

Factors Affecting the Adoption of E-government in Saudi Arabia

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**Factors Affecting the Adoption of E-government in
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ABSTRACT

The application of the ICT in government gains more and more attention from researchers. Understanding the challenges that likely confront the adoption of e-government by citizens is important for the continuity of successful e-government diffusion. Previous studies have attempted to study the main factors influencing the diffusion of e-government by focusing on the e-government performance and did not adequately study other direct and indirect factors that affect the citizen's decision to adopt its services. The main research question investigated in this study was; what are the underlying factors that influence citizens' intention to use e-government services in Saudi Arabia. In order to answer the research question, a conceptual model was developed in this study to explain the relationships between these factors and the behavioral intention to use e-government services. The conceptual model integrates constructs from the Technology Acceptance Model (perceived ease of use and perceived usefulness), UTAUT model (social influence), and trustworthiness constructs (trust of government and trust of the Internet) adopted from Carter and Belanger's (2005) acceptance model, and introduces the factor of perceived corruption. The model was tested from three aspects; the intention to use e-government in a mandatory environment and in a voluntary environment, and the intention to not use e-government. A quantitative approach was applied to empirically test the proposed model. An online survey questionnaire was conducted on a broad diversity of Saudi Arabia's citizens. A total of 349 responses collected through a convenience sampling technique. The responses were evaluated using multiple regression analysis, using SPSS 24, and mediation analysis using PROCESS macro 2.16 in SPSS. The results show that in a voluntary environment, the factors that are related to the e-government performance, such as perceived ease of use, perceived usefulness, and the trust in the Internet, have a direct effect on the citizens' behavioral intention to use e-government. While the factors that are not related directly to the performance of the e-government, such as the trust in the government and social influence, have an indirect effect on their behavioral intention to use e-government.

The study also shows that the social influence variable has a strong effect on citizens' behavioral intention to use e-government in a mandatory environment. While their perception of the ease of use is the only factor that significantly affects their intention to not use e-government.

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Chapter 1: Introduction

1.1 Introduction

Continued globalization has driven many countries to move towards increased use of new technologies. The rapid improvement of Information and Communication Technology (ICT) led to transformations in the method of delivering businesses and governments' services to citizens. This improvement reveals electronic services (e-services) as a great opportunity to provide better services, and better communication channels adapted to people's needs. People have gained more knowledge and experience through utilizing the Internet and using e-services from the private sector. This increases citizens' expectations for higher standards and better services from their related governments (Silcock, 2001). For citizens, electronic government (e-government) means that the interaction with public administration becomes much easier and at lower cost. Therefore, governments adopted the concept of e-government to emulate the private sector by offering more efficient public services to citizens and businesses.

E-government represents a fundamental change in the whole structure of the public sector by utilizing ICT, which in turn enhances the transparency, the efficiency and the effectiveness of government services' delivery, and improves communication and access to information for citizens (Fang, 2002; Gonzalez et al., 2007; Bannister and Connolly, 2015).

In the last decade, many governments wanted to capitalize on the tempting potential of revolutionizing the relationship between governments and citizens through emerging web-based technology, therefore e-government has been identified as one of the top priorities for governments across the world (Chen et al., 2006).

Many countries are making an effort for improving e-government to ensure that public institutions are more efficient, effective, accountable and transparent (United Nations, 2016). According to United Nations' survey of e-government sustainable development in 2016, there has been a significant rise in the number of countries that are adopting e-government and provide strategies to provide public services online. In 2003, only 33 out of 193 countries provided online transactions, however, this number has increased to 148 out of 193 countries in 2016.

Saudi Arabia is one of these countries that initiated the process of implementing its concept of e-government, aiming to simplify and make-work easier, and to facilitate the interaction and communication with citizens as well as government agencies. Under the context of globalization, the government of Saudi Arabia has been prompted to pursue global-scale developments in the quest to elevate the country to the

status of the developed nations. Although the country continues to experience rapid growth in terms of economy, education, population, and technology (Jadwa Investment, 2017), the rapid development of the technology was not the only reason drives Saudi Arabia to adopt the concept of e-government. The fact that the oil revenues are shrinking has created a need for alternative solutions. One of the most key strategies pursued is to identify ICT as a key strategic long-term plan for cost-effective solutions and consistent with the vision of 2030 (Saudi Vision 2030, 2016). The introduction of e-government is a qualitative leap makes the economy based on knowledge instead of being oil production-based economy.

Saudi Arabia is the biggest ICT market in the Middle East. However, according to a recent report from the United Nations (UN), Saudi Arabia ranked 44th in providing e-government services (United Nations, 2016), despite government investment that made in e-government services, the ranking decline compared to 39th rank in 2014. This reflects a slow process of improving e-government and keeping pace with new technology, which may lead to a low level of citizen participation in e-government activities. At the global scale, lack of citizens' participation of e-government services is problematic requires further studies (United Nations, 2016). Lack of citizens' participation is a sign of not accepting the service, and thus one of the challenges facing governments.

From the citizens' perception, the availability of IT infrastructures is not the only reason for accepting e-government services, but other factors, such as organizational and social readies play a role in their decision (Bannister and Connolly, 2011; Weerakkody et al., 2007; Weerakkody et al., 2008). There is a large gap in the understanding of the engagement of citizens in e-government services. Therefore, it is very important for governments to understand the factors influencing their citizens' decision to adopt e-government. The success of e-government services not only depend on government support, but also depends on the citizens' willingness to accept and adopt these services (Carter and Belanger, 2004). The successful adoption of e-government by citizens requires an in-depth multi-dimensional understanding and analysis of e-government issues from the citizens' perspective in order to face the lack of success from a managerial outlook.

This study investigates underlying factors that influence the citizens' decision to use e-government services in Saudi Arabia. The purpose of this chapter is to present an outline of why this research is being undertaken along with discussing the research motivations and significance.

1.2 Research Background

E-Government is about delivering improved services to citizens and businesses through using ICT to manage information (Jain Palvia and Sharma, 2007). Although many might think that the technology itself would be a major hindrance to the diffusion of e-government, in reality, the user's acceptance of e-government is the biggest hurdle for the adoption of e-government. The success of e-government diffusion largely depends on the number of citizens using the service. The users' acceptance of e-government is regarded as one of the success criteria for e-government (Hwang et al., 2004; Kurfali et al., 2017). Understanding and identifying key factors that play a role in the citizens' acceptance of e-government is important to enrich literature has been produced regarding e-government adoption.

Several studies have discussed the key factors that lead to acceptance of e-government. In literature, there are a number of models and theories that have been proposed to explain these factors and their role in influencing the acceptance of e-government by citizens. The most common models that have been used to explain the acceptance of e-government are TAM, TPB, DOI, and UTAUT. Moreover, some studies have modified these theories or introduced a new factor to match their research content. For instance, Sahari et al. (2012), Al-Hujran et al., (2011), and Hung et al, (2006) adopt the TAM in their studies to examine the citizens' intention to use e-government. To serve the same purpose, Kurfali et al. (2017) examine the citizens' acceptance using UTAUT but with several modifications. On the other hand, Carter and Belanger (2005) study the citizens' acceptance by integrating both DOI theory and TAM with an introduction to trustworthiness factors.

Some of the studies mentioned above have applied one of the technology acceptance theories as it, i.e. without any modifications, ignoring that each society has its own needs. Hence, the factors that likely affect one society may not affect other societies. The factors that may have an impact on the citizens' acceptance of e-government in a developed country are likely being different from those affecting the citizens' acceptance from a developing country. Therefore, it is important for researchers to consider that some modifications have to be made in the theory they employed to suit the purpose of the research. This helps researchers to gain better results that determine the factors that affect the citizen's intention to adopt e-government.

1.3 Research Problem Statement

According to E-Government Development Index (EGDI is a composite measure of; the provision of online services, telecommunication connectivity, and human capacity) of United Nations, Saudi Arabia has shown remarkable progress in the development of e-government. Its ranking improved from 80 in 2005 to 36, and then 44 in 2014 and 2016 respectively (UN E-government Knowledge Database, 2016). However, the E-Participant Index (EPI), which is the use of online services to facilitate the provision of information by governments to citizens, showed variation between improvement and decline in its ranking. In 2005, the ranking was 83, while it declined significantly to 102 in 2008, and then improved then declined again in the following years. It is clear that despite the efforts made in the development of e-government, however, it is still difficult for the government to provide the necessary needs to make the citizens satisfied with the use of services. In spite the fact that e-government services provide several advantages, the number of citizens using these services is a fundamental component to evaluate a certain country well utilization of e-government's offering (Hwang et al., 2004). Based on the E-Participant indicator, the most important points are to enable citizens to access services and information without demand and involve citizens in the decision-making process (UN E-government Knowledge Database, 2016). However, Saudi Arabia is still unable to adequately study citizens' behavior and influences that may affect their decision. Thus, many challenges may face e-government in the diffusion process, and in encouraging more citizens to adopt government services.

Although, the usage of some e-government services became mandatory as a solution, introduced by the government of Saudi Arabia, to expand e-government and disseminate the culture of e-transaction, in fact, a number of citizens did not accept the usage of these services. Furthermore, some of the citizens who already have used these mandatory services have no desire to use them again, or continuously. This would negatively affect their decision and their future intention to use any e-government services even if it was implemented properly.

Therefore, it is important that the government becomes aware of the challenges that are likely to be faced it in the process of e-government diffusion amongst citizens. It is important to know the reasons and indirect factors that will motivate citizens not only to use e-government services but to continue to use them for long-term. Due to the lack of research that investigating the multidimensional factors influences citizens' intention to adopt e-government services, we shed light in this study on these key factors from the viewpoint of the citizens.

1.4 Research Objective

E-government adoption is an emerging and attracted the attention of many researchers in term of understanding users' point of view. The aim of this study is to investigate underlying factors that influence citizens' intention to use e-government services in Saudi Arabia. To meet this aim, this study has the following objectives.

- To identify the factors that affect e-government adoption from the citizens' perspective by investigating factors from TAM, trustworthiness factors, social influence factor, and perceived corruption factor.
- To develop a conceptual framework explaining the relationships between the factors that affect citizens' adoption of e-government.
- To empirically test the conceptual model in the context of Saudi Arabia e-government.
- To increase the theoretical understanding of e-government adoption by extending the existing research.
- To reveal the Saudis citizens' expectations from e-government services.
- To provide guidelines for the Saudi Arabian government about what it should do to satisfy citizens so they can revise and develop e-government services.

1.5 Research Questions

This research answers the following main question:

What are the key factors that influence citizens' intention to use e-government services in Saudi Arabia?

This research question is further divided into sub-questions with regard to adoption of e-government by citizens. The relevant sub-questions are as follows:

1. What is the relationship between the citizens' trust in the government and their intention to use e-government services?
2. What is the relationship between the citizens' trust in the Internet and their intention to use e-government services?
3. What is the relationship between the citizens' trust in government and their perception of government corruption?

4. What is the relationship between the citizens' perception of government corruption and their intention to use e-government services?
5. What is the relationship between the citizens' perception about the usefulness of e-government services and their intention to use these services?
6. What is the relationship between the citizens' perception of the ease of using e-government services and their intention to use these services?
7. What is the relationship between the social influence and the citizens' intention to use e-government services?

1.6 Significance of the Study

E-government has been studied from different aspects. One of the aspects that most of the studies investigate is the factors contributing to the success of e-government adoption. Most of these studies adopt factors from one or two of these models, the theory of reasoned action, the technology acceptance model, the theory of planned behavior, or diffusion of innovations theory. Some of these studies have introduced new factors to these theories in order to better identify the influences that affect the citizens' behavior. However, to the best of our knowledge, very few studies have introduced indirect factors, that are not related directly to the performance of e-government, such as the trust in the government, government corruption, and the social influence, that would affect the citizen's intention to adopt e-government.

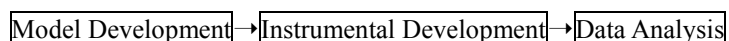
The other aspect of e-government studies is evaluating the performance of e-government services directly through evaluating factors from TAM such as; the ease of use and usefulness and efficiency and profitability, in order to understand the citizens' intention to use e-government services. Previous studies have failed to examine the factors that are not directly related to the performance of e-government; however, have a relationship with individuals' perceptions of government and the extent of individuals' trust in the government and the performance of the Internet. This research examines the factors that directly concern with e-government usage (the factors that related to the performance of e-government), and the factors that not directly related to e-government performance (the factors that influence individuals' decisions). This study not only focuses on investigating the individual's intention to use e-government services, but also investigating the continuity of using the services, Which has not been adequately studied in previous research.

In this study, a new conceptual model has been presented by introducing new factors that have not been studied in previous research, which will constitute to the existing research content in the field of e-government and benefit the researchers for further studies. That is to say, there has not been any research which investigates the effect of factor such as the perceived corruption in the adoption of e-government in developing country like Saudi Arabia. The significance of this study is as follows.

- This study contributes to identifying the factors that play a key role in the adoption of e-government from the potential users' point of the view, which contributes to the managerial need in understanding the factors influence the citizens' intention to adopt e-government in order to face any challenges that may hinder the success from a managerial perspective.
- This study contributes to determining the challenges that may face e-government in Saudi Arabia through understanding the citizens' point of view.
- This study contributes to improving the performance of Saudi Arabia e-government in order to make it more successful through determining the factors that affect the citizens' decision to use the service.
- The results of this study will benefit the Saudi's government in planning for solutions that contribute to maintaining e-government sustainability, in line with the Saudi's vision of 2030 to make the economy based on information technology instead of oil.

1.7 Research Methodology Overview

The research method of this study is quantitative method. This research follows three stages:



In order to achieve the objective of this research, firstly, a conceptual model was developed after a comprehensive literature review. This model has been developed based on TAM, UTAUT, and perceived trustworthiness (trust in the government and trust in the Internet) with some modifications and an introduction of new hypotheses to suit the research context. The model was tested in the developing country of Saudi Arabia.

The second step involved the instrumental development, including an explanation of the questionnaire development. The questionnaire was developed in English and then was translated to Arabic. For The questionnaire development, a pilot study was conducted; the questionnaire was reviewed and pre-tested by nine Saudi participants to evaluate the clarity and accuracy of the items' intended meaning. For the data

collection, the survey questionnaire was distributed online through emails, SMS messages applications, and social media platforms.

After collecting the data, a demographic analysis was conducted. Then the reliability analysis was conducted to confirm the consistency of the data, and then exploratory factor analysis was conducted to reduce the dimensionality and to confirm the validity of the model. Finally, the regression analysis and the mediation analysis were conducted in order to determine the direct and the indirect relationships between the factors and to test the hypotheses that are proposed in the conceptual model. The results and the conclusion were discussed after analyzing the data.

1.8 Research Structure

The research consists of six chapters. Chapter 2 provides a review of the literature relevant to the subject of e-government, as well as reviews the relevant theories on the acceptance of technology, discusses the theories most suitable for this research, and then proposes a conceptual model for explaining the citizens' acceptance. In addition, an overview of the e-government in Saudi Arabia will be provided in this chapter. Chapter 3 explains the research approach adopted and the methodology of this research. Chapter 4 and chapter 5 present the data preparation, and report the results of the data analysis examination. Chapter 6 discusses the results, the significant and non-significant relationships, of the data analysis based on the research questions and hypotheses. In addition, this chapter discusses the conclusion of this research and presents the theoretical and the practical implications, the research limitations, and recommendations for future research.

Chapter 2: Literature Review

2.1 Introduction

The main objective of this chapter is to present a background of the e-government system. This chapter covers the characteristics of e-government including: a) the definition of e-government; b) the types of e-government; c) the stages of the development of e-government. Then, this chapter discusses the initiatives of e-government in Saudi Arabia. Therefore, to provide a foundation on which to build the research model, relevant theories of-government acceptance models (TAM, DOI, TRA, TPB, UTAUT, and the perceived trustworthiness) are reviewed. Furthermore, relevant literature are reviewed on the various factors that affect the citizens' intention to engage in e-government. Then, the developed conceptual model is proposed.

2.2 Definition of E-government

E-government, which is also known as the online or digital government is a phenomenon that has been defined from different perspectives based on the priorities in the government strategies. Despite the increase of the recognition of ICT role in developing e-government, there is no standard definition of the term e-government (Yildiz, 2007; Gil-Garcia, 2012). Al-Sebie and Irani (2005) state that there is no specific definition that explains the concept of e-government among practitioners and public administrations. Riley (2001) and Moon (2002) support this argument stating that the concept of e-government has no specified agreed-upon definition. Due to the variety of practices of e-government in different countries, the concept of e-government is barely defined and even the few established definitions are mostly based on realistic experiences and visions (Bekkers, 2003). The perception of the concept of e-government varies from one individual to another and from one country to another (Al-Sebie and Irani, 2005). According to Al-Sebie and Irani (2005), the definition of e-government differs based on beneficiaries and based on the cultural value. However, it is very important for the government to define the e-government properly when it is planning to implement it. Poor multidimensional or narrow definition of e-government may lead to the failure of some e-government initiatives (Ndou, 2004). For example, Muir and Oppenheim (2002) define e-government as digital government information and services that are delivered through the Internet. However, this definition is quite general and the question of how to achieve a better government is not sufficiently tackled. In other words, this definition gives no clear vision of the concept of e-government. The World Bank (2015) defines e-government as the use of information technology, such as Wide Area Networks, the Internet, and mobile computing, to improve accessibility for information and delivery of services to citizens, improve interactions with business and industry, and improve efficiency, effectiveness,

transparency, and accountability of government. This definition focuses on the impact of e-government without giving a clear explanation of how a better e-government is actually achieved. Generally, these two definitions, stated above, have focused on the outcome rather than the tools.

Furthermore, Al-Shafi (2009) argues that the concept of e-government is classified for both broad and narrow perspectives, based on technology, process, benefits, citizen's point of view, single point access (i.e. the Internet), and phenomenon (i.e. social, economic and political phenomena). For instance, Srivastava and Teo (2007) define e-government as the ICT usage and the ability of the Internet to enhance the accessibility and the delivery of government services and operations for the benefit of citizens, businesses, employees and other stakeholders. Similarly, Layne and lee (2001) refer to e-government as the use of technology, such as the Internet, by the government to aid the delivery of information and services to citizens, businesses, employees and other stakeholders. In these cases, the definitions have concentrated mainly on the relationships between the government and citizens. E-government has also been defined from a technological perspective, political perspective, administration perspective, and citizens' perspective. For example, The United Nations (2003) define e-government as the use of the Internet and the World Wide Web to deliver government information and services to citizens. This definition mainly focuses on the technological perspective and also the political perspective, without giving any clarification of the nature of this concept. Therefore, each study defines e-government from a different perspective and focuses on different aspects. These perspectives of defining e-government are discussed further below.

The definition of e-government based on the technological perspective focuses primarily on using ICT to deliver online governmental services. Specifically, it focuses on emphasizing how online services are delivered and how e-government has advanced through technological media (Al-Shafi, 2009). For example, Jain Palvia and Sharma (2007) and Koh and Prybutok (2003) refer to e-government as the ICT usage in all practices of governmental organizations in an attempt to improve the delivery of services to citizens or businesses. The OECD (2003) defines e-government as the use of ICT, the Internet in particular, as a tool to achieve a better government. Similarly, Lambrinouidakis et al. (2003) refer to e-government as the usage of ICT to provide access to government information. According to Lambrinouidakis et al. (2003), the term of e-government is used to reflect the ICT usage in public administration in an attempt to allow for easier access to government information and services for citizens, business, and governmental agencies. Turban et al. (2002) argue that e-government consists of applications of several technologies to provide a convenient access to government information and services for citizens and organizations and to provide delivery of public services to citizens, business partners and suppliers, and those working in the public

sector. Broadly, e-government has been defined by Fang (2002) as “a way for governments to use the most innovative information and communication technologies, particularly web-based Internet applications, to provide citizens and businesses with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate in democratic institutions and processes” (Fang, 2002). The World Bank (2015) also defines e-government in a broad sense as a web-based information technology system operated by the government that has the ability to engage with citizens, businesses, and other government agencies to improve the services delivery to citizens, improve interactions with business and industry, improve citizen empowerment through access to information, and reduce corruption and increase transparency and accountability. Another broad definition of e-government, which focuses on the effectiveness of services delivered via ICT, is suggested by the United Nations and American Society Public Administration (UN/ASPA) (2001). According to the UN/ASPA (2001), e-government is the employment of all information and communication technologies, from fax machines to wireless palm pilots, to facilitate the daily administration of government. Furthermore, The World Bank (2012) refers to e-government as a set of processes, including the ICT usage, which helps the government to maintain interaction between citizens, businesses, and other government agencies.

The definition of e-government based on the process perspective focuses on the processes of transactions and transformation. The Legislative Analyst’s Office (2001) defines e-government from the process of transaction perspective as the process of transacting business between the public and the government via the Internet network. Another definition, which focuses on using the power of information for transforming accessibility, is presented by Aldrich et al. (2002). They define e-government as the employment of information to help transform the accessibility, quality, and cost-effectiveness of public services and to help strengthening the relationship between citizens and public bodies who work on their behalf. Furthermore, Okot-Uma (2001) defines e-government as the processes and structures of delivery of government electronic services to the public.

Several definitions of e-government focus on the benefits of delivering online governmental services to citizens. Some of these definitions focus specifically on the benefit of cost reduction. According to Whitson and Davis (2001), e-government is the implementation of cost effective models (cost-effective models refer to the received benefits and the incurred cost) for citizens, industry, employees, and other stakeholders to conduct business transactions online. Ke and Wei, (2004) define e-government from the benefits perspective as the use of the Internet and other emerging technologies by government agencies to receive and deliver information and services easily, quickly, efficiently and inexpensively.

A number of e-government definitions consider the citizens and their needs as an important remit of e-government. These definitions consider the citizens point of view as one of the basic components that constructs the meaning of e-government. Waller et al. (2001) define e-government as “a government that makes full use of the potential of technology to help put its citizens at the center of everything it does, and which makes its citizens its purpose”. This definition puts the citizens and their needs at the center of government's focus. Burn and Robins (2003) refer to e-government as the government’s efforts to provide citizens with the information and seamless service delivery they need by using a range of technological solutions.

Several definitions of e-government focus on the concept of delivering government services, without suggesting an alternative way to deliver these government services (Al-Shafi, 2009). Some of these definitions focus on the social, economic and political aspects. Riley, (2001) argues that there is no firm definition for the concept of e-government. Some definitions suggest that e-government is a traditional government with an “e”, which provides an alternative method for delivering government services. Some other definitions represent e-government from social, economic and political perspectives (Riley, 2001). Margetts and Dunleavy (2002) and Caldow (1999) give a definition that focuses on the political aspects. They define e-government as an opportunity for governments to re-organize themselves, and as a method to interact with a variety of societies which allow the government to get closer to citizens (Caldow, 1999; Margetts and Dunleavy; 2002).

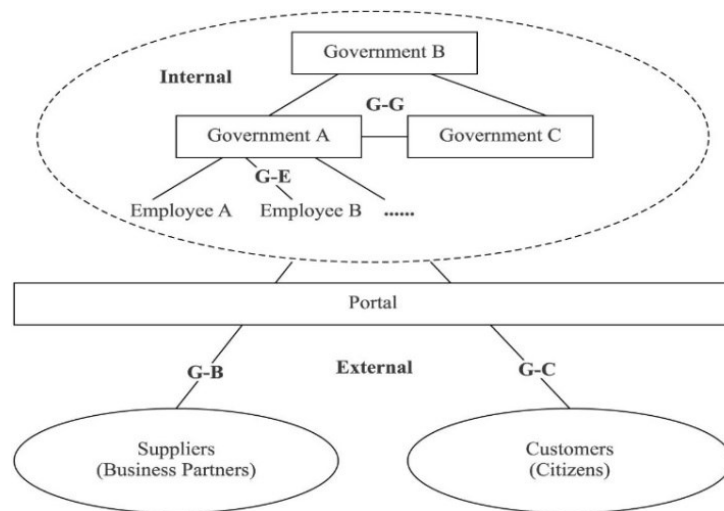
The current study focuses on the citizens of Saudi Arabia as the main adopter of e-government services. We will narrow the focus into citizens rather than business or government agencies. In this study, e-government is defined as a method through which services are transferred via ICT, particularly the Internet, to engage with citizens, and to improve government efficiency, effectiveness, transparency, accountability for the benefit of citizens.

2.3 Types of E-government

As mentioned in the previous chapter, the rapid improvement of IT led to transformations in the way governments provide services to businesses and citizens. Providing better services to the end users is one of the main objectives of e-government. These services differ according to the end users’ needs. The difference of their needs has produced various forms of the services provided by the government. Therefore, governments around the world adopted various approaches in an attempt to bring the desired benefits to

citizens, employees, businesses, and governments (Carter and Belanger, 2005), and to make its interaction with these sectors more efficient, transparent, and effective (Al-Khoury and Bal, 2007). E-government can be classified into four main group; citizens, businesses, governments, and employees based on, as aforementioned, their needs and based on government’s interactional dimensions (Ndou, 2004). This classification consists of four main categories that are: Government to Citizens (G2C), Government to Businesses (G2B), Government to Government (G2G); and Government to Employees (G2E) (Siau and Long, 2006). The following figure shows these categories and each of them are discussed further below.

Figure 2.1: E-government Interaction Dimensions



(Source: Siau and Long, 2005)

2.3.1 Government to Government (G2G)

Government to government refers to the online interactions between government organizations, departments, and agencies. The main objective of this dimension is to improve the inter-government organizational processes through streamlining cooperation and coordination (Alshehri and Drew, 2010). This dimension characterizes the relationships between governments, including interagency, intergovernmental linkage and partnership. G2G provides services including data, information sharing, and interactions between governments at two levels; the local governments’ level and foreign governments’ level (Debenedictis et al., 2002). The services of G2G provide transactions between central, national, local government, other government agencies, and department-level, attached agencies and bureaus; in addition, G2G services can be used as instruments of international relationships (Klamo et al., 2006). These services

have contributed to the reduction of time and cost consumption in addition to enhancing the efficiency of the services (Gregory, 2007).

