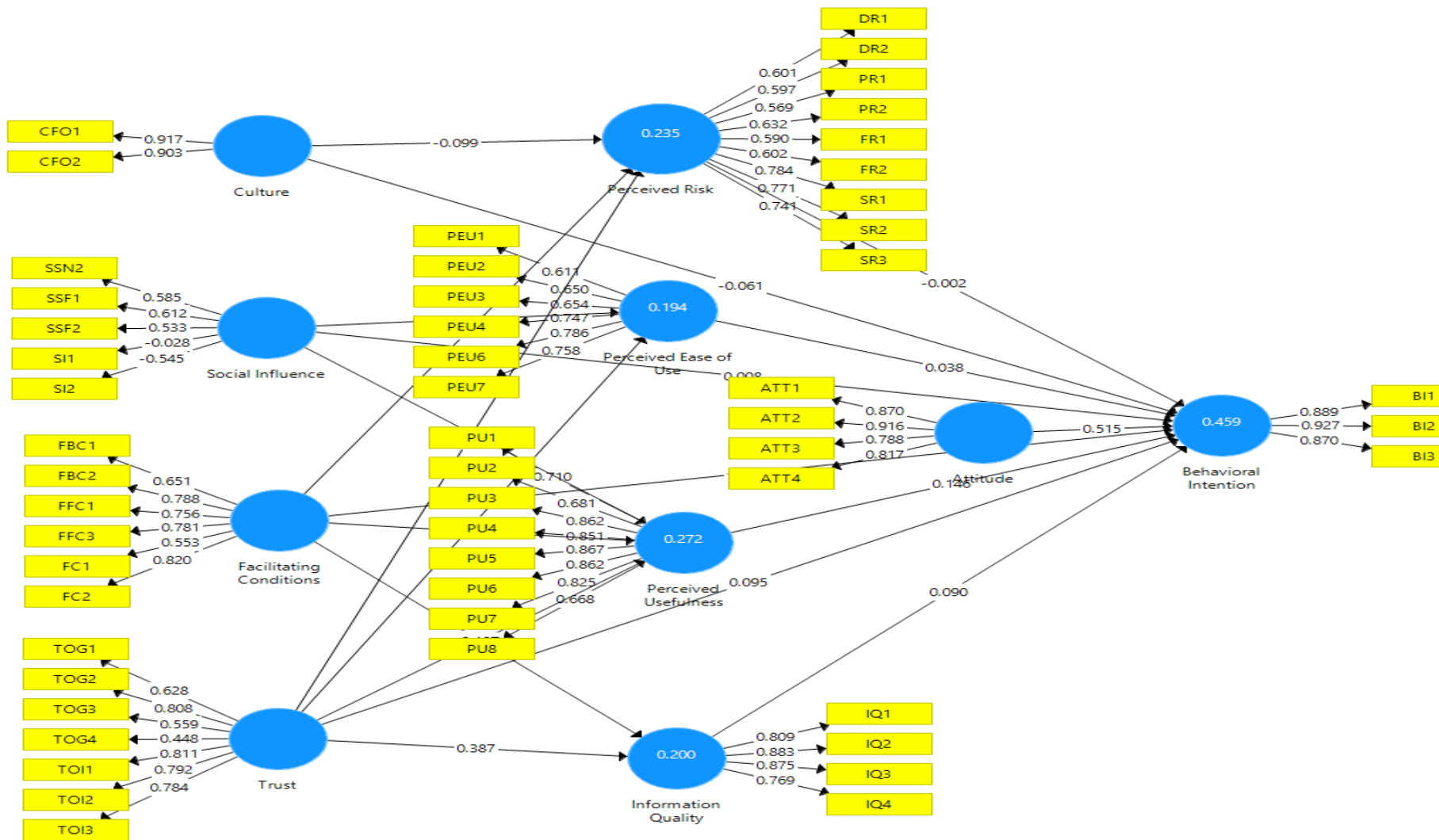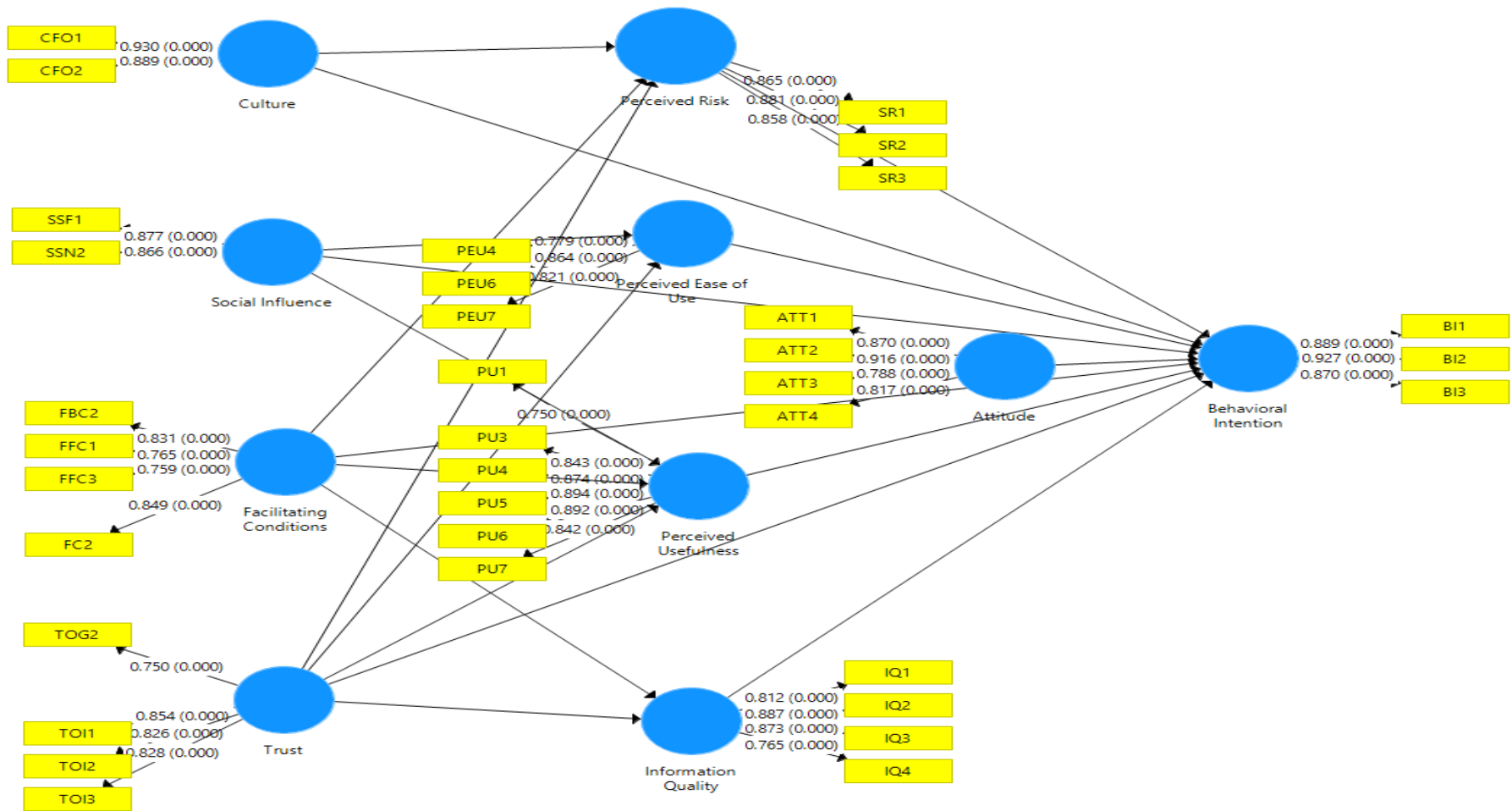
Figure5.22: Revised Model

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5.6.3 Validity and Reliability of the Measurement Model

The absence of validated methods in confirmatory studies surge the improbability that no particular outcome in the research can be trustworthy (Straub 1989; Lee and Levy 2014). Therefore, the theoretical model must show a decent quality for reliability, convergent validity, and discriminant validity before running the structural model tests and conducting the assessments for the current study. *The purpose of validation is to give researchers, their peers, and society as a whole a high degree of confidence that positivist methods being selected are useful in the quest for scientific truth* (Straub et al. 2004: P383).

5.6.3.1 Reliability of Constructs

In order to the measure reliability of the constructs, the researcher used Cronbach's alpha, the composite reliability and the average variance extracted as suggested by (Alroomi et al. 2015). The constructs of the theoretical model are considered reliable if Cronbach's alpha and the composite reliability are above 0.70 and the average variance extracted (AVE) is 0.5 or higher (Bagozzi et al. 1991; Nunnally and Bernstein 1994; Hair et al. 2010). All the obtained values of the construct are within the acceptable suggested benchmarks except the Cronbach's Alpha for social influence (0.685) which is slightly below 0.70. However, the composite reliability of all the constructs exceeds the significant values of 0.70, signifying high internal consistency, solid reliability, and robust construct validity (Hair *et al.*, 2010). Furthermore, the average variance extracted values (AVE) exceeds 0.5 for all constructs. Thus, all constructs utilized in the conceptual model of the current study are reliable. The Cronbach's Alpha, composite reliability, and average variance extracted values are revealed in table 5.25. Figure 5.22 demonstrates the Cronbach's alpha of the theoretical model's construct; all the values are

about 0.70 except for social influence as it is shown in the figure. Figure 5.23 displays the Composite Reliability for model's constructs while figure 5.24 illustrate the Average Variance Extracted for model's construct.

Table 5.26 Reliability Measures for the Constructs (N = 628)

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Significant Value	≥0.70	≥0.70	>0.5
Attitude	0.87	0.912	0.721
Behavioral Intention	0.877	0.924	0.802
Culture	0.793	0.905	0.827
Facilitating Conditions	0.816	0.878	0.643
Information Quality	0.855	0.902	0.698
Perceived Ease of Use	0.762	0.862	0.676
Perceived Risk	0.837	0.902	0.754
Perceived Usefulness	0.923	0.94	0.724
Social Influence	0.685	0.864	0.76
Trust	0.832	0.888	0.665
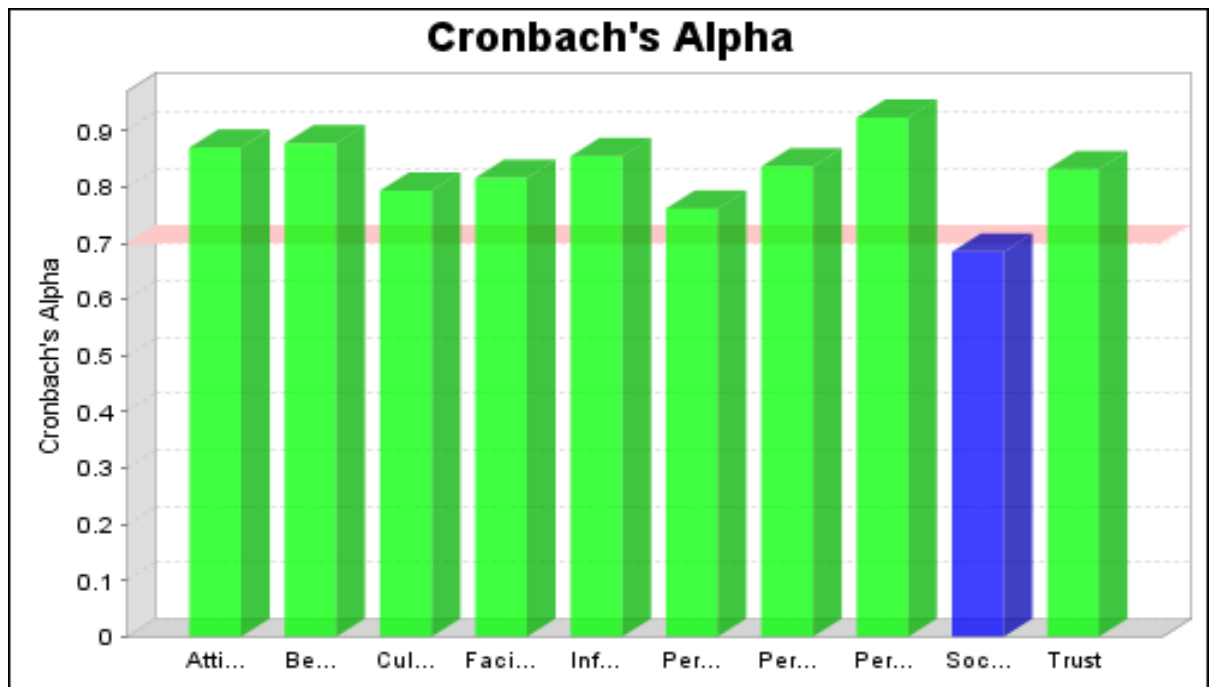
Note: the blue bar represents the social influence construct which has a value of 0.685 < 0.70.

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Figure 5.25 Average Variance Extracted for model's construct

Average Variance Extracted (AVE)
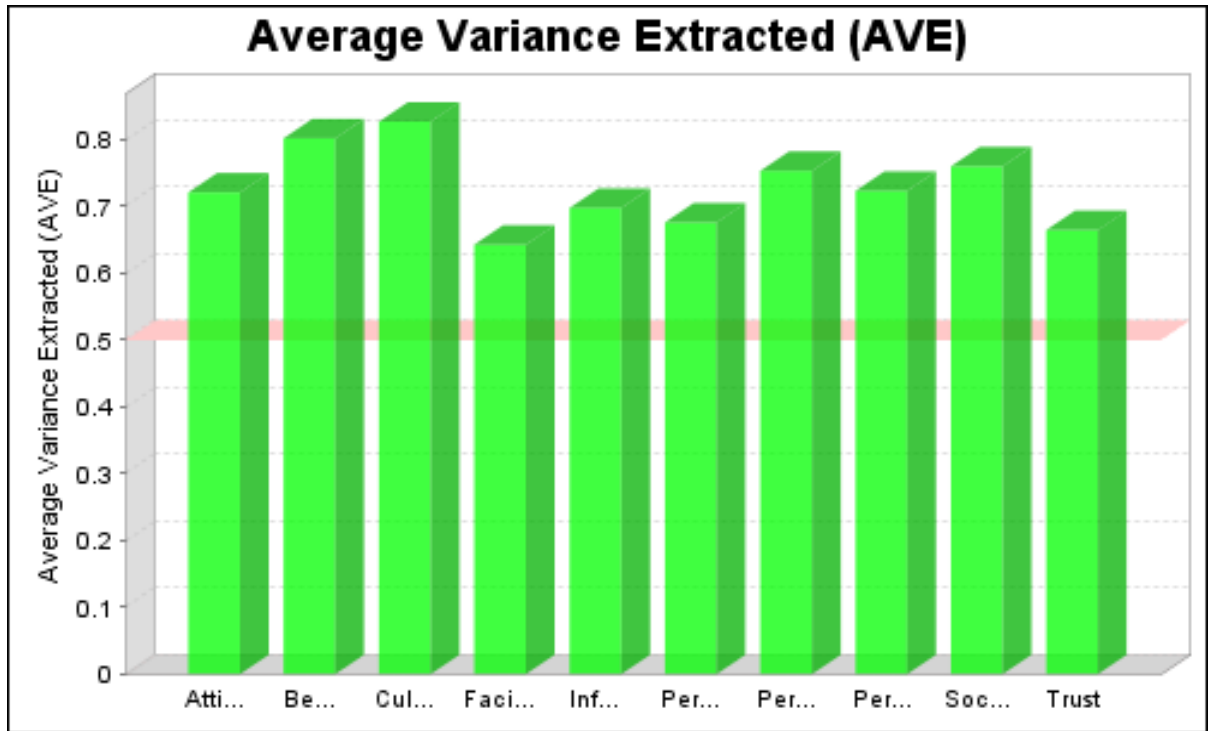
5.6.3.2 Convergent and Discriminant Validity of Constructs

The convergent validity is assessed through using SmartPLS 3 by extracting the factor and cross loadings of all items to their latent constructs (Alateyah et al. 2014). The outcomes, demonstrated in table 5.26, shows that all items indicators loaded on their corresponding construct from no less than 0.75 to no more than 0.95; and more highly on their corresponding construct than on any other. Also, the T-statistics and the factor loading of every single item on their corresponding construct are significant (p<0.0001) as the results of the outer model indicate (Figure 5.21, Table 5.27). The values displayed in table 5.27 shows that items' loading on their particular construct and their highly significant T-statistics (>1.96) confirm the convergent validity of these items as representing as representing distinct latent constructs (Hair et al. 2010).

Table 5.27 Items' Cross Loading Factor (N=592)

	AT	BI	C	FC	IQ	PEU	PR	PU	SI	T
ATT1	**0.87**	0.581	0.064	0.343	0.056	0.302	-0.1	0.522	-0.17	0.28
ATT2	**0.916**	0.531	0.031	0.365	0.087	0.274	-0.03	0.544	-0.07	0.299
ATT3	**0.788**	0.448	0.066	0.283	0.179	0.21	-0.15	0.262	0.007	0.379
ATT4	**0.817**	0.58	0.02	0.425	0.01	0.262	-0.05	0.553	-0.01	0.244
BI1	0.53	**0.889**	-0.007	0.299	0.212	0.222	-0.13	0.33	0.087	0.345
BI2	0.499	**0.927**	-0.062	0.372	0.23	0.343	-0.13	0.42	-0.03	0.366
BI3	0.657	**0.87**	-0.023	0.339	0.117	0.396	-0.09	0.54	-0.11	0.313
CFO1	0.059	-0.066	**0.93**	0.088	0.061	-0.124	-0.09	-0.105	0.153	0.061
CFO2	0.033	0.013	**0.889**	0.084	0.077	0.001	-0.1	-0.003	0.103	0.09

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FBC2	0.458	0.385	-0.168	**0.831**	0.133	0.394	-0.11	0.414	-0.1	0.254
FC2	0.417	0.337	-0.059	**0.849**	0.185	0.374	-0.12	0.457	-0.1	0.253
FFC1	0.213	0.24	-0.075	**0.765**	0.119	0.385	-0.17	0.268	-0.05	0.236
FFC3	0.216	0.224	0.005	**0.759**	0.36	0.516	-0.26	0.266	0.044	0.402
IQ1	0.102	0.285	0.075	0.225	**0.812**	0.163	-0.25	0.067	0.113	0.366
IQ2	0.034	0.139	0.04	0.148	**0.887**	0.125	-0.12	-0.031	0.18	0.352
IQ3	0.072	0.109	0.129	0.155	**0.873**	0.136	-0.29	0.093	0.223	0.407
IQ4	0.086	0.128	0.002	0.291	**0.765**	0.333	-0.17	0.16	0.127	0.385
PEU4	0.171	0.285	-0.01	0.37	0.403	**0.779**	-0.22	0.216	0.057	0.363
PEU6	0.239	0.193	-0.026	0.431	0.128	**0.864**	-0.23	0.444	-0.18	0.233
PEU7	0.342	0.386	-0.133	0.465	0.038	**0.821**	-0.06	0.586	-0.14	0.26
PU1	0.44	0.335	-0.061	0.329	0.027	0.415	-0.08	**0.75**	-0.07	0.159
PU3	0.524	0.409	-0.056	0.391	0.198	0.427	0.011	**0.843**	-0.06	0.29
PU4	0.463	0.398	-0.038	0.349	0.061	0.458	-0.06	**0.874**	-0.08	0.227
PU5	0.442	0.371	-0.087	0.362	0.025	0.384	-0.02	**0.894**	-0.08	0.248
PU6	0.517	0.468	-0.037	0.414	0.079	0.439	0.021	**0.892**	-0.05	0.319
PU7	0.493	0.486	-0.061	0.426	0.058	0.484	-0.06	**0.842**	-0.14	0.328
SR1	-0.055	-0.104	-0.087	-0.181	-0.254	-0.241	**0.865**	-0.086	-0.05	-0.36
SR2	-0.074	-0.179	-0.025	-0.184	-0.183	-0.183	**0.881**	0.018	-0.05	-0.358
SR3	-0.11	-0.049	-0.164	-0.14	-0.23	0.076	**0.858**	-0.022	-0	-0.337
SSF1	-0.066	-0.017	0.162	-0.05	0.23	0.069	-0.08	-0.108	**0.877**	0.198
SSN2	-0.064	-0.035	0.087	-0.068	0.1	0.107	0.016	-0.055	**0.866**	-0.032
TOG2	0.162	0.201	0.069	0.195	0.364	0.254	-0.34	0.193	0.166	**0.75**

TOI1	0.293	0.317	0.032	0.382	0.382	0.31	-0.33	0.281	0.073	**0.854**
TOI2	0.327	0.392	0.08	0.291	0.38	0.32	-0.35	0.319	0.089	**0.826**
TOI3	0.34	0.307	0.086	0.278	0.354	0.253	-0.29	0.219	-0.01	**0.828**

Table 5.28 Factor Loadings, T Statitics, and P values of items (N=592)

	Factor Loading	T Statistics (|O/STDEV|)	P Values
ATT1 <- Attitude	0.87	55.154	0.000
ATT2 <- Attitude	0.915	102.72	0.000
ATT3 <- Attitude	0.788	31.091	0.000
ATT4 <- Attitude	0.817	32.821	0.000
BI1 <- Behavioral Intention	0.888	47.283	0.000
BI2 <- Behavioral Intention	0.931	94.961	0.000
BI3 <- Behavioral Intention	0.868	66.192	0.000
CFO1 <- Culture	0.93	7.3	0.000
CFO2 <- Culture	0.888	6.624	0.000
FBC2 <- Facilitating Conditions	0.831	53.217	0.000
FC2 <- Facilitating Conditions	0.849	59.04	0.000
FFC1 <- Facilitating Conditions	0.765	28.524	0.000
FFC3 <- Facilitating Conditions	0.759	23.847	0.000

IQ1 <- Information Quality	0.809	34.427	0.000
IQ2 <- Information Quality	0.884	50.346	0.000
IQ3 <- Information Quality	0.871	48.538	0.000
IQ4 <- Information Quality	0.773	30.73	0.000
PEU4 <- Perceived Ease of Use	0.784	31.061	0.000
PEU6 <- Perceived Ease of Use	0.861	49.204	0.000
PEU7 <- Perceived Ease of Use	0.819	42.238	0.000
PU1 <- Perceived Usefulness	0.749	27.655	0.000
PU3 <- Perceived Usefulness	0.843	48.991	0.000
PU4 <- Perceived Usefulness	0.873	55.28	0.000
PU5 <- Perceived Usefulness	0.894	71.937	0.000
PU6 <- Perceived Usefulness	0.893	80.012	0.000
PU7 <- Perceived Usefulness	0.842	60.797	0.000
SR1 <- Perceived Risk	0.866	44.785	0.000
SR2 <- Perceived	0.88	49.685	0.000

Risk			
SR3 <- Perceived Risk	0.858	46.276	0.000
SSF1 <- Social Influence	0.876	7.054	0.000
SSN2 <- Social Influence	0.867	6.955	0.000
TOG2 <- Trust	0.75	32.644	0.000
TOI1 <- Trust	0.854	59.002	0.000
TOI2 <- Trust	0.826	46.558	0.000
TOI3 <- Trust	0.827	47.633	0.000

Discriminant validity is considered by comparing the absolute value of the correlations between the constructs with the square root of the average variance extracted by a construct. When the correlations are lower than the square root of the average variance extracted by a construct, constructs are said to have discriminant validity (Fornell and Larcker 1981). The correlations and the square root of the average variance extracted by each of the constructs are presented in Table 5.28. The square root of the average variance extracted value for all the constructs are higher than its correlations with all the other constructs (Hair Jr et al. 2013; Kline 2015).Therefore, all constructs have discriminant validity.

Table 5.29 Discriminant Validity for the Revised Measurement Model (N=592)

	At	BI	C	FC	IQ	PEU	PR	PU	SI	T
Attitude	0.849									
Behavioral Intention	0.636	0.896								
Culture	0.052	-0.034	0.909							

Facilitating Conditions	0.421	0.377	-0.095	0.802					
Information Quality	0.09	0.203	0.075	0.249	0.836				
Perceived Ease of Use	0.312	0.365	-0.075	0.517	0.23	0.822			
Perceived Risk	-0.091	-0.13	-0.103	-0.195	-0.256	-0.2	0.868		
Perceived Usefulness	0.567	0.49	0.065	0.449	0.09	0.513	0.034	0.851	
Social Influence	0.075	-0.03	0.143	-0.068	0.191	-0.1	0.039	-0.09	0.872
Trust	0.348	0.38	0.081	0.356	0.454	0.352	-0.406	0.315	0.098	0.815

5.6.3.3 Nomological Validity

Nonmological validity denotes to a perceived linkage between measures supposed to assess dissimilar but theoretically related constructs (Peter 1981). The permutation of the structural (inner) model and the measurement (outer) model permits a confirmatory evaluation of construct validity (convergent validity and discriminant validity) (Anderson and Gerbing 1988). Taking into consideration the satisfactory results of convergent and discriminant validities in the present study, the test of the structural model then comprises a confirmatory assessment of nomological validity (Anderson and Gerbing 1988). Consequently, the CFA outcomes for the current research show that tests used in the measurement model hold satisfactory reliability, convergent, discriminant and nomological validity.

5.6.4 Hypotheses Testing

After evaluating the validity of the construct and the model fit, assessing the structural model is going to be our next step. In this step, the relationship between latent constructs and the hypothesis established are going to be tested. Latent constructs are unobserved variables that are measured indirectly using directly observed indicators that represent the underlying construct (Brown 2015). The structural equation model in this study includes exogenous and endogenous latent constructs. Exogenous constructs are independent variables that influence a model without being influenced by other constructs in the model; while endogenous constructs are constructs in a causal model whose values are dependent on the conditions of other variables in the model (Hair et al. 2010) (Garson 2012). In structural model assessment, the researcher focuses on the magnitude and the nature of the relationships between the latent constructs presented in the theoretical model (Hair *et al.*, 2010). Therefore, the description of each correlation among the constructs in the model is specified formerly. Table 5.29 shows the 10 hypotheses signified by causal paths that are utilized to examine the relationships between the latent constructs.

Table 5.30 Hypotheses Testing/Paths Causal Relationships (N= 592)

Code	Construct	Hypotheses	Statistically Significant Positive Hypothesized Relationships	Statistically Significant Negative Hypothesized Relationships
C	Culture	H1	C→BI	
SI	Social Influence	H2	SI→PEU	
		H3	SI→PU	
FC	Facilitating Condition	H4	FC→PU	

		H5	FC→PEU	
T	Trust	H6		T→PR
		H7	T→BI	
		H8	T→IQ	
PR	Perceived Risk	H9		PR→BI
IQ	Information Quality	H10	IQ→BI	

After aborting items with low factor loading relative to their constructs, 35 indicators were left to identify the 10 latent constructs of the theoretical model. The researcher applied the covariance matrix among the latent constructs in order to test the structural model. The hypothesized relationship is statistically significant if the t-value is higher than 1.96 (T-value > 1.96) and the P-value is significant at 0.05 level (P < 0.05) (Hair et al., 2010). 10 causal paths were tested in the current research through the values of T-statistics, P-values, and path coefficients obtained using SmartPLS 3.As a result, H4, H5, H6, H7, H8, and H10 are statistically significant and in the right expectation. H2 is statistically significant but not in the right expectation as the two constructs are negatively correlated (-0.089). H1, H3, and H9 are not statistically significant and don't show any correlation. For instance, the hypothesized path between trust and perceived risk has a t-value of 11.12 (> 1.96) and a negative path coefficient (-0.406) statistically significant (P=0.000<0.001). Similarly, the paths between facilitating conditions and perceived usefulness; facilitating conditions and perceived ease of use; trust and perceived risk; trust and behavioural intention; trust and information quality; and information quality and behavioral intention are statistically significant at (P < 0.05) with T-statistics larger than (1.96). However, the correlation between culture and behavioural intention, social influence and perceived usefulness, and perceived risk and behavioural intention are not statistically significant since their P-value is larger than 0.05 and their T-value is less than 1.96.

The hypothesized paths and their path coefficients, P-value and T-value are demonstrated in Table 5.30.

Table 5.31 Path Coefficients for the Proposed Structural Model

		Path Coefficient	T Statistics >1.96	P Values<0.05
H1	Culture -> Behavioral Intention	-0.124	1.477	0.140
H5	Facilitating Conditions -> Perceived Ease of Use	0.514	16.012	0.000
H4	Facilitating Conditions -> Perceived Usefulness	0.437	13.274	0.000
H10	Information Quality -> Behavioral Intention	0.097	2.448	0.015
H9	Perceived Risk -> Behavioral Intention	-0.012	0.344	0.708
H2	Social Influence -> Perceived Ease of Use	-0.089	2.309	0.021
H3	Social Influence -> Perceived Usefulness	-0.066	1.56	0.119
H7	Trust -> Behavioral Intention	0.137	3.293	0.001
H8	Trust -> Information Quality	0.453	12.193	0.000
H6	Trust -> Perceived Risk	-0.406	11.12	0.000

*Yellow: Hypotheses are statistically significant; **Green**: Hypothesis is statistically significant but not as expected; **Red**: Hypotheses are not statistically significant*

The ($R2$) is a statistical measure of how well a regression line approximates real data points and a descriptive measure between zero and one, indicating how good one term is at predicting another (Hair et al. 2010; Brown 2015). The squared multiple correlations ($R2$) for the endogenous constructs are revealed in Table 5.31 and. As a result, the

closer its (*R2*) value is to one, the greater the ability of that model to predict a trend (Brown 2015). 45% of the variance among the constructs of information quality, trust, attitude, culture, and perceived risk are explained by behavioural intention to use an e-government system. Consequently, 6 hypotheses out of the 10 hypothesized paths are proven to be statistically significant as shown from the T-value, P-value, and path coefficient between latent constructs in Figures 5.29 and 5.30.