2.3.2 Government to Business (G2B)

Government to business refers to the online interactions between the government and the private sectors. The main objective of this dimension is to engage government agencies with the private sectors in order to enhance communication quality, efficiency, transparency of government contracting and projects (Moon,2003: Alshehri and Drew, 2010). G2B provides services such as providing updated business information, new business registration, policies distribution, memos, regulations, and downloading application forms (Alshehri and Drew, 2010). This dimension has received high attention because of the following reasons: 1) the enthusiasm of the private sector, 2) the significant role that G2B transactions play in business development, small and medium businesses in particular, 3) its contribution to cost reduction through improving the procurement practices (Bonham et al., 2001; Pascual, 2003).

2.3.3 Government to Employee (G2E)

Government to employee refers to the online interaction between a government and its employees. Alshehri and Drew (2010) refer to G2E initiative as a combination of governments' information and services provided to their employees to enhance the interaction between each other as well as enhance the management. G2E is the least dimension of e-government research. Some researchers consider it as a part of the G2G dimension since this dimension represents the relationship between the government and its representatives, which can be considered as government employees. However, some researchers are still considering this dimension as a separate entirely from G2G. The main objective of this dimension is to train government employees and empowering them in order to improve the bureaucracy's day-to-day functions and to improve their interaction with citizens efficiently (Chavan and Rathod, 2009). G2E offers services to employees helps them efficiently accessing relevant information regarding compensation, annual leave application, the balance of leave checking, and salary payment records (Alshehri and Drew, 2010).

2.3.4 Government to Citizen (G2C)

Government to citizen refers to the online interaction between government and its citizens. Most of the e-government services come under this dimension. A number of researchers considered G2C initiative to be the prime objective of the e-government (Carter and Belanger, 2005). G2C dimension designed to enhance the relationship between governments and citizens through facilitating citizens' interaction with the government, improving the efficiency of interactions, and making public information more accessible through the Internet (Ndou, 2004). G2C offers citizens free access to government information and allow them to make transactions, such as license renewal, identity card renewal, paying taxes, and applying for benefits, in a short time and an easier way. This dimension has a higher potential outgrowth since it facilitates the interaction between government and citizens, which increase citizens participation and interaction with governments. Furthermore, it enhances the efficiency, communication, and transactions with citizens, and increases the transparency of government (Moon, 2003).

Among the four types of e-government discussed above, G2C and G2B deal with the external interaction, while G2E and G2G deal with the internal interaction. In this study, the focus will be on Government to Citizens (G2C) since it is considered as the backbone for e-government, which would significantly affect the development of e-government. In addition, this study focuses on investigating the citizens' adoption of e-government services. Before discussing the factors that affect the citizens' decision to use with e-government services, we will give a brief introduction of the performance and challenges of e-government in Saudi Arabia in an attempt to determine the influences that may play a role in influencing the citizens' decision to use e-government.

2.4 E-government Initiative in Saudi Arabia

Saudi Arabia has adopted the concept of e-government believing that e-government will cause a significant impact on the country's economy. According to Bawazir (2006), e-government was implemented initially in the early of 1995 as a project for the Ministry of Labor called Saudi Electronic Data Interchange (Saudi EDI). This project aimed to help the government to interact with businesses online. However, this application of e-government initially failed to provide online services to the public. This failure is due to the government's lack of the awareness of the challenges it may face the implementation of e-government, such as the management of the process, technology as well as the management of people. As a result, the Ministry of Communications and Information Technology developed long-run strategic

plans for the implementation of e-government as an initial step to change the processes of administering services and to provide better government services online. The first plan was implemented in 2005 by establishing the e-government program of “Yesser” from five-year period (Yesser, 2006). Then the second plan was launched in 2012 with improved vision and objectives (Yesser, 2012). These two strategic planes will be discussed in following section.

2.4.1 E-government Strategies in Saudi Arabia

As mentioned previously, the biggest action that Saudi Arabia have taken toward improving e-government services was when the joint Ministry of Information and Communication Technology and Ministry of Finance created the e-government program of “Yesser” in 2005. The establishment of this program comes under the first action plan of five-year duration (2005-2010) that Saudi Arabia has put to improve e-government (Yesser, 2006; Yesser, 2012). The vision of this plan is to digitize government interactions through adopting ICT system. This plan aims to achieve this vision by providing better services and enhancing the productivity, efficiency, and effectiveness of e-government services in addition to increasing the revenue of investments (Yesser, 2012). The e-government framework of the Saudi Arabia action plan consists of three projects; 1) infrastructure project: concerned with constructing a strong and reliable infrastructure that enables to make integration and data exchange between government agencies. 2) E-services project: concerned with providing government online services, such as employment service, expatriate labor request service, work permit service, and payment order service, to citizens, businesses, and other stockholders (Yesser, 2012). 3) National projects: concerned with providing major cross-departmental applications, such as e-procurement, government correspondence, government databases, to increase the efficiency and effectiveness of government (Yesser, 2012). This plan has been achieved in 2010. As a result of the implementation of the first plan, Saudi e-government ranking has significantly increased to 41st out of 190 countries in 2012 according to e-government development index of the United Nations (2016). Despite the progress that Saudi Arabia’s e-government has made compared to its previous ranking, the acceptance and the use of e-government in Saudi Arabia is considered to be low compared to the rest of the world. According to the UN/DESA (2012), only 60% of the government services in Saudi Arabia can be completed online via e-government services, which means the other 40% of government services are not implemented or still in the early stages of implementing online services. Therefore, the Saudi government moved to the second plan to continue its project to improve e-government services.

In 2012, the Saudi government started its second plan as an extension of the first plan. The second plan rolled to be implemented over a five-year period (2012-2016). Not like the first action plan which focused more on laying the foundation for the technological side of e-government, this plan focuses more on improving the efficiency of the services and the interaction with citizens. The vision of this plan is to enable citizens to use effective and secure government services in an easy way and through multiple electronic channels (yesser, 2012). This plan continues to invest in the same three projects of infrastructure, e-services, and national projects seeking to achieve the same objectives. In order to ensure that the above objectives are achieved, the second plan focused on applying four strategies: creating a sustainable workforce, enhancing citizens' experience in the interaction with government agencies, increasing cooperation and innovation, and enhancing the efficiency of government services.

2.4.2 Saudi Citizens and E-government

Saudi Arabia has started to recognize how adopting new technology significantly changes its economy. As mentioned earlier, in order to improve the performance and the participation of e-government, Saudi Arabia has established two strategic plans, each plan includes a five-year duration. These plans caused an increase of Saudi e-government ranking according to UN index. However, despite the main objective of these plans is to provide better government services to citizens that match their expectations, the acceptance of e-government among citizens is still a big challenge. The Saudi government focused on improving its performance through developing the infrastructure, adopting new technologies, and implementing strategic plans, but neglected the citizens' needs and attitude toward online interaction with governments.

Educating citizens about the benefits of e-government, as well as understanding their expectation, needs, and the influence of their decision to use e-government is very important for the improvement of e-government performance and then its diffusion afterwards. In other words, citizens' awareness is the key driven for e-government diffusion. For example, if we take a look at the history of the electronic services initiatives in Saudi Arabia, e-commerce and e-banking initiatives have been one of the very first implementations of e-services. However, these initiatives have encountered several difficulties. It is clear that the citizens' acceptance of these services was not very promising. One of the reasons is the lack of trusting in the security of websites. Alyabis (2000) discusses the relationship between the e-commerce and e-banking in affecting citizens' trust in online transactions in Saudi Arabia. He argues that if the trust of any of those two services is missing, then the other service will be affected, which means that both e-commerce and e-banking directly affect each other. Such a case affected the online interaction in general and put e-

service in a critical situation. With the respect to e-government, users' lack of trust in one service may affect negatively their acceptance of other services, which poses a threat to the successful diffusion of e-government.

Nevertheless, the continuous evolution of technology led to a significant improvement of the Internet security and websites protection and led to the emergence of laws regulating the Internet, and protecting users' privacy. Thus, electronic interaction, including e-commerce and e-banking, is no longer a threat as it was before. Still, the Saudi government is facing problems in convincing citizens to conduct online transactions especially through its online services. On the other hand, Saudi citizens are facing difficulty to accept online services in general, including e-government services. The reason is their lack of trust in Internet security, lack of Internet and computer education, and lack of Internet services knowledge (Sait et al., 2004).

Therefore, despite the efforts exerted by the Saudi government in developing e-government services, it is necessary to direct this effort to studying the citizens' behavior and the factors the influence their acceptance of the e-government. Saudi government needs to understand that technology development may not be the main solution for convincing citizens to adopt e-government.

In order to better understand the citizens' behavior and the factors that affect their acceptance of new technology, which will help us to develop a conceptual framework for this study, the next section will highlight the main theories of the acceptance of new technology by individuals and discuss their roles in e-government adoption and diffusion research.

2.5 E-government Acceptance Models

Many studies have been conducted on e-government from different aspects. Some of these studies discuss the process of e-government diffusion among citizens and some other discusses the acceptance of e-government by citizens under the concept of new technology acceptance. These studies attempt to explain the major determinants that play a role in the e-government adoption, whether from the government's point of view or the citizens' point of view. Since this study focuses on the citizens' acceptance and attitude toward e-government, related models of new technology adoption will be discussed in this section.

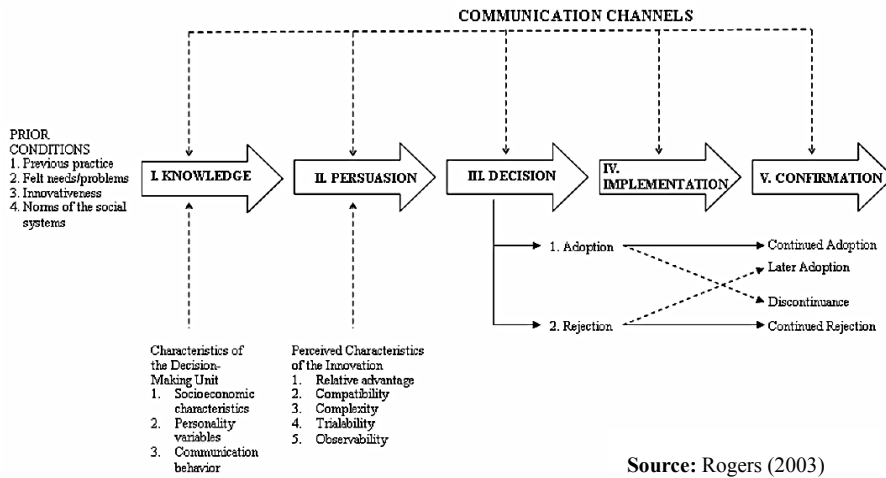
Several models were developed to explain the individual's acceptance of new technology. To provide background information of our research model and hypotheses, the theories of acceptance of technology

are discussed. The overview of previous models covers the Technology Acceptance Model (TAM), the Technology Acceptance Model 2 (TAM2), the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), the Diffusion of Innovation (DOI) theory, the Unified Theory of Acceptance and Use of Technology (UTAUT), and the perception of trustworthiness. This study utilized different theories to identify the factors affecting e-government acceptance by citizens.

2.5.1 Diffusion of Innovation Theory (DOI)

Diffusion of innovation model is developed by Rogers, who is considered as the father of DOI in 1962 (Kaur and Kaur, 2010). The main concern of the diffusion of innovation theory is clarifying the process of adopting innovations and explaining the underlying reason behind the variety of adoption rate of these innovations (Rogers, 1983). Rogers (1983) defines diffusion as “a process by which an innovation is communicated through certain channels over time among the members of a social system”. This process is affected by four key elements; innovation, communication channels, times, and the social system (Rogers, 1983). Rogers (1983) described the characteristic of innovation in general terms. He defined innovation as “an idea perceived as new by an individual”. Rogers’ model focuses on the process of diffusion of innovation among categories of individuals. The innovation creates an individual reaction towards it. When considering the diffusion of an innovation, the process that it takes to develop attitudes and beliefs and then the decision to adopt or not adopt this innovation, is considered as an innovation-decision process (Karahanna et al., 1999). According to Rogers (1995), innovation-decision is made by a decision-making unit. The innovation-decision process includes five steps; knowledge (adopter awareness about the innovation), persuasion (adopter must be persuaded of the innovation’s value), decision (adopter decision to adopt the innovation), implementation (implementing the innovation by the adopter), and confirmation (reaffirm or reject the decision by the adopter) (Rogers, 1995). It is a continuing process in which adopters are adopting an innovation over a time sequence. The innovation adopter could be an individual, group or organization. Adopters are grouped into categories based on the time spent to make a final decision; these include “innovators”, “early adopters”, “early and late majority” and “laggards” (Rogers, 1995).

Figure 2.2: Five Stages Model in the Innovation-Decision Process



Source: Rogers (2003)

Rogers (1995) argues that the adoption rate is measured by the speed of adopting an innovation by a member of a social system, which is measured through the number of innovation’s adopters in a specific period. The rate of adoption is influenced by five main attributes of the innovation being considered for adoption; relative advantage, compatibility, complexity, trialability, and observability (Rogers, 1983). These attributes will be discussed further below.

Relative advantage is defined as the degree to which the innovation (product or services) is perceived as a better, or more beneficially than the alternative ideas (Rogers, 1983; Kaur, K., and Kaur, M., 2010). In the case of e-government, the relative advantage is the degree to which citizens perceive improvement in government services through the online government as more useful than the traditional method, face to face transaction (Amagoh, 2015). The advantages of e-government can be classified into internal, through using new technologies contribute to improve the internal efficiency of the e-government services, and external, through using ICT which ensures improved service delivery level (Rokhman, 2011).

Compatibility is defined as the degree of the consistency of an innovation to the existing values, needs, and experiences of the potential adopter (Rogers, 1983). According to Shih and Fang (2004), compatibility affects the adoption of innovation positively. In the case of e-government, compatibility is the consistency of e-government for citizens’ work and lifestyle (Amagoh, 2015). A study conducted by Carter and Belanger (2005) shows that there is a significant impact of the compatibility on the citizens’ intention to use e-government services.

Complexity is defined as the level to which an innovation is perceived as acceptable, understandable, and easy to use for the adopter (Roger, 1983; Kaur and Kaur, 2010). The complexity of an innovation affects its acceptance negatively (Shih and Fang, 2004). Innovations that are considered less complex and easy to use, have a high possibility to be adopted by people (Kaur and Kaur, 2010). The complexity factor has been used in many theories related to new technology acceptance. Many researchers in the e-government area used the complexity factor (in reverse direction) in order to measure how easy the service is to use. In the e-government research, the complexity factor is considered a key factor that influences the decision of the individual to adopt e-government in particular, thus, affect the diffusion of the e-government in general.

Trailability is defined as the level which an innovation can be tested by an adopter before fully adopting the innovation (Rogers, 1995). In the case of e-government, trailability is the level to which citizens can test the services of e-government before fully adopting it instead of the traditional method.

Observability is defined as the level of the visibility of the results of an innovation to others in the social system (Rogers, 1995). This factor is the most critical factor since it shapes the innovation diffusion. In the case of e-government, seeing, hearing, and knowing about that other people, citizens, using e-government services dramatically encourages citizens to adopt the e-government.

In addition to these five attributes, Rogers argues that diffusion is a type of communication, which includes an innovation, to individual or other units of adoption, and a communication channel. Communication channels and the type of the innovation-decision are one of the main factors influencing the innovation's rate of adoption and then the diffusion of the innovation afterwards (Rogers, 1995; Rogers, 2003).

2.5.1.1 Diffusion of Innovation (DOI) Theory in E-government Research

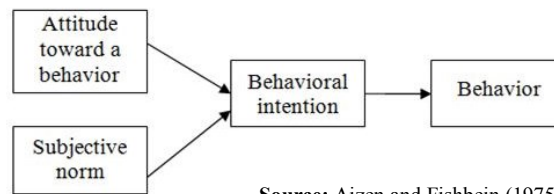
E-government diffusion is considered a critical issue for evaluating e-government success (Zhang et al., 2014). The theory of DOI has been used widely in e-government research. Studies focus on four aspects; 1) the factors that affect e-government diffusion, 2) applications of e-government diffusion, 3) the effect of e-government diffusion on government agencies and employees, and 4) the effect of ICT infrastructures on the diffusion of e-government (Zhang et al., 2014). These studies mention the DOI theory to support the causal arguments such as edging the challenges or the factors influencing e-government diffusion process (Zhang et al., 2014; Al-Hadidi and Rezgui, 2010). Most of these studies have attempted to explain how to diffuse e-government services among citizens, but from the government's point of view. However, the

studies that attempt to explain the diffusion of e-government from the citizens' point of view has resorted to the use of other theories beside DOI theory, such as TAM, TRA, TPB, and UTAUT, to clarify the behavior and the intention of the citizens toward using e-government services. For example, Amagoh (2015) conducts a study that focuses on determining the factors that affect e-government diffusion in Nigeria. The study attempts to investigate the citizens' perception as well as the government perception toward successful e-government. In order to cover these two dimensions, the study adopted three models; DOI to clarify the process of adopting an innovation, e-government, and to explain the influences on the process of diffusion and TAM and UTAUT to explain users' (citizens) acceptance of technology (e-government). The theories of technology acceptance are discussed further in this section.

2.5.2 The Theory of Reasoned Action (TRA)

Theory of reasoned action is widely studied in social science and information systems (IS) (Venkatesh, et al., 2003). The theory developed by Ajzen and Fishbein (1975), provides a framework to study the relationship between a person's attitude and behavioral intention. TRA determines an individual's intention to perform the behavior. Behavioral intention (BI) is considered a function of the individuals' attitude (A) towards behavior and a subjective norm (SN) (Ajzen and Fishbein, 1975).

Figure 2.3: The Theory of Reasoned Action (TRA)



Attitude reflects the personal interest, and the subjective norm (SN) reflects the social influence. In other words, a positive attitude toward a behavior and a positive subjective norm shape an individual's behavioral intention. The individual's attitude toward a behavior is defined as an individual's evaluation (positive and the negative feeling) about performing a particular behavior (Ajzen and Fishbein, 1975). Attitude (A) is formed as the sum of all salient beliefs about the consequences of performing a particular behavior (b_i), and the evaluation (e_i) of those consequences (Chuttur, 2009).

$$A = \sum b_i e_i \tag{1}$$

Subjective norm (SN) is defined as an individual's perception or assumptions about others' expectations of certain behaviors that will be or will not be performed by an individual (Ajzen and Fishbein, 1975). According to Ajzen and Fishbein (1975), subjective norm (SN) can be measured as the sum of individual's normative beliefs (nb_i) and the motivation to comply (mc_i) (Chuttur, 2009).

$$SN = \sum nb_i mc_i \quad (2)$$

According to TRA, the most important factor of an individual's behavior is the behavioral intention (BI), which is defined as the "person's subjective probability that he or she will engage in or perform some behavior" (Ajzen and Fishbein, 1975). The behavioral intention (BI) of the individual is an integration of two factors: attitude (A) toward performing the behavior and subjective norm. Therefore, according to TRA, behavioral intention can be measured using the following formula:

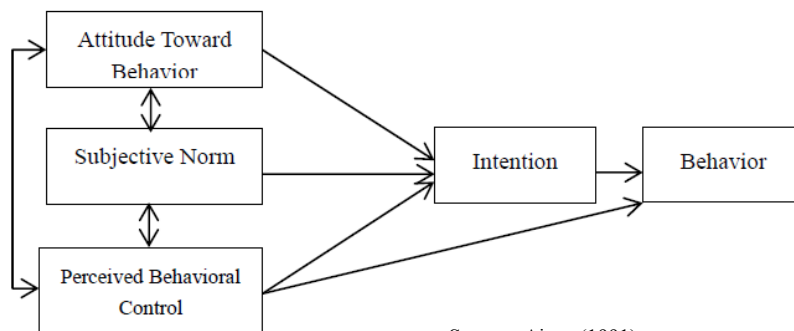
$$BI = A + SN \quad (3)$$

TRA assumes that the behavior is under the influence of the subject, which means the subject has control on a behavior (to perform or not to perform the behavior) (Ajzen and Fishbein, 1975). However, this is considered one of the theories limitation. Thus, the theory of planned behavior (TPB) has been constructed by Ajzen (1991) to complement and fill the gap of TRA.

2.5.3 The Theory of Planned Behavior (TPB)

The Theory of Planes Behavior (TPB) is one of the most notable theories that explain human action. As mentioned earlier, TPB is an extension of TRA.

Figure 2.4: The Theory of Planned Behavior (TPB)



Source: Ajzen (1991)

TPB proposed an additional factor, which is perceived behavioral control, in order to fill the gap of TRA for ignoring the importance of social factor. Perceived Behavioral Control (PBC) was introduced to predict non-volitional behaviors toward a subject, but influenced by other factors that prevent intentions towards a behavior which lead to an actual action (Ajzen, 1991). PBC can be determined by the sum of the control beliefs (cb_k) and the perceived facilitation (pf_k) of this control belief (Taylor and Todd, 1995).

$$PBC = \sum cb_k pf_k \quad (4)$$

The main factors of TPB are attitude, subjective norms, perceived behavioral control, and behavioral intention. Each of these factors reveals a different aspect of the behavior. According to TPB, the behavioral intention can be measured using the following formula:

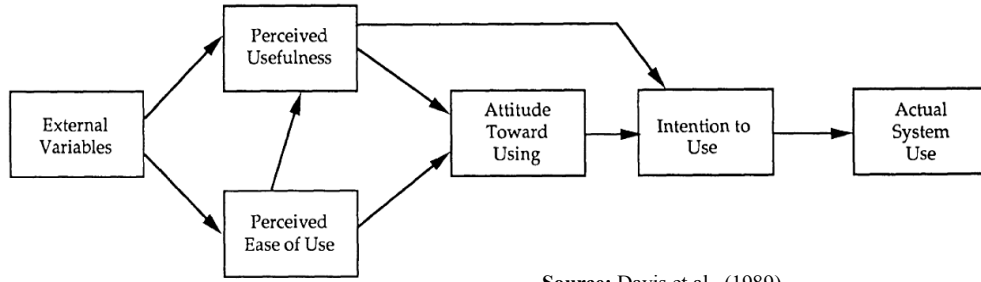
$$BI = A + SN + PBC \quad (5)$$

According to TPB, human behavior toward an object or a behavior is motivated by three beliefs; behavioral beliefs (individual's belief about the consequences of the behavior), normative beliefs (the influence of society on behavioral decision), and perceived behavioral control (an individual's perception of the ease of performing a particular behavior) (Ajzen, 1991).

2.5.4 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davis (1985) in order to identify the factors influencing the individuals' behavioral intention or decision to adopt a technology (Davis, 1985). TAM was designed by Davis to be applied to an organizational setting. It is also applied to the users' acceptance and usage of computers in the field of information system (Davis et al., 1989). According to TAM, a technology acceptance behavior is influenced by two main factors; perceived usefulness (PU) and perceived ease of use (PEOU). These factors have been explained by Davis as two main factors which ultimately determine an individual's attitude toward adopting a technology (Greenfield and Rohde, 2009).

Figure 2.5: Technology acceptance model (TAM)



Source: Davis et al., (1989)

Perceived ease of use (PEOU) is defined as the level to which an individual believes that using a particular system will be free of effort (Davis et al., 1989). PEOU is influenced by several external variables, such as documentation. If the new technology is well documented, then it would be easy for the individual (user) to accept and adopt this new technology (Grønland, 2010).

Perceived usefulness (PU) is defined as the level to which an individual believes that using a particular system will contribute to improve his or her job performance (Davis et al., 1989). This factor is influenced by the user-friendliness level in the information system, if the system is a user friendly system, the users' satisfaction will increase accordingly (Grønland, 2010).

These two factors complement each other. The way PEOU affects PU is that the easier is the system to use, the more useful it would be (Venkatesh and Davis, 2000). Furthermore, PEOU creates an individual's attitude toward using the technology; however, it has no direct effect on their intention to adopt this technology. On the other hand, PU affects directly an individual's intention to adopt and use the technology (Grønland, 2010).

The attitude toward using (A) is reflecting the feeling, favorable or unfavorable, towards using a technology. Attitude (A) is measured by the sum of PU and PEOU (Taylor and Todd, 1995).

$$A=PU+PEOU \tag{6}$$

The Actual System Use factor represents the usage behavior (B) which is considered a direct function of behavioral intention (BI), which means that B=BI (Taylor and Todd, 1995). On the other hand, behavioral intention (BI) can be determined by a weighted function of attitude toward usage (A) and PU (Taylor and Todd, 1995).

$$B=BI=A+PU \tag{7}$$

TAM is an adaptation of the Theory of Reasoned Action (TRA) by Ajzen and Fishbein (1980) and the Theory of Planned Behavior (TPB) by (Ajzen, 1991) since it argues about the factors that influence human behavior. However, TAM does not cover the social influence on an individual's decision for adoption, which is described as the subjective norms in both TRA and TPB. Some researchers consider TAM a special case of TRA (Taylor and Todd, 1995).

Moreover, the Rogers DOI theory is complementary to TAM since the two factors of TAM, PEOU and perceived usefulness, can fit properly with two of the factors that are proposed in Rogers' model, which are relative advantage and complexity (Parisa, 2006). The factor of PU can be described as relative advantage and compatibility factors of the DOI model since it represents the individuals' perception of the benefits of the innovation (new technology). The factor of PEOU can be described as the complexity factor of DOI theory since the last one is measuring the ease of using innovation (new technology). In addition, PEOU is also related to the trialability, and observability factors of the DOI theory, since adopting an innovation (new technology) requires adopter to test this new technology before fully adopting it and then sharing the results of using this technology with others. These two factors of DOI theory represent two critical steps under the process of constructing the perception of the ease of use.

2.5.4.1 The Technology Acceptance Model (TAM) in E-government Research

As mentioned previously, although TAM is designed to be applied to an organizational setting, various studies adopted this model to explain an individual's acceptance of a new technology, especially in the technology acceptance and Information System (IS) research fields (Greenfield and Rohde, 2009). In the e-government context, several studies explore the role of TAM in identifying factors influencing individuals to adopt the e-government system. Since e-government is heavily technology-driven (Pavlou, 2003), factors related to technology become very important in predicting e-services usage (Al-Adawi et al., 2005). Some studies suggest that both factors of perceived usefulness and perceived ease of use are the most important factors in predicting the individuals' intention to adopt a system (Amagoh, 2015).

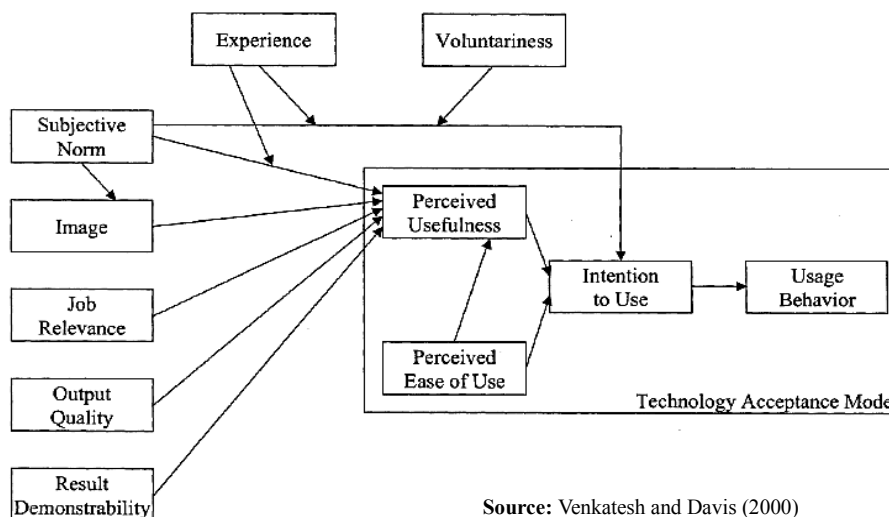
In e-government research, the factor of perceived usefulness and perceived ease of use explain the users' willingness to accept e-government and adopt its services through their evaluation of the ease of using e-government services and how useful are these services to them. Users' evaluation or perception toward e-government service is a key factor to predict their attitude and intention to adopt, or continues to adopt, e-government service.

Despite the great role that TAM plays in explaining the dimensions of e-government adoption in e-government research, TAM ignores some important factors such as subjective norm. Moreover, some studies argue that TAM model represents the acceptance of technology and ignore the emotional choice and usage behavior (Alsaif, 2014). Because of this limitation, a number of studies attempt to propose new factors and attempt to integrate several models in order to fill the gap of the model. Thus, Venkatesh and Davis (2000), Davis who proposed the first model of the TAM, proposed an improved model of the TAM to cover additional important factors. Venkatesh et al. (2003) propose an integrated model that covers technology acceptance and usage in one model, namely the Unified Theory of Acceptance and Use of Technology (UTAUT), these models are briefly explained further below.

2.5.5 The Technology Acceptance Model 2 (TAM 2)

TAM 2 has been developed by Venkatesh and Davis (2000) as an improvement to TAM. This model was extended to include additional important factors such as social influence process (including voluntariness, experience, subjective norm and image), and cognitive instrumental processes (including job relevance, output quality, and result demonstrability) which affect both the perceived usefulness and the intention to use (Venkatesh and Davis, 2000).

Figure 2.6: Technology Acceptance Model 2 (TAM 2)



The definitions of the factors of TAM 2 are provided in the following table:

Table 2.1: Factors of TAM 2 (Venkatesh and Davis, 2000)

Factor	Definition
Subjective Norm	An individual's intention and how they influence other's intention to use or not to use a particular system.
Image	The degree of an individual's social status based on their use of an innovation.
Job Relevance	An individual's perception of the degree to which a target system is related to an individual's job.
Output Quality	The degree of an individual's belief regarding the wellness of a particular system in performing job tasks.
Result Demonstrability	The results' tangibility regarding the use of the innovation by an individual.
Voluntariness	The non-mandatory decision of adoption by the potential adopters.

From TAM 2, the subjective norm affects the image, which means an individual's intention to use or not to use an innovation influences other's intention. Hence, influence their social status, which is based on the individuals' use of the innovation. Thus, social status affects the job performance (Venkatesh and Davis, 2000). Furthermore, the subjective norm will have no direct effect on the intention to use and it will be directly affected by Voluntariness if the use of the system was voluntary. However, it will have a direct effect on intention to use if the use of the system was mandatory (Venkatesh and Davis, 2000).

2.5.6 The Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology model (UTAUT) is a comprehensive model that is proposed by Venkatesh et al. in 2003. The UTAUT is one of the latest models that have been developed in the field of technology acceptance models. The aim of UTAUT is to explain the user intentions to use IS and the further usage behavior (Venkatesh et al., 2003). Venkatesh et al. (2003) developed this model in an attempt to provide a complete picture of the factors related to the acceptance process. The factors of the UTAUT are determined by combining eight previous theoretical models of technology and human behavior, the most important ones are briefly defined above. These models are as follows; 1) DOI model (, 1983), 2) TAM (Davis, 1985), 3) TRA (Ajzen and Fishbein, 1975), 4) TPB (Ajzen, 1991), 5)

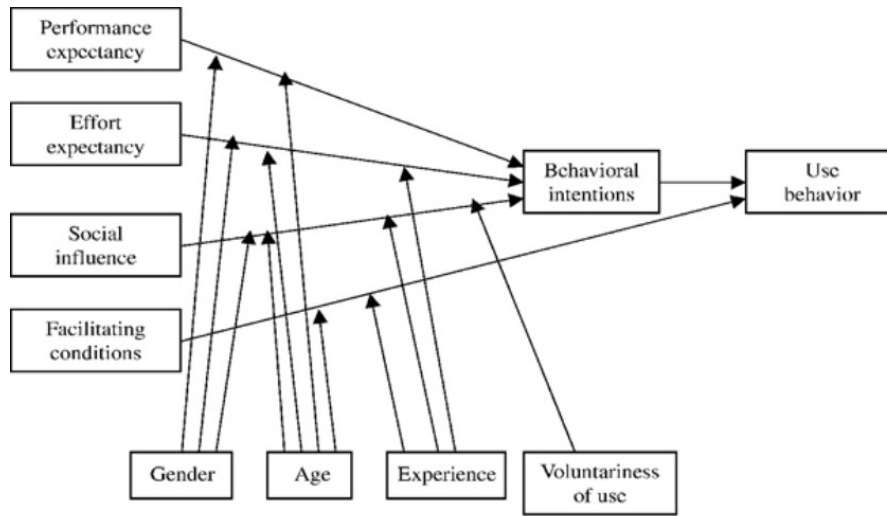
Combined TAM-TPB (Taylor and Todd, 1995), 6) Social Cognitive Theory (SCT) (Bandura, 1986), 7) Model of Personnel Computer Utilisation (MPCU) (Thompson et al. 1991), 8) and Motivational Model (MM) (Bagozzi et al., 1992). As a result of the combination, the UTAUT has been constructed to include four core constructs that are directly related to technology acceptance (behavioral intention) and usage (behavior). These constructs are Performance Expectance (PE), Efforts Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). They are moderated by four variables: age, gender, experience, and voluntariness of use (Venkatesh et al., 2003). The following table shows the definitions of each of these constructs:

Table 2.2: Constructs of UTAUT (Venkatesh et al., 2003)

Construct	Definition
Performance Expectance	The degree to which an individual believes that using the system will help him or her to attain gains in job performance.
Efforts Expectancy	The degree of ease associated with the use of the system.
Social Influence	The degree to which an individual perceives that important others believe he or she should use the new system.
Facilitating Conditions	The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.

The UTAUT model has been tested initially by Venkatesh et al. (2003) on four different large organizational settings. The result of the study shows a significant prediction of performance expectancy, effort expectancy, social influence and facilitating conditions. Moreover, the study shows that the UTAUT model is able to explain a high percentage of the variance, specifically, 70% of the variance, in usage intention, which shows better results compared to each of the combined eight models.

Figure 2.7: Unified Theory of Acceptance and Use of Technology (UTAUT)



Source: Venkatesh et al. (2003)

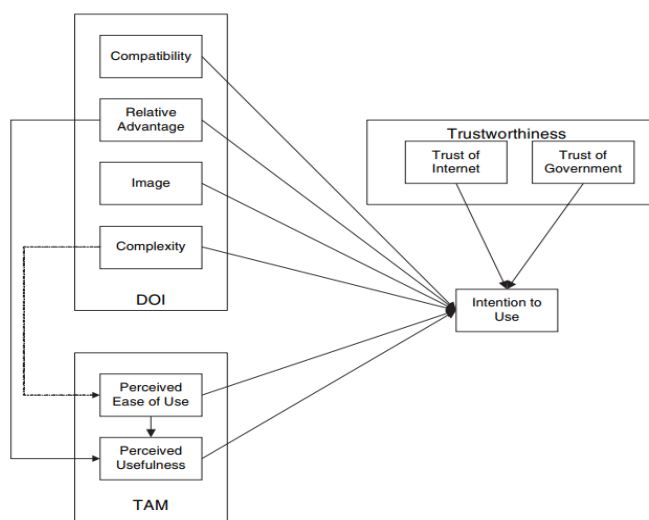
The UTAUT has been adopted by a number of researchers to explain the usage intention. However, researchers tend to adopt some, one or two, of the UTAUT constructs instead of adopting the whole model with all of the four constructs (Williams et. al., 2011; Venkatesh et. al., 2012). Consequently, a further study of the full model is needed (Venkatesh et. al., 2012).

2.5.7 Perception of Trustworthiness

The role of trustworthiness appears in early studies in the context of e-commerce. Many studies in this context, attempt to examine the role of consumer trust in online shopping by identifying the nature of the relationships among trustworthiness, including factors such as privacy protection, service security, and purchase intentions (Belanger et al., 2002). Belanger et al. (2002) define trustworthiness as “the perception of confidence in the electronic marketer’s reliability and integrity”. Accordingly, trustworthiness in the e-government context can be considered as people’s confidence in the service providers (the government who provides e-government services) and in the enabling technologies (the Internet). Thus, trustworthiness in the e-government context can be measured from two dimensions: trust in the government and trust in the Internet; each of these dimensions will be discussed further in the next section. The acceptance model of e-government that has been proposed by Carter and Belanger (2005) can be a good example of the application of trustworthiness constructs. Carter and Belanger’s (2005) study on e-government adoption is one of the very initial studies that measured trustworthiness in e-government context, focusing on measuring the citizens’ trust in the government and their trust in the Internet. Their proposed model, shown in Figure 2.8,

is an integration of factors from three models. These models are TAM, DOI and trustworthiness. They were integrated to provide a comprehensive explanation of the citizens' intention to adopt e-government services. Further explanation of trust related factors is provided in the next section.

Figure 2.8: Carter and Belanger's (2005) Model of E-government Acceptance



Source: Carter and Belanger (2005)

This section provided a brief introduction of the key theories (TRA, TPB, TAM, TAM 2, UTAUT, and the perception of trustworthiness) which play an important role in explaining the individual's intention to perform a behavior. These theories have been used widely in the research of IS and e-government field since they explain the individuals' willingness to adopt the new system (or technology) by identifying the different factors that influence the individuals' acceptance from several dimensions. In the e-government context, many studies have adopted one of these models in order to provide a clear determination of the influencing factors. Some studies have introduced new factors, such as the cultural factor (Abunadi, 2013), the technological infrastructure factor (Amagoh, 2015), and the trust factor (Belanger and Carter, 2008), or modify the original model (Kurfali et al., 2017), or propose an integrated model of two or three models (Carter and Belanger, 2005) in an attempt to cover more dimensions and provide a comprehensive explanation of the factors that influence e-government acceptance by individuals. Thus, in order to develop the framework of the current study, further explanation of the key factors that influence the individual behavioral intention to adopt an e-government system will be presented in the next section.

2.6 The Influencing Factors on The Citizens' Behavioral Intention to Adopt E-government

It is a well-known fact that the role the e-government plays in facilitating electronic transactions with citizens is important. Despite the benefits and the opportunities provided through e-government services, the success of the diffusion depends, to a large extent, on the intention of the citizens to use its services. The citizens' behavioral intention, in turn, is influenced by several factors that vary from one citizen to another and from one country to another. The behavioral intention has been employed in the majority of technology adoption research projects to predict technology adoption Irani et al. (2009). Previous researchers developed theoretical frameworks in order to form the factors that influence the individual behavioral intention. For example, Ajzen and Fishbein (1975) developed the TRA to explain the influence of the individual attitude on his or her behavioral intention. Ajzen (1991) then developed the TPB to extend the explanation of the influence on the individual behavioral intention. These two theories have been used widely in different area of social science to explain human behavior. In addition, the TAM is developed by Davis (1985) to explain the human behavior toward technology. The core factors that affect the individual's behavioral intention have been explored through these theories. In the case of e-government, many studies employ these models to examine the influence of these factors on the citizens' acceptance of e-government. For instance, Kanat and Ozkan (2009) adopt the TAM, the TPB, and the trustworthiness factors to study their influence on the Turkish citizens' acceptance of e-government. Similarly, Al-Adawi et al. (2005) have employed the same models in their study to examine the citizens' adoption of e-government. In addition, Carter (2008) conducted a study on the USA citizens' acceptance of e-government using the TAM beside other factors, such as the self-efficacy and trustworthiness factors. Moreover, some studies such as Sahari et al. (2012), Al-Hujran et al., (2011), and Hung et al, (2006) focus on examining the citizens' intention to use e-government by adopting the TAM as the main model to explain the citizens' acceptance. Since the aim of this study is to investigate the underlying factors that influence the citizens' intention to use e-government services in Saudi Arabia, highlighting these factors is very important to predict the success of the e-government system. Identifying these factors may contribute to forming new indices through which to assess the performance of e-government in countries, Saudi Arabia in this case. In this section several factors that influence the use of e-government services, including; trustworthiness factors (the trust in the Internet and the trust in the government), TAM factors (perceived ease of use and perceived usefulness), Perceived Corruption (PC), and Social Influence (SI), are discussed. Furthermore, previous researches conducted on these factors are explored in details below.

2.6.1 Trust

Trust is considered a key element for organizations as it sustains the relationships that form the components of coordination (McKnight et. al., 1998). Moreover, trust is an important factor in distinguishing online participation from different aspects (Lee and Kim, 2014). The concept of trust has been examined widely before the appearance of the Internet and online interactions. This concept has been defined in different way in diverse fields. However, there is no single agreed-upon definition that explains the characteristic of trust (Belanger and Carter, 2008). Definitions related to trust tend to focus on two common aspects in order to identify its characteristic. The first aspect is concerned with the relationship between two parties. For example, Baier (1986) defines trust as “reliance on others’ competence and their willingness to look after rather than harm what is entrusted to their care”. This definition shows the relationship between trustor and the trustee. The second aspect is concerned with the expectations of the trustor on the trustee’s behavior. Rotter (1971) defines trust from this perspective as “a general expectation held by an individual or group that the word verbal or written statement of another individual or group can be relied on”.

The concept of trust has been examined in many studies related to e-government. Same as the general definitions of trust, the trust in the e-government context is a combination of different components which means there is no constant definition that explains the trust in this context. Previous researches identified trust in the e-government context from three dimensions. The first dimension is concerned with conceptualizing trust as the trust in e-government services, the second dimension is concerned with identifying trust as trust in the government, and the third one is dealing with trust as a trust in the Internet (Warkentin et al., 2002; Belanger and Carter, 2008). Several researchers argue that trust on e-government services reflects the trust in the government. Dashti et al. (2009) argue that citizens’ trust in the e-government is a reflection of their perception and evaluation of the officials responsible (the government) for developing, maintaining, and monitoring the system rather than evaluating the system (e-government system) itself. Therefore, the majorities of e-government context researches tend to explain the concept of trust from two dimensions; trust in the Internet and trust in the government. As mentioned earlier, Carter and Belanger (2005) conducted one of the very early studies in the e-government context that identifies these dimensions of trust. The study examines the influence of the trust on the citizens’ intention to accept e-government. They argue that the individual decision to accept e-government depends on whether the service provider (i.e. government) and the enabling technology (i.e. the internet) were trustworthy or not (Carter and Belanger, 2005). The following paragraphs provide more details about the definition of trust in

the government and trust in the Internet and their influence on the citizens' intention to adopt the e-government system.

The trust in government is described as an individual's perception regarding the integrity and ability of governments' agencies to provide the service (Becerra and Gupta, 1999; Belanger and Carter, 2008; McKnight et al., 1998). Miller and Listhaug (1990) define the trust in the government as "an evaluation of whether or not political authorities and institutions are performing in accordance with normative expectations held by the public". Carter and Belanger (2005) refer to the trust in the government as a public evaluation for the government based on their perceptions of the integrity and capability to provide services that fit the citizens' expectation. On the other hand, trust in the Internet has been defined by Carter and Belanger (2005) as "the trust in the reliability of the enabling technology".

The trust in the Internet and the trust in the government are key factors in predicting the citizens' intention toward using e-government (Carter and Belanger, 2005; Tolbert and Mossberger, 2006; Amagoh, 2015). Many studies in the e-government context have linked the citizens' trust in the government and trust in the Internet to their intention to adopt government online services. For example, Tolbert and Mossberger (2006) argue that the trust in the government is linked to what government agencies and programs do. They also stated that there is a significant relationship between the e-government usage and the trust in the government. The e-government system can be taken as an ideal solution that contributes to the increase of the efficiency of the services provided by the government and, therefore, increases the citizens' trust in the government. According to Tolbert and Mossberger (2006), the citizens' trust in the government increases if e-government improved its interaction and responsiveness to them. In support of this argument, Chadwick and May (2003) argue that e-government services increase the communication between the citizens and the government which accordingly increases their trust in the government. Thus, e-government can be considered an improved method that enhances the citizens' evaluations and trust in their government.

Moreover, the trust in the Internet is considered as a key predictor of e-service adoption. A number of studies argue that the adoption of e-government depends on the citizens' belief in the capability of the Internet to provide information and secure transactions (Carter and Belanger, 2005; McKnight and Chervany, 2001; Warkentin et al., 2002). Carter and Belanger's (2005) proposed hypotheses in their study states that the trust in the Internet's technology and the trust in the government positively influences the citizens' intention to use e-government services. They tested this on a large sample of United States citizens. The findings of the study supported their hypotheses that the citizens' trust in the Internet and trust in the

government have a significant positive influence on the citizens' intention to use e-government services. Another study by Carter and Weerakkody (2008) shows results that are consistent with Carter and Belanger's (2005) finding. The relative advantage and both the trust in the government and in the Internet positively influence citizens' intention to adopt e-government. On the other hand, a study by Nam (2014) conducted to explore the relationship between the uses of e-government and the trust in the government shows that the citizens' trust in the government is more important than their trust on the Internet. Later studies supported this result that the trust in government appears to be more important than the trust in the Internet (Teo and Liu, 2007; Belanger and Carter, 2008). Moreover, a study by Carter (2008) focus on identifying the most salient predictors of e-government adoption find that the trust in the Internet has a significant influence on behavioral intention. However, the trust in the government has no significant influence. The study argues that citizens may have a different perspective of the traditional government and e-government. Another study by Alomari, et al. (2012) shows the opposite of these results. They study the influence of factors, such as trust factors, DOI factors, and TAM factors, on the adoption of e-government in the developing country of Jordan. One of the findings of the study is that the trust in the Internet has an insignificant influence on the intention to use e-government, while the trust in the government reveals to be significant in the study. Contrary to previous research, this study is one of the very few studies show that the trust in the internet has no influence on individuals' intention to adopt e-government.

Furthermore, a number of studies determine the role of trust factors in Saudi Arabia (Alsaghier et al., 2010; Al-sobhi et al., 2011; Alzahrani, 2011). Alsaghier et al. (2010) study the impact of trust and perceived risk on the citizens' intention to use e-government services in Saudi Arabia. The finding of this study shows a positive influence of the citizens' trust in e-government on their intention to use e-government services. Alzahrani (2011) supports the same results in addition to the impact of the trust in the Internet on the citizens' intention to adopt e-government services. Al-sobhi et al. (2011) also support the role of the trust in the Internet in influencing the citizens' adoption to e-government services.

Previous studies show the importance of the trust (the trust in government and the trust in the Internet) in shaping the individuals' decision to adopt online services (e-government). The adoption of e-government depends on the citizens' perception of confidence in e-government reliability and integrity. Despite the improvement of the technology and the privacy on the internet, still some citizens' fear to share their personal information with the government over the Internet, which may cause misusing of their personal

information and reduce their privacy. Confidence in e-government requires confidence in both the government and the Internet (Carter and Belanger, 2005). In this study, it is important to take into account that the lack of Internet security is perceived among Saudi citizens which accordingly influence their intention to interact with the government via the internet. Thus, it is very important to examine the influence of trustworthiness perceptions (the trust in the government and the trust in the Internet) on the Saudi citizens' intention to adopt e-government services. Hence, we argue that the trust in the government and the trust in the Internet positively affects the intention of Saudi citizens to use e-government. This leads us to propose the following hypotheses:

H₁ The citizens' trust in the government positively affects their behavioral intention toward using e-government.

H₂ The citizens' trust in the Internet positively affects their behavioral intention toward using e-government.

2.6.2 Perceived Corruption

The concept of corruption has been explored widely in the economic context to understand its influence on economic development. In respect to this, many countries have made efforts to fight corruption and increase transparency. One of the solutions that have been considered to fight against corruption is implementing ICT to enhance transparency. Before discussing the role of ICT in fighting corruption, it is important to form a clearer picture of the definition of corruption and the factors of corruption.

Corruption has been defined as “a decay in the decision-making process in which a decision-maker (in a private corporation or in a public service) consents or demands to deviate from the criterion, which should rule his decision making, in exchange for a reward, the promise or expectation of it” (Van Duyne, 1996). A common definition by Tanzi (1998) and Rose-Ackerman (1999) describe the corruption in a narrow sense as the abuse of public power to achieve private benefit. Kaufmann et al. (2003) argue that there are three driven factors for corruption: Monopoly of power (the absolute authority of the public officials in enforcing regulations and policies), discretion (the ability of public officials in enforcing regulations and policies in an absolute discretion manner), and accountability and transparency (lack of accountability and transparency over public officials' actions). Thus, since we are examining the influence on the citizens' intention to adopt e-government services, the definition of corruption will be in the citizens' perception of government corruption. Therefore, for the purposes of this study, corruption is defined as the lack of

government integrity to account for or accept responsibility for its actions, and the failure to disclose the information and decision-making process in a transparent manner.

Corruption has a significant effect on the country's economy. The role that e-government plays in reducing corruption positively affects the economic growth, which means that improving the performance of e-government associates not only with reducing corruption, but also by enhancing the growth of the economy. Government adoption of ICT enables e-government to reduce interactions with officials and enhance the accountability and transparency of the services that the government provides online. In this respect, many studies discussed the role of e-government in improving the government's performance, not only through improving the efficiency and the effectiveness of its services, but also through its significant effect on improving transparency and accountability, which mean reducing the level of corruption (Hopper et al., 2009; Bertot et al., 2010; Singh et al., 2010; Lupu and Lazar, 2015). Hopper et al. (2009) studied the role of e-government in fighting against corruption. They suggest that using online services can reduce corruption. Since electronic delivery of the services reduces the interaction with officials, which enhance the speed of decision making and reduce human error, which accordingly increase the transparency of e-government (Hopper et al., 2009). Similarly, Singh et al., (2010) examine the role of e-government in reducing corruption. He also confirmed that e-government eliminates discretionary power by eliminating the mediator (officials), which prevents officials from committing any corrupt behavior and allow citizens to conduct electronic interactions themselves and, thus, enhance the transparency and integrity of electronic services.

Furthermore, Sapanjeet and Kamalkant (2012) conducted a study about the impact of e-government on corruption and argued that e-government contributes to reducing the corruption level and increasing the transparency, efficiency, and accountability for all services provided by government. E-government helps to improve government performance by providing multiple channels to access the government, several methods of transacting business, various styles of leadership, organizing multiple systems, and delivering services and information (Sapanjeet and Kamalkant, 2012). Additionally, e-government helps with increasing the transparency of the decision-making process since it offers opportunities for the citizens to provide their ideas and suggestions openly in online communities (Ndou, 2004). Ndou (2004) added that e-government web sites could be valuable resources for transparency if they have been designed carefully and openly; hence, citizens, businesses, and stakeholders will be able to see political and governmental information, rules, and policies.

Improving IT infrastructure, including data and communication resources, is considered a critical factor to reduce corruption and improve efficiency in an organization (Wong, 2002). To achieve this, governments need to understand how to utilize their fund while investing in IT (Hamner and Qazi, 2009). Some studies argue about the great potential of using IT to fight against corruption. Shim and Eom (2009) prove this argument in their study about the effect of ICT, in general term, in reducing corruption. They argue about the role of ICT in reducing unnecessary human intervention in government work processes, which reduces the corrupt behavior that may be issued, and, thus, reduce corruption. Andersen and Rand (2006) also investigate the relationship between corruption and e-government and argue about the role of ICT in reducing corruption. He argues that fighting against corruption depends on ICT policies to be well designed. Another study conducted by Lupu and Lazar (2015) on the European Union (EU), investigates whether the new members and not members to examine the relation between the change in the use of IT (specifically e-government) and the change in the level of corruption. The finding of this study confirms the inverse relationship between e-government and corruption; when the use of e-government increases, the level of corruption will decrease. Specifically, the study shows that if the use of e-government increases by 1%, the corruption decreases by 6.7% for the EU members, and 6.3 for the non-members.

The studies that have been discussed above focus on examining the relationship between corruption and e-government based on the benefits of e-government, which enhances the reduction of corruption and accordingly increase the accountability and transparency. These studies confirm the validity of this relationship and prove the role that e-government plays in increasing transparency and accountability. Furthermore, some studies mentioned that increasing the use of e-government will cause a reduction in the level of corruption. From this point, we will argue that it is important to conduct further studies that investigate the relationship between corruption and the usability of e-government services.