Table 5.32 Percentage of Variance Accounted for by the Predictors of the Endogenous Constructs

	R Square
Attitude	0.33
Behavioral Intention	**0.452**
Information Quality	0.206
Perceived Ease of Use	0.278
Perceived Risk	0.165
Perceived Usefulness	0.199
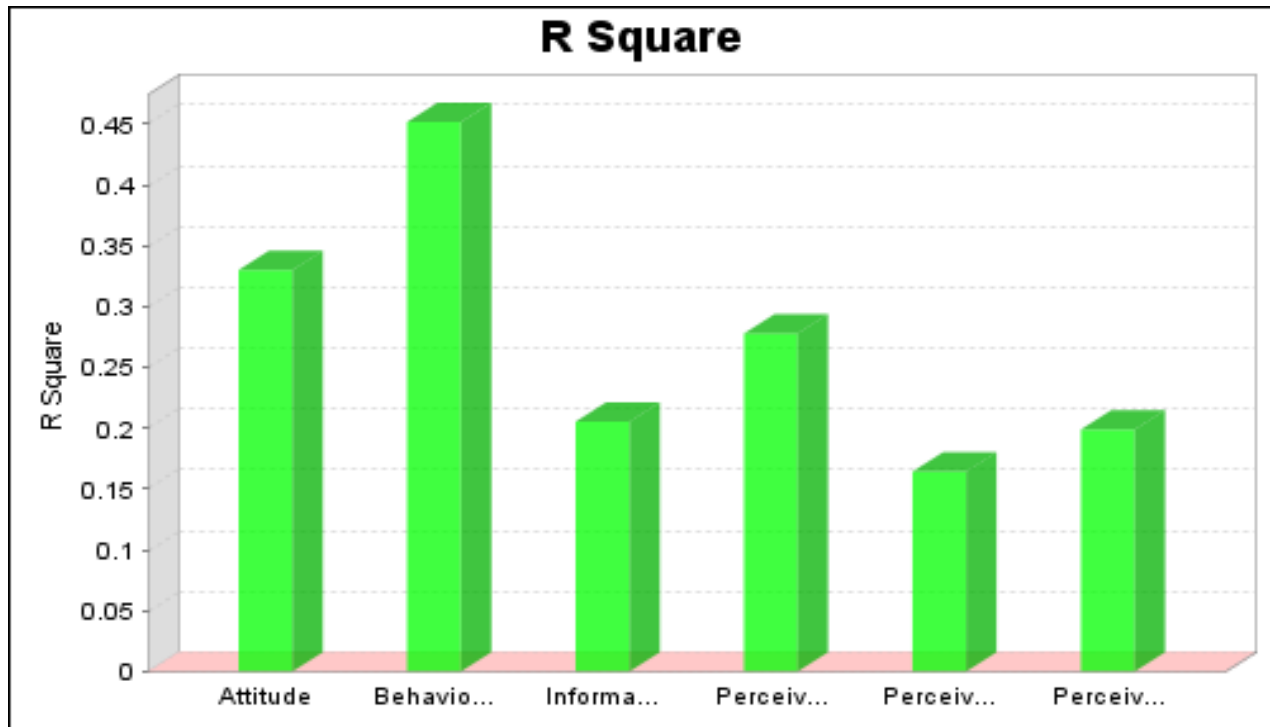
Figure 5.27 Path Coefficients and T-Values between Latent Constructs
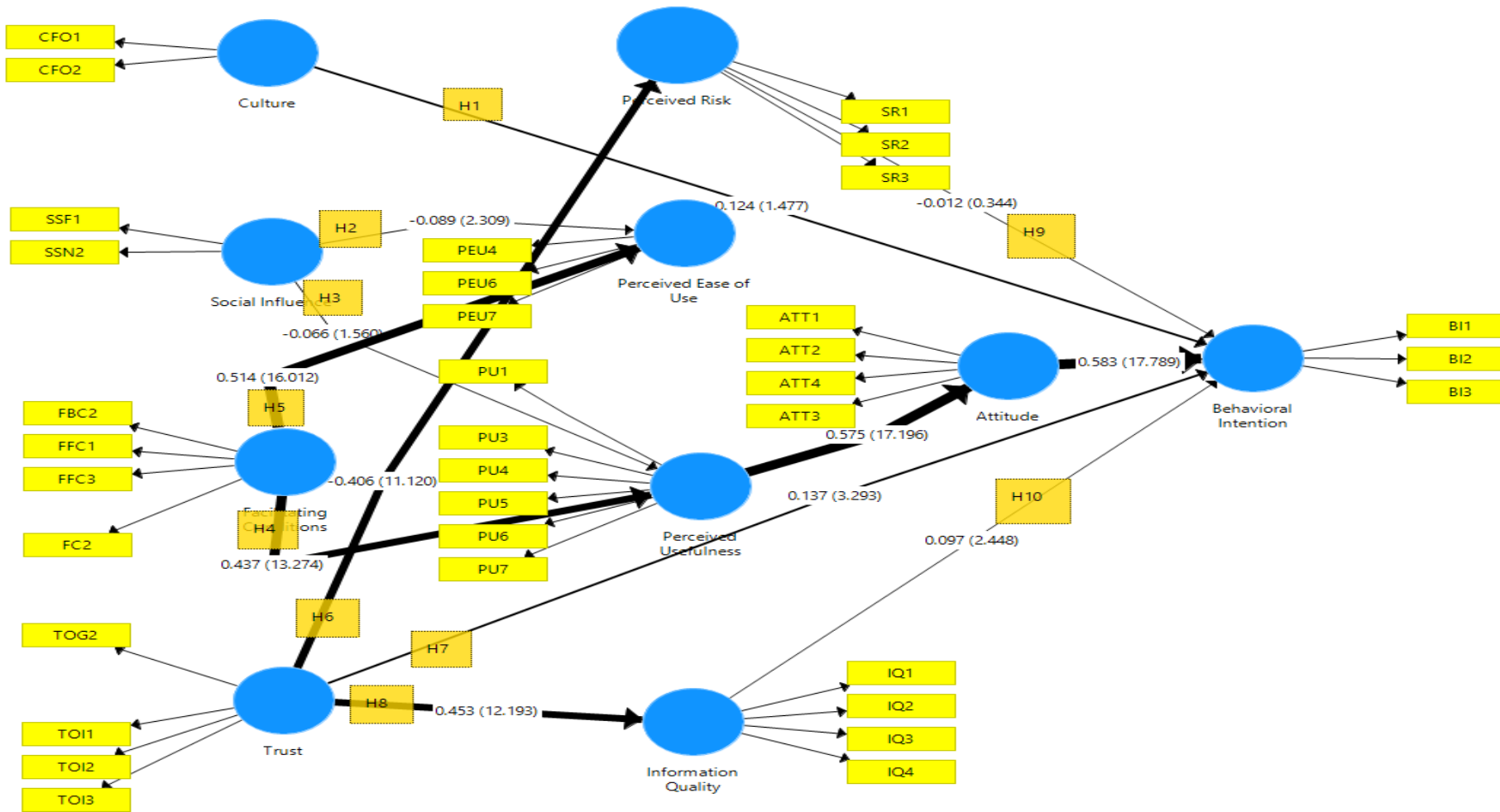
Figure 5.28 P-Values between Latent Constructs
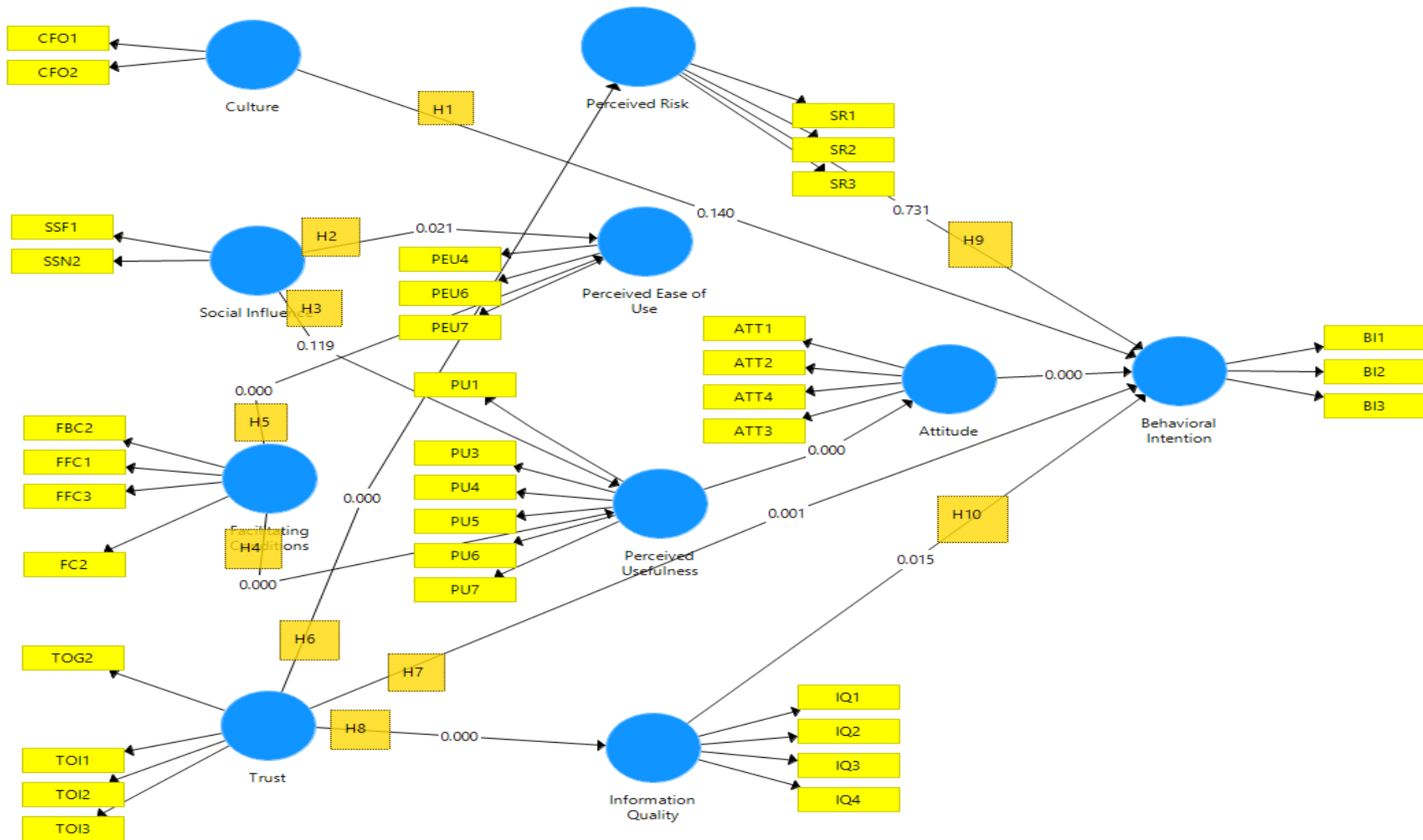
5.7 Results of Testing the Hypotheses

The evaluation of the structural model in the current research reveals that 6 hypotheses are positively significant (H7, H8, H4, H10, H5). Two hypotheses have a significant negative impact on other constructs (H2, H6). Additionally, 3 hypotheses are non-statistically significant (H1, H9, H3). The results of the pre assumed hypotheses are presented in Table 5.31. As a result, the hypotheses of the current study presented in the proposed model are not all supported by the results demonstrated in table 5.32, Figure 5.29, and Figure 5.30. The supported hypotheses have a significant P-Value at P≤0.05 and R-Value greater than 1.96. Therefore, 6 out of 12 hypotheses are statistically significant and in the expected direction. The path coefficient between social influence and perceived ease of use is statistically significant, but not in the predicted direction (β=-0.089; P=0.021; and T-value=2.309). The final structural model with the standardized path coefficients and the R2 is presented in Figure 5.31.

Table 5.33 Findings of the Research Hypotheses

No	Hypotheses	Results	β	Sig
H1	Culture is related significantly to Behavioral intention to use e-government system.	Rejected	-0.124	0.140
H2	Social influence is related significantly to perceived ease of use of e-government system.	Significant/Negative Correlation	-0.084	0.021
H3	Social influence is related significantly to perceived usefulness of e-government system.	Rejected	0.066	0.199
H4	Facilitating conditions is related significantly to perceived usefulness of e-government system.	Accepted	0.437	0.000

H5	Facilitating conditions is related significantly to perceived ease of use of e-government system.	Accepted	0.514	0.000
H6	Trust is related significantly to perceived risk of e-government system.	Accepted/Negative Correlation	-0.406	0.000
H7	Trust is related significantly to behavioral intention to use e-government system.	Accepted	0.137	0.001
H8	Trust is related significantly to information quality of e-government system.	Accepted	0.453	0.000
H9	Perceived risk is related significantly to behavioural intention to use e-government system.	Rejected	-0.012	0.708
H10	Information quality is related significantly to behavioural intention to use e-government system.	Accepted	0.097	0.015

Figure 5.29 Structural Model with R Square andPath Coefficients
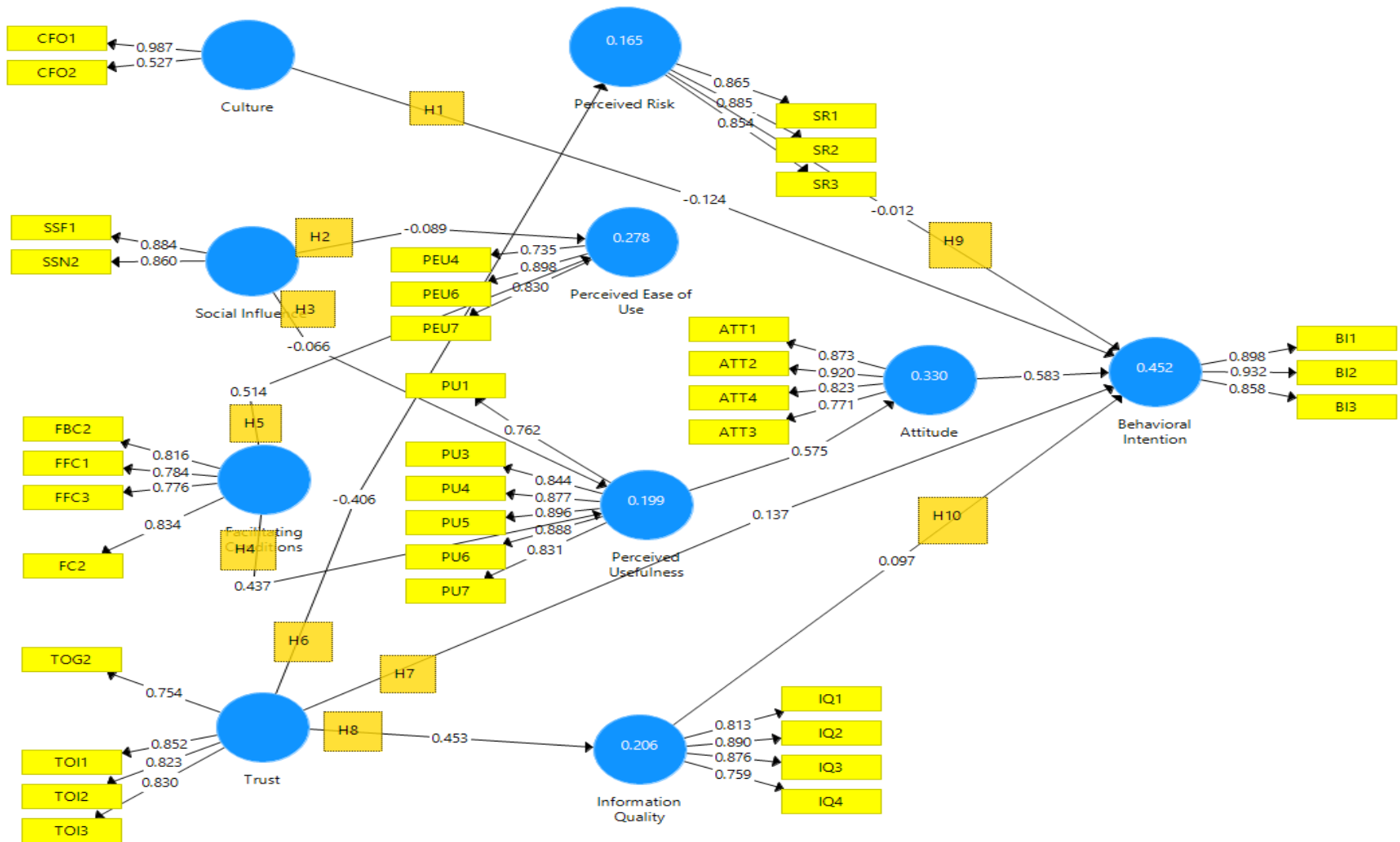
The proposed model demonstrated in Figure 5.31 reveals that 6 hypotheses of the 10 hypotheses are significant. One hypotheses is negatively significant but not in the estimated direction. 3 hypotheses are non-significant.