In addition, prior research shows the relationship of e-government and corruption after the process of adopting e-government. In the other words, this relationship cannot be studied unless the citizens are already using e-government services. However, the citizens' intention to use e-government services is one of the critical challenges facing e-government. Before studying the relationship between these two elements, e-government and corruption, it is important to study the relationship between corruption and e-government adoption by citizens (i.e. the citizens' intention to use e-government). Factors, such as corruption, not only affect the growth of e-government, but also may impact the citizens' trust in the government. If the citizens perceive the government as highly corrupted, then their confidence in the government will be negatively affected. Thus, as mentioned in the previous section, low trust in the government negatively affects their

intention to use e-government services. If the citizens do not intend to use e-government services, then, the e-government will not be effective in reducing the corruption level. From this aspect, we argue the importance of a further study that regards the citizens' perceptions of corruption and the extent of its impact on the citizens' behavior toward e-government adoption, because the further growth of e-government and its consequent impact on corruption relies on their behavior and decision to adopt e-government. Therefore, we argue two points; the first point is, if citizens' trust in government increases, then their perceptions of corruption will decrease. The second point is if the citizens' perception of corruption is low, then their intention to adopt e-government will increase. This leads to the following hypotheses:

H₃ The citizens' trust in the government negatively affects their perception of government corruption.

H₄ The citizens' perceptions of corruption negatively affect their behavioral intention toward using e-government.

2.6.3 Perceived Ease of Use (PEOU) and Perceived Usefulness (PU)

The diffusion of e-government depends heavily on the citizens' willingness to adopt e-government services. The citizens' intention to adopt its services is influenced by several factors that many researchers attempt to identify by proposing a new model or empirically examining these determinants. One of the most important factors studied in the context of the citizens' acceptance of e-government is the perceived ease of use (PEOU) and perceived usefulness (PU) that introduced by Davis et al. (1989) in TAM, the definitions of these two factors have been discussed in the content of TAM. Both PEOU and PU are jointly affecting the citizens' intention toward using technology. Despite the different dimensions covered by two factors, they can be considered as an integral part of each other, where there is no study reported factor of PEOU without mentioning PU.

Although the characteristics of PEOU and PU were identified in TAM, researchers still attempt to identify more dimensions to provide a better explanation of the characteristic of these two factors. For example, AlAwadhi and Morris (2009) argue that PU refers to three dimensions: time, access, and efficiency. Similarly, Gilbert et al. (2004) refer to the usefulness using the term "benefits". They classify the benefits of using e-government into the same three dimensions. These studies have identified the dimensions of PU through examining users' perceptions of the benefits of using e-government. These benefits consist of saving money and time, and reduce direct human interaction. In reference to saving money, Ndou (2004) states that applying a new online service, decreases the processing cost compared to doing so manually.

Some studies refer to PU as the users' perception of the benefits that they will gain through using online services. These benefits consist of making the job easier to perform, improving the job performance, increasing productivity, and enhancing work effectiveness (Susanto and Aljoza, 2015). However, these dimensions of PU are limited to the work organizational context, which means these dimensions of PU could be applicable inside an organization since it explains workers' perception of the usefulness of new technology that their organization implements. This dimension cannot be generalized to explain general users' perception of a service's usefulness. In other words, in order to study the influence of the citizens' perception of the usefulness of e-government services on their intention to adopt these services, it is better to consider citizens as a "customer" and e-government service as an "online service provider". In this case, citizens' perception of the usefulness of the service does not refer to improving their performance, but to the advantage of using the service which can consist of the benefits of saving time and money and increase the efficiency of the interaction with the government (services provider). This leads to the following hypothesis:

H₅ The citizens' perceptions of the usefulness positively affect their behavioral intention to use e-government services.

As for PEOU, some studies explain it from these dimensions: easy to perform tasks and easy to access information, to understand the information. On the other hand, other studies considered PEOU, aside from PU, as a factor that falls under website design. In this context, Kumar et al. (2007) examined the role of the design of the e-government websites in influencing the citizens' satisfaction and their adoption of e-government services. The study investigated the role of both TAM factors (users' PEOU and PU), as well as users perceived navigation, accessibility, and personalization in affecting the users' satisfaction and e-government adoption. The findings of this study supports their argument and shows that ease of navigation, personalization, and accessibility plays an important role in the citizens' satisfaction and in their adoption of e-government. Similarly, Kang and Kovacevic (2012) linked PEOU to the design of the website. In general, they argue that well-designed websites help users to easily access the information which develops a perception of the website and, affects their intention to adopt the online services. Segovia et al. (2009) also support this argument that well-designed e-government websites, in particular, enhance the citizens' intention to adopt e-government services. Well-designed e-government websites can be predicted if: 1) it is easy to access the services 2) the website is accessible anytime during the day 3) it is easy to access to information and the websites. All these factors affect the intention of the citizen to use e-government services. This means that it is important to understand the role that the website design plays in building the

users' perception toward the ease of using e-government services. What users expect from the online services is getting the service without making any effort. Warkentin et al. (2002) argue that if the citizens find that interacting with e-government services is easy, then, their intention to use the services will increase. Bart et al. (2005) investigate the customers' trust in online services. The result shows that customers will likely trust the websites if they were easy to use. In return, complex websites discourage the customers from engaging in this service again (Flavian et al., 2006).

Moreover, PEOU and PU describe the users' perception of the efficiency and the effectiveness of online services. Several studies have tackled the efficiency issue in the context of e-government. Some studies argue about the role that government should play in providing better delivery of e-government services. The effort that the government makes to improve its online services contributes to building the citizens' perception of e-government services are users friendly. Mathews (2010) describes the benefits of e-government in providing services that are easy to use and useful. He states that e-government can be considered a successful system, which has the double benefits of providing both accessibility and efficiency for the citizens while trying to reduce the costs of service delivery for the government (Mathews, 2010).

The influence of PEOU and PU on the citizens' intention to use technology was proposed by Davis et al. (1989) and the validity of this proposition has been confirmed in many studies (Warkentin et al., 2002; Carter and Belanger, 2005; Carter, 2008; Al-Hujran et al., 2011; Belanche et al., 2012; Amagoh, 2015; Susanto and Aljoza, 2015). However, every study covers different dimensions to examine the users' perception of ease of use and usefulness. As mentioned earlier, studies in the e-government context tend to focus on investigating PU from three dimensions. These dimensions are time, access, and efficiency. They investigate PEOU from the following dimensions: easy to access, easy to access information, and website design. Furthermore, the citizens' perception of e-government services differs from one country to another based on their experience of online interaction and their perception of technological infrastructure. Therefore, in this study, we investigate the influence of the citizens' PEOU and PU on their behavioral intention toward using e-government. In the context of this study, more dimensions of PEOU and PU will be covered. The citizens' PEOU of e-government services cover the following dimensions: the easy usage of the website, the easy access of the website, the accessibility to information, flexible services, and suitable customer support. The citizens' PU of e-government services covers the following dimensions: increasing interaction with government, providing valuable services, anytime accessibility, and reducing cost and time. Thus, the following hypotheses are proposed:

H₆ The citizens' perception of the ease of use positively affects their intention to use e-government services.

H₇ The citizens' perceptions of the ease of use positively affect their perception of the usefulness.

2.6.4 Social Influence (SI)

The term *social influence* can be translated to subjective norm. Both terms refer to the same factor that is identified in previous research to describe an individual's social influence from others. Social influence is defined by Venkatesh et al. (2003) as the degree to which an individual perceives that significant others (family, friend, etc.) believe (whether positively or negatively) that he or she should use the new system. Previous research classified the groups that influence individual decisions into three groups: family, friends or colleagues, and media influence (Hung et al, 2006). In this study, social influence refers to the degree to which other's beliefs will affect someone to use e-government.

Previous theoretical models proposed the factor of the subjective norms to investigate its impact on behavioral intention. For example, the TPB and the TRA proposed the factor of the subjective norms, to explain social influence, and hypothesized that it has a significant effect on the individuals' behavioral intentions (Ajzen and Fishbein, 1975; Venkatesh, et al., 2003). In addition, the UTAUT used the same factor under the name of the social influence instead of the subjective norms. The model also argued that the social influence has an effect on the behavioral intention. More studies have proved that the social influence has an impact on an individual's behavioral intention. Ajzen and Fishbein (1975) argue that the individuals' behavior is formed based on their intention. That intention is influenced by different factors; one of these factors is the social influence (Ajzen and Fishbein, 1975).

Several studies (Hung et al., 2006; Sahari et al., 2012; Kurfali et al., 2017; Wang and Lo, 2013) have examined the influence of the factor of the social influence on the intention to use e-government. The results showed that the social influence has no significant effect on intentions. For instance, Hussein et al. (2010) and Hung et al. (2006) conducted studies to identify the effects of the subjective norms on an online tax-filing service. Hussein et al. (2010) found that the subjective norms do not influence the intentions to use online tax-filing services. However, Hung et al. (2006) found that the subjective norms have a positive influence on intentions. Similarly, Alshehri et al. (2012) investigated the impact of the social influence on the intention of using e-government. Their findings show that the social influence has no impact on intentions to use e-government.

Other studies have discussed how the individual's perceptions, trusts, and behavior affected by the social influence (Tindale et al., 1996; Guo et al., 2006; Qin et al., 2011) and some studies explain the effect of social influence through explaining the influence of the media (Chaiken and Eagly, 1983). For example, Guo et al. (2006) discuss the effect of the social influence on the beliefs and perceptions of individuals by examining the effect of the normative social influence on the media use and group performance. The study shows that the use of specific media and the perception toward this media depend on the cultural diversity and the social influence. The study also suggests that the social influence affects the individuals' values, beliefs, and behavior. Chaiken and Eagly (1983) examine the consumer's online purchase behavior and find that the media is a primary social influence on the consumers' willingness to purchase online. Qin et al. (2011) integrate the social influence to the TAM in their model to investigate the users' acceptance of the online social network. The study finds a significant relationship between the users' perceptions of the usefulness and the social influence. The social influence affects their perception of the usefulness and their perceptions, therefore, affect their intention towards using an online social network. This study is one of the very few studies that explained the effect of the social influence on the users' perceptions of the usefulness specifically. Thus, there is a need to expand the research to understand more about this relationship.

Wang and Chuan-Chuan (2011) also find an indirect effect of the social influence on the users' intention. They explore the effect of the social influence on the intention to use blog platforms by proposing a conceptual model that integrates the social influence with Delone and McLean's (2003) IS success model (which study the effect of the quality of the system, information, and the services on net benefits, users' satisfaction and intentions). The results of the study confirm the validity of this model and also show that the social influence has a significant effect directly and indirectly on the bloggers' usage intention.

The above-mentioned studies have shown the role of the social influence in affecting the users' perceptions and trusts toward an online service. Most of these studies have examined these relationships in the context of the usage of a certain service on the Internet. However, in the context of e-government, there are no studies that highlight the effect of the social influence on other factors. Thus, there is more need to study such a relationship to understand the role of the social influence in e-government diffusion draw attention to the study of these relationships, therefore, it is important to guide more studies of this area.

Given the above, we conclude that the social influence has two impacts, direct and indirect. Social influence can directly affect behavioral intentions (direct effect). Social influence can also affect another

construct, trust in government, thus on intention (indirect effect). Further, social influence is expected to affect the perceived usefulness of e-government services. Therefore, we hypothesize the following:

H₈ The social influence affects the citizens' behavioral intentions to use e-government services.

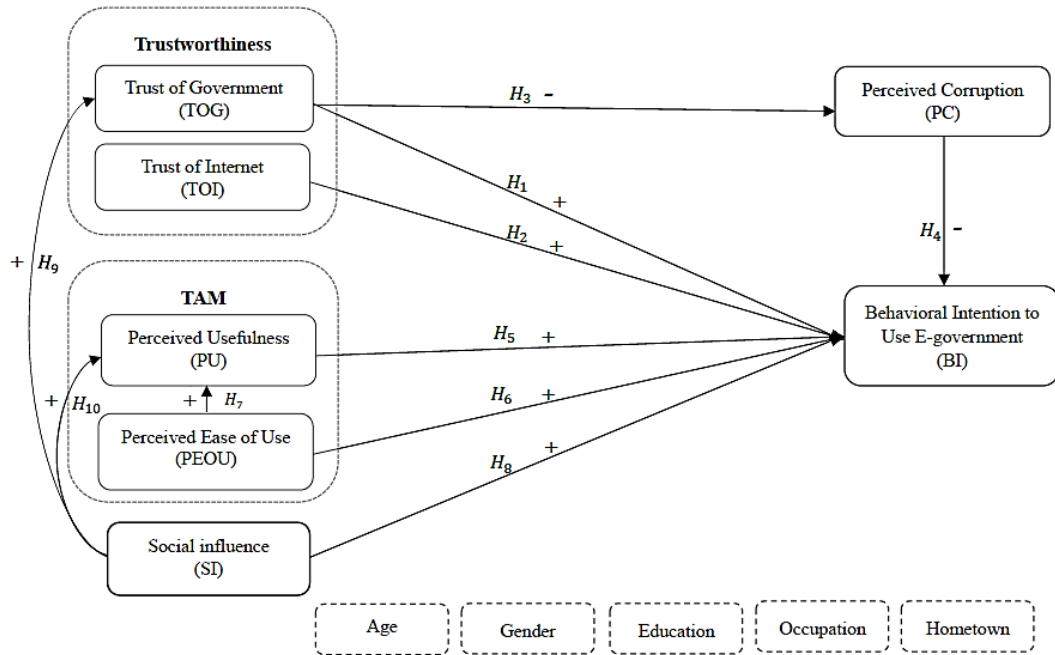
H₉ The social influence affects the citizens' trust in the government.

H₁₀ The social influence affects the citizens' perspective of the usefulness of the e-government services.

2.7 Research Conceptual Model

Based on the literature and theoretical models that have been discussed in the previous sections, this study proposes a conceptual model that explains the citizens' intention to use e-government (Figure 2.9). The proposed model is formed based on TAM, perceived trustworthiness (TOG and TOI), SI, and the perceived corruption construct. Integrating PU, PEOU, SI, TOG, TOI, and perceived corruption constructs provides a comprehensive explanation of citizens' intention to use e-government services. PU and PEOU were extracted from the TAM theory. The TAM was chosen because it covered elements that were explained in DOI. For example, PEOU explains the complexity construct that is driven from the theory of DOI. PU is the same construct as relative advantage. The trustworthiness constructs (TOG and TOI), which are adopted from Carter and Belanger (2005) acceptance model, have been introduced to our conceptual model. TOG and TOI are important because they tackle the behavioral intention of online services. The trust in the government (TOG) is a construct that citizens consider before using e-government. The citizens' lack of trust in the government leads them to believe that the government is corrupt, thus, affecting their use of e-government. To enhance our model, Social Influence (SI) has been adopted from UTAUT theory. SI is an essential construct when the Saudi Arabian society is the focus group; therefore, there could be a possible effect on intentions, perceived usefulness, and trust in the government. The control variables: age, gender, education, occupation, and hometown have a moderate affect on the relationships of the constructs on intention.

Figure 2.9: Research Conceptual Model



The above conceptual model identifies the influence of the factors we proposed in regard to the Behavioral Intention (BI). In particular, the model explains the influence of the TAM factors (PEOU and PU), perceived trustworthiness (TOI and TOG), and the SI factor from the UTAUT on the citizens' behavioral intention to use e-government. The model also explains the influence of Perceived Corruption (PC) on the citizens' behavioral intention to use e-government. In addition, the model argues that there are direct and indirect relationships between TOG and BI, and there is a direct relationship between SI and PU, and SI and TOG, as well as direct and indirect relationships between SI and BI. The model explains the relationship between the dependent variable (BI) and the independent variables under the control of the variables of age, gender, education, occupation, and hometown.

Chapter 3: Research Methodology

3.1 Introduction

This chapter describes and develops the research methodology of this study. The study main goal is to investigate the factors that influence the citizens' intention to use e-government services in Saudi Arabia. To achieve this goal, the research method, the selection of the method, and design is explained. The quantitative approach, including the development of the survey and the instruments used for this study, are presented. Next, the pilot study is presented. Then, the sample is described and the data collection is discussed. Following that the data analysis procedure, including the analysis methods, is discussed.

3.2 Research Method

This study utilizes multiple approaches method by applying both quantitative and qualitative methods. In order to achieve the objectives of this study, a qualitative approach is used to identify knowledge gaps and gain a better understanding of the citizens' acceptance of e-government. After a comprehensive review of the literature, research hypotheses and the conceptual model are developed. The conceptual model of this study is an integration of the TAM constructs (PEOU and PU) by Davis (1985), the SI construct from the UTAUT by Venkatesh et al. (2003), and trustworthiness constructs that have been proposed by Carter and Belanger (2005). Based on the above-mentioned literature we have introduced new hypotheses to suit the research context.

For data collection, a quantitative approach is used as the primary approach to collect statistical data from a population of Saudi Arabia citizens. In order to measure the model constructs, a survey questionnaire was developed, including questions can measure these constructs. Before distributing the survey, a pilot survey was conducted on a sample size of 9 respondents to test whether they are able to follow the directions of the questionnaire as indicated. The pilot survey also helps to know whether the survey satisfying the purpose of the research. Then, an online distribution method was selected as a primary method for data collection. The online survey method was selected due to the importance of surveying citizens from different geographic areas across the country to gain their perceptions of e-government services. The online survey enables geographical distribution in the most cost and time efficient way and it also ensures the privacy of the participants, that their responses cannot be traced back to them. Although the online survey may be limited to the users of the Internet in Saudi Arabia, and this, therefore, affects the ability for observing the nature of the non-Internet users. However, according to Internet World Stats (2017), the

number of Internet users in Saudi Arabia is 73.8%. This means we can rely on the online distribution of the survey because it helps to collect data from the majority of the population of Saudi Arabia. Thus, we believe that the data collected through the online survey will adequately reflect Saudi society.

Then, the conceptual model was measured using a series of quantitative analyses to explain the citizens' intention to use in e-government. The data was measured using SPSS 24. The data was analyzed using reliability analysis, exploratory factor analysis, and then regression and mediation analysis. The following sections provide more details of each phase of the current study.

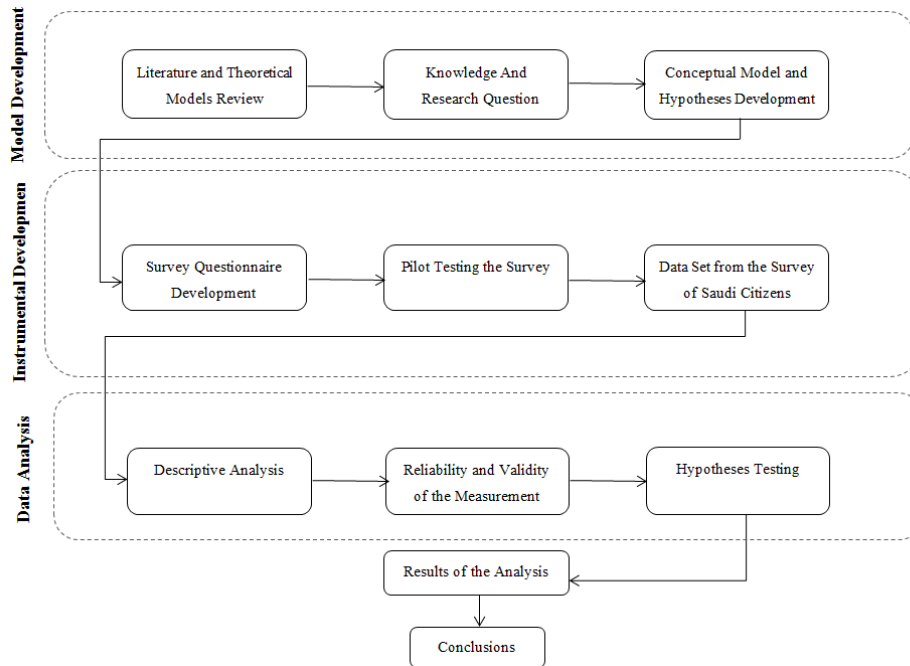
3.3 Selection of Research Method

As the majority of research studies related to e-government, a survey instrument was developed to test the conceptual model of this study. Recent studies that have been conducted on the content of technology adoption have used the quantitative method when applying theory to technology adoption (Venkatesh et al., 2003; Ajzen, 2006). The quantitative method has been used in social science to quantify attitudes, behaviors, intention, and other defined variables. It also contributes to facilitating the collection of the data from a large sample population, summarizing and analyzing these data and then generalizing the results. To achieve the main purpose of this study, which is investigating the factors that influence citizens' intention to use e-government, the quantitative method needs to be used to quantify citizens' evaluation of e-government services and their intention to use them. In addition, this method contributes to testing the validity of the constructs of the proposed model and to measure the relationship between these constructs which allow further testing of the model's sufficiency.

3.4 Research Design

The research design adopted for this study is following three main phases; model development, instrumental development and then data analysis. The research design is outlined in figure 3.1.

Figure 3.1: Research Design



Model development: The research model and hypotheses are developed in this phase, which has been discussed in the previous chapter. Firstly, in order to gain knowledge and a better understanding of e-government benefits and the citizens’ acceptance of its services, the existing literature, and theoretical models were reviewed. This led to the research question; what are the key factors that influence the citizens’ intention to use e-government services in Saudi Arabia. Based on the reviewed literature the hypotheses and the conceptual model of this study were developed. The conceptual model is based on the TAM and trustworthiness factors with an additional proposition of corruption factor and moderating the effect of age, gender, occupation, hometown, and education. The measurements of these factors were identified for the development of a questionnaire.

Instrumental development: This phase consists of three stages; survey development, pilot study, and sample. These stages are discussed in details in the next section. In this phase, firstly, a survey questionnaire was developed based on the measurement of the factors and based on previously validated instruments. Then, the pilot survey was used to pretest the questionnaire. Finally, the questionnaire was distributed among the target population, which consists of Saudi citizens.

Data analysis: This phase statistical analysis, including descriptive and measurement scale analysis was conducted to test the hypotheses. In particular, the data analysis was delivered through these stages; descriptive analysis, reliability test, validity test, and hypotheses testing. The data analysis is discussed in the next chapter.

3.5 Instrument Development

This study adopts the survey questionnaire method to investigate the citizens' intention to use e-government. The objective of using survey instrument is to assess the conceptual model using a statistical technique to analyze and examine survey data. The primary aim of the model assessment strategy is to investigate the causal links between the model constructs. A causal correlation is depending on the links between two or more factors, i.e. if two or several factors are sufficiently correlated. The steps that have been taken to develop this study's instrument are consisting of three stages.

3.5.1 Survey Questionnaire Development

In order to explore the factors which are determinant of the adoption process of e-government in Saudi Arabia, measurement of the model constructs is developed. In order to measure the model, we constructed a measurement for each construct, using the definition we adopted for the purpose of this study. The following table (Table 3.1) illustrates the constructs of the research model and their measurements.

Table 3.1: Survey Constructs Measurement

Construct	Definition	Measurement
Perceived Usefulness (PU)	Benefits of saving time and money and increase the efficiency of the interaction with the government.	<ul style="list-style-type: none"> • Increase interaction with government • Valuable services, • Accessibility anytime, • Reducing cost and time
Perceived Ease of Use (PEOU)	The degree to which an individual believes that using a particular system will be free of effort (Davis et al., 1989)	<ul style="list-style-type: none"> • Easy to use the website • Easy to access website • Accessibility to information • Flexibility of services • Suitable customer support.

Perceived Corruption (PC)	The lack of government integrity to account or accept the responsibility for its actions, and to disclose the information and decision-making process in a transparent manner.	<ul style="list-style-type: none"> • Integrity • Accountability • Transparency
Trust of Government (TOG)	public evaluation for the government based on their perceptions of the integrity and capability to provide services that fit citizens' expectation (Carter and Belanger, 2005)	<ul style="list-style-type: none"> • Trust the security of e-government. • Trust government agencies. • Privacy protection by the government. • Trust government ability in online transaction • Trustworthiness of government agencies.
Trust of Internet (TOI)	The trust in the reliability of the enabling technology(Carter and Belanger, 2005)	<ul style="list-style-type: none"> • Internet safety • Internet security
Social influence (SI)	The degree to which that others believes will affect someone to use e-government.	<ul style="list-style-type: none"> • People influence on using e-government. • People influence on trusting government. • People influence on the perception of e-government usefulness. • Family and friends influence.
Behavioral intention (BI)	Person's subjective probability that he or she will engage in or perform some behavior" (Ajzen and Fishbein, 1975)	<ul style="list-style-type: none"> • Intention to use the services • Intention to continually use the services • Mandatory use of the services

The survey of this study is divided into two parts. The first part consists demographic information, and the second part is consists of questions related to the constructs. The second part consists of one contingency question, that asks participants, whether they use e-government services or not. Based on their answers to this question, they will be moved into the next question. As for the respondents who use e-government service, the survey involves 77 questions (5 of them are for the demographic information), 52 are closed-ended mandatory questions to evaluate e-government services in general and 20 are closed-ended optional questions to evaluate any specific service. This part of the questionnaire is designed to contain two evaluation of e-government (general and specific) in order to examine the difference between an individual's perceptions of e-government services in general term and his/ her perceptions of a specific service. This design helps to explore to what extent the citizens' perception in both cases affect their intention to use e-government.

In the case if the participants do not use e-government services, the survey involves 16 questions beside 5 questions for the demographic information, 15 closed-ended questions are mandatory and one open-ended question is optional, to explain the reasons for not using the services. The questions in this part are designed to contain measurements of each construct that we examine in our conceptual model. This part designed to provide a better understanding of the reasons that curb the citizens' engagement with e-government and to explore the factor that has the most negative effect on their intention to use e-government.

The questions of the questionnaire were designed to measure the constructs based on the definitions we adopt for this study. Some of the questions, such as questions to measure the perceived corruption and the social influence, were specially designed for this study, i.e. they were not adopted from previous studies. The questions that measure the other constructs (PEOU, PE, TOI, TOG, SI, and BI) were adopted from several studies measure the same constructs (Venkatesh et al., 2003; Carter and Belanger, 2005; Belanger and Carter, 2008; Wangpipatwong et al., 2008; Singh et al., 2010; Wang and Lo, 2013; Al-Hujran et al., 2015) with some modifications to match the context of this study. Table 3.2 outlines all the survey items that have been adopted from previous research.

Table 3.2: Survey Items

Constructs	Items	Source
Perceived Usefulness (PU)	Government website would enable me to complete transactions more quickly. I think government web site would provide a valuable service for me.	Carter and Belanger (2005)
	Government websites Save my money in assessing government services.	Wang and Lo (2013)
	I believe that using e-government website to access government services provide good public value	Al-Hujran et al. (2015)
	Using government services enable me to do business with the government anytime not limited to regular hours.	Wangpipatwong et al. (2008)
	Using e-government websites increase my interaction with governments. Every use of e-government gives me benefit.	Original items developed for the purpose of this study
Perceived Ease of Use (PEOU)	I believe interacting withweb site would be a clear and understandable process. I would find.....web site to be flexible to interact with.	Carter and Belanger (2005)
	Learning how to use e-government website to access government services is easy for me I find using e-government website to access government services easy to use	Al-Hujran et al. (2015)
	It would be easy to find the information in government website	Original items developed for the purpose of this study
	When I face trouble in using e-government website I get a quick response form the support center. E-government websites provide suitable support when needed. Government online service is easier than the traditional way	Original items developed for the purpose of this study

	(face to face)	
Trust of Internet (TOI)	<p>The Internet has enough safeguards to make me feel comfortable using it to transact personal business with government agencies.</p> <p>I feel assured that legal and technological structures adequately protect me from problems on the Internet.</p> <p>The Internet is now a robust and safe environment in which to transact with government agencies.</p>	Belanger and Carter (2008)
Trust of Government (TOG)	<p>I think I can trust government agencies.</p> <p>government agencies can be trusted to carry out online transactions faithfully</p> <p>I trust government agencies keep my best interests in mind</p> <p>In my opinion, government agencies are trustworthy</p>	Belanger and Carter (2008)
	The government protects individual privacy via website.	Wang and Lo (2013)
	<p>E-government website has enough safeguards (e.g. security policy) to make me feel comfortable using it to access government services</p> <p>Modified to “Government website is secured and the security system not easy to hack.”</p>	Al-Hujran et al. (2015)
	Online communication with governments will increase my trust in government.	Original item developed for this study
Perceived Corruption (PC)	<p>Using government online services increase the transparency of the whole system.</p> <p>Make boundaries of responsibility and actions highly visible</p>	Singh et al. (2010)
	<p>I believe that government online services make boundaries of responsibility more easily recognized.</p> <p>I believe that government online services make it easier to see that government is doing the job it is supposed to do.</p> <p>I believe that government online services increase the honesty</p>	Original items developed for the purpose of this study

	<p>of government information and services.</p> <p>Government website provides clear policy and regulation for using the services.</p>	
Social Influence (SI)	<p>People who are important to me think that I should use e-government services.</p> <p>SI2 People who influence my behavior think I should use e-government services.</p> <p>People who are in my social circle would think that I should use e-government.</p>	Venkatesh et al. (2003)
	<p>My parents influence my decision to use e-government services.</p> <p>Brothers / sisters influence my decision to use e-government services.</p> <p>Husband / wife influence my decision to use e-government services.</p> <p>Son / daughter influence my decision to use e-government services.</p> <p>Friends influence my decision to use e-government services.</p> <p>People who are in my social circle would influence my trust in government.</p> <p>People who are in my social circle would influence my perception of e-government usefulness.</p>	Original items developed for the purpose of this study
Behavioral Intention to Use E-government (BI)	<p>I intend to use the e-government website to access government services frequently</p> <p>I predict that I should use the e-government website to access government services in the future</p>	Al-Hujran et al. (2015)
	<p>I intend to use government website as needed.</p>	Wang and Lo (2013)
	<p>I would use e-government service only because it is mandatory.</p>	Original item developed for the purpose of this study

All of the constructs in the survey were measured using a series of statements. These statements consist of close-ended questions, which mean that respondents have to choose the answers from the options (mini responses). This technique helps to elicit more comprehensive answers. These statements were measured by 5-point Likert scale (from 1 at strongly disagree, to 5 at strongly agree). The measurement scales used in this study were originally created in English. However, this study focuses on the citizens of Saudi Arabia and the first language there is Arabic. Thus, the survey was translated into Arabic to ensure that the meaning and the measurement items are clear and easy to understand for the respondents. The final version of the Arabic survey was reviewed by four Arabic native speakers (one PhD student and three MBA students). The reason for reviewing the Arabic version was to ensure the linguistic integrity and that the Arabic measurement items carry identical meaning to the English version of the statements. The questionnaire was then processed using an online survey tool, which is Google Forms (an online tool to gather information). The reason for using online survey is because of the fact that it makes it easy to reach the largest number of Saudi citizens from different geographic areas across the country. The Google Forms tool was adopted in this study because it is easy to understand for respondents and easy to deal with. Moreover, this tool contains an option that makes it possible to determine the mandatory questions. In other words, the respondents cannot submit the questionnaire unless mandatory questions were fully answered. Accordingly, this contributes to reducing the possible error and the missing data. Before the survey was distributed, a pilot study was conducted using the questionnaire prepared by Google. The following section discusses more details about the pilot study.

3.5.2 Pilot Study

The pilot survey helps to test whether the measured instructions are correct and this done through observing the ability of respondents to understand and follow the indicated directions. The pilot survey also provides better information to know whether the survey satisfying the purpose of the research. Moreover, it allows participants to share their feedback about the clarity of the questions. In this study, after preparing and translating the questions, the completed version of the questionnaire was pretested with 9 participants. The participants for the pilot study were carefully selected. Specifically, the pilot survey questionnaire was applied to one PhD student, four Master students, and four individuals from different education level. The purpose of conducting this test on a diversified sample is to gain various information and feedbacks from different people, who have different knowledge, and to gain an appropriate evaluation to improve the questions on the questionnaire. Fink and Kosecoff (1998) suggest that the pilot study should be conducted

on a sample from the same demographic make-up of the final survey. This helps in identifying unexpected problems with the survey as well as gaining feedback from respondents.

The pilot study of the survey is conducted in two steps. Firstly, conducting the participatory pilot survey, and then conducting the undeclared pilot survey. In the participatory pilot survey stage, respondents were informed that they are in the pre-test stage. The respondents were asked to evaluate the questionnaire. Specifically, respondents asked whether they understand the questions or not, whether it is easy to answer or not. In addition, they asked about their reactions, comments, and suggestions. Based on their feedbacks, several questions were revised and paraphrased as needed until the items were no longer needed clarification. Then the undeclared pilot survey stage was conducted. The survey was administered to the same respondents as if it is the real and full-scale survey, not the pretested one.

Therefore, the consistency of the questionnaire was measured using Cronbach's Alpha to ensure the reliability. SPSS 24 was used to calculate Cronbach's Alpha for the pilot survey. Manerikar and Manerikar (2015) suggest that the acceptable value of Cronbach's Alpha is 0.7. The results of the reliability analysis of the pilot survey show that overall alpha values were greater than 0.7, which indicate that the questionnaire was reliable. The following table presents the results of the pilot study.

Table 3.3: Scale Reliability for the Pilot Study

Scale	Number of Items	Cronbach's Alpha
Trust on Internet (TOI)	3	0.944
Trust on Government (TOG)	7	0.947
Perceived Corruption (PC)	6	0.932
Social Influence (SI)	10	0.927
Perceived Usefulness (PU)	7	0.942
Perceived Ease of Use (PEOU)	8	0.925
Behavioral Intention (BI)	4	0.722
Total	45	

3.5.3 Sample

The sampling technique that has been utilized in this study is a convenience sampling technique. Researchers usually tend to use a purposive sampling or a confirmatory sampling (non-probability sampling method) where they do not study any available sample randomly. Instead, researchers select participants based on the consistency of these participates with research purpose (Daniel, 2011; Fraenkel et al., 2012).

However, we decided to use a convenience sampling because the selection of units is made randomly. Moreover, unlike previous research which used purposive sampling focusing on participants with experience of using e-government, this study investigates both e-government's users and non-users. Thus, in order to achieve the purpose of this study, gathering useful data and information from both categories (users and non-users) and using the random selection of units is required.

Since this study is investigating e-government acceptance in Saudi Arabia, the target population of this study is consisting of Saudi citizens. The participants of the survey are Saudi citizens, whether they have some experience in using e-government services or not. The responses that have been collected from Saudi citizens via online survey are 349 responses. Since there were no missing data, thus, all of the responses were completed and used in the analysis. 40.4% of the respondents are between 20 and 29, with males accounting for 34.7% of the sample, and 65.3% for females. 26.6% of the participants were from the capital city Riyadh, while 20.9% were from Jeddah city. 57.4% of respondents were educated at the university (hold a bachelor degree), and 41.3% of the respondents were university students, 40.4% in total were employees (either private or public sector). 65% have reported having access e-government websites, where 35% have not used e-government websites. 39% of the respondents access e-government websites few times a year, 18% access e-government websites monthly, 18% access e-government websites once a year. Demographic statistics of respondents are summarized in Table 3.4.

Table 3.4: Demographic Distribution of Respondents

Demographic Categories	Results	
Gender	Male	34.7%
	Female	65.3%
Age	16-20	17.5%
	20-29	40.4%
	30-39	25.5%
	40-49	8.0%
	50 and above	8.6%
Education level	Not educated	0.29%
	Under high school	4.87%
	High school	21.20%
	Undergraduate	57.02%
	Master	12.61%
	Doctorate	4.01%

Occupation	Not employed	18.3%
	Student	41.3%
	Government employee	16.3%
	Privet organizations employee	11.5%
	Educational organization	6.3%
	Freelancer	6.3%
Hometown	Riyadh	26.6%
	Jeddah	20.9%
	Medina	10.3%
	Others	42.2%

3.5.4 Data Collection

This study used a quantitative method using a survey tool for data collection. The survey questionnaire consists of one contingency question, whether participants use e-government or not, and a set of closed-ended questions. These questions have specific options, where the participants are asked to choose one of from these options, rather than make the options open. The questions of the survey were designed to be answered quickly within 15 minutes. The survey included a message that explain the purpose of the research, its importance, and its role, as well as stating that their information and their answers will be used for research purposes only and will not be shared with any third party.

The survey was conducted online and hosted by Google Forms tool. The questionnaire was then distributed online. The link to access the survey was sent through email, SMS messages, messaging applications (such as WhatsApp and Line), and posted on social media platforms, such as Twitter, Facebook, and Instagram. The reason for choosing this method is due to the importance of obtaining data from different regions where the Internet is the best and easiest way to reach these data. The data for this questionnaire was collected in a three-month period. It took from February 2017 to May 2017 for all responses to be acquired. The final count was 349. Since all responses were completed, thus, all of them were used to test the proposed model.

3.5.5 Data Analysis

After collecting the data, several analyses have been conducted for the data. Initially, the demographic analysis was conducted. Then the reliability analysis was applied to confirm the consistency of the measurement. After the reliability analysis, the factor analysis was applied to reduce dimensionality and to

solve the multicollinearity problem of the factors. Then the multiple regression analysis and the mediation analysis were performed to predict the relationships between the factors. The following subsections provide a discussion of each analysis conducted in this study.

3.5.5.1 Reliability Analysis

Reliability analysis was used to measure the reliability (internal consistency) of the items (scale) (Henson, 2001). The consistency of the questionnaire measured using Cronbach's alpha. Cronbach's alpha explains the variance of a set of a group of items, which means how closely these items are related as a group (Cronbach, 1951). Cronbach's alpha can be estimated using the following formula:

$$\alpha = \frac{I}{I - 1} \left(1 - \frac{\sum_{i=1}^I \delta_i^2}{\delta_X^2} \right) \quad (8)$$

Where $n = 1, 2, \dots, I$ are the number of items in the scale, δ_i^2 is the variance of component i , and δ_X^2 is the variance of the observed total test scores. If the value of Cronbach's alpha was high, this implies that the construct X (the question items) has a high internal consistency¹. The following table provides a detailed explanation about the accepted rule for internal consistency, adopted from Manerikar and Manerikar (2015).

Table 3.5: The Internal Consistency of Cronbach's Alpha Value

$\alpha \geq 0.9$	The internal consistency is excellent.
$0.9 > \alpha \geq 0.8$	The internal consistency is good.
$0.8 > \alpha \geq 0.7$	The internal consistency is acceptable.
$0.7 > \alpha \geq 0.6$	The internal consistency is questionable.
$0.6 > \alpha \geq 0.5$	The internal consistency is poor.
$0.5 > \alpha$	The internal consistency is unacceptable.

The fundamental assumption of the reliability analysis is that the constructs should be unidimensional and if this assumption is violated it does cause a major underestimate of reliability (Miller, 1995). However, according to Cortina (1993), a high value of alpha does not always mean a high degree of internal consistency. Internal consistency is a necessary but not sufficient condition for measuring unidimensionality of the items. Thus, using factor analysis can help test whether the items of one construct

¹ Alpha does not simply measure unidimensionality. In other word, a "high" value for alpha does not imply that the construct X is unidimensional. According to Cortina (1993) and Schmitt (1996), the interpretation of X depends on the dimensionality and the construct validity. In order to provide evidence of X unidimensionality, further analyses such as exploratory factor analysis need to be performed.

consisting of one or several dimensions (Brown, 2006).

3.5.5.2 Exploratory Factor Analysis

The exploratory Factor analysis is used for reducing a large number of the observable variables into fewer latent variables that have the same variance. In other words, reducing the dimensionality of the variable (Jolliffe, 2002; Bartholomew et al., 2011). Likewise, factor analysis can be used to measure construction of latent variables since it endogenously classifies observed items into fewer unobserved latent dimensions (constructs) (Boermans, and Kattenberg, 2011). In matrix term, factor analysis can be performed using the following formula.

$$x - \mu = LF + \varepsilon \quad (9)$$

x is a matrix of $n \times i$, where n is observations for i items, and μ is a matrix of $n \times i$ containing the means of the item. F is a $j \times i$ matrix of latent factors, L is a $n \times j$ matrix of factor loading, and ε is a $n \times i$ matrix of random errors.

There are several different methods can be used to conduct a factor analysis, such as principal axis factor, maximum likelihood, and principal component analysis. Moreover, factor analysis has a different type of rotation such as orthogonal rotations (Varimax and Equimax) and oblique rotations (Promax).

In this study, the factor analysis was conducted using SPSS 24, to reduce dimensionality and to solve the multicollinearity problem that has been detected when running the regression on the items. An initial regression analysis was conducted before the factor analysis in order to identify the correlation between items and to detect the multicollinearity problem. The next section provides a brief explanation of the collinearity statistic. The factor analysis in this study was applied taking into account the following points; providing descriptive analysis (including KMO and Bartlett's test), setting eigenvalue at 1, using the principal component analysis method, and using Varimax rotation.

Firstly, in order to determine the factorability of the data, determines whether the sample is big enough for the analysis, Kaiser-Meyer-Olkin (KMO) test was applied. KMO test predicts if data are likely to factor well. KMO statistic varies between 0 and 1. The sample considers adequate if the value of KMO is greater than 0.5 (Kaiser, 1974). Furthermore, the Bartlett's test was applied to test the null hypotheses or the homogeneity of variances.

As for the method of factor analysis, we used Principal Component Analysis (PCA) as a technique to reduce dimensionality (by keeping only the important information) and to extract uncorrelated linear combinations of variables (Abdi and Williams, 2010). Additionally, the rotation was used to improve the interpretability of factors. Since we expect the factors to be independent, thus, the type of rotation that was used in this analysis is an orthogonal rotation. Specifically, we used Varimax which assume that the factors are not correlated. Varimax rotation helps in minimizing the number of variables that highly loadings on each factor and help to make small loadings even smaller (Abdi and Williams, 2010). Thus, in order to simplify factors and to solve multicollinearity problem, we decided to use this type of rotation since it suits our analysis.

In respect of the Eigenvalues, we followed Kaiser (1960) recommendation of setting eigenvalues over 1. Eigenvalues refer to the variances of the factors. According to Kaiser (1960), the eigenvalues should not be less than 1. If so, then it explains less information than a single item should explain. In other words, it would not be meaningful to find factor explaining less variance than one variable should explain. Thus, in the case of this study eigenvalue was set at 1.

3.5.5.3 Collinearity Statistic

Collinearity or multicollinearity refers to a high correlation between two or more predictor items in multiple regression models. Multicollinearity can be detected from estimated regression coefficients from tolerance and Variance Inflation Factor (VIF) value and it can be reduced using factor analysis, as mentioned above. Tolerance is measuring the collinearity. If the tolerance is close to 1 this means there is little multicollinearity, on the other hand, if the value is close to 0 this means that the multicollinearity may be a threat. VIF refers to the reciprocal of a tolerance and it shows the amount of multicollinearity in multiple regression variables. If the value of VIF is equal to 1 this implies there is no multicollinearity, if VIF between 5 and 1 then the value can be acceptable, if VIF is greater than 5 this implies that there are a serious multicollinearity problem and the factor that has a high VIF need to be removed, or some items load under this factor need to be removed, because it is redundant.

In this study, we ran an initial multiple regression statistics, using SPSS 24, to detect the multicollinearity and then we used the factor analysis to reduce the dimensions and then solve the collinearity problem. In factor analysis, the determinant helps detect the multicollinearity. Thus, the determinant checked whether there is a collinearity problem or not. If the determinant is zero value, this implies that statistically the factor

analytic solution cannot be obtained, which means some items need to be removed to solve the problem. Therefore, in this study, some items were removed in this stage to solve the multicollinearity problem.

3.5.5.4 Multiple Regression Analysis

Multiple regression explains the relationship between one variable, which called dependent variable, with two or more other independent variables (Doane and Seward, 2016). Multiple regression also helps in estimating the model fitting and evaluating the validity and of the model. The following formula explains the estimation of multiple regression.

$$Y = \alpha + \sum_{n=1}^i \beta_n x_n + \varepsilon \quad (10)$$

Where $n=1,2,\dots,i$, is the number of variables, Y is the predicted variable (the dependent variable), x is the variable used for predicting the value of Y (independent variable), α is the constant, β_n is the coefficient of x_n , and ε is the regression residual error.

The multiple regression analysis was applied in this study because it helps in examining the relationships between the factors of the conceptual model, since it examines the relationship between multiple independent variables and one dependent variable. This analysis also helps determine the overall fit of the model.

In this study, the multiple regression was used to predict the effect of the independent variables (TOG, TOI, PEOU, PU, SI, and PC) on two dependent variables. The first dependent variable is BI, which includes three items that are BI1, BI2, and BI3. This dependent variable refers to the behavioral intention of the voluntary use. The second dependent variable is the item BI4, which refers to the behavioral intention of the mandatory use.

Initially, the regression coefficient R^2 was estimated in order to measure whether the regression model of this study is valid, the value of R^2 is between 0 and 1. A value of R^2 above 0.7 indicates a good level of prediction. Specifically, if the value of R^2 is equal to one, this implies that the model explains all of the variability of the data. If the value of R^2 is between 1 and 0.7, the model explains more variability of the response data. The values of R^2 between 0.7 and 0.7 are acceptable and any value below 0.5 can be considered as a low level of prediction.

Before determining the significant predictors, F test was performed to test overall fit. F statistic tests two hypotheses. The null hypothesis (H_0) assumes that all the coefficients are zero (i.e. $\beta_1 = \beta_2 = \dots = \beta_n = 0$, n is the number of predictors). The alternative hypothesis (H_1) assumes that at least one of the coefficients is non zero. F test will be shown in the ANOVA table in the next chapter.

Then, the p-value was estimated in order to test the null hypothesis, that the coefficient has no effect (equal to zero). A low p-value indicates that we can reject the null hypothesis, thus, if the p-value is less than 0.05 this means the model of this study fits the data well. Conversely, if the p-value is larger than 0.05, this indicates that it is not statistically significant.

3.5.5.5 Mediation Analysis

The mediation analysis has been used widely in the behavioral science (Cole and Maxwell, 2003) and the organizational behavior studies (Mathieu and Taylor, 2006) in order to understand causal relationships. The mediation analysis explains the relationship between X (an independent variable) and Y (a dependent variable) via a third variable. This variable mediates the relationship between X and Y and called a mediating variable (M). In other words, it explains the indirect effect between the X and Y as mediated by a mediating variable M (Musairah, 2016). Another explanation of the concept of mediator by MacKinnon et al. (2007) suggests that a mediator is a causal mechanism that transmits the effect of an independent variable on a dependent variable the mediation can be shown graphically in the following way (see Figure 3.2).

Figure 3.2: The Mediation Model



However, in order to statistically test the mediation model, four paths need to be tested as suggested by Baron and Kenny (1986). The paths of a, b, and c can be tested by conducting a simple regression analysis that tests the relationships between X and M, M and Y, and X and Y respectively. The fourth path (path c') can be tested by conducting a multiple regression analysis to determine the effect of X and M on Y.

An equivalent approach to conduct a mediation analysis was suggested by (Sobel, 1982). According to this method, the indirect effect can be tested by multiplying two regression coefficients that can be obtained from two regression models. The first model includes the relationship between X and M, the second model

is formed by multiplying the coefficient of path b and path c' (Sobel, 1982). The following table shows the equations and visual depiction of the relationships.

Table 3.6: Sobel Product of Coefficients Approach

Model 1	$M = B_0 + BX + e$ (11)	$X \xrightarrow{a} M$
Model 2	$M = B_0 + B_1X + B_2M + e$ (12)	$\begin{array}{c} \xrightarrow{c'} \\ \left[\begin{array}{ccc} X & & M \end{array} \right] \\ \xrightarrow{b} Y \end{array}$

In order to implement the mediation analysis in this study, we used a PROCESS macro tool version 2.16 in SPSS, which created by Hayes (2012). In this study, the mediation analysis is applied in two different cases. The first case is to study the relationship between X and Y as mediated by one mediating variable (M). The second case is to study the relationship between X and Y as mediated by two mediating variables (M₁ and M₂). The analysis of the first case follows the same approach of (Sobel, 1982) by testing two models. The first model conducts a simple regression to test the relationship between X and M. The second model conducts a multiple regression analysis to test the effect of X and M on Y. this analysis is conducted by utilizing model 4 by Hayes (2012) in PROCESS macro, this model explains the same paths that suggested by Sobel (1982).

As for the second case, it was tested by utilizing model 6 in the PROCESS macro as suggested by Hayes (2012). This model consists of three models. The first model conducts a simple regression between X and M₁. The second model conducts a multiple regression to test the influence of X and M₁ on M₂. The third model conducts a multiple regression to test the influence of X, M₁, and M₂ on Y.

Then, in order to confirm the significance of the indirect relationship, there are two conditions that must be met. The first condition is that the significance level of the indirect model should be less than 0.05. The second condition is that the bootstrap confidence should be greater than zero. In other words, to know whether the indirect effect is significant or not, it is important to check whether the value zero is included in the confidence interval or not. If the value zero is included in the confidence interval, i.e. between the lower limit (BootLLCI) and the upper limit (BootULCI) of the confidence interval, then the indirect effect is not significant. In this study, the mediation analysis using PROCESS macro will be applied to eight models that will be discussed further in Chapter 4.

Chapter 4: Data Analysis

4.1 Introduction

This chapter presents the results of the survey questionnaire conducted on a sample of Saudi citizens in order to study their intention to use e-government services. In this chapter, the respondent profiles are presented. This is followed by reliability analysis and exploratory factor analysis. After that the regression and mediation analysis are performed to test hypotheses.

4.2 Survey Questionnaire and Demographic Profile

The survey instrument of this study was developed in order to examine the factors that affect the citizens' intention to adopt e-government in Saudi Arabia. The survey includes 7 constructs that were measured by a 5-point Likert scale. The survey questionnaire was conducted on Saudi Arabia's citizens between February 2017 and May 2017. The Google Forms tool was used to host the questionnaire and it was distributed online using email, SMS messages, messaging applications, as well as social media platforms. A total of 349 surveys was completed and received. All of the respondents were used in the analysis. The demographic background was constructed by the first 5 questions that indicate the gender, age, hometown, education level, and occupation of the respondents, followed by three questions related to the experience of using e-government and one question related to the frequent use of it. The following section shows the finding of the demographic profile in general followed by the demographic profile of e-government users.

4.2.1 General Demographic Profile

This section shows the finding of all 349 respondents' demographic profile, including finding related to the gender, age, hometown, education level, and occupation. The findings are shown below.

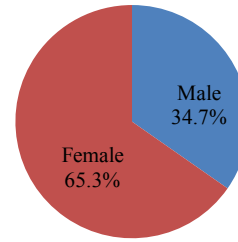
4.2.1.1 Gender of All Respondents

As shown in Table 4.1 and Figure 4.1, the majority of the 349 respondents are females (65.3%), while 34.7% of the respondents were males.

Table 4.1: Gender of All Respondents

Gender	Frequency	Percentage
Male	121	34.7%
Female	228	65.3%
Total	349	100%

Figure 4.1: Gender of All Respondents



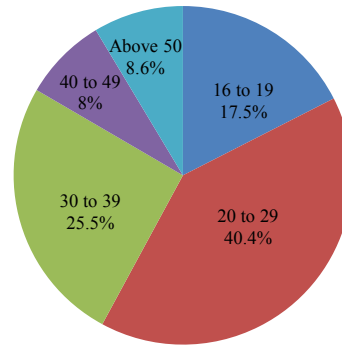
4.2.1.2 Age of All Respondents

The results show that the age group with the largest percentage of respondents was 20-29 with 40.4% of responses, followed by the age group of 30-39 comprised of 25.5% of the total respondents. The age group of 16-19 represented 17.5% of the total respondents. In contrast, the oldest groups of 40-49 and above 50 represented 8% and 8.6% respectively of the total respondents (see Table 4.2 and Figure 4.2).