- It was hypothesized that the relationship between culture and behavioural intention to use e-government system is a significant positive relationship. This hypothesis is not supported after running the structural model of the current research (β= -0.124; P=0.140).

- It was hypothesized that the relationship between social influence and perceived ease of use of an e-government system is a significant positive relationship. This hypothesis is not supported after running the structural model of the current research (β= -0.084; P=0.021). The relationship between social influence and perceived ease of use is statistically significant, although negative.

- It was hypothesized that the relationship between social influence and perceived usefulness of an e-government system is a significant positive relationship. This hypothesis is not supported after running the structural model of the current research (β= 0.066; P=0.199).

- It was hypothesized that the relationship between facilitating condition and perceived usefulness of an e-government system is a significant positive relationship. This hypothesis is supported after running the structural model of the current research (β= 0.437; P=0.000).

- It was hypothesized that the relationship between facilitating condition and perceived usefulness of an e-government system is a significant

positive relationship. This hypothesis is supported after running the structural model of the current research (β= 0.437; P=0.000).

- It was hypothesized that the relationship between facilitating condition and perceived ease of use of an e-government system is a significant positive relationship. This hypothesis is supported after running the structural model of the current research (β= 0.514; P=0.000).

- It was hypothesized that the relationship between trust and perceived risk of an e-government system is a significant negative relationship. This hypothesis is supported after running the structural model of the current research (β= -0.406; P=0.000).

- It was hypothesized that the relationship between trust and behavioral intention to use e-government system is a significant positive relationship. This hypothesis is supported after running the structural model of the current research (β= 0.137; P=0.001).

- It was hypothesized that the relationship between trust and information quality of an e-government system is a significant positive relationship. This hypothesis is supported after running the structural model of the current research (β= 0.453; P=0.000).

- It was hypothesized that the relationship between perceived risk and behavioral intention to use e-government system is a significant negative relationship. This hypothesis is not supported after running the structural model of the current research (β=-0.012; P=0.708).

- It was hypothesized that the relationship between information quality and behavioral intention to use e-government system is a significant positive relationship. This hypothesis is supported after running the structural model of the current research (β= 0.097; P=0.015).

5.8 Chapter Conclusion

In this chapter the researcher discussed the data analysis methods and demonstrated the results of the current study. The reliability and validity of the constructs in the pilot study were assessed through the use of Cronbach's alpha. The test shows that the 10 constructs used in the study were reliable and valid. Missing data were aborted from the survey results through listwise deletion process after collecting data using paper and online survey (Qualtrics) for data collection. Additionally, Mahalanobis distance was utilized in SPSS 22 in order to check for outliers. 16 univariate outliers were dropped from the dataset based on the multiple regression tests. Also, in order to assess the univariate normality, the researcher used skewness and kurtosis results. The results obtained showed the data were normally distributed. The measurement and the structural model in the current research were assessed using SmartPLS 3 for structural equation modelling. Latent constructs were evaluated for validity and reliability. The results show that they all had no discriminant validity and deemed reliable. Furthermore, in this chapter the expected hypotheses in the structural model were tested. The results indicate that six hypotheses of the ten hypotheses are significant, one hypotheses is negatively significant but not in the estimated direction, and three hypotheses are non-significant. In the next chapter, the researcher presents a detailed discussion of the findings of this study.

CHAPTER 6: Discussion of The Findings

6.1 Introduction

The results of the findings and analysis were presented in chapter five. In this chapter the findings of the current research are discussed in details with regard to the proposed hypothesis and the research questions. The chapter begins with providing an introduction of the research followed by a section explaining the theoretical model of the study. Also, this chapter presents an overall discussion of the main outcomes of the study, with a focus on the demographic characteristics of the participants and the causal relationships among the latent variables of the proposed model. In addition to that, the impact of the context of e-government implementation and the trust variable on the e-government system are discussed. The research questions are also answered in this chapter. Lastly, the researcher discusses the managerial and theoretical effects of the findings.

6.2 Introduction of the Research

The current study aims to advance our knowledge in the field of e-government by providing an empirical model including context and system dimensions and explaining the context-system and government-citizen gap represented by the trust variable. The primary rationality behind the theoretical model integrated in the current research is driven by the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al. 2003) and the actuality-design gap model (Heeks 2005a; Dada 2006). The UTAUT model was modified to include culture, trust, information quality and perceived risk. The present model extends technology and acceptance model and include additional constructs from UTAUT model and IS success model such as information quality and social influence. Behavioural intention to use e-government systems is measured by the following factors included in the theoretical model:

culture; social influence; facilitating conditions; trust; perceived risk; perceived ease of use; perceived usefulness; information quality; attitude; behavioural intention. The current research tests empirically the conceptual model in this study and the hypotheses constructed based on the literature in chapter three. The values obtained after conducting the analysis show that the data fit the anticipated model.

The current study aims to advance our knowledge in the field of e-government by providing an empirical model including context and system dimensions and explaining the context-system gap.

The present study aims to achieve the following objectives:

- Undertakes a review of the literature in the area of e-government in the information system field. Particular focus will be on technology acceptance and use models and actuality-design gap model (Chapter 3).
- Reviews key findings of former research and pinpoint the issues inducing e-government usage and adoption (Chapter 3).
- Defines a theoretical framework to elucidate and clarify the usage and adoption of e-government amenities and facilities in developing countries (Chapter 3).
- Recognize the significance of each of the constructs presented in the model and their impact on behavioral intention to use e-government system in developing countries (Chapter 3 and 5).
- Empirically validating and evaluating the proposed framework, as well as testing the constructs of the e-government system towards the constructs of the context of e-government (Chapter 5).
- Explaining practical and hypothetical insinuations of the research outcomes in order to heighten the implementation of e-government services in developing countries and, thus, enhance its acceptance (Chapter 6).

Literature associated with e-government implementation and acceptance was reviewed in order to meet the objectives and achieve the aim of the study. The literature review provided the foundation of the current research in detecting the gap in the field which needs exploration in order to extend the understanding of e-government usage and adoption in developing countries. The culture, trust and perceived risk were adopted and identified from various research fields (Information system, social sciences, e-business) to be utilized in the e-government context. Once the gap in the literature was found, culture, perceived risk, and trust were incorporated into Unified Theory of Acceptance and Use of Technology to be assessed. centred on the objectives of the current research, the research problem is identified as: Investigating the role of the context of e-government implementation and explaining the context-system gap and government-citizen gap of e-government services in developing countries. The review of the literature is directed based on the comprehensive research problem and, therefore, the research problem is divided into the following particular research questions:

RQ 1: What impact does the context of deployment of e-government system has towards behavioral intention and, ultimately, the actual usage of e-government systems?

RQ 2: What role does the government-citizen gap (trust) plays in the success or failure of e-government?

Ultimately, 10 hypotheses were framed built on the theoretical discussion conducted previously. The proposed framework embraced additional dimensions; namely, culture, trust, and perceived risk and offered an initial assessment of the practicality of the research model in clarifying the acceptance and use of e-government systems in developing countries. In order to evaluate the proposed model, primary data was collected and

refined during the empirical phase of the research. From the data analysis of the present study, it was found that 45.2% of the variance among the constructs of information quality, trust, attitude, culture, and perceived risk are explained by behavioural intention to use an e-government system. Consequently, 6 hypotheses out of the 10 hypothesized paths are proven to be statistically significant as was shown from the T-value, P-value, and path coefficient between latent constructs in Figures 5.29 and 5.30.

6.3 Theoretical Framework

The primary framework constructed in this research is grounded on the unified theory of acceptance and use of technology (Venkatesh et al. 2003), which is based on integration of the theory of reasoned action (Ajzen and Fishbein 1980) and technology acceptance model (Davis,1985). Additionally, the trust variable was added from the model of e-government trust which was also added to TAM Warkentin et al. (2002). The present study aims to enhance our knowledge in e-government fields by providing an empirical model including context and system dimensions and explaining the context-system and government-citizen gaps by revealing the role of the context of e-government on the behavioural intention to use e-government services in developing countries. Based on the literature review presented in chapter 3, the research matches the technology acceptance literature with the context literature presented in chapter 2 to assess the acceptance of e-government services.

Therefore, moving from a widespread perspective of e-government research to a more detailed perspective, that is, successful implementation of e-government technology in developing countries, this research aims to disclose the differences that exist between the government and citizens as the primary users of e-government technology in the same context and address that gap which exist due to these difference in the elements mentioned priory.

6.4 Discussion of the main findings

The current study is positioned mainly in the direction of descriptive research and utilizes a deductive perceptive approach in which the hypotheses were abstracted and a framework was established. The research adopted a quantitative approach through using survey in collecting data. The most fitting research paradigm to follow in the current study was the positivist paradigm so that the research problem is tackled appropriately. Positivist paradigm emphasizes on evidences by framing a hypotheses deduction technique accompanied by operationalizing perceptions to be restrained.

The present research led self-administered questionnaires wherein participants responded to the questions directly without the attendance of the investigator or researcher. The choice of answers was fixed (close-ended) in advance. However, in order to minimize the chance of confusion and misunderstanding among respondents answering the questions, the content validity and reliability of the questionnaire were tested in the pilot study before launching the main survey. The researcher circulated the survey amongst a particular group of specialists in the field throughout the pilot study to evaluate the survey and get a feedback. The initial survey shaped was made of 66 items, after amendments based of CFA and reliability test, 35 items were used to measure the 10 constructs in the conceptual model.

The survey started by clarifying the goal of the research and explaining e-government implementation and its services. The survey was divided into two sections. The first section was created to collect demographic information about the respondents, such as level of education, gender, age, internet experience, and computer experience…etc. the second section was created to collect information about the behavior of the respondents related to the variables tested and specified in the literature such as, ease of use, perceived usefulness, perceived risk, information

quality…etc. The survey was conducted succeeding University of Bradford Ethical guidelines and, consequently, the survey received approval before collecting the data.

The current research used two software programs to analyse and code the data: 1-SPSS 22.0; and 2- Smart PLS 3.Also, SEM techniques were used in the present study. SPSS 22.0 was employed in providing descriptive analysis and deducting missing values. The variables of the proposed model were hypothesized to be tested as solo indicators. Therefore, performing EFA was not needed on any of the constructs because their items were derived from other studies in the field. Smart PLS 3 was exploited in this research to perform SEM analysis such as: CFA, hypotheses testing, and GOF. The results obtained from analysing the data in chapter 5 need to be interpreted and discussed. The subsequent sections in the current chapter interpret and discuss the findings in depth.

6.4.1 Response Rate

Primary data was collected from 647 respondents which decreased to 634 after checking for outliers and deducting 13 cases. The targeted sample was Lebanese citizens who were potential users of e-government system and have experience with the traditional public administration. According to World Bank (2016), 74.7 % was the percentage of internet users in Lebanon which is considered one of the highest rates in Arab countries. Obtaining an accurate sample about the number of e-government users from officials was not possible due to security and sensitivity reasons surrounding e-government services. Therefore, to achieve a suitable sample frame for this study, it was decided to consider the non-probability sampling techniques; specifically, the convenience sample. Convenience, sometimes called haphazard or accidental, sampling involves selecting the most available sample elements to

participate in providing the information needed for the study and, accordingly, it defines ranges of alternatives of responses. The participants of this survey were Lebanese citizens who accepted to fill a voluntary self-administered online questionnaire. the researcher of the distributed the survey using electronic means (Emails, Social network, etc..) and hard-copies. The total number of citizens who participated in the survey was 1070 (Appendix D). The total number who completed the majority of the questions in the survey was about 647, with a response rate of 60%. The response rate achieved is reasonably high due to the fact that the respondents were Internet users and, thus, familiar with e-government systems.

6.4.2 Demographic Characteristics

The results show that males constitute 48.6% of the whole respondents and females 51.4%. This finding shows that the percentage of males and females are close to each other. Also, it means that both genders are interested in e-government services and its use since it is meant to facilitate transactions between all citizens and government regardless of their gender. Additionally, the number of females and males among all age groups is approximately similar. For instance, males and females between the ages 25-54 are 1,378,852 and 1,350,506 respectively (Central Intelligence Agency, 2016). This explains why the percentages of males and females participated in the study are close to each other.

The respondents of this survey are divided into six age groups. The age group 18-24 which represents mostly school and university students is the dominant group in the survey constituting 570 respondents or 57.3%. As represented in Figure 5.17, with the increase of the age group the percentage of the participants declines. 25-34 age group is 33.4% followed by 6% for 35-44 age group, 1.4% for 45-54 age group, 1.1% for 55-64, and 0.6% for participants above 65 years old. The majority of the

respondents were between the ages of 18-33 forming 90.7% of the participants. 69.6% of the citizens who responded to the survey are Bachelor's holders while only 0.2% is not educated at all. The statistics are not surprising since the literacy rate in Lebanon is high and most of the young generation is able to use the internet and e-government services.

The findings show that the mainstream of participants considered themselves as having a good to very good computer knowledge (90.7%). Likewise, the most of the respondents considered their Internet proficiency as good to very good (92.7%). The majority specified that they had been using the Internet for more than three years (96.5%) and (98%) indicated that they use the internet on a daily basis. This shows that the majority of the citizens are willing to use computer based and internet based technologies and systems since they know how to use computer and internet. In addition to that, 11 people answered the question that they don't use e-government and then they said that they will use it in the future; thus, the survey influenced a positive behaviour.

Social networks overlook the use of internet in general with a percentage of 85.8% which means that 843 out of the 983 who answered this question use the internet mainly for social networking. Social network is followed by information search 72% and then email 58.6%. The services with the minimum use were entertainment, work, and online shopping with 46.2%, 46.1%, and 29.7% respectively. The users of E-government are 72.3% (valid percent) of respondents who answered this question. 58.5% of the users of E-government services who participated in this study use e-government mainly to check vehicle violations such as over speeding. 47.2% of the users search for job vacancies on the Civil Service Council websites and 45.6% they use e-government to inquire about regulations and laws. Additionally, the least percentages are for the use landline e-payment 15.9% and declaring and paying taxes 12.2%. E-

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government users' percentage is relatively high and shows acceptance of this technology among citizens. However, these results show that e-government services gaining dominant acceptance are in the presence and interaction phases with a minimum level of maturity and complexity. For instance, checking vehicle violations is informative and only informs the user if he/she got a fine or not. These services require no transactions between citizens and the government agencies that is why there usage is comparatively high and common. On the other side, it was shown that transactional or transformational services such as landline e-payment and tax declaration have gained low usage rate due to the maturity and complexity of the service. The reasons behind this low percentage could be explained by looking at the hypothesized constructs in the proposed model.

6.5 Hypotheses Testing

6.5.1 Culture and Behavioural Intention

H1 examined the impact of culture on behavioural intention. Culture is defined in the current research as a set of beliefs and shared values. It is a collective programing of the mind that discerns the member of one group of people from another and shapes values, beliefs, assumptions, expectations, perceptions, and behaviour. Consequently, how culture impacts behavioural intention to use e-government system was investigated. After running the structural model of the current research, it was shown that this hypothesis is not supported and therefore there is no relationship between those two constructs (β= -0.124; P=0.140).