Table 4.2: Age of All Respondents

Age	Frequency	Percentage
16 to 19	61	17.5%
20 to 29	141	40.4%
30 to 39	89	25.5%
40 to 49	28	8.0%
Above 50	30	8.6%
Total	349	100%

Figure 4.2: Age of All Respondents



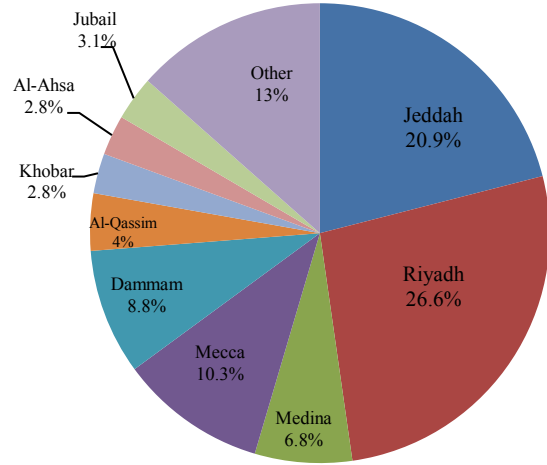
4.2.1.3 Hometown of All Respondents

In terms of the hometown, the results revealed that the majority of the respondents were from the capital city Riyadh (26.6%), followed by 20.9% of the respondents were from Jeddah city, which is the second-largest city in Saudi Arabia after Riyadh. Then, 10.3% of the respondents were from Mecca city, followed by 8.8% and 6.8% of the respondents were from Dammam city and Medina city respectively. In contrast, the lowest number of respondents was from Al-`Ula, Bisha, Unaizah, Saihat, and Buraydah. The respondents from each of these cities represented 0.29% of the total respondents. The following table and figure show more details of the findings.

Table 4.3: Hometown of All Respondents

Hometown	Frequency	Percentage (%)
Jeddah	73	20.9%
Riyadh	93	26.6%
Mecca	36	10.3%
Dammam	31	8.8%
Medina	24	6.8%
Al-Qassim	14	4.0%
Jubail	11	3.1%
Khobar	10	2.8%
Al-Ahsa	10	2.8%
Other	47	13.4%
Total	349	100%

Figure 4.3: Hometown of All Respondents



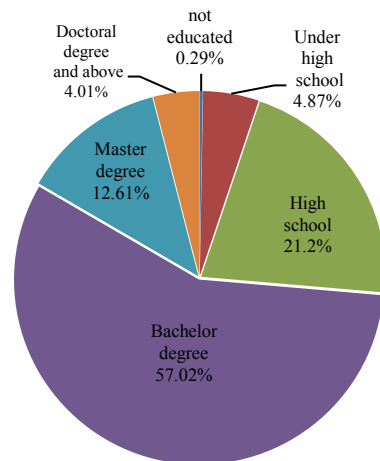
4.2.1.4 Education Level of All Respondents

As shown in Table 4.4 and Figure 4.4, the majority of respondent (57%) holds bachelor degree, 21.2% of the respondents with high school level, followed by 12.61% holding master’s degree, 4.87 with low level of education and 4.01% with doctoral degree and above. These findings show that 99.71% of the respondents were educated enough to understand the content of the questionnaire and answer the questions.

Table 4.4: Education Level of All Respondents

Education Level	Frequency	Percentage
Not educated	1	0.29%
Under high school	17	4.87%
High school	74	21.20%
Bachelor degree	199	57.02%
Master degree	44	12.61%
Doctoral degree and above	14	4.01%
Total	349	100%

Figure 4.4: Education Level of All Respondents



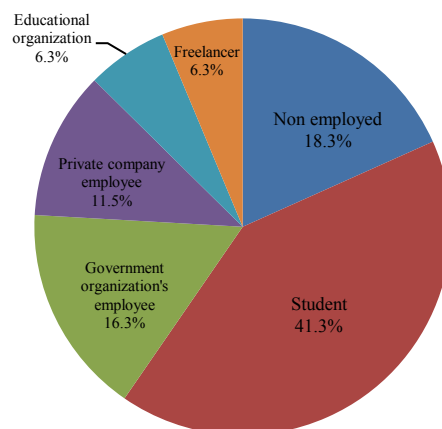
4.2.1.5 Occupation of All Respondents

The results show that 41.3% of the respondents were students. Similarly, 40.4% of the respondents were employed. In particular, 16.3% of the respondents were working for governmental organization, while 11.5% were working for private companies, followed by 6.3% of the respondents were working at educational organization and similarly 6.3% were freelancers. On the other hand, 18.3% of the respondents were non-employed. By adding both students and non-employed participants, then we can say that in total 59.6% of the respondents are not working (see Table 4.5 and Figure 4.5).

Table 4.5: Occupation of All Respondents

Occupation	Frequency	Percent
Non-employed	64	18.3%
Student	144	41.3%
Governmental organization's employee	57	16.3%
Private company's employee	40	11.5%
Educational organization	22	6.3%
Freelancer	22	6.3%
Total	349	100%

Figure 4.5: Occupation of All Respondents



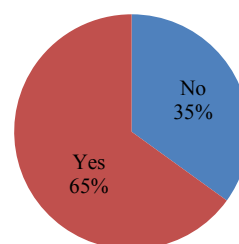
4.2.2 The Use of E-government

In terms of the e-government use experience of respondents, 65% of the respondents were used e-government services one time or more, while 35% of the responses had never used any e-government service before (see Tale4.6 and Figure4.6).

Table 4.6: The Use of E-government

	Frequency	Percentage
No	122	35%
Yes	227	65%
Total	349	100%

Figure 4.6: The Use of E-government



4.2.3 Demographic Profile for E-government Users

This section shows the findings of the demographic profile for the e-government users, 227 respondents, including finding related to the gender, age, hometown, education level, and occupation.

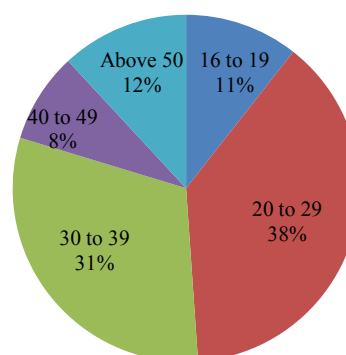
4.2.3.1 Age of the E-government Users

The results show that the age group with the largest percentage of respondents with an experience using e-government was 20-29 with 38.3% of responses, followed by the age group of 30-39 comprised of 30.8% of the total respondents. The age group of 16-19 represented 10.6% of the total respondents. In contrast, the oldest groups of 40-49 and above 50 represented 8.4% and 11.9% respectively of the total respondents (see Table 4.7 and Figure 4.7).

Table 4.7: Age of E-government Users

Age	Frequency	Percentage
16 to 19	24	10.6%
20 to 29	87	38.3%
30 to 39	70	30.8%
40 to 49	19	8.4%
Above 50	27	11.9%
Total	227	100%

Figure 4.7: Age of E-government Users



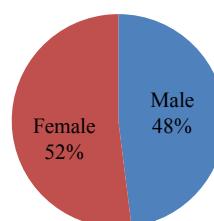
4.2.3.2 Gender of E-government Users

As shown in Table 4.8 and Figure 4.8, almost half of respondents who have an experience using e-government were female (52%), and 48% of the respondents were male. This means that 109 out of 121 of the male participants are using e-government services, 90% of the male participants. While 118 out of 228 female participants are using e-government services, 51.7% of the female participants.

Table 4.8: Gender of E-government Users

Gender	Frequency	Percentage
Male	109	48%
Female	118	52%
Total	227	100%

Figure 4.8: Gender of E-government Users



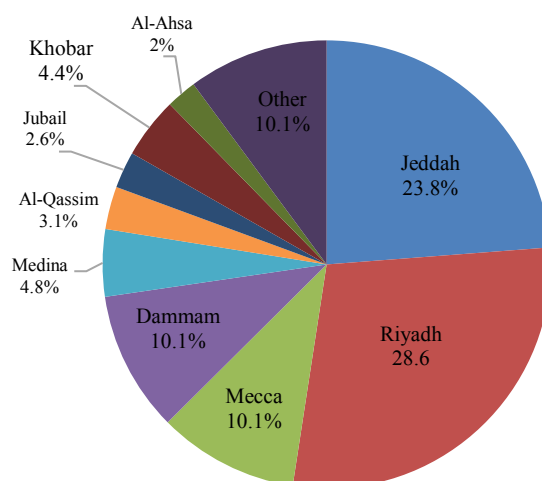
4.2.3.3 Hometown of the E-government Users

The results revealed that the majority of the respondents who have an experience using e-government were from the capital city Riyadh (29%), followed by 24% of the respondents were from Jeddah city. 10.1% of e-government users were from Mecca city. Similarly, 10.1% were from Dammam city, followed by 4.4% were from Khobar city. The lowest number of respondents who have an experience using e-government were from Al-Qassim, Jubail, and Al-Ahsa, 3.1%, 2.6%, and 2.2% respectively. Moreover, 10% of the respondents were from different cities. The following table and figure show more details of the findings.

Table 4.8: Hometown of the E-government Users

Hometown	Frequency	Percentage (%)
Jeddah	54	23.8%
Riyadh	65	28.6%
Mecca	23	10.1%
Dammam	23	10.1%
Medina	11	4.8%
Al-Qassim	7	3.1%
Jubail	6	2.6%
Khobar	10	4.4%
Al-Ahsa	5	2.2%
Other	23	10.1%
Total	227	100%

Figure 4.8: Hometown of the E-government Users



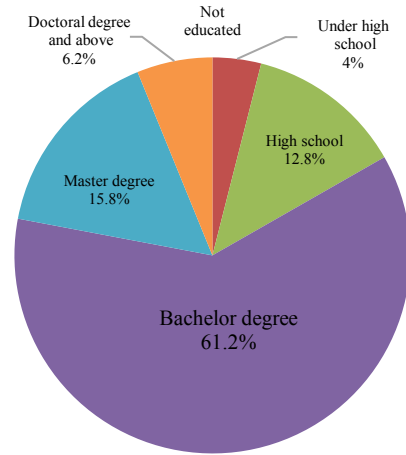
4.2.3.4 Education Level of the E-government Users

As shown in Table 4.9 and Figure 4.9, the majority of respondents who have an experience using e-government services (61.2%) were bachelor degree holders, 15.8% of the respondents holding master's degree, followed by 12.8% with high school level, 6.1% with doctoral degree and above level, and 4% with low level of education level. These findings show that all respondents with an experience using e-government services were educated enough to understand the content of the e-government services.

Table 4.9: Education Level of the E-government Users

Education Level	Frequency	Percentage
Not educated	0	0%
Under high school	9	4.0%
High school	29	12.8%
Bachelor degree	139	61.2%
Master degree	36	15.8%
Doctoral degree and above	14	6.2%
Total	227	100%

Figure 4.9: Education Level of the E-government Users



4.2.3.5 Occupation of the E-government Users

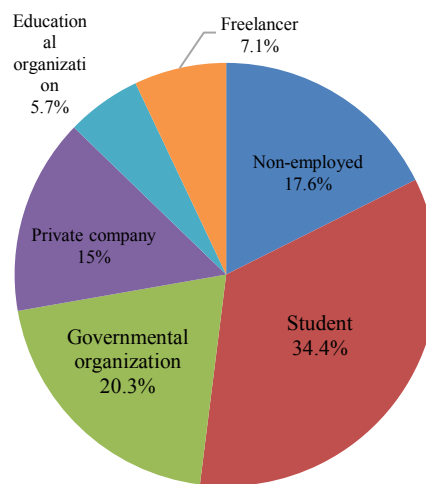
As shown in Table 4.10 and Figure 4.10, the majority of the respondents who have an experience using e-government were students 34.4%. This is followed by 0.3% of the respondents were working for a governmental organization, while 15% were working for a private organization. 5.4% of the respondents were working at an educational organization, while 7% were freelancers. On the other hand, 17.6% of the respondents were non-employed. By adding both students and non-employed participants together, we can say that in total 52% of the respondents are not working, while the rest of the respondents (48%) are working, either working for a governmental organization, a private organization, or freelancer.

Table 4.10: Occupation of the E-government

Users

Occupation	Frequency	Percent
Non-employed	40	17.6%
Student	78	34.4%
Governmental organization's employee	46	20.3%
Private company's employee	34	15.0%
Educational organization	13	5.7%
Freelancer	16	7.0%
Total	227	100%

Figure 4.10: Occupation of the E-government Users



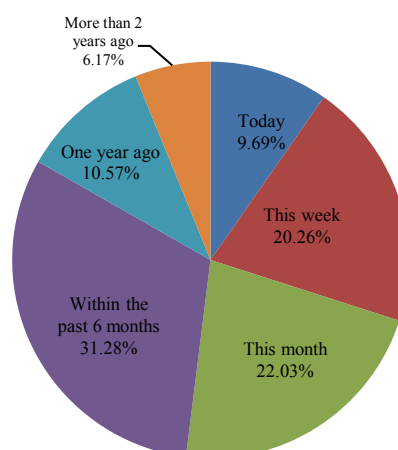
4.2.4 E-government Experience

Concerning the respondents with experience of using e-government, as shown in Table 4.11 and Figure 4.11, out of 227 respondents who have an experience in using e-government services, 31.28% of the participants say that they used e-government within the past 6 months, following by 22.03% have used it this month and 20.26% used it this week.

Table 4.11: The Last Use of E-government

The last Use of E-government	Frequency	Percentage
Today	22	9.69%
This week	46	20.26%
This month	50	22.03%
Within the past 6 months	71	31.28%
One year ago	24	10.57%
More than 2 years ago	14	6.17%
Total	227	100%

Figure 4.11: The Last Use of E-government

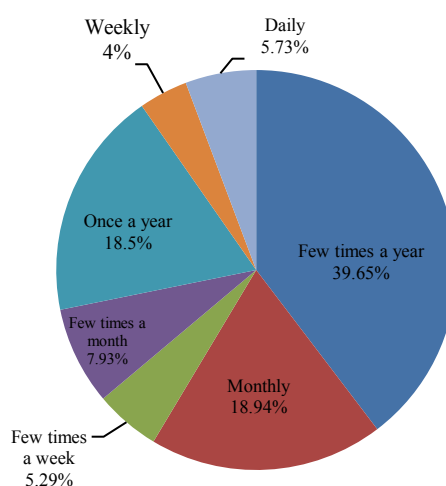


In terms of the frequent use of e-government, 39.65% of the participants use e-government services few times a year, 18.94% participants use them monthly, while 18.5% use the services once a year. 7.93% use e-government services few times a month, followed by 5.73% use them daily and 5.29% use them a few times a week. These results show participants awareness of e-government services. The following table and figure show the results of e-government services access by the participants of the survey.

Table 4.12: Access to E-government Services

Access to E-government	Frequency	Percentage
Few times a year	90	39.65%
Monthly	43	18.94%
Few times a week	12	5.29%
Few times a month	18	7.93%
Once a year	42	18.50%
Weekly	9	3.96%
Daily	13	5.73%
Total	227	100%

Figure 4.12: Access to E-government Services



4.3 Reliability Analysis

Reliability analysis is used in the current study to measure the internal consistency of all constructs (trust in the government, trust in the Internet, the social influence, perceived usefulness, perceived ease of use, and behavioral intention). The analysis was performed by internal consistency and item-total correlation. The results are presented below.

4.3.1 Internal Consistency

The internal consistency of the survey responses across the constructs is measured by Cronbach's alpha. Manerikar and Manerikar (2015) suggest that the acceptable limit of alpha value is 0.7, and an alpha value greater or equal to 0.9 is excellent.

Table 4.13 shows the results of Cronbach's alpha for of the 7 construct's measurement scales that used in this study. The table shows the results for all items, before deleting any item. The results of the analysis show that out of 6 out of 7 constructs possess high reliability with an alpha value greater than 0.8, while

only one construct shows a low alpha value less than the acceptable level. Specifically, PEOU, PU, TOG, SI, and PC had excellent alpha values of 0.919, 0.923, 0.939, 0.917, and 0.912 respectively. Additionally, TOI had a good alpha value of 0.826. These results prove the internal consistency of all mentioned constructs. In other words, measures of constructs are unidimensional, which means that Items belong to same constructs are measuring the same content.

Table 4.13: Scale Reliability (All Items)

Scale	Number of Items	Cronbach's Alpha (α)	Type
Trust on Internet (TOI)	3	0.826	Good
Trust on Government (TOG)	7	0.939	Excellent.
Perceived Corruption (PC)	6	0.912	Excellent.
Social Influence (SI)	10	0.917	Excellent.
Perceived Usefulness (PU)	7	0.923	Excellent.
Perceived Ease of Use (PEOU)	8	0.919	Excellent.
Behavioral Intention (BI)	4	0.592	Poor
Total	45		

As shown in Table 4.13, BI had an alpha value of 0.592 which is considered below the acceptable limit as suggested by Manerikar and Manerikar (2015). A low alpha value means that the constructs are not unidimensional. This result means that the items belong to this construct, measure more than one construct (i.e. the combination of items is multidimensional). Therefore, it is important in this case to use factor analysis in order to test whether the items load under this construct consist of one dimension or more.

Table 4.14 shows the results of all constructs after the elimination of some items. The reasons for deleting these items will be discussed further in this section. In this analysis, one item related to TOG and PU, and two items related to PEOU were deleted at this stage. For the SI, six items were deleted at this stage due to the following reasons: 1) in the exploratory factor analysis, the initial result of the correlation matrix of the ten items shows that the determinant is zero. Since the determinant is zero, then the factor analytic solution cannot be obtained in this case. Therefore, deleting one item or more was necessary to solve the collinearity problem; in this case it was necessary to delete two items. 2) The slight difference between SI 1 and SI 2 reveals to be not clear for respondents. According to the result of the questionnaire, the answers to these questions were very similar, which led us to conclude that the respondents may think both questions measure the same thing. Therefore, we decided to remove SII and to solve the collinearity problem. 3)

Moreover, the items SI4, SI5, SI6, SI7, and SI8 can be classified as the influence of family members, such as children's and husbands or wife's influence, and friends. However, 48.9% of the participants in this study are under the age of 29. According to a study conducted by Saudi Arabia's General Authority for Statistics (2017) on the rates of spinsterhood in Saudi Arabia, 34.12% of the Saudi females are unmarried (General Authority for Statistics, 2017). This means that the participants who are under the age of 29 are most likely unmarried and have no children. Thus, we believe that these questions were difficult to answer and accordingly we could not get consistent information to predict the influence of SI on the citizens' intention to use e-government.

As shown in Table 4.14, the alpha values of all constructs are greater than the acceptable level. 4 out of 7 constructs possess high reliability with alpha values greater than 0.9, while three constructs show good alpha values that greater than 0.8. Specifically, TOG, PC, PU, and BI had excellent alpha values of 0.924, 0.912, 0.917, and 0.907 respectively. Additionally, TOI, SI, and PEOU had good alpha values of 0.826, 0.818, and 0.885 respectively. These results prove the internal consistency of all mentioned constructs. In other words, measures of constructs are unidimensional, which means that Items belong to same constructs are measuring the same content.

Table 4.14: Scale Reliability after Items' Elimination

Scale	Number of Items	Cronbach's Alpha (α)	Type
Trust on Internet (TOI)	3	0.826	Good
Trust on Government (TOG)	6	0.924	Excellent.
Perceived Corruption (PC)	6	0.912	Excellent.
Social Influence (SI)	4	0.818	Good
Perceived Usefulness (PU)	6	0.917	Excellent.
Perceived Ease of Use (PEOU)	6	0.885	Good
Behavioral Intention (BI)	3	0.907	Excellent
Total	34		

4.3.2 Item-total Correlation

The item-total correlation analysis determines whether the items that load under each scale are correlated or not. A low correlation value implies that the scale is unreliable, which means that the items are not internally consistent (Churchill, 1979). This analysis helps represent the correct items and helps eliminate unnecessary items (Churchill, 1979). As suggested by Pallant (2010), the corrected item-total correlation value should be greater than 0.30 to show that the item is measuring the same thing as the other items do. Correlation values less than 0.30 means that the item is measuring different thing from other items. Therefore, this item needs to be eliminated or considered for elimination after running the factor analysis. The findings of each construct of this study are explained below.

Table 4.15: Item-total Correlation of TOI

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
TOI1. The Internet has enough safeguards to make me feel comfortable using it to transact personal business with government agencies.	0.624	0.816
TOI2. I feel assured that legal and technological structures adequately protect me from problems on the Internet.	0.743	0.698
TOI3. The Internet is now a robust and safe environment in which to transact with government agencies.	0.686	0.758
Cronbach's Alpha = 0.826		

Table 4.15 shows the item-total correlation of the TOI. The result shows that corrected item-total correlation of each item is greater than 0.30, which means that all of the three items are measuring the same thing; trust in the Internet in this case. Furthermore, the results show that the Cronbach's alpha will decrease if any item deleted, which means that no item needs to be deleted; furthermore, all items are consistent and measuring one construct.

Table 4.16: Item-total Correlation of TOG

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
TOG1. I believe that government website is secured and the security system not easy to hack.	0.707	0.939
TOG2. I think I can trust government agencies.	0.849	0.925
TOG3. I believe that the government is capable to protect my privacy via website.	0.831	0.927
TOG4. Government agencies can be trusted to carry out online transactions faithfully.	0.842	0.926
TOG5. I trust government agencies keep my best interests in mind.	0.774	0.932
TOG6. In my opinion, government agencies are trustworthy.	0.865	0.924
TOG7. Online communication with governments will increase my trust in government.	0.744	0.934

Cronbach's Alpha = 0.939

Table 4.16 shows the item-total correlation of the TOG. The corrected item-total correlation of each item is greater than 0.30. The results indicate that all items are measuring the same construct. Moreover, the value of Cronbach's alpha if any item deleted is not showing any significant increase in alpha value, which indicates that no item needs to be deleted; furthermore, all items are consistent and measuring one construct. However, the item TOG 6 was eliminated from the factor analysis. The reasons for this elimination will be discussed in the next section.

Table 4.17: Item-total Correlation of PC

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PC1. I believe that government online services make boundaries of responsibility more easily recognized.	0.769	0.895
PC2. I believe that government online services make actions highly visible.	0.775	0.894
PC3. I believe that using government online services increase the transparency of the whole system.	0.800	0.889
PC4. I believe that government online services make it easier to see that government is doing the job it is supposed to do.	0.775	0.893
PC5. I believe that government online services increase the honesty of government information and services.	0.821	0.886
PC6. Government website provides clear policy and regulation for using the services.	0.606	0.918
Cronbach's Alpha = 0.912		

Table 4.17 shows the item-total correlation of the perceived corruption. The result indicates that corrected item-total correlation of each item is greater than 0.30; in other words, all items are measuring the same construct. Moreover, the results indicate that the value of Cronbach's alpha decrease if any item was deleted, which means that no item need to be deleted.

Table 4.18: Item-total Correlation of PU

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PU1. E-government website would enable me to complete transactions more quickly.	0.718	0.915
PU2. I think e-government websites would provide a valuable service for me.	0.766	0.910
PU3. E-government websites Save me money in assessing government services.	0.742	0.913
PU4. Using e-government services enable me to do business with the government anytime not limited to regular hours.	0.825	0.905
PU5. I believe that using e-government website to access government services provide good public value.	0.784	0.909
PU6. Using e-government websites increase my interaction with governments.	0.787	0.908
PU7. Every use of e-government gives me benefit.	0.699	0.917
Cronbach's Alpha = 0.923		

Table 4.18 shows the item-total correlation of the PU. The result shows that all items have a corrected item-total correlation value that is greater than 0.30; in other words, all items are measuring the same construct. Moreover, the results indicate that the value of Cronbach's alpha will decrease if any item was deleted. In other words, there is no need to delete any item fall under this construct. However, despite that the alpha value will decrease if any item was deleted, the item PU7 was deleted at the next stage, the factor analysis stage, the reasons for deleting this item is discussed in the next section.

Table 4.19: Item-total Correlation of PEOU

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PEOU1. Learning how to use e-government websites to access government services is easy for me.	0.706	0.911
PEOU2. It would be easy to use e-government websites to find information.	0.782	0.904
PEOU3. My interaction with e-government website to access government services is clear and understandable.	0.856	0.899
PEOU4. E-government website is flexible to interact with.	0.774	0.905
PEOU5. I find using e-government website to access government services is easy.	0.792	0.904
PEOU6. When I face trouble in using e-government website I get a quick response form the support center.	0.619	0.918
PEOU7. E-government websites provide suitable support when needed.	0.712	0.910
PEOU8. Government online service is easier than the traditional way (face to face)	0.630	0.917
Cronbach's Alpha = 0.919		

Table 4.19 shows the item-total correlation of the PEOU. The result shows that all items have a value corrected item-total correlation that is greater than 0.30. Moreover, the results indicate that the value of Cronbach's alpha will decrease if any item was deleted. In other words, there is no need to delete any item fall under this construct since all items are measuring the same construct. However, two items were deleted at the factor analysis, PEOU2 and PEOU 4, stage and the reasons for deleting these items will be discussed further in the EFA section.

Table 4.20: Item-total Correlation of SI

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SI1. People who influence my behavior would think that I should use e-government.	0.647	0.911
SI2. People who are important to me would think that I should use e-government.	0.682	0.909
SI3. People who are in my social circle would think that I should use e-government.	0.606	0.913
SI4. My parents influence my decision to use e-government services.	0.645	0.911
SI5. Brothers / sisters influence my decision to use e-government services.	0.785	0.903
SI6. Husband / wife influence my decision to use e-government services.	0.773	0.903
SI7. Son / daughter influence my decision to use e-government services.	0.749	0.905
SI8. Friends influence my decision to use e-government services.	0.727	0.906
SI9. People who are in my social circle would influence my trust in government.	0.662	0.910
SI10. People who are in my social circle would influence my perception of e-government usefulness.	0.632	0.912
Cronbach's Alpha = 0.917		

Table 4.20 shows the item-total correlation of the SI. The result shows that the value of the corrected item-total correlation is greater than 0.30 for all items. Moreover, the results indicate that the value of Cronbach's alpha will not increase if any item was deleted. In other words, the result of this analysis indicates that there is no need to delete any item fall under this construct since all items are measuring the same construct. However, identifying the value of alpha is not the only way to determine whether it is important to delete an item or not, given the reasons mentioned above, it was necessary to remove the following items; SI1, SI4, SI5, SI6, SI7, and SI8.