After reviewing the literature, four dimensions of the culture were included in the proposed model of the study, namely: power distance, uncertainty avoidance, future orientation, and assertiveness. As a result, 8 items were adapted to measure culture. After conducting validity and reliability

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tests and refining the scale in the survey, power distance, uncertainty avoidance, and assertiveness were dropped from the study and only future orientation and its items were kept to measure this dimension of culture in the context of e-government services. These two items covered the insight of people regarding the future or present. The analysis showed that the items CFO1 and CFO2 were highly correlated with culture ($r = 0.93$, $p = 0.000$) and ($r = .888$, $p = 0.000$), respectively. The questions for these items were: *More people live or should live for the future rather than for the present* and *In Lebanon,* and *people place more emphasis on solving current problems.*

As a result of path coefficient and p-value for hypothesis 1, there was no indication that culture is related significantly to Behavioural intention to use e-government system. The results don't support the findings of Khalil (2011), which assert that low future orientation societies are expected to experience low e-government readiness. According to (Khalil 2011: p.391) *"Cultures with low future orientation, on the other hand, may show incapability or unwillingness to make plans to realize their desired goals and may not appreciate the warning signals that their current behaviour is negatively influencing the realization of their future goals".* Nonetheless, the results of the study depend on the context of e-government services. Lebanon has a very diverse and heterogeneous culture making him the most unique country in the Middle East. The presence of many beliefs and values among the cultural groups of Lebanon makes no actuality of homogenous national culture. Therefore, the behaviour intention to use e-government services is not associated to the culture of the context. It was not evident from the literature that e-government implementation is only related to one particular culture with certain characteristics. E-government services have experienced success as well as failure in a variety of contexts with similar and different cultures (Heeks 2003; Heeks 2005a; Al-Gahtani et al. 2007; Muhammad Ovais et al. 2013). For instance, United Arab Emirates is ranked first in the Arab World for e-government

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services exceeding many developed countries (OECD 2016). This shows that regardless of the difference in culture between UAE and other developed countries such as UK, UAE is one of the leading countries in e-government services.

6.5.2 Social Influence and Perceived Ease of Use

H2 tested the impact of social influence on perceived ease of use of e-government system. Social influence is defined in the current research as the *degree to which an individual perceives that important others believe he or she should use the new system.* Consequently, how social influence impacts perceived ease of use of e-government system was examined. This hypothesis is not supported after running the structural model of the current research (β= -0.084; P=0.021). The relationship between social influence and perceived ease of use is statistically significant, although negative. The relationship between the two constructs is not very strong as it can be shown from the p-value. This suggests that the lower the social influence, the higher the perceived ease of use of e-government system.

After reviewing the literature, 6 items were adapted to measure social influence. After conducting validity and reliability tests and refining the scale in the survey, 2 items were kept to measure social influence in the context of e-government services. These two items covered the insight of people regarding the subjective norms and social factors. The analysis showed that the items SSF1 and SSN2 were highly correlated with culture ($r = 0.876$, $p = 0.000$) and ($r = 0.867$, $p = 0.000$), respectively. The questions for these items were*: I use government online services (Dawlati) because of the proportion of citizens who use these services,* and *I use government online services (Dawlati) because my friends and colleagues use it.*

The results obtained from examining this hypothesis were inconsistent with the findings of Tsu Wei et al. (2009) and (Venkatesh et al. 2003), who found a significant positive relation between social influence and behavioural intention to use e-government system. The hypothesis here examines the impact of social influence on perceived ease of use of e-government system. This suggests that, the less people are influenced by others, the more they perceive e-government system as easy to use. This could be due to their reliance on their own experience in evaluating e-government system without depending on others. Also, e-government system is different from any other system because it is solo system that has no electronic substitutes or rivalry. Therefore, using e-government system doesn't depend on recommendations and social influence from others since no other system with the same facilities is available for citizens. Thus, the fewer citizens are affected by other citizens, the more they will learn how to use e-government system and perceive its easiness. In addition to that, social influence is related differently to the context of e-government from other technology services for the reason that e-government is implemented to facilitate transactions between citizens and government through electronic means. Consequently, ease of use of these services is better perceived if someone doesn't consider what other think or assume about the service as long as it is targeted to all citizens by the state.

6.5.3 Social Influence and Perceived usefulness

H3 studied the impact of social influence on perceived usefulness of e-government system. Perceived usefulness is defined in the current research as the *degree to which a person believes that using a particular system would enhance his or her job performance.* Consequently, how social influence impacts perceived usefulness of e-government system was examined. This hypothesis is not supported after running the

structural model of the current research (β= 0.066; P=0.199). There is no evidence of relationship between social influence and perceived usefulness of e-government system.

After reviewing the literature, 8 items were adapted to measure social influence. After conducting validity and reliability tests and refining the scale in the survey, 6 items were kept to measure perceived usefulness in the context of e-government services. These two items covered the insight of people regarding saving time and availability of e-government services. The analysis showed that the items PU1, PU3, PU4, PU5, PU6, and PU7 were highly correlated with culture ($r = 0.749$, $p = 0.000$), ($r = 0.843$, $p = 0.000$), ($r = 0.873$, $p = 0.000$), ($r = 0.894$, $p = 0.000$), ($r = 0.893$, $p = 0.000$), and ($r = 0.842$, $p = 0.000$) respectively. The questions for these items were*: Using government online services saves me time then doing the traditional paper process; Government online services make communication with public administration easy; Using government online services reduces the time I spend on gathering state government information; Using government online services makes it easier to complete tasks with public administrations; Using government online services enables me to carry out any transaction with the government quickly and efficiently; Using government online services allows me to accomplish more work than would otherwise be possible.*

Results suggest that there is no evident relation between social influence and perceived usefulness of e-government system. Therefore, social influence as a context construct has no impact on perceived usefulness as a system construct in the current research. This suggests that, whether people are influenced by others or not concerning the use of e-government system, their perception concerning the usefulness of e-government services is not affected. As mentioned prior, e-government acceptance and implementation is not similar to any other electronic system made by the private sector for private or commercial use. Every

citizen evaluates the usefulness of e-government based on his experience and comparable with traditional means of public administration. Consequently, the use of e-government services doesn't rely on social influence. Social influence has no role to play in the way citizens perceive usefulness of e-government. Social influence established on social factors, subjective norms, and image is external to someone's experience and it is influenced by its surrounding and social circle. Thus, when it comes to evaluating the usefulness of e-government services which is basically conducting governmental services electronically, citizens may not pay particular attention to external factors outside their own involvement and knowledge. In addition to that, social influence is related differently to the context of e-government from other technology services for the reason that e-government is implemented to facilitate transactions between citizens and government through electronic means. Therefore, the absence of significant relation between perceived usefulness and social influence may be due to the fact that e-government usefulness is not explained by social influence but rather by other factors such as facilitating conditions and trust.

6.5.4 Facilitating Condition and Perceived Usefulness

H4 studied the impact of facilitating conditions on perceived usefulness of e-government services. Facilitating conditions is a significant determinant of perceived usefulness of e-government services accounting for 20 percent of its variance. Facilitating condition is defined as the degree to which an individual believes that an organizational and technical infrastructure exist to support use of the system. Consequently, the relationship between facilitating condition and perceived usefulness of an e-government system is a significant positive relationship. This hypothesis is supported after running the structural model of the current research (β= 0.437; P=0.000).

This suggests that the availability of an organizational and technical infrastructure that exists to support use of the system has an impact on the perceived usefulness of the system. Consequently, citizens will perceive e-government system as useful as they experience behavioral control, reliability, responsiveness, and compatibility as part of the procedure of using e-government system. In view of this, e-government facilitating conditions which make e-government services useful and deals with customer perceptions about the willingness of the service provider to help customers and not shrug off their request for assistance leads to enhancements in the citizens' and users' job performance and eventually to perceived usefulness. Accordingly, an e-government system that utilizes establishment of computer support; provides service on time and as ordered; and is consistent with existing values, needs, and experiences of citizens presents e-government system to citizens in a useful format, enabling users to use services efficiently and effectively. High quality of facilitating conditions of e-government system (that is, Perceived Behavioral Control, responsiveness, reliability, and compatibility) leads to high perceived usefulness (that is, relevant, up-to-date, useful, and complete information). The results obtained from this hypothesis are consistent with the findings of other research (Venkatesh et al. 2003; Alateyah et al. 2014; Al-Qeisi et al. 2015).

6.5.5 Facilitating Conditions and Perceived Ease of Use

H5 examined the impact of facilitating conditions on perceived ease of use of e-government services. Perceived ease of use is defined in the current study as the degree to which a person believes that using a particular system would be free of effort. Consequently, how facilitating conditions impacts perceived ease of use of e-government system was investigated. The relationship between facilitating condition and perceived ease of use of an e-government system is a significant positive

relationship. This hypothesis is supported after running the structural model of the current research (β= 0.514; P=0.000).

After reviewing the literature, 6 items were adapted to measure perceived ease of use. After conducting validity and reliability tests and refining the scale in the survey, 3 items were kept to measure perceived ease of use of e-government services. These three items covered the insight of citizens regarding the flexibility, collaboration, and easiness of e-government system. The analysis showed that the items PEU4, PEU6, and PEU7 were highly correlated with perceived ease of use ($r = 0.784$, $p = 0.000$), ($r = 0.861$, $p = 0.000$), and ($r = 0.819$, $p = 0.000$), respectively. The questions for these items were: *I find it easy to get government online services to do what I want it to do, It is easy for me to remember how to perform tasks using government online services after time away from using it, and It would be easy for me to become skilful at using government online services quickly,* respectively. These three questions that were highly correlated with the perceived ease of use construct were recoded using SPSS 22.0.

The results of this hypothesis indicate that as citizens are given the required knowledge, opportunities, instructions, and resources of e-government system, the more likely they are to find the e-government system to be easy to use. Perceived ease of use will be influenced by the level of facilitating conditions experienced by citizens. In other words, citizens are more likely to find e-government system easy to use if facilitating conditions are vastly available. The findings of this hypothesis are in line with Venkatesh et al. (2003) UTAUT model, which certified the relationship between facilitating conditions and behavioral intention. Additionally, Behavioral intention is influenced by perceived ease of use of the system (Davis 1989). As a result, facilitating conditions have an

impact of perceived ease of use in order to reach the main goal of behavioural intention to use e-government services.

6.5.6 Trust and Perceived Risk

H6 looked at the impact of Trust on perceived Risk of e-government system. Trust is defined in the current study as an expectancy that the promise of an individual or group can be relied upon. This definition is rooted in social learning theory which suggests that experiences of promised negative or positive reinforcements vary for different individuals. Consequently, how trust impacts perceived risk of e-government system was investigated. The relationship between trust and perceived risk of an e-government system is a significant negative relationship. This hypothesis is supported after running the structural model of the current research (β= -0.406; P=0.000).

Based on the aforesaid literature, 7 items were adapted to measure trust. After conducting validity and reliability tests and refining the scale in the survey, 4 items were kept to measure trust of e-government services. These three items covered the insight of citizens regarding the trust of government, trust if internet, and disposition of trust. The analysis showed that the items TOG2, TOI1, TOI2, TOI3 were highly correlated with Trust ($r = 0.75$, $p = 0.000$), ($r = 0.854$, $p = 0.000$), ($r = 0.826$, $p = 0.000$), and ($r = 0.827$, $p = 0.000$), respectively. The questions for these items were*: State government agencies can be trusted to carry out online transactions faithfully; the internet has enough safeguards to make me feel comfortable using it to transact personal business with state government agencies; I feel assured that legal and technological structures adequately protect me from problems on the internet; and In general, the Internet is now a robust and safe environment in which to transact with state government agencies.*

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According to Warkentin et al. (2002), trust in e-government influences the intention of the citizens to use or not to use e-government services. As indicated in the literature, Citizens' Trust in e-government is directly associated with citizens' trust in government. As a result, citizens will perceive e-government system as risk and will repulse from using it as they experience lack of trust in the service provider and the methods used. In other words, as citizens trust more the government and the techniques and services provided by it, they will be less concerned about the risk associated with using the e-government system. In view of this, trust in e-government services which make citizens consider the government and the internet set-up used upright leads to less perceived risk. Accordingly, an e-government system that. Citizens will be less afraid regarding performance risk, financial risk, and security risk if they trust the e-government system by trusting the government and the means of the system. The results obtained from this hypothesis are consistent with the findings of other research (Warkentin et al. 2002; Bélanger and Carter 2008; Colesca 2009; Lee and Levy 2014).

6.5.7 Trust and Behavioural Intention

H7 examined the impact of Trust on behavioural intention to use an e-government system. Behavioural intention is defined in the current study as the degree to which a person has formulated conscious plans to perform or not perform some specified future behaviour related to using online services. Thus, how trust influences behavioural intention to use e-government system was examined. The relationship between trust and behavioural intention to adopt e-government system is a significant positive relationship. This hypothesis is supported after running the structural model of the current research ($β= 0.137$; $P=0.001$). 3 items were adapted from other studies (Venkatesh et al. 2003; AlKhatib 2013) to measure behavioural intention to use e-government system. After

conducting validity and reliability tests and refining the scale in the survey, the 3 items were kept to measure behavioural intention. These three items showed the intention of citizens regarding their view toward the use of e-government services in the future. The analysis showed that the items BI1, BI2, and BI3 were highly correlated with behavioural intention to use e-government system ($r = 0.888$, $p = 0.000$), ($r = 0.931$, $p = 0.000$), and ($r = 0.868$, $p = 0.000$), respectively. The questions for these items were: *I intend to continue using government online services for the next 4 weeks; I plan to continue using government online services in the coming 3 months*; and *I plan to continue using government online services in the future.*

As mentioned previously, trust has a main influence on the relationships between the interacting parties. Therefore, the trust between the government and the citizen is a crucial factor in influencing the trust in e-government services and impact its success. Citizens' Trust in e-government is directly associated with citizens' trust in government. Citizens are willing to use e-government services just in case a trustable relationship is established between them and the government providing this service (Welch et al. 2005; Teo et al. 2008). Therefore, the findings of hypothesis number 7 confirmed what was discussed in the literature review chapter about the importance of the trust construct and its significant impact of the citizens' behavioural intention toward using e-government services. The findings are consistent with the findings of "*Trust and Risk in E-government adoption*" (Bélanger and Carter 2008) and "Is Public Trust in Government Associated With Trust in E-government?" (Horsburgh et al. 2011). Consequently, as citizens trust more the government and the internet, they will be more likely to use e-government services. Evidently, the findings of this hypothesis explain that citizens who trust service provider and the mechanisms implemented to provide the service are more likely to behave in favor of using e-government system.

6.5.8 Trust and Information Quality

H8 looked at the impact of trust on information quality of e-government services. Information quality is defined in the present research as the measure of the desirable characteristics of the system outputs; that is, management reports and Web pages. Thus, how trust of government and internet impacts information quality of e-government management reports and web pages was considered. The relationship between trust and information quality is a significant positive relationship. This hypothesis is supported after running the structural model of the current research ($β$= 0.453; P=0.000).

4 items were adapted from other surveys in research and studies about information quality of e-government system (Nelson et al. 2005; Wixom and Todd 2005). After conducting reliability and validity tests, all the 4 items (namely, IQ1, IQ2, IQ3, and IQ4) were highly correlated with information quality (r = 0.809, p = 0.000), (r = 0.884, p = 0.000), (r = 0.773, p = 0.000), and (r = 0.871, p = 0.000), respectively. These four items concealed the understanding of respondents regarding accuracy of information, timeliness of information, and relevancy of information provided by e-government system. The questions for these items were: *Information on government online services is free from errors; Information on government online services covers all information needed; Information on government online services is up-to-date;* and *Information presented on government online services is relative to my needs,* respectively.

The findings suggest that a system with high information quality which provides accurate, current, and relevant information in web pages and reports is positively related to trust of citizens in the system. In view of this, citizens tend to trust the service provider if the information provided are reliable and accurate. High trust in the services provided by the government indicates consistent results and understandable outputs of

information format characterized by complete, accurate, and relevant contents to citizens' needs. Therefore, a trustworthy government and technology that operates modern and easy e-government system can offer accurate and current information to citizens, enabling effective usage of e-government system. Citizens' trust in e-government (that is, trust in the government as service provider and trust in the internet as medium of collaboration) leads to high quality of information content (that is, up to date, complete, relevant, and useful information). The findings of this hypothesis are in line with Colesca (2015) "Understanding trust in e-government", which certified the relationship between trust and information quality of e-government system. The relation between information quality and behavioral intention to use e-government system is explained in hypothesis 10.

6.5.9 Perceived Risk and Behavioural Intention

H9 examined the impact of perceived risk on behavioural intention to use e-government system. The analysis of the data in the current research showed that the relationship between perceived risk and behavioural intention to use e-government system is a significant negative relationship. This hypothesis is rejected after running the structural model of the current research (β=-0.012; P=0.708). The P-value obtained is more than 0.05 indicating the absence of significant relationship. However, the path coefficient is negative as it was hypothesized.

This implies that there is no evident of relationship in this research between perceived risk and behavioural intention to use e-government system. Therefore, perceived risk has no impact on behavioural intention to use e-government system. The absence of relation between these two constructs may be due to the nature of services used by the citizens benefiting from e-government system. The majority of the citizens are using e-government services to inquire about legal and governmental

issues through e-mail, search engines and all kinds of downloadable documents and contact forms. These services are in the presence and interaction phases of e-government. As it was revealed from the results, 58.5% of the users of e-government services who participated in this study use e-government mainly to check vehicle violations such as over speeding. 47.2% of the users search for job vacancies on the Civil Service Council websites and 45.6% they use e-government to inquire about regulations and laws. Additionally, the least percentages are for the use landline e-payment 15.9% and declaring and paying taxes 12.2%. Therefore, citizens all what they need is quality information and trusted service to use it simply to gather legal information or be alerted for new vacancies in the public sector. Perceived risk in this study is related to financial, performance, and privacy risk which will not be challenged by the services used by citizens. Since there are no financial transactions and sensitive exchange of information between the government and the citizens, perceived risk may not be considered related to behavioural intention to use e-government system. As most of the e-government research were done in either developed countries or developing countries with relatively advanced e-government system. As a result, the findings in this section are inconsistent with the findings of AlKhatib (2013) who found that there is a significant influence of perceived risk on behavioural intention to use e-government system.
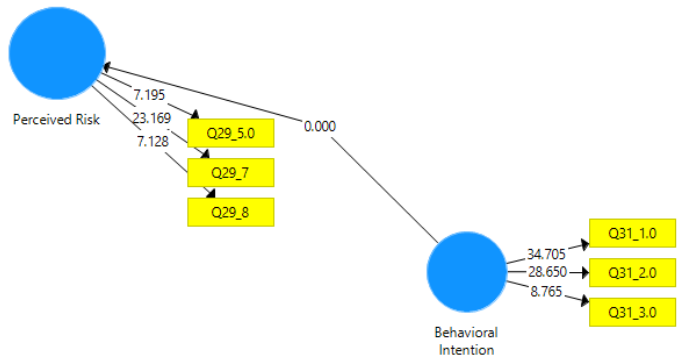
Figure 6.30 Perceived Risk and Behavioral Intention

6.5.10 Information Quality and Behavioural Intention

H10 looked at the impact of information quality on behavioural intention to use e-government systems. The relationship between information quality and behavioural intention to use e-government system is a significant positive relationship. This hypothesis is supported after running the structural model of the current research (β= 0.097; P=0.015). According to Wixom and Todd (2005) research model, Information quality is formed by three dimensions: Accuracy signifies the citizens' perception that the information is accurate and truthful; relevancy the degree of congruence between what the citizen wants or requires and what is provided by the government from information; currency represents the citizens' perception of the point to which the information is up-to-date (Nelson et al. 2005). These dimensions determine the citizens' perception of the information quality integrated in the e-government system. Information quality shapes attitudes about information and system satisfaction (Ajzen and Fishbein 1980). Due to the strong positive relation between attitude toward using

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e-government and behavioural intention of using e-government system, information quality has a significant positive impact of behavioural intention in the current research as it was reported in the findings.

This implies that, when citizens perceive the information provided by the e-government system as information of high quality, then they will maintain a behavioural intention to keep using the e-government system or to use it in the future. The findings are consistent with those of (Bailey and Pearson 1983) Nelson et al. (2005) who looked at the antecedents of information and system quality. Also, the findings are in line with those of Wixom and Todd, which postulated that quality of information influences behavioural intention to use the system.

6.6 The Role of the Context-System and Government-Citizen Gaps

The intention of the current study is to reveal the roles of context-system gap and government-citizen gap in the behavioural intention to use e-government systems in the context of developing countries. This gap is defined as the dissimilarity between the technology infrastructure, culture, conditions, and values available in the context of implementation and the infrastructure, culture, conditions, values required for the acceptance and use of the system "e-government" to function in the designated manner. The consideration of the dimensions of the system and the context of implementation by the service provider and the public administration is considered one of the key requisite before the use and implementation of e-government system in developing countries. The dimensions or constructs indicated in the current research as context dimensions are: culture, facilitating conditions, social influence, and trust. System dimensions are: Perceived risk, perceived ease of use, perceived usefulness, information quality, attitude, and behavioural intention. This assumption was constructed based on the studies and research of e-

government in developing countries where the desires and the needs of citizens are not similar to these in developed countries and ignoring this formulates one of the significant reasons behind the low level of e-government adoption (Muhammad Ovais et al. 2013).

Government-Citizen gap is the uncovered archetype in the field of e-government presented in the current research. Among all the journal articles and literature covering the topic of e-government, none has explicitly mentioned government-citizen gap as a significant component in determining the outcome of e-government projects. Government is the public administration and institutions setting policies and procedures and government officials involved in decision makings. Citizens are the public from individuals, groups, and organizations living under the authority of the government and subjected to its rules, policies and procedures. Cecchini and Raina (2004) suggest that the technology in e-government projects should be established to serve the needs of the community and be developed in cooperation with native staff. while, governments in developing countries develop most of the projects, not only e-government projects, regardless of citizens' expectations and perceptions and without consulting or involving the public in the decision making process.

Government-citizen gap is defined as the dissimilarity between the government procedures, structures, knowledge, and willingness to contribute to the adoption of the project and the citizens' needs and expectations associated with the government implementation. Citizens expect e-government projects to enrich governmental services, minimize corruption, increase transparency, and enhance democracy. However, implementing e-government technologies in developing countries may not always lead into good and more efficient governance; a military or bureaucratic administration will not immediately turn into efficient and transparent administration as a result of e-government applications

(Ciborra 2005). In the proposed model presented in the current research, trust in the context of e-government and its relation to perceived risk, behavioural intention, and information quality of e-government services focus on the role of government-citizen gap. H6, H7, and H8, are directly influenced by the level of trust citizens give to their government; therefore, trust is considered as a dimension of government-citizen gap. The lower the level of trust is the wider the gap between the government and the citizen. The three hypotheses related to trust and other constructs were all significant showing the existence of government-citizen gap. By the same token, bribery and favouritism will be simply handled by new intermediaries, easy access to the service will be granted to privileged segments of the population, and democracy will remain restricted. Many examples from developing countries have shown that e-government projects are not successful due to the reason that citizens are seen as customers (Ciborra and Navarra 2005; Dada 2006; Alateyah et al. 2014).

6.7 Behavioural Intention to Use E-government System

Behavioural intention is to use e-government system is identified as the dependent variable in the current research. According to Venkatesh et al. (2011: p.484), "*The degree to which a person has formulated conscious plans to perform or not perform some specified future behaviour".* UTAUT and TAM models considered the behavioural intention to use technology a key dimension which is used to investigate the use of technology by employees, citizens, and in enterprises. In addition to that, use is behavioural, while intention to use is an attitude and a solid interpreter of actual use of technology (Venkatesh et al. 2003). Thus, the present study employed the term attitude to denote use behaviour and behavioural intention as well. The attitude and behavioural intention relationship is acknowledged in the studies and research of information system and has been found to be different when employed in a range of technology

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perspectives (Davis 1985; Davis et al. 1989; Venkatesh et al. 2003). Consequently, either variable can be used to test technology acceptance.

A total of 45 per cent of the variance among the constructs of information quality, trust, attitude, culture, and perceived risk are explained by behavioural intention to use an e-government system. The analysis revealed that the items BI1, BI2, and BI3 were highly correlated with behavioural intention to use an e-government system ($r = 0.888$, $p = 0.000$), ($r = 0.931$, $p = 0.000$), and ($r = 0.868$, $p = 0.000$) respectively. The questions for these items were: *I intend to continue using government online services for the next 4 weeks, I plan to continue using government online services website in the coming 3 months, and I plan to continue using government online services in the future,* respectively. This shows that citizens will keep on using e-government system providing that they are satisfied with the information quality of the websites, trust of the service and service provider, and the ease of use and usefulness of the service.

6.8 Academic and Practical Repercussions

This study demonstrates the implication of identifying significant hypothetical relations when conducting empirical research in e-government context. The present study stresses scholars to take into consideration the value of contextual dimensions when constructing conceptual models that encompass behavioural intention in e-government setting. Actually, the outcomes reveal that studies on e-government implementation must contemplate the two pillars of information system literature; namely, the technology acceptance literature and the context of implementation literature. Heeks (2002) developed a theoretical model that differs between context of invention, context of design, and context of implementation. Heeks (2005a) indicated the gap between the design context and the reality context in terms of information, technology,

processes, values, skills, management structures, and financial resources available which are dissimilar in both contexts. Also, the complexity of e-government adoption requires a particular attention to the gap between the citizen and the government which is based on virtual communication between both parties. In e-government context, the trust construct should be involved to evaluate the relationship between the citizens and the government, mainly when citizens are requiring information and transactions provided by the authority. Citizens are more likely to use e-government services if there is a considerable level of trust narrowing the government-citizen gap. Therefore, to address both research gaps in the current study, the context of implementation and the constructs related to the government must be considered in any research in this particular field.

To the best of the author's knowledge, the context-system gap and the government-citizen gap were never discussed previously in any information system and technology acceptance setting. The study supports that the context of e-government implementation should be regarded as one of the key factors in determining the success or failure of e-government projects. Also, some of the context dimensions are considered more significant than others due to their high influence on the dimensions of the system. These dimensions were evaluated in the present research and discussed in details to demonstrate the influence of the context on the system and provide a critical understanding of the context of implementation. The context- system model fabricated in this research integrated new constructs such as trust, facilitating conditions, and social influence to TAM and UTAUT models.

In practice, the conceptual model in the current study offers an appropriate approach to decision makers in public administrations serving in developing countries to regulate the elements that entail consideration so as to earn the maximum benefits from e- government system, while

making sure that their citizens adopt the current approach of interacting using e-government systems.by all means , the proposed model provides an understanding of the behaviour of citizen and their views concerning e-government services. The research also indicates that the government administrations have to work on enhancing the quality of their services. Certainly, providing timeliness and up-to-date information to users about e-government services, promising trustworthy, quality, useful, risk free, and ease to use system; these are verified to be the most essential features in e-government acceptance literature and the current study.

6.9 Chapter Conclusion

The current chapter intended to reveal the main outcomes of the study conceded. The aim of this research was to investigate the role of context of implementation of e-government system and its influence on the behaviour intention to use e-government system in developing countries. UTAUT and TAM models were combined and modified to include perceived risk, information quality, and culture. Returning to the hypothesis posed at the beginning of this study, it is now possible to state that 5 hypotheses had significant positive correlation, 2 hypotheses had significant negative correlation, and 3 hypotheses were null hypotheses. The construct trust must be studied more carefully in an e-government implementation process due to its influence on other constructs in a system. A total of 45 per cent of the variance among the constructs of information quality, trust, attitude, culture, and perceived risk are explained by behavioural intention to use an e-government system. Integrating the context and the system of e-government and stressing the dimensions included in each pillar extracted from technology acceptance models, creates an enhanced understating of behaviour intentions to use e-government systems. On the other hand, the dimensions or constructs

in explaining behaviour intention to use an e-government system is a vital wedge in implementing electronic services and a significant aspect that upsurges citizens' attitude toward using e-government services and in so doing, encourages the continuous use of government online services. In view of that, in e-government adoption, the concept of e-context must be encompassed in research models.

Consequently, citizens will value electronic services more and will have more confident approaches when they see that they are able to interact with e-government in more self-reliance. The findings provide directors and executives of e-government projects with a new view for dealing with e-government services adoption through proposing that the discrepancy between the government and citizens and between the context and the system is considered one of the best indicators of implementing and using e-government system. Also, the results indicate that managers should pay less attention to the social influence construct and consider improving the trust and information quality of e-government services.

CHAPTER 7: Conclusion

7.1 Introduction

The main aim of this chapter is to summarize the focal findings of this research, together with the directions and limitations for future studies about technology acceptance and e-government system implementation in developed and developing countries.

7.2 Research Contributions

The aim of the present research is to reveal the main role of context-system gap and explore government-citizen gap through examining the trust construct in order to enhance our understanding in the topic of e-government acceptance and implementation in developing countries. Due to the limitation in resources and period of time given for PhD, it is not possible to study every single factor in the e-government field. Consequently, the extent of the research must be focused and specified so as to provide intensive and detailed work on a precise topic. With this in mind, the current study concentrated on examining the role of context-system gap and its influence on behavioural intention to use e-government system in developing countries. To the best of the researcher's awareness, the role of context-system gap has never been moulded in a model and studied thoroughly before.

E-government has emerged from the notion or ideology concerning the digitization of society and has materialized into a major economic force for over recent decades. E-commerce implementation in business transactions and its attraction for an extensive number of customers encouraged the exploitation of the same concept in public administration to enhance the provision of services. The success of E-commerce led to the emergence of e-government. Computers or information and communication technologies in general were seen as a way of making government bureaucracy more efficient and effective. ICT has allowed governments to embrace a complete tactic by linking different divisions

and units as never before; it has also delivered exterior connections simplifying the exchange of information with other organs of the civil society and in turn publicizing data and information globally. E-government is implemented in order to enable a transparent, friendly, rapid and cheaper ways of interaction between government and business organizations (G2B); government and citizens (G2C); government and employees (G2E); and various government departments and units internally and externally.

The majority of the developed nations have gained benefits from e-government application services, but then again there is still sizeable vacancy for enhancement and improvement. Similar to any form of transformation, e-government amenities generate a sum of challenges for governments, in addition to citizens. These challenges encompass lack of accessibility into e-government applications, privacy and security concerns, digital divide, and trust issues. In developing countries, the desires and the needs of citizens are not similar to these in developed countries and ignoring this formulates one of the significant reasons behind the low level of e-government adoption. As a result, there seems to be difficulties with the adoption of e-government services by people in developing countries. Even though e-government services are being improved and enhanced by governments, tradition ways of communication are still favoured by citizens in developing nations.

The acceptance and implementation of e-government is a multidimensional and complex issue. However, up to the present time, e-government projects and assessments have been more based on the number of users than on the quality of the service provided. Developed countries were the first to introduce e-government services and work on its development. Yet, it must not be anticipated that e-government services are spontaneously suitable for developing countries. Therefore, it

is assumed that more work and exertion will be needed in order to implement e-government system in developing countries.