As shown in table 4.21, the results after the deletion also show that the values of the corrected item-total correlation are greater than 0.30 for all items. Moreover, the results indicate that the value of Cronbach's alpha will decrease if any item was deleted. This means there is no need for further deletion of any item.

Table 4.21: Item-total Correlation of SI after the Items Removal

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SI2. People who are important to me would think that I should use e-government.	0.633	0.774
SI3. People who are in my social circle would think that I should use e-government.	0.570	0.801
SI9. People who are in my social circle would influence my trust in government.	0.691	0.746
SI10. People who are in my social circle would influence my perception of e-government usefulness.	0.670	0.755
Cronbach's Alpha = 0.818		

Table 4.22 shows the item-total correlation of the BI. The result shows that the value of the corrected item-total correlation is greater than 0.30 for three items, while item 4 shows low value corrected item-total correlation that is less than 0.30. This item indicates value negative value. Moreover, the results indicate that the value of Cronbach's alpha will decrease if any of the first three items was deleted. On the other hand, it will significantly increase to 0.907 if the last item was deleted. In other words, there is a need to consider deleting the last item since it seems that it is measuring a different construct. However, due to the importance of this item in our study, it will not be eliminated, but will be separated from the other three items of BI. Thus, the fourth item will be an independent item that explains the intention to use e-government services because they are mandatory.

Table 4.22: Item-total Correlation of BI

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
BI1. I intent to use e-government websites as needed	0.642	0.342
BI2. I expect that I would use the e-government websites to access government services in the future.	0.657	0.317
BI3. I intend to use e-government websites to access government services frequently.	0.564	0.385
BI4. I would use e-government service only because it is mandatory.	-0.038	0.907
Cronbach's Alpha = 0.592		

4.4 Exploratory Factor Analysis (EFA)

After the reliability of the constructs has been measured, an Exploratory Factor Analysis (EFA) was conducted to reduce the number of variables (reducing dimensionality of the variables). The EFA becomes valuable method to study the validity of the constructs used in this study. Although, most of these constructs have been studied and already validated in previous research, it is still important to ensure their validity in this study. EFA is necessary because we cover broader dimensions than previous research. Therefore, these constructs will be validated in this analysis by determining the factorability of the data using KMO to measure sampling adequacy, and using Bartlett's test to evaluate the factorability of the correlation matrix. As mentioned earlier, 0.50 is considered as the smallest satisfactory value of KMO to consider that the sample is adequate.

4.4.1 Data Factorability

Table 4.23 show the Kaiser-Meyer-Olkin (KMO) values for each construct². The findings show that the values of KMO are between 0.698 and 0.910, which are over than the acceptable level (0.50) that suggested Kaiser (1974). This indicates that the samples are adequate and the data are factor well. The Bartlett's test for each factor shows significant results at a significance level of $p < 0.001$. These findings show the

² All the results shown in Table 4.23 are after deleting the items mentioned in the previous section.

homogeneity of variance (i.e. the variances are equal across the samples), which means that the data set is appropriate for factor analysis. Therefore, these results confirm data validity and factorability, that the data is appropriate for the EFA.

Table 4.23: KMO and Bartlett's Test

Construct	KMO	Bartlett's Test		
		Approx. chi-square	df	Sig.
TOI	0.699	258.716	3	0.000
TOG	0.916	1128.709	15	0.000
PC	0.892	909.909	15	0.000
SI	0.698	557.507	6	0.000
PU	0.859	1009.576	15	0.000
PEOU	0.888	644.503	10	0.000
BI	0.723	465.132	6	0.000
All constructs	0.931	6670.207	561	0.000

4.4.2 EFA for the Constructs

After confirming the factorability of data, EFA is performed for each construct used in this study. This analysis was presented using the principal component analysis technique with Varimax rotation and eigenvalues of 1.0 as recommended by Kaiser (1960). The same approach was applied to examine all items that measure the following constructs; trust in the Internet, trust in the government, perceived corruption, perceived ease of use, perceived usefulness, social influence, and behavioral intention. The sample size of this study is 227, which is above the recommended sample size by Gorsuch (1983) as he suggests that the minimum necessary sample size for running EFA should be at least 100 samples. The following table shows the total variance cumulative percentage for each construct. The total variance explained is between 60.27% and 80.73%, which are over than the acceptable level that suggested by Hair et al. (2006).

Table 4.24: Total Variance Explained

Construct	Total variance explained (%)
TOI	74.236
TOG	72.806
PC	70.216
SI	65.776
PU	71.046
PEOU	64.155
BI	84.313

4.4.2.1 Trust in the Internet

The construct of the trust in the Internet is measured by three items. As shown in Table 4.24, this construct explains 74.23% of total variance. Moreover, Table 4.25 shows the correlation matrix for the three items that measure trust in the Internet. The finding shows that the correlation coefficients between the items are greater than 0.3. This finding also confirms the fitness of these items for factor analysis. It also corresponds to KMO analysis results that explained in Table 4.24. Furthermore, the determinant in this analysis is equal to 0.315, which is greater than 0.0001. This means that the collinearity is low (since the collinearity consider being high if the value of the determinant is less than .0001 or equal to zero). Thus, we can conclude that the data is appropriate for analysis.

Table 4.25: Correlation Matrix of TOI

		TOI 1	TOI 2	TOI 3
Correlation	TOI 1	1.000	0.610	0.537
	TOI 2	0.610	1.000	0.690
	TOI 3	0.537	0.690	1.000

a. Determinant = .315

Table 4.26 shows the results of testing eigenvalue to identify the number of components. The table shows that there is only one component with initial eigenvalues that greater than 1.0 (eigenvalue of 2.227).

Table 4.26: Total Variance Explained of TOI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.227	74.236	74.236	2.227	74.236	74.236
2	0.475	15.819	90.055			
3	0.298	9.945	100.000			

Extraction Method: Principal Component Analysis.

Figure 4.13 shows the screen plot of the initial eigenvalues. Both the screen plot and eigenvalues indicate that the three variables can be reduced to one component. Thus, we can say that one variable is enough to provide the most information about these three variables. Since there is only one extracted component, the solution cannot be rotated.

Figure 4.13: Screen Plot of TOI

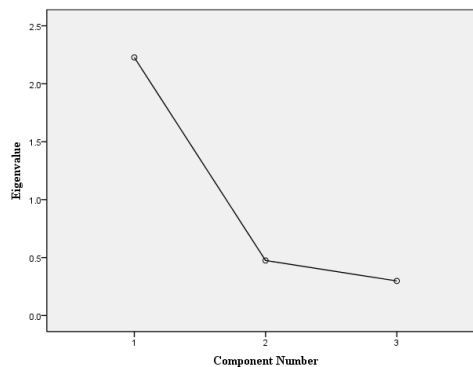


Table 4.27 shows the result of the factor loading of scale items. The recommended factor loading value of a sample size larger than 300 is 0.32 (Tabachnick and Fidell, 2007). The table shows that all items have a significant loading that larger than the suggested value (0.32). Thus, all three items exceed the cutoff level and can be used for the analysis. In addition, all items proved to be unidimensional.

Table 4.27: Component Matrix of TOI

Variable	Component 1
	TOI
TOI 1	0.824
TOI 2	0.896
TOI 3	0.864

Extraction Method: Principal Component Analysis.

4.4.2.2 Trust in the Government

This construct is measured by six items out of seven. Item TOG 6 was deleted in this stage. This item was considered for elimination for the following reasons: 1) although TOG2 and TOG6 measure two different aspects, but the slight difference between both items appears to be not clear for respondents, which constitute confusion for them. Therefore, we decided to cut-off one item to avoid the redundancy. 2) Before removing this item we ran a factor analysis to check the value of the determinant, whether it is greater than 0.0001 or not. It appears that the determinant is equal to 0.001, which is greater than 0.0001; however, since we are looking for more accurate results, we deleted item TOG 6. Accordingly, the determinant increased to 0.011. This means that the collinearity is reasonably low. The results that discussed in this section are for all items excluding the eliminated item, TOG 6 in this case. Table 4.28 shows the correlation matrix for these items, excluding item TOG 6. All correlation coefficients are greater than 0.30, which indicate that all items are appropriate for factor analysis.

Table 4.28: Correlation Matrix of TOG

		TOG1	TOG2	TOG3	TOG4	TOG5	TOG7
Correlation	TOG1	1.000	0.699	0.715	0.578	0.538	0.498
	TOG2	0.699	1.000	0.763	0.746	0.676	0.692
	TOG3	0.715	0.763	1.000	0.775	0.647	0.657
	TOG4	0.578	0.746	0.775	1.000	0.747	0.699
	TOG5	0.538	0.676	0.647	0.747	1.000	0.642
	TOG7	0.498	0.692	0.657	0.699	0.642	1.000

a. Determinant = 0.011

Table 4.29 shows the results of testing eigenvalue. The table identifies that there is only one component with initial eigenvalues that greater than 1.0. This component has eigenvalues of 4.368 and explains 72.806% of the total variance.

Table 4.29: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.368	72.806	72.806	4.368	72.806	72.806
2	0.571	9.525	82.331			
3	0.368	6.129	88.460			
4	0.288	4.803	93.263			
5	0.230	3.834	97.096			
6	0.174	2.904	100.000			

Figure 4.14 shows the screen plot of the initial eigenvalues. The screen plot also indicates that the six variables can be reduced to one. Thus, we can say that one variable is enough to provide the most information about these six variables that explain the trust in the government. The solution cannot be rotated in this case because we only have one extracted component.

Figure 4.14: Screen Plot of TOG

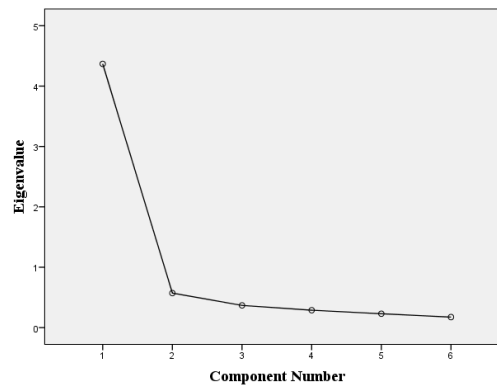


Table 4.30 shows the result of the factor loading of scale items. The table shows that all items are greater than 0.32. Thus, all items are unidimensional and exceed the cut-off level and can be used for the analysis.

Table 4.30: Component Matrix of TOG

Variable	Component
	1
TOG	0.782
TOG	0.897
TOG	0.893
TOG	0.892
TOG	0.830
TOG	0.818

Extraction Method: Principal Component Analysis.

4.4.2.3 Perceived Corruption

Perceived corruption is measured by six items. As shown in the correlation matrix table (Table 4.31), the correlation coefficients are greater than 0.30. This finding confirms the fitness of these items for factor analysis, which supports the result of KMO analysis that explained previously in Table 4.24. Moreover, the determinant indicates that the collinearity is low, since its value is greater than 0.0001. Thus, we can conclude that the data is appropriate for analysis.

Table 4.31: Correlation Matrix of PC

		PC 1	PC 2	PC 3	PC 4	PC 5	PC 6
Correlation	PC 1	1.000	0.753	0.682	0.603	0.689	0.523
	PC 2	0.753	1.000	0.706	0.624	0.658	0.532
	PC 3	0.682	0.706	1.000	0.709	0.757	0.498
	PC 4	0.603	0.624	0.709	1.000	0.768	0.539
	PC 5	0.689	0.658	0.757	0.768	1.000	0.545
	PC 6	0.523	0.532	0.498	0.539	0.545	1.000

a. Determinant = 0.016

Table 4.32 shows the results of testing eigenvalue. The result identified only one component with initial eigenvalues that greater than 1.0. The first component in this table has eigenvalues of 4.213 and explains 70.216% of the total variance. The other components have eigenvalues less than 0.5, thus, they cannot be used as a component to explain more information about the construct.

Table 4.32: Total Variance Explained of PC

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.213	70.216	70.216	4.213	70.216	70.216
2	.574	9.570	79.786			
3	.484	8.073	87.859			
4	.271	4.519	92.378			
5	.258	4.299	96.677			
6	.199	3.323	100.000			

Extraction Method: Principal Component Analysis.

The screen plot confirms that there is only one component with eigenvalues greater than 1.0 (Figure 4.15). Thus, we can say that one variable is enough to provide the most information about these six variables that explain the perceived corruption. In this case, the solution cannot be rotated because we only have one extracted component.

Figure 4.15: Screen Plot of PC

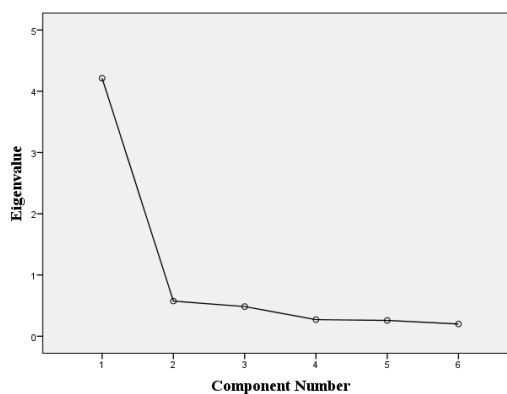


Table 4.33 shows the result of the factor loading of scale items. This table shows that all items have a loading value greater than 0.32. This means that all items are unidimensional and exceed the cut-off level. Thus, all items can be used for the analysis.

Table 4.33: Component Matrix of PC

Variable	Component
	1
	PC
PC 1	0.849
PC 2	0.854
PC 3	0.873
PC 4	0.848
PC 5	0.885
PC 6	0.707

Extraction Method: Principal Component Analysis.

4.4.2.4 Social Influence

Social influence is measured by four items out of ten. The reasons for deleting six items were discussed in the previous section. After the elimination of the six items, the collinearity problem was solved, which means that the factor analytic solution can be obtained now. As shown in correlation matrix table (Table 4.34), the correlation coefficients are greater than 0.30. These findings confirm the fitness of these items for factor analysis, which supports the result of KMO analysis that explained previously in Table 4.24. Moreover, the determinant is 0.083, greater than 0.0001. This indicates that the collinearity is very low. Thus, we can conclude that the data is appropriate for analysis.

Table 4.34: Correlation Matrix of SI

		SI2	SI3	SI9	SI10
Correlation	SI2	1.000	0.357	0.351	0.785
	SI3	0.357	1.000	0.853	0.441
	SI9	0.351	.853	1.000	0.391
	SI10	0.785	.441	0.391	1.000

a. Determinant = 0.083

Table 4.35 shows the results of testing eigenvalues. The result identified that there are two components with initial eigenvalues that greater than 1.0. The first component in this table has eigenvalue of 2.591 and explains 64.776% of the total variance. The second component has an eigenvalue of 1.051 and explains 91.059% of the total variance. Since we have two components, this means the solution can be rotated.

Table 4.35: Total Variance Explained of SI

Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	% of		Total	% of		Total	% of	
		Variance	Cumulative %		Variance	Cumulative %		Variance	Cumulative %
1	2.591	64.776	64.776	2.591	64.776	64.776	1.855	46.367	46.367
2	1.051	26.282	91.059	1.051	26.282	91.059	1.788	44.691	91.059
3	0.218	5.459	96.518						
4	0.139	3.482	100.000						

Extraction Method: Principal Component Analysis.

The screen plot (see Figure 4.16) shows a very clear break after the three components. This figure confirms that we have two components with eigenvalues greater than 1.0. Thus, we can say that the information load in SI can be explained by two components. In this case, since we have more than one component the solution will be rotated.

Figure 4.16: Screen Plot of SI

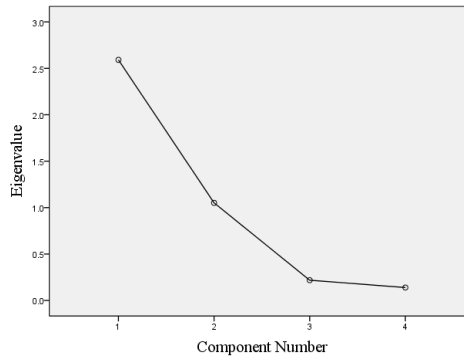


Table 4.36 shows the rotated component. This table shows that there are two rotated components. Each component explains more than one item. The table displays items with loading greater than 0.50. As shown in the table, two items are loaded in component 1. These items explain the influence of the social circle and important people. On the other hand, two items also are loaded in component 2. These items explain the social influence on decision making. All items, in both components, have a significant loading range from 0.0.91 to 0.94. Therefore, the two components were retained.

Table 4.36: Rotated Component Matrix of SI

Variable	Component	
	Social Circle Influence (SCI)	Social Influence on Decision (SID)
	1	2
SI 2	0.936	
SI 3	0.944	
SI 9		0.934
SI 10		0.911

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 3 iterations.

4.4.2.5 Perceived Usefulness

Six items out of seven were used to measure PU. The item PU7 was eliminated at this stage for the following reasons: 1) although PU2 and PU7 measure two different aspects, however, the slight difference between both items appears to be not clear for respondents. In other words, the responses to both questions were very similar, which made us conclude that the respondents may think both questions ask the same thing. Therefore, we decided to cut-off one item to avoid the collinearity problem. 2) The initial determinant before the cutting PU7 is 0.005, which is greater than 0.0001. However, since we are looking for more accurate results, we decided to delete one variable, PU7 in this case, that likely cause a multicollinearity problem. Accordingly the determinant increased to 0.011. This means that the collinearity is reasonably low. Table 4.37 shows the correlation matrix. This table shows that all the correlation coefficients are greater than 0.30, which indicate that all items are appropriate for factor analysis.

Table 4.37: Correlation Matrix of PU

		PU1	PU2	PU3	PU4	PU5	PU6
Correlation	PU1	1.000	0.824	0.522	0.681	0.577	0.527
	PU2	0.824	1.000	0.543	0.680	0.585	0.608
	PU3	0.522	0.543	1.000	0.693	0.690	0.685
	PU4	0.681	0.680	0.693	1.000	0.726	0.674
	PU5	0.577	0.585	0.690	0.726	1.000	0.762
	PU6	0.527	0.608	0.685	0.674	0.762	1.000

a. Determinant = 0.011

The following table shows the results of testing eigenvalue. This table (Table 4.38) identified only one component with initial eigenvalues that greater than 1.0. The first component in this table has eigenvalues of 4.263 and explains 71.046% of the total variance. The other components have eigenvalues less than 0.7, thus, they cannot be used as a component to explain more information about the construct.

Table 4.38: Total Variance Explained of PU

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.263	71.046	71.046	4.263	71.046	71.046
2	0.722	12.026	83.073			
3	0.345	5.753	88.826			
4	0.286	4.770	93.596			
5	0.227	3.782	97.379			
6	0.157	2.621	100.000			

Extraction Method: Principal Component Analysis.

Figure 4.17 shows the screen plot of PU. The screen plot also confirms that there is only one component with eigenvalue greater than 1.0. Thus, we conclude that all the six items can be described in one variable. This one variable provides the most information that explains perceived usefulness. Therefore, the solution cannot be rotated because we only have one extracted component.

Figure 4.17: Screen Plot of PU

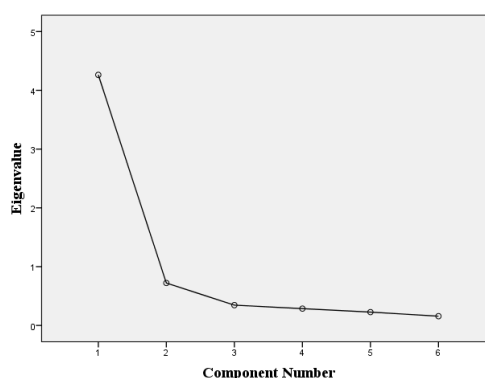


Table 4.39 shows the result of the factor loading of scale items. This table shows that the factor loading is greater than 0.32. This means that all items are unidimensional and exceed the cut-off level. Thus, we can say that all the six items can be used for the analysis.

Table 4.39: Component Matrix of PU

Variable	Component 1
PU1	0.815
PU2	0.837
PU3	0.817
PU4	0.884
PU5	0.860
PU6	0.843

Extraction Method: Principal Component Analysis.

4.4.2.6 Perceived Ease of Use

Perceived ease of use is measured by six items. Two items were removed to solve the multicollinearity problem as this variable shows high multicollinearity. Therefore, cut-off more than one item was necessary to solve this problem. As shown in the correlation matrix table (Table 4.34), the correlation coefficients are greater than 0.30. This table supports the result of the KMO analysis (see Table 4.17) and confirms the suitability of these items for factor analysis. Moreover, the determinant is 0.026, which is greater than 0.0001. This means there is no collinearity problematic; therefore, we can conclude that the data is appropriate for analysis.

Table 4.40: Correlation Matrix of PEOU

		PEOU1	PEOU3	PEOU5	PEOU6	PEOU7	PEOU8
Correlation	PEOU1	1.000	0.688	0.620	0.381	0.493	0.547
	PEOU3	0.688	1.000	0.757	0.524	0.607	0.599
	PEOU5	0.620	0.757	1.000	0.508	0.560	0.635
	PEOU6	0.381	0.524	0.508	1.000	0.793	0.377
	PEOU7	0.493	0.607	0.560	0.793	1.000	0.413
	PEOU8	0.547	0.599	0.635	0.377	0.413	1.000

a. Determinant = 0.026

Table 4.41 shows the results of testing eigenvalue. This table identified only one component with an initial eigenvalue of 3.849 and explains 64.155% of the total variance. Although, component 2 has an initial eigenvalue very close to 1, this component will not be considered for analysis as suggested by Kaiser (1960). Therefore, except component 1, the other components cannot be used as a component to explain more information about the construct.

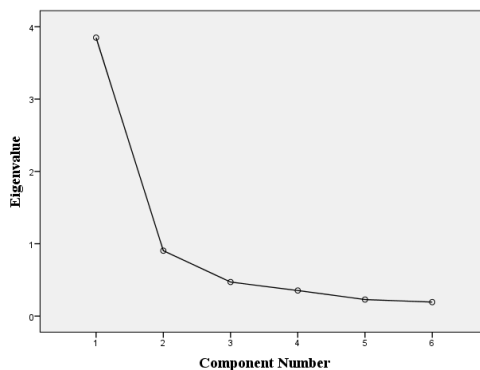
Table 4.41: Total Variance Explained of PEOU

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.849	64.155	64.155	3.849	64.155	64.155
2	0.904	15.071	79.225			
3	0.471	7.847	87.073			
4	0.353	5.890	92.963			
5	0.229	3.812	96.775			
6	0.194	3.225	100.000			

Extraction Method: Principal Component Analysis.

Figure 4.18 shows the screen plot of PEOU. The screen plot shows that component 2 is very close to the eigenvalue of 1.0; however, it is still less than the suggested value. Moreover, this figure confirms that there is only one component with an eigenvalue greater than 1.0. Thus, we conclude that all the eight items can be described in one variable, which provides the most information. Therefore, the solution, in this case, cannot be rotated because we only have one extracted component.

Figure 4.18: Screen Plot of PEOU



The result of the factor loading is shown in Table 4.42. This table shows that the factor loading is greater than 0.32. This means that all items are unidimensional and exceed the cut-off level. Thus, we can say that all the six items can be used for the analysis.

Table 4.42: Component Matrix of PEOU

Variable	Component 1
PEOU 1	0.778
PEOU 3	0.878
PEOU 5	0.857
PEOU 6	0.739
PEOU 7	0.803
PEOU 8	0.739

Extraction Method: Principal Component Analysis.

4.4.2.7 Behavioral Intention

As mentioned before, this construct is measured by three items. The fourth item (BI4) will be separated from these items. As shown in the correlation matrix table (Table 4.43), the correlation coefficients of BI1, BI2, and BI3 are greater than 0.30. This table confirms that these items are suitable for factor analysis. Moreover, the determinant in this case is very high (0.127), which confirm that the collinearity is very. Therefore, we can conclude that the data is suitable for analysis.

Table 4.43: Correlation Matrix of BI

		BI1	BI2	BI3
Correlation	BI1	1.000	0.791	0.695
	BI2	0.791	1.000	0.807
	BI3	0.695	0.807	1.000

a. Determinant = 0.127

Table 4.44 shows the results of testing eigenvalue. This table identified only one component with an initial eigenvalue of 2.529 and explains 84.313% of the total variance. The other components have eigenvalues less than 0.30, thus, they cannot be used as a component to explain more information about the construct.

Table 4.44: Total Variance Explained of BI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.529	84.313	84.313	2.529	84.313	84.313
2	0.306	10.199	94.512			
3	0.165	5.488	100.000			

Extraction Method: Principal Component Analysis.

Figure 4.19 shows the screen plot of BI. The screen plot also confirms that there is only one component with an eigenvalue greater than 1.0. Thus, we conclude that all the three items can be described in one variable, which provides the most information. Therefore, the solution, in this case, cannot be rotated because we only have one extracted component.

Figure 4.19: Screen Plot of BI

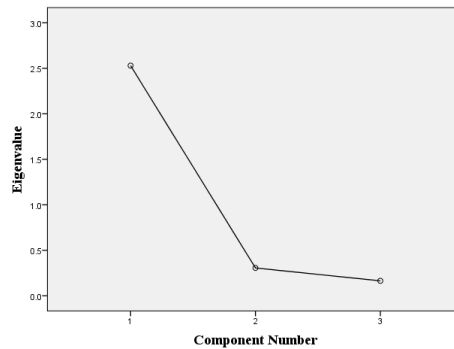


Table 4.45 shows the factor loading. As shown in this table that the factor loading is greater than 0.32. This means that all items have exceeded the cut-off level. In addition, this result confirms that all items are unidimensional. Accordingly, we can say that all the three items can be used for the analysis.

Table 4.45: Component Matrix of BI

Variable	Component 1
BI1	0.901
BI2	0.945
BI3	0.908

Extraction Method: Principal Component Analysis.