In fact, the context of e-government implementation appeared to be considered one of the most vital causes of failure in developing countries, as directed by (Heeks 2002). In addition, government-citizen gap has become a serious matter within e-government implementation due to the absence of face to face interaction between citizens and public administration. Several cases in developing countries have revealed that information system in general is subjected to a high rate of failure and not only e-government. As stated by (Heeks 2002), there are some fruitful cases of information system applications in developing countries; but still the majority of computerization projects implemented failed. This is a frustrating reality, mainly because developing countries don't have excess of funds to spend on fruitless projects and therefore can't afford failure. Government-Citizen gap is the new uncovered archetype in the field of e-government. Among all the journal articles and literature covering the topic of e-government, none has explicitly mentioned government-citizen gap as a significant component in determining the outcome of e-government projects. Many examples from developing countries have shown that e-government projects are not successful due to the reason that citizens are seen as customers. The government officials or decision makers in developing countries have relatively little information about the needs of the citizens. Coming from political background, from specific social classes and with education, their systems of knowledge and perceptions are quite different from the majority of the people who are anticipated to use e-government technology (Mills 1956). The decision makers thus agree on e-government project, basing their decision on a reflective image emerging from their own insights about the system and not based on the reality of the context. Due to lack of accurate data mirroring the social, demographic, and economic situation in developing countries decision makers are not able to take precise decisions.

Therefore, imprecise and inadequate information will have devastating effects on decision making and planning activities.

Although there have been several studies on the adoption of e-government technology in developing nations, little is known about the role of implementation context on the subject of e-government implementation. Citizens need constant assistance throughout their interaction with online services. Citizens are expecting enhanced services from government similar to the quality of services offered in private sector. The adoption of e-government varies considerably between developed and developing economies because of the usual lack of the necessary financial, legal, and physical resources required for e-government in developing countries. A review of literature on e-government adoption reveals that there are limited number of studied conducted on e-government adoption in developing countries compared with the developed countries, and even less in the Middle East, including the republic of Lebanon.

Technology adoption is a well-known topic that has numerous constructs, theories, and models recognized, established and empirically verified in information system research. In general, the use of e-government services by citizens is continuously escalating due to the enlargement of information and communication technology implementation in public administration. Nevertheless, in spite of the enormous work within this field, most of the research have been piloted in industrial and developed countries than in developing ones. This could be for the reason that developing countries are less progressive in technology use and adoption. Therefore, their citizens are less mindful and not familiar with such technologies employed for public use. The current study reviewed three of the most cited technology adoption and e-government theories in the literature: TAM model, UTAUT model, and model of trust and risk.

Yet, irrespective of the realization of technology acceptance models in the field of information system, and e-business especially, these models are inadequate in taking into consideration the variety of users; they consider the users of these systems as an identical homogenous group. In other words, users are considered. The majority of technology acceptance research and studies assume that users are similar in terms of the skills to execute on-line tasks and technology abilities. Therefore, to make sure that most of the people in the country are able to adopt and use e-government systems, the context of e-government implementation should be always considered. As a result, scholars have lately started giving more consideration to features in the context of implementation, which used to get less attention in public sectors; in particular, in e-government technology and services.

7.3 Research Limitations

This study was conducted in Lebanon, considered as one of the post war and turbulent developing countries in the Middle East. Regardless of the relatively high percentage of internet users in Lebanon 75.9% (Internet World Stats, 2016), the country is ranked low in terms of World E-government Development Ranking (ranked 74 according to United Nation E-government Survey). The study still encountered several limitations. To begin with, the research has to focus on the citizens' perceptions and understandings of e-government service without covering the government officials' insights about the same subject due to the time constraints for PhD completion.

Furthermore, it was challenging to obtain a sampling frame of Lebanese citizens to be used as a parameter for compelling sample for the research due to security reasons related to data protection. It is difficult for external researchers to gain access to e-government users' data due to the

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sensitivity of the data. Also, the data was collected through paper-based and web-form questionnaires, which are filled by respondents and returned by hand or online. As a result, this process was time consuming as the researcher had to send the questionnaire to many respondents in order to get a sufficient sample size to use in the study and wait for their responses. Thus, to attain an appropriate sample for the current research, convenience sampling technique was utilized. However, the sample size ended by having young age group users of the e-government system, particularly respondents who answered the web-form questionnaire mainly university students. This sample frame deprived the research from providing an analysis with old age group included.

Although a revised model has been demonstrated established on validation through data collection and analysis in Lebanon, it could be difficult to generalize to other countries until tested and validated in such country, although the good practice guidelines would serve as action plan towards implementation of e-government services, particularly within the context of developing countries.

7.4 External Validity

External validity is the extent to which the results of a study can be generalized to other situations and to other people (Aronson et al 2007). In relation to external validity,the second most cited limitation of the studies is the tendency to examine only on IS with a homogeneous group of subjects on a single task, thus raising the generalization problem of any single study (Lee, Kozar and Larsen, 2003). Most studies examined the introduction of office automation software or systems development applications, disregarding the diversity of users and assuming all end users are homogeneous. For example, end-users of office IS go through the homogenization process, such as recruitment interviews, for certain desired skills and systematic training before introducing new IS. The end-

users of e-Commerce or entertainment applications are optional to more skilled users who have the infrastructure and skills to use the applications. Conversely, the end-users of e-government systems are more diverse than those of e-Commerce and entertainment applications. As a result, positivism assumes that it should be possible to generalize the findings using mathematics, For positivists, *kn*owledge obtained from scientific research is based on a rigorous collection of evidence and is generated by developing hypotheses.

There is no doubt that numerous factors may influence behavioural intention to use e-Government systems in both developed and developing countries. Further improvement of the proposed model may identify other factors that influence the quality of on-line services. For example, there are still some personal variables (e.g., experience using ICT, gender and age) and trustworthiness variables (e.g., Internet and government trust) that need to be incorporated in the proposed model. Thereby, future research on citizen-centric government services should examine additional factors as potential of variation in e-Government setting. Additionally, a repetition of the current study in a different context would definitely increase the generalization of the findings to other e-Government systems.

7.5 Recommendations for Further Research

As it was presented in this research and in the literature review, behavioural intention to use e-government system may be influenced by several factors in both developing and developed nations. Extra enhancement to the recommended model may possibly detect new aspects that influence the acceptance and implementation of e-government services in developing countries. For instance, few variables can be added to the model (e.g., IT training in public sector, adequate

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infrastructure, skilful IT staff) and support variables such as quality support and public support for e-government services. By this means, future research on e-government systems adoption and implementation ought to study further issues and constructs that could be incorporated in r-government models. Also, applying the proposed model in the current study on another context will certainly increase the generalizability of the findings.

The proposed model works as a framework for examining and evaluating e-government adoption and acceptance characteristics and aspects, particularly within the context of developing countries. Nevertheless, research and studies about e-government implementation could be enhanced through focusing on key performance indicators. This could help governments and developers asses the implementation of e-government system in comprehensive and complete manner. Moreover, e-government implementation is mainly an inclusive concept that is shaped by information system and management; therefore, future studies could work on management perspectives needed for smooth and successful implementation.

The current research concentrated its analysis on the citizens' perspectives and has not tackled the public servants' and officials' perspectives concerning the implementation of e-government system. Exploring the viewpoints of government officials and public servants and demonstrating the differences between both parties involved in e-government implementation would add more insights to the subject and increase the rate of success in developing countries.

7.6 Contributions to Knowledge

The present study aims to enhance our knowledge in e-government fields by providing an empirical model including context and system factors and

explaining the context-system and government-citizen gaps. To the author's best knowledge, this study is one of the first attempts to examine the dimensions influencing citizens' adoption of e-government technologies in developing countries through creating a unified model merging context and system dimensions. This study is the first study to introduce government-citizen gap and context-system gap as two key gaps hindering the success of e-government in developing countries. Therefore, the importance of the present study is based on the value of the proposed research model, which permits academics and researchers to find issues that were possibly not identified in previous works. The following are the foremost research contributions to knowledge:

The first contribution of this research is presenting a new model related to technology acceptance; particularly to e-government implementation, that is established in the context of developing countries. Moreover, the current research encourages researchers in the field to give significant attention to the context of implementation of any kind of technical and/or electronic systems especially if it is dedicated for public use such as e-government system. Also, the model in the present research could be tested in e-commerce, G2G, G2B, and G2E settings.

The second contribution provided by the current study is the significance of trust construct on other constructs in the model which influence the behavioural intention to use e-government system. This research studies the role of trust in the context of implementation and its impact on the system. Although the influences of trust in service and trust in government on e-government adoption have been investigated in the literature, this study examines the influence of trust in relation to other variables within the same model on e-government system.

The third contribution of this research is proposing an original perspective for dealing with e-government system implementation by asserting that the information quality perceived by e-government users is one of the

fundamental indicators of using the system. Based on the finding discussed in chapter six, there are two central factors must be carefully considered when implementing e-government system: Information quality, which is influenced by trust of service and trust of service provider; and facilitating conditions, which is the degree to which an individual believes that an organizational and technical infrastructure exist to support use of the system. This implies that, when citizens perceive the information provided by the e-government system as information of high quality, then they will maintain a behavioural intention to keep using the e-government system or to use it in the future.

The fourth contribution is presented in the proposed model which merges both dimensions of e-government implementation (context and system). This is a new contribution based on the fact that all conceptual models have either focused on the system or on the context. This model will be very beneficial for academics and managers, mainly implementer and decision makers of e-government systems. The first contribution is establishing an e-governance implementation model and the fourth contribution is including context and system in one model.

Certainly, providing facilitating conditions, responsiveness, reliability of the system, compatibility with existing values and needs, accuracy and relevancy of information provided, security and privacy concerns, and trust of service and service provider are verified in the current research to be the most important issues in e-government use and implementation literature. Finally, additional importance must be positioned on certifying that the citizens use the system effectively and efficiently, as the attitude of citizens has a positive influence on behaviour intention to use the system.

7.7 Conclusion

The roles of the context of implementation and the system (e-government system) were explained and explored in this research. A model was assembled from the dimensions of the context and the system. Trust dimension appeared to have a significant impact on the relation between the citizens and the government. This explains the existence of government-citizen gap in e-government implementation. This research focused on a limited number of constructs in e-government implementation due to the limitation in resources and period of time given for PhD. The proposed model constructed in this research which merges both dimensions of e-government implementation (context and system). This is a new contribution based on the fact that all conceptual models have either focused on the system or on the context. This model will be very beneficial for academics and managers, mainly implementer and decision makers of e-government systems. Additionally, the current research concentrated its analysis on the citizens' perspectives and has not tackled the public servants' and officials' perspectives concerning e-government implementation in Lebanon. Exploring the viewpoints of government officials and public servants and demonstrating the differences between both parties involved in e-government implementation would add more insights to the subject and increase the rate of success in developing countries.

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Appendixes

Appendix A: The Questionnaire

E-government

Q2استطلاع حول الحكومة الإلكترونية وخدماتها في لبنان   عزيزي المواطن / المستخدم،   إن التوجه العالمي نحو الحكومة الالكترونية يزداد يوما بعد يوم ، و هو دليل قاطع على أهمية الإدارة الالكترونية واعتراف دولي بدورها في تحقيق التقدم و النمو للمجتمعات المعاصرة ، فلذلك يجب أن يكتسب مشروع الحكومة الالكترونية في لبنان أهمية قصوى كونه يشكل الأداة التنبيذية لتحقيق ما نصوبو إليه من إصلاح إداري في القطاع العام و تحسين قدراته التنافسية.   ولكن، ماذا يقصد بالحكومة اللّكترونية؟ باختصار ، الحكومة الإلكترونية هي التحول من الشكل الروتيني الكلاسيكي العادي إلى الشكل الإلكتروني باستخدام التكنلوجيا والاتصالات لتقديم الخدمات العامة والمعاملات والوثائق من أجهزة الحكومة) وزارات - مؤسسات -شركات ودوائر (...إلى) المواطنين - المقيمين - الشركات .   . (.... ولكي نقوم بتشكيل بنك من الأدلة التي تمثل العينة المستطلعة فمن الضروري ملء الاستبيان بكامله .وسيتم التعامل مع جميع المعلومات المقدمة بسرية مطلقه ولن تكون متاحة إلا للباحثين الأكاديميين المعنيين بهذا الدراسة .ولن يتم كشف معلومات تتعلق بأي فرد اطلاقا مهما تكن الظروف .ولن يستغرق الاستبيان أكثر من 10-15 دقيقة لانهائه   .إن مشاركتكم محل تقديرنا الشديد حيث ستسهم في نجاح هذا الدراسة، فإذا كان لديكم أي تسائلات أو قلق يرجى الاتصال بالباحث على البريد الالكتروني hbazcham@student.bradford.ac.uk. نشكركم على تعاونكم في إتمام هذا الدراسة الهامة ،،،

Q6 يرجى تحديد الجنس

○ ذكر(1)
○ أنثى(2)

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Q7 الحالة الاجتماعية

⭘ أعزب(1)
⭘ متزوج(2)
⭘ مطلق(3)

Q8 ما هو العمر

⭘ (1) 15-24
⭘ (2) 25-34
⭘ (3) 35-44
⭘ (4) 45-54
⭘ (5) 55-64
⭘ (6) +65

Q13المستوى التعليمي

⭘ غير متعلم(1)
⭘ شهادة متوسطة او أقل(2)
⭘ شهادة جامعية(3)
⭘ تعليم عالي(4)
⭘ شهادات اخرى(5)

Q6في اي محافظة تسكن

⭘ بيروت(1)
⭘ البقاع(2)
⭘ الشمال(3)
⭘ الجنوب(4)
⭘ جبل لبنان(5)
⭘ النبطية(6)

Q8العمل؟

○ عاطل عن العمل(1)
○ طالب(2)
○ موظف(3)
○ مدير قسم(4)
○ مدير عام(5)
○ عمل حر(6)
○ مالك شركة(7)
○ غير ذلك(8)

Q9كيف تقيم قدرتك على استخدام الحاسوب؟

○ سيئة جدا(1)
○ سيئة(2)
○ متوسطة(3)
○ جيدة(4)
○ جيدة جدا(5)

Q10منذ متى تستخدم الانترنت؟

○ لا استخدم الانترنت(1)
○ أقل من سنة(2)
○ بين السنة والسنتين(3)
○ بين سنتين وثلاث سنوات(4)
○ أكثر من ثلاث سنوات(5)

Q11ما مدى استخدامك للانترنت

○ يوميا(1)
○ اسبوعيا(2)
○ شهريا(3)
○ سنويا(4)

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Q12 ما مدى استخدامك لللانترنت في اليوم

○ أقل من ساعة(1)
○ 1-2ساعات(2)
○ 2-3ساعات(3)
○ أكثر من 4 ساعات(4)

Q13 كيف تقيم قدرتك على استخدام الانترنت

○ سيئة جدا(1)
○ سيئة(2)
○ متوسطة(3)
○ جيدة(4)
○ جيدة جدا(5)

Q14لأي من هذه الاسباب تستخدم الانترنت؟

❑ البريد الالكتروني(1)
❑ للبحث عن معلومات(2)
❑ للتسوق(3)
❑ للتسلية(4)
❑ لمواقع التواصل الاجتماعي(5)
❑ للتعلم(6)
❑ للعمل(7)

Q18هل سبق وسمعت بالحكومة الالكترونية

◯ نعم(1)
◯ كلا(2)

Q19هل سبق وسمعت بخدمة دولتي الالكترونية

◯ نعم(1)
◯ كلا(2)

Q20هل سبق ان ستخدمت اي خدمة من خدمات الحكومة الالكترونية ,مثال :الاستعلام عن مخالفات المرور عبر الانترنت او البحث عن وظائف عبر الموقع الالكتروني لمجلس الخدمة المدنية؟

◯ نعم(1)
◯ كلا(2)

Q28أذا كان جوابك لا ,أرجو بيان سبب عدم استخدامك لهذه الخدمة حتى الان

Q25 . أذا كان جوابك نعم ,ماهي الخدمات الحكومية الالكترونية التي استخدمتها الى الان

❑ الاستعلام عن بعض الانظمة والقوانين(1)
❑ دفع فاتورة الهاتف الارضي(2)
❑ الاستعلام عن مخالفات المرور والسرعة(3)
❑ التصريح ودفع الضرائب(4)
❑ البحث عن الوظائف المنشورة لدى مجلس الخدمة المدنية(5)
❑ تقدم طلبات توظيف في القطاع العام(6)

Q26القسم الثالث :في هذه الفقرة هناك اسئلة متعلقة بستخدامك لخدمات الحكومة الالكترونية ,في حال لم تستخدم اي من هذه الخدمات يمكنك ترك السؤال فارغ

	غير موافق بشدة (1)	غير موافق(2)	محايد او لا اعلم (3)	موافق(4)	موافق بشدة(5)
في لبنان، من المتوقع من المواطن أن يطيع المسؤولين الحكوميين دون استجواب(1)					
في لبنان، تمنح خدمات الحكومة الالكترونية امتياز لمجموعة واحدة من اللبنانيين على حساب الاخرين (2)					
معظم الناس في لبنان يتوقعون خدمات الحكومة الالكترومية ان تكون تطبيق منظم مع عدد قليل من القضايا الغير متوقعة(3)					
في لبنان، تعطى التعليمات للمواطنين بالتفصيل الدقيق حتى يعرف					

					المواطنون ما يتوقع منهم القيام به(4)
					أكثر الناس يعيشون للمستقبل بدلا من الحاضر(5)
					في لبنان، يضع الناس المزيد من التركيز على التخطيط للمستقبل(6)
					في لبنان، الناس عموما مهيمنين في علاقاتهم مع بعضهم البعض (7)
					في لبنان ,الناس عموما رقيقين (8)

	غير موافق بشدة (1)	غير موافق(2)	محايد او لا اعلم (3)	موافق(4)	موافق بشدة(5)
الناس الذين لهم تأثير على سلوكي يعتقدون أنه ينبغي لي أن استخدم خدمات الحكومة الالكترونية(1)					
أستخدم الحكومة الالكترونية لأن زملائي ورفاقي يستخدمونها(2)					
استخدم الحكومة الالكترونية بسبب نسبة المواطنين الذين يستخدمون هذه الخدمة(3)					
بشكل عام، إن الحكومة اللبنانية دعمت استخدام خدمات الالحكومة الالكترونية(4)					
المواطنين الذين يستخدمون خدمات الحكومة الالكترونية لديهم مكانة عالية					

					وأكثر هيبة من أولئك الذين لا يستخدمونها(5) القدرة على استخدام خدمات الحكومة الالكترونية يعد رمزا للمكانة العالية في لبنان (6)

موافق بشدة(5)	موافق(4)	محايد او لا اعلم (3)	غير موافق(2)	غير موافق بشدة (1)	
					لدي المعرفة اللازمة لاستخدام خدمات الحكومة الالكترونية بمفردي (1)
					بالنظر إلى الموارد والفرص والمعرفة اللازمة لاستخدام خدمات الحكومة الالكترونية .سيكون من السهل بالنسبة لي أن استخدام خدمات الحكومةالالكترونية (2)
					أجد أنه من السهل أن استخدام خدمات الحكومة الالكترونية نظرا لتوافر التعليمات المتخصصة(3)
					شخص معين) أو مجموعة من الاشخاص (متاح لمساعدة الذين يعانون من

					صعوبات في استخدام الحكومة الالكترونية(4)
					استخدام خدمات الحكومة الالكترونية متوافق مع جميع جوانب عملي(5)
					استخدام خدمات الحكومة الالكترونية يناسب تماما مع نمط حياتي(13)

	غير موافق بشدة (1)	غير موافق(2)	محايد او لا اعلم (3)	موافق(4)	موافق بشدة(5)
أعتقد أنني يمكن أن أثق بالجهات الحكومية(1)					
يمكن الوثوق باجهات الحكومية لتنفيذ المعاملات عبر الإنترنت بأمانة (2)					
أثق أن الجهات الحكومية تأخذ مصلحة المواطن بعين الاعتبار(3)					
في رأيي، الجهات الحكومية هي غير جديرة بالثقة (4)					
شبكة الإنترنت تحتوي على ضمانات كافية لتجعلني أشعر بالراحة عند استخدامه لمزاولة الأعمال الشخصية مع الجهات الحكومية					

					(5)
					أنا على يقين من أن الهيكلية القانونية والتكنولوجية الموجودة تحميني من كافة المشاكل على شبكة الإنترنت(6)
					بشكل عام، الإنترنت هو وسيلة متينة وآمنة للتعامل مع الجهات الحكومية(7) .

	غير موافق بشدة (1)	غير موافق(2)	محايد او لا اعلم (3)	موافق(4)	موافق بشدة(5)
عموما ,أنا لا أثق بالاخرين(1)					
عموما ,أنا لدي ثقة في الإنسانية (2)					
أشعر أن الناس يمكن الاعتماد عليها بشكل عام (3)					
عموما ,جميع الناس أهل للثقة الى ان يثبت العكس(4)					

Q25أدراك ألمخاطر

	غير موافق بشدة (1)	غير موافق(2)	محايد او لا اعلم (3)	موافق(4)	موافق بشدة(5)
قرار استخدام خدمات الحكومة الالكترونية يعد مخاطرة(1)					
بشكل عام، أعتقد أن استخدام خدمات الحكومة الالكترونية أمر محفوف بالمخاطر(2)					

	غير موافق بشدة (1)	غير موافق(2)	محايد او لا اعلم (3)	موافق(4)	موافق بشدة(5)
غالبا ما أصبح مشوش/ة عند استخدام خدمات الحكومة الالكترونية(1)					
أرتكب الأخطاء في كثير من الأحيان عند استخدام خدمات الحكومة الالكترونية(2)					
خدمات الحكومة الالكترونية هي جامدة وغير مرنة للتفاعل معها(3)					
أجد أنه من السهل الحصول على خدمات الحكومة الالكترونية لتفعل ما تريد أن تفعله (4)					
من السهل بالنسبة لي أن نتذكر كيفية استخدام خدمات الحكومة					

					اللكترونية عبر الانترنت بعد مرور وقت بعيدا عن استخدامه (5)
					سيكون من السهل بالنسبة لي أن أصبح ماهرا في استخدام خدمات الحكومة الالكترونية بسرعة(6)

	غير موافق بشدة (1)	غير موافق(2)	محايد او لا اعلم (3)	موافق(4)	موافق بشدة(5)
استخدام خدمات الحكومة الالكترونية أوفر وقت من القيام بالعملية الورقية التقليدية(1)					
خدمات الحكومة الالكترونية متوفرة لخدمة المواطنين 24ساعة في اليوم ولسبعة ايام في الاسبوع(2)					
الحكومة الالكترونية تجعل التواصل مع الإدارات العامة سهلة(3)					
استخدام خدمات الحكومة الالكترونية يقلل من الوقت الذي اقضيه في جمع معلومات عن الادارات العامة والقوانين(4)					
استخدام خدمات الحكومة الالكترونية يجعل من الاسهل انجاز المهام مع					

					الإدارات العامة(5)
					استخدام خدمات الحكومة الالكترونية تمكنني من القيام بالتعامل مع الحكومة بسرعة وكفاءة(6)
					استخدام خدمات الحكومةالالكترونية يتيح لي الفرصة لإنجاز المزيد من العمل الغير ممكن انجازه دون هذه الخدمات(7)
					أجد خدمات الحكومة الالكترونية في لبنان مفيدة وتزود المواطنين بقدر واسع من المعلومات فقط من خلال" كبسة زر (8)

Q28جودة المعلومات المتوفرة في الحكومة الالكترونية في لبنان

	غير موافق بشدة (1)	غير موافق(2)	محايد او لا اعلم (3)	موافق(4)	موافق بشدة(5)
المعلومات الموجودة على مواقع خدمات الحكومة الالكترونية خالية من الأخطاء(1)					
المعلومات المتوفرة على مواقع خدمات الحكومة الالكترونية تغطي جميع المعلومات اللازمة من قبل المواطنين(2)					
المعلومات المتوفرة عن خدمات الحكومة الالكترونية دقيقة ومستحدثة(3)					
المعلومات المقدمة على خدمات الحكومة الالكترونية قريبة من احتياجاتي (4)					

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Q29ادراك المخاطر المتعلقة باستخدام خدمات الحكومة الالكترونية في لبنان

	غير موافق بشدة (1)	غير موافق(2)	محايد او لا اعلم (3)	موافق(4)	موافق بشدة(5)
خدمات الحكومة الالكترونية قد تعاني من سؤ لأداء بسبب التحميل البطيئ , عطل في الاجهزة الالكترونية , وصيانة المواقع الالكترونية الحكومية(1)					
الحكومة الالكترونية قد لا تقوم بأداء جيد وخاصة في اتمام العمليات المالية عبر الانترنت (2)					
عند تحويل الأموال للدولة على طريق الإنترنت، أخشى أنني سوف أخسر المال بسبب الإهمال مثل إدخال خاطئ لرقم الحساب أو إدخال خاطئ					

					لمبلغ من المال (3)
					عند حدوث أخطاء في المعاملات، أخشى أنه لايمكن الحصول على تعويض من الحكومة(4)
					لا أشعر بالأمان تماما عند تقديم معلومات شخصية عبر خدمات الحكومة الالكترونية(5)
					أنا قلق من استخدام خدمات الحكومة الالكترونية لأنه من الممكن للأخرين الوصول إلى حسابي(8)
					أنا لا أشعر بالأمان عند إرسال معلومات حساسة عبر خدمات الحكومة الالكترونية(7)

Q30الموقف من استخدام خدمات الحكومة الالكترونية في لبنان

	غير موافق بشدة (1)	غير موافق (2)	محايد او لا اعلم (3)	موافق (4)	موافق بشدة (5)
استخدام خدمات الحكومة الالكترونية هو فكرة جيدة وحكيمة (1)	○	○	○	○	○
خدمات الحكومة الالكترونية يجعل التواصل مع الحكومة أكثر سلاسة و إثارة للاهتمام (2)	○	○	○	○	○
استخدام خدمات الحكومة الالكترونية يعد	○	○	○	○	○

					متعة بالنسبة لي(3)
○	○	○	○	○	أنا أفضل استخدام خدمات الحكومة الالكترونية للتفاعل مع الإدارة العامة (4)

	غير موافق بشدة (1)	غير موافق (2)	محايد او لا اعلم (3)	موافق (4)	موافق بشدة (5)
أنوي الاستمرار في استخدام خدمات الحكومة الالكترونية على الإنترنت خلال الاسابيع الاربعة القادمة (1)	○	○	○	○	○
أنوي الاستمرار في استخدام خدمات الحكومة الالكترونية عبر الإنترنت في الأشهر	○	○	○	○	○

					ال 3 المقبلة (2) أنوي الاستمرار في استخدام خدمات الحكومة الالكترونية عبر الإنترنت في المستقبل (3)
○	○	○	○	○	

Q32شكرا لكم ولمشاركتكم

Appendix B: Common Variance Method (CVM)

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.338	22.676	22.676	11.338	22.676	22.676
2	4.697	9.393	32.069			
3	3.126	6.252	38.321			
4	2.952	5.904	44.225			
5	2.707	5.415	49.640			
6	2.058	4.117	53.756			
7	1.952	3.904	57.661			
8	1.824	3.648	61.309			
9	1.649	3.298	64.607			
10	1.388	2.776	67.383			
11	1.217	2.433	69.816			
12	1.157	2.314	72.131			
13	1.079	2.157	74.288			
14	.976	1.952	76.240			
15	.935	1.869	78.109			

16	.881	1.762	79.871
17	.859	1.719	81.590
18	.762	1.523	83.113
19	.703	1.406	84.519
20	.694	1.388	85.907
21	.666	1.332	87.239
22	.606	1.212	88.451
23	.538	1.077	89.528
24	.526	1.053	90.581
25	.434	.868	91.449
26	.429	.858	92.308
27	.383	.766	93.073
28	.349	.697	93.771
29	.339	.678	94.448
30	.299	.597	95.046
31	.265	.530	95.576
32	.244	.488	96.064
33	.239	.478	96.542
34	.217	.433	96.975
35	.194	.389	97.364
36	.181	.361	97.726

37	.161	.322	98.047			
38	.149	.298	98.345			
39	.142	.285	98.630			
40	.120	.240	98.870			
41	.105	.210	99.081			
42	.095	.191	99.271			
43	.090	.181	99.452			
44	.066	.131	99.583			
45	.051	.102	99.685			
46	.046	.091	99.776			
47	.038	.077	99.853			
48	.030	.060	99.913			
49	.028	.056	99.969			
50	.016	.031	100.000			

Extraction Method: Principal Component Analysis.

Appendix C: Numerical Values Data Coding

	V7	V10	Q6	Q7	Q7.0	Q13	Q6.0	Q8	Q9	Q10	Q11	Q12	Q13.0	Q14_1	Q14_2	Q14_3	Q14_4	Q14_5	Q14_6	Q14_7	Q18
128	0	1	1	3	3	2	4	6	4	5	1	4	4	1	2	3	4	5	.	7	1
129	0	0	2	1	1	2	5	1	4	5	1	3	4	1	2	.	.	5	.	.	1
130	4	1	1	1	1	2	4	2	5	5	1	3	4	1	2	3	4	5	6	7	1
131	4	1	2	1	1	2	1	2	4	5	1	3	4	.	2	3	4	5	.	.	2
132	4	0	1	1	2	2	4	6	5	5	1	4	4	.	.	.	4	5	6	7	.
133	12	1	1	1	1	2	4	2	5	5	1	3	4	1	2	3	4	5	6	7	1
134	12	1	2	1	1	2	1	2	4	5	1	3	4	.	2	3	4	5	.	.	2
135	12	0	1	1	2	2	4	6	5	5	1	4	4	.	.	.	4	5	6	7	.
136	12	1	1	1	1	2	4	2	5	5	1	3	4	1	2	3	4	5	6	7	1
137	12	1	2	1	1	2	1	2	4	5	1	3	4	.	2	3	4	5	.	.	2
138	12	0	1	1	2	2	4	6	5	5	1	4	4	.	.	.	4	5	6	7	.
139	0	1	1	1	1	2	5	2	5	5	1	4	5	.	2	.	4	5	.	.	1
140	0	1	2	1	1	2	1	2	5	5	1	3	5	.	2	3	4	5	6	7	2
141	0	0	1	1	2	2	1	3	5	5	1	4	5	.	2	.	.	5	.	7	1
142	4	1	1	1	1	2	5	2	5	5	1	4	5	.	2	.	4	5	.	.	1
143	4	1	2	1	1	2	1	2	5	5	1	3	5	.	2	3	4	5	6	7	2
144	4	0	1	1	2	2	1	3	5	5	1	4	5	.	2	.	.	5	.	7	1
145	0	1	1	2	2	2	3	6	4	5	1	4	5	1	2	3	.	5	6	7	1
146	0	1	1	1	1	2	2	2	5	5	1	4	5	1	2	.	.	5	6	7	2
147	4	1	1	1	1	2	5	2	5	5	1	4	5	.	2	.	4	5	.	.	1
148	4	1	2	1	1	2	1	2	5	5	1	3	5	.	2	3	4	5	6	7	2
149	4	0	1	1	2	2	1	3	5	5	1	4	5	.	2	.	.	5	.	7	1
150	12	1	1	1	1	2	5	2	5	5	1	4	5	.	2	.	4	5	.	.	1

Appendix D: Total Number of Participants