4.4.3 Summary of EFA

The results of EFA show that each of trustworthiness constructs reduced into one component. Specifically, TOI is measured by three items. This factor has been reduced to one component that explains 74.23% of the total variance. TOG is measured by six items. One item was excluded in order to reduce the collinearity and get an accurate result. This factor also reduced to one component that explains most of the information, which explains 72.806% of the total variance. In addition, PC is measured by six items. However, it reduced to one component that explains the most information, explains 70.216% of the total variance. Moreover, the construct of SI is measured by nine items. Six items were excluded in this analysis due to a collinearity problem and other reasons. This construct reduced into two components, each component represents a different dimension of the SI. Furthermore, the TAM constructs have been reduced to one component for each construct. In particular, PU was measured by six items. One item was excluded at this stage. This construct has been reduced to be explained by one component. This component explains the most information since it explains 71.046% of the total variance. On the other hand, PEOU was measured by six items out of eight items, two items were eliminated. These items were reduced to one component that explains the most information, 64.155%. As for the BI, this construct was measured by three items. The fourth item was separated, not deleted, to be used as a separate dependent variable explains different dimension of BI. The three items were reduced into one component that explains 84.313% of the total variance.

4.5 Regression Analysis

The regression was conducted on two dependent variables. Both refer to the behavioral intention to use, but were separated into two factors after running the factor analysis. Therefore, this section was divided into two subsections. The first one explains the results of the regression analysis to predict the effect of the independent variables (TOI, TOG, PU, PEOU, PC, and SI) on the behavioral intention of the voluntary use of e-government (BI), which esteemed from the factor analysis. The second subsection explains the effect of the independent variables on the behavioral intention of the mandatory use of e-government (BI4).

4.5.1 The Multiple Regression Analysis (The Dependent Variable is BI)

Table 4.46 shows the multiple linear regression model summary and overall fit statistics. This table shows two models. The first model includes TOI, TOG, PC, SCI, SID, PU, and PEOU. The second model includes the same variables of the first model in addition to the moderating variables: hometown, education level, occupation, gender, and age. R Square in this table indicates the variance in the dependent variable (BI), which can be explained by the independent variables (TOI, TOG, PU, PEOU, PC, SCI, and SID). R square shows that 61.0% and 63.1% variation in the dependent variable is explained by all independent variables in model 1 and 2 respectively. R square is greater than the suggested value of 50%. Thus, we argue that the values of R square are acceptable for prediction in this analysis.

In addition, the adjusted R Square indicates 59.7% and 61.0% variation independent variable is explained by all independent variables in model 1 and 2 respectively. This finding shows that more than 50% of the variance has been explained. The finding also shows that there is a slight gap between R square and adjusted R square. These results indicate that the model is good for interpretation.

Table 4.46: Model Summary (BI)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.781 ^a	0.610	0.597	0.63443013
2	0.794 ^b	0.631	0.610	0.62449556

a. Predictors: (Constant), PU, PEOU, SCI, SID, TOI, , PC, TOG

b. Predictors: (Constant), PU, PEOU, SCI, SID, TOI, , PC, TOG, Hometown , Education Level, Occupation, Gender, Age

c. Dependent Variable: BI

Table 4.47 shows F-test, which predicts how well the regression fit the data. According to F-test, the null hypothesis assumes that the model explains zero variance; in other words, it assumes that the value of R square is zero. The finding of this table shows that the F-test is highly significant, $F_1(7, 217) = 48.444$ and $F_2(12, 212) = 30.162$. The significance level for both models is $p < 0.001$. This means that the independent variables PU, SCI, SID, TOI, PEOU, PC, and TOG are statistically significant in predicting the dependent variable BI. Thus, these findings indicate that the regression models are a good fit for the data (i.e. it predicts the dependent variable significantly well). Thus, we can conclude that our model explains a significant amount of the variance.

Table 4.47: ANOVA of BI

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	136.490	7	19.499	48.444	0.000 ^b
	Residual	87.343	217	0.403		
	Total	223.833	224			
2	Regression	141.154	12	11.763	30.162	0.000 ^c
	Residual	82.679	212	0.390		
	Total	223.833	224			

a. Dependent Variable: BI

b. Predictors: (Constant), PU, SCI, SID, TOI, PEOU, PC, TOG

c. Predictors: (Constant), PU, SCII, SID, TOI, PEOU, PC, TOG, Hometown , Education level, Occupation, Gender, Age

Table 4.48 shows the multiple regression, including the significance level and non-significant intercept. This table provides the necessary information to determine whether TOI, TOG, PC, SCI, SID PU, and PEOU contribute statistically significantly to the model. According to the table, the general form of the equation of the model 1 to predict BI from TOI, TOG, PC, SCI, SID, PU, and PEOU is:

$$\text{Predicted BI} = 0.006 + (0.427 \times \text{PEOU}) + (0.745 \times \text{PU}) - (0.118 \times \text{TOI}) - (0.011 \times \text{SCI}) - (0.029 \times \text{SID}) + (0.004 \times \text{PC}) + (0.016 \times \text{TOG}).$$

The collinearity statistic in this table shows acceptable values of VIF that are between 1.10 and 3.37. This indicates that the collinearity level is low and not a problematic. Moreover, tolerance column shows that all values are above 0.20 which also indicates that the collinearity is not an issue at this stage and, thus, the analysis can be continued. There are seven estimated coefficients for model 1 and 12 for model 2, counting the moderating variables. Model 1 shows that TOI, PU, and PEOU, have a significant effect on BI with significance levels of $p = 0.066$, $p < 0.001$, and $p = 0.065$ respectively. Moreover, the t-values of PU, TOI, and PEOU are $t_{\text{PU}} = 9.944$, $t_{\text{TOI}} = 1.847$, and $t_{\text{PEOU}} = 1.852$. These results mean that the null hypothesis will be rejected and alternate hypothesis will be accepted. In other words, the result shows that PU, TOI, and PEOU have an influence on the behavioral intention to use e-government with a confidence level greater than 94%. On the other hand, the table shows that the p-value of TOG, PC, SCI, and SID are 0.825, 0.956, 0.805, and 0.597 respectively, which are below the acceptable level. These results mean that we fail to reject the null hypotheses. Thus, we conclude that the behavioral intention to use e-government should not be predicted by TOG, PC, SCI, or SID.

As for model 2, which is the main model of the study, the results were affected by the moderated variables. Similar to model 1, model 2 also shows that PU, PEOU, and TOI, and education level have a significant effect on BI. Compare to model 1, the second model shows better significance levels for PU, TOI, and PEOU, beside the significant of the education level. In particular, the results show that PU, PEOU, TOI, and education level significantly affect BI at significance levels of $p < 0.001$, $p = 0.042$, $p = 0.016$, and $p = 0.010$ respectively. The t -values of PU, PEOU, TOI, and education level are; $t_{PU} = 9.844$, $t_{TOI} = 2.440$, $t_{PEOU} = 2.047$, and $t_{Education\ level} = 2.591$. These results mean that the null hypothesis will be rejected and alternate hypothesis will be accepted. In other words, the constructs of PU, PEOU, and TOI, beside the control variable of education level, have a significant influence on the behavioral intention to use e-government with 95% confidence level. On the other hand, the table shows that TOG, PC, SCI, SID, and the moderating variables age, gender, hometown, and occupation have p -values of 0.642, 0.903, 0.790, 0.194, 0.176, 0.385, and 0.877 respectively. This means that these constructs have no significant influence on BI. Thus, this result means we fail to reject the null hypotheses. The confidence level shows that these constructs have no significant influence on BI. Thus, we conclude that the behavioral intention to use e-government should not be predicted by TOG, PC, SCI, SID, age, gender, hometown, or occupation.

In conclusion, we can say that TAM constructs (PEOU and PU), TOI (trustworthiness construct), and education level have a significant effect on predicting the behavioral intention to use e-government.

Table 4.48: The Multiple Regression Analysis of BI

	Model	B	SE	t	Sig.	Tolerance	VIF
1	(Constant)	.006	0.042	.135	.893		
	TOI	-0.118	0.064	-1.847	0.066	0.439	2.277
	TOG	0.016	0.071	.222	0.825	0.352	2.841
	PC	0.004	0.069	.055	0.956	0.378	2.648
	PU	0.745	0.075	9.944	0.000	0.319	3.133
	PEOU	0.427	0.069	1.852	0.065	0.380	2.633
	SCI	-0.011	0.045	-.247	0.805	0.880	1.136
	SID	-0.029	0.054	-.529	0.597	0.617	1.621
2	(Constant)	-0.730	0.223	-3.277	0.001		
	TOI	-0.160	0.065	-2.440	0.016	0.408	2.450
	TOG	0.033	0.071	.465	0.642	0.345	2.899
	PC	0.008	0.068	.122	0.903	0.373	2.682
	PU	0.750	0.076	9.804	0.000	0.297	3.372
	PEOU	0.441	0.070	2.047	0.042	0.353	2.833
	SCI	-0.012	0.045	-.267	0.790	0.864	1.158
	SID	-0.028	0.054	-.518	0.605	0.593	1.686
	Age	0.057	0.044	1.303	0.194	0.704	1.421
	Gender	0.131	0.096	1.357	0.176	0.746	1.340
	Hometown	0.006	0.007	.871	0.385	0.923	1.084
	Education level occupation	0.151 0.005	0.058 0.034	2.591 .155	0.010 0.877	0.905 0.745	1.105 1.343

4.5.2 The Multiple Regression Analysis (The Dependent Variable is BI 4)

Table 4.49 shows the multiple linear regression model summary and overall fit statistics. As mentioned in the previous section, this table shows two models the first one including the constructs and the second one including the constructs with the moderating variables. In this table, R square indicates the variance in the dependent variable (BI 4), which can be explained by the independent variables (TOI, TOG, PU, PEOU, PC, SCI, and SID). R square shows that 8.0% and 18.0% variation in the dependent variable is explained

by all independent variables in model 1 and 2 respectively. These values are below the suggested level of prediction (50%). The adjusted R Square indicates 5.0% and 13.3% variation independent variable is explained by all independent variables in model 1 and 2 respectively. This finding shows that less than 50% of the variables have been explained. These results are not optimistic and could mean that the model is not good enough for interpretation, since it explains only about 18% of the variable. However, according to Doane and Seward (2016), a model with a low R square does not mean that the good fit of the observed data cannot be indicated. Sometimes it gives useful predictions. Based on this argument, we decided to continue the analysis.

Table 4.49: Model Summary (BI 4)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.282 ^a	0.080	0.050	1.319
2	0.424 ^b	0.180	0.133	1.259

a. Predictors: (Constant), PU, PEOU, SCI, SID, TOI, , PC, TOG

b. Predictors: (Constant), PU, PEOU, SCI, SID, TOI, , PC, TOG, Hometown , Education Level, Occupation, Gender, Age

Table 4.50 shows F-test predicts how well the regression fits the data. The finding of this table shows that the F-test is highly significant at a level of $p=0.011$ and $p<0.001$ for model and model 2 respectively, $F(7, 217) = 2.685$ and $F(12, 212) = 3.885$. This means that the independent variables PU, SCI, SID, TOI, PEOU, PC, and TOG are statistically significant in predicting the dependent variable BI4. Thus, these findings indicate that the regression models are good fit for the data.

Table 4.50: ANOVA of BI4

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.682	7	4.669	2.685	0.011 ^b
	Residual	377.318	217	1.739		
	Total	410.000	224			
2	Regression	73.910	12	6.159	3.885	0.000 ^c
	Residual	336.090	212	1.585		
	Total	410.000	224			

a. Dependent Variable: BI 4

b. Predictors: (Constant), PU, SCI,SID, TOI, PEOU, PC, TOG

c. Predictors: (Constant), PU, SCI,SID, TOI, PEOU, PC, TOG, Hometown , Education level, Occupation, Gender, Age

Table 4.51 shows the multiple regression analysis. In this table, there are seven estimated coefficients for model 1 and 12 for model 2 (counting the moderating variables). Model 1 shows that PU and SCI significantly affect BI4 at significance levels of $p=0.031$ and $p<0.001$ respectively. These evidences mean that the null hypothesis will be rejected and the alternate hypothesis will be accepted. On the other hand, the p-values of the rest of the variables are greater than the acceptable level. In particular, the p-values of TOI, TOG, PC, PEOU, and SID are 0.660, 0.564, 0.698, 0.192, and 0.398 respectively. Since the p-values of these constructs greater than 0.05, the null hypotheses cannot be rejected. This result indicates that based on model 1, without the moderated effect of the moderating variables, the constructs TOI, TOG, PC, PEOU, and SID have no significant effect on BI 4. Thus, we conclude that the behavioral intention of the mandatory usage of e-government cannot be predicted by PEOU, PU, PC, SCI, SID, or TOG.

As for model 2, the results show that PU, PEOU, and SCI beside all the moderating variables have a significant effect on BI 4. Specifically, PU, PEOU, and SCI significantly influence BI4 at $p=0.044$, $p=0.055$, and $p<0.001$ significance level, respectively. In addition, the moderating variables, age, gender, hometown, education level, and occupation are statistically significant at level $p<0.001$, $p=0.073$, $p=0.059$, $p=0.035$, and $p=0.086$ respectively. Although the significance level of the gender and occupation are greater than 0.05, it does not mean that these two values cannot be used for interpretation. The smaller the significance value, the stronger the evidence is to reject the null hypotheses. However, a value between 0.05 and 0.1 can be considered as a weak evidence, but meaningful for the analysis. Based on that, the values between 0.05 and 0.1 are considered to be significant in this study.

These results indicate that the null hypotheses are rejected and the alternative hypotheses are accepted. Thus, we can say that PU, PEOU, SCI, age, gender, hometown, education level, and occupation have a significant influence on predicting the behavioral intention of the mandatory usage of e-government. Conversely, TOI, TOG, PC, SID are not predictors of the behavioral intention for the mandatory use e-government.

Table 4.51: The Multiple Regression Analysis of BI 4

	Model	B	SE	t	Sig.	Tolerance	VIF
1	(Constant)	2.801	0.088	31.858	0.000		
	TOI	0.059	0.133	0.441	0.660	0.439	2.277
	TOG	-0.086	0.149	-0.577	0.564	0.352	2.841
	PC	0.056	0.143	0.388	0.698	0.378	2.648
	PU	-0.338	0.156	-2.169	0.031	0.319	3.133
	PEOU	0.187	0.143	1.310	0.192	0.380	2.633
	SCI	0.363	0.094	3.876	0.000	0.880	1.136
	SID	0.095	0.112	0.847	0.398	0.617	1.621
2	(Constant)	3.341	0.449	7.438	0.000		
	TOI	0.015	0.132	0.117	0.907	0.408	2.450
	TOG	-0.144	0.143	-1.003	0.317	0.345	2.899
	PC	-0.006	0.138	-0.042	0.967	0.373	2.682
	PU	-0.313	0.154	-2.029	0.044	0.297	3.372
	PEOU	0.273	0.142	1.930	0.055	0.353	2.833
	SCI	0.361	0.090	3.998	0.000	0.864	1.158
	SID	0.040	0.109	0.363	0.717	0.593	1.686
	Age	0.325	0.088	3.698	0.000	0.704	1.421
	Gender	-0.350	0.194	-1.802	0.073	0.746	1.340
	Hometown	-0.027	0.014	-1.901	0.059	0.923	1.084
	Education level	-0.249	0.117	-2.125	0.035	0.905	1.105
Occupation	-0.118	0.068	-1.725	0.086	0.745	1.343	

4.5.3 The Mediation Analysis

This section provides regression analysis of the relationship between the independent variable and the dependent variable with the mediated effect of a third variable. This section focus on providing the results of the analysis based on the dependent variable BI, results related to the effect of mediating variables based on the dependent variable BI4 will not be discussed in this study, however, will be attached in Appendix A.

This section discusses the results of eight models. These models are: 1) the relationship between PEOU and BI as mediated by PU, 2) the relationship between SCI and BI as mediated by TOG and PC, 3) the relationship between SID and BI as mediated by TOG and PC, 4) the relationship between SCI and BI as mediated by TOG, 5) the relationship between SID and BI as mediated by TOG, 6) the relationship between SCI and BI as mediated by PU, 7) the relationship between SID and BI as mediated by PU, and 8) the relationship between TOG and BI as mediated by PC. These models will be presented by path diagram and the results of testing these models are presented below.

4.5.3.1 The Relationship between PEOU and BI as Mediated by PU

The direct relationship between PEOU and BI with the effect of the other variables was presented earlier in this chapter. According to the conceptual model of this study, the relationship between PEOU and BI was mediated by PU. This section shows the statistical indirect influence of the factor PU (the mediating variable) on the relationship between PEOU and BI. The following table shows the results of the mediation analysis using Hayes's (2012) PROCESS macro tool in SPSS. This analysis was conducted using Model 4 from the template that created by Hayes (2012). Model 4 explains the influence of one mediating variable in the relationship between an independent variable and a dependent variable. Table 4.52 shows the model summary and overall fit statistics as well as the regression analysis of model 1. This model explains the direct relationship between PEOU (independent variable) and PU (mediating variable). In this table, R square of model 1 indicates the variance in the dependent variable (PU), which can be explained by the independent variables PEOU. R square shows that 55.9% variation in PU is explained by PEOU. This means that more than half of the variation is explained. This result indicates that this model is good for interpretation. The findings of this table also show that the F-test is highly significant, $F(1, 225) = 285.2527$, $p < 0.001$. This means that the independent variables PEOU is statistically significant in predicting PU. Thus, these findings indicate that the regression models are a good fit for the data. As for the regression analysis, the table shows that PEOU significantly affect PU at significance levels of $p < 0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result shows that PEOU has a significant influence on PU with a confidence level greater than 95% and estimated coefficient of this model is 0.7477.

Table 4.52: The Relationship between PEOU and BI as Mediated by PU (Model 1)

Outcome: PU							
	R	R-Square	MSE	F	df1	df2	sig
	0.7477	0.5590	0.4429	285.2527	1	225	0.0000
Model 1	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0000	0.0442	0.0000	1.0000	-0.0870	0.0870	
PEOU	0.7477	0.0443	16.8894	0.0000	0.6605	0.8349	

Table 4.53 shows the model summary and overall fit statistics as well as the regression analysis of model 2. This model explains the relationship between PU and BI as well as the relationship between PEOU and BI. In this table, R square of model 2 indicates the variance in the dependent variable (BI), which can be explained by the independent variables. R square shows that 61.29% variation in BI is explained by PEOU and PU. This means that more than 50% of the variation is explained, which means that the model is good for interpretation. Furthermore, the findings of this table show that the F-test is highly significant, $F(1, 224) = 177.3614, p < 0.001$. This indicates that the independent variables PEOU and PU are statistically significant in predicting BI, which means that the regression models are good fit for the data. The results of regression analysis in model 2 show that PU significantly affect BI at significance levels of $p < 0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result shows that PU has a significant influence on BI with greater than 95% confidence level and estimated coefficient of this model is 0.7206. On the other hand, the results show that the significance level of the relationship between PEOU and BI is 0.1980, which is greater than the acceptable level 0.05. This result follows the path that we expect since in this step the result shows a partial mediation. This result means that PEOU with the mediated effect of PU has an insignificant effect on BI. In other words, PEOU with the mediated effect of PU has an insignificant influence on BI.

Table 4.53: The Relationship between PEOU and BI as Mediated by PU (Model 2)

Outcome: BI							
	R	R-Square	MSE	F	df1	df2	sig
	0.7829	0.6129	0.3905	177.3614	2.0000	224.000	0.0000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0000	0.0415	0.0000	1.0000	-0.0817	0.0817	
PU	0.7206	0.0626	11.5119	0.0000	0.5973	0.8440	
PEOU	0.0808	0.0626	1.2912	0.1980	-0.0425	0.2042	

Table 4.54 shows the regression analysis of the full model. This model explains the relationship between PEOU and BI as mediated by PU. In this table, R square shows that 48.39% variation in BI is explained by PEOU and PU. This means that the model is good for interpretation. The F-test is highly significant, $F(1, 225) = 140.2287, p < 0.001$. This indicates that the independent variables PEOU and PU are statistically significant in predicting BI. The result of regression analysis in Table 4.54 shows that PEOU significantly affect BI at significance levels of $p < 0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result confirms that PEOU has a significant influence on BI with greater than 95% confidence level and estimated coefficient of this model is 0.6196.

Table 4.54: The Relationship between PEOU and BI as Mediated by PU (Total Effect Model)

Outcome: BI							
Model Summary	R	R-Square	MSE	F	df1	df2	sig
	0.6196	0.4839	0.6188	140.2287	1	225	0.0000
Model	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0000	0.0522	0.0000	1.0000	-0.1029	0.1029	
PEOU	0.6196	0.0523	11.8418	0.0000	0.5165	0.7227	

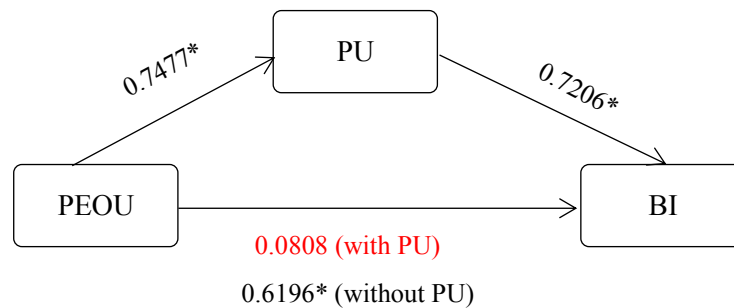
As Figure 4.20 illustrates, the standardized regression coefficient between PEOU and PU was statistically significant, as was the standardized regression coefficient between PU and BI. The standardized indirect effect was $(0.7477)(0.7206) = 0.538$, CI [0.3953, 0.7092], see Table 4.55.

Table 4.55: The Indirect Effect of PEOU on BI

	Effect	Boot SE	BootLLCI	BootULCI
PU	0.5388	0 .0790	0.3953	0.7092

Since the indirect effect of PEOU on BI is statistically significant, we can conclude that the mediation has occurred. This means that the path of the indirect relationship between PEOU and BI with the mediated effect of PU is stronger than the direct relationship between PEOU and BI. This result indicates that PU is a strong mediator of the relationship between PEOU and BI.

Figure 4.20: The Coefficient for the Relationship between PEOU and BI as Mediated by PU



4.5.3.2 The Relationship between SCI and BI as Mediated by PU

The direct relationship between SCI and BI with the effect of the other variables was presented above in this chapter. This section discusses the results of the relationship between SCI and BI with the mediated effect of the PU. The statistical indirect influence of the factor PU (the mediating variable) on the relationship between SCI and BI is presented in Table 4.56. The following table shows the results of the mediation analysis using a PROCESS tool in SPSS. This analysis was conducted using Model 4 from the template that created by Hayes (2012). Table 4.56 shows the model summary and overall fit statistics as well as the regression analysis of model 1. This model explains the direct relationship between SCI (independent variable) and PU (mediating variable). In this table, R square of model 1 indicates the variance in the dependent variable (PU), which can be explained by the independent variable SCI. R square shows that 7.8% variation in PU is explained by SCI, means that a small amount of variation is explained. Although the value of R square is less than the recommended value of interpretation, still it gives useful predictions (Doane and Seward, 2016). The findings of this table also show that the F-test is highly

significant, $F(1, 225) = 19.0787, p < 0.001$. This means that the independent variable SCI is statistically significant in predicting PU. Thus, these findings indicate that the regression models are a good fit for the data. The regression analysis shows that SCI significantly affects PU at significance levels of $p < 0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result shows that SCI has a significant influence on PU with greater than 95% confidence level and estimated coefficient of this model is 0.2796.

Table 4.56: The Relationship between SCI and BI as Mediated by PU (Model 1)

Outcome: PU							
	R	R-Square	MSE	F	df1	df2	sig
	0.2796	0.0782	0.9259	19.0787	1	225	0.000
Model 1	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0000	0.0639	0.0000	1	-0.1259	0.1259	
SCI	0.2796	0.0640	4.3679	0.0000	0.1535	0.4057	

Table 4.57 shows the model summary and overall fit statistics and the regression analysis of model 2. This model explains the relationship between SCI and BI with the effect of the PU. In this table, R square shows that 61.04% variation in BI is explained by SCI and PU. Since more than 50% of the variation is explained, this means that the model is good for interpretation. The findings of this table also show that the F-test is highly significant, $F(1, 224) = 175.5033, p < 0.001$. This indicates that the independent variable SCI is statistically significant in predicting BI with the mediated effect of PU. The results of regression analysis in model 2 show that PU significantly affects BI at a significance level of $p < 0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result shows that PU has a significant influence on BI with greater than 95% confidence level and estimated coefficient of this model is 0.7206. On the other hand, the results show that the relationship between SCI and BI is insignificant at level of 0.1980, which is greater than the acceptable level of 0.05. This result follows the path that we expect since in this step the result shows a partial mediation. This result means that SCI with the mediated effect of PU has an insignificant effect on BI.

Table 4.57: The Relationship between SCI and BI as Mediated by PU (Model 2)

Outcome: BI							
	R	R-Square	MSE	F	df1	df2	sig
	0.7829	0.6129	0.3905	177.3614	2.0000	224.000	0.0000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0000	0.0415	0.0000	1.0000	-0.0817	0.0817	
PU	0.7206	0.0626	11.5119	0.0000	0.5973	0.8440	
SCI	0.0808	0.0626	1.2912	0.1980	-0.0425	0.2042	

Table 4.58 shows the regression analysis of the full model. This model explains the relationship between SCI and BI as mediated by PU. In this table, R square shows that 3.99% variation in BI is explained by SCI and PU. The F-test is highly significant, $F(1, 225) = 9.3435, p=0.0025$. This indicates that the independent variables SCI and PU are statistically significant in predicting BI. The result of regression analysis in Table 4.58 shows that SCI significantly affect BI at a significance level of $p=0.0025$. The result confirms that SCI has a significant influence on BI with greater than 95% confidence level and estimated coefficient of this model is 0.1997.

Table 4.58: The Relationship between SCI and BI as Mediated by PU (Total Effect Model)

Outcome: BI							
Model Summary	R	R-Square	MSE	F	df1	df2	sig
	0.1997	0.0399	0.9644	9.3435	1	225	.0025
Model	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0000	0.0652	0.0000	1.0000	-0.1284	0.1284	
SCI	0.1997	0.0653	3.0567	0.0025	0.0710	0.3284	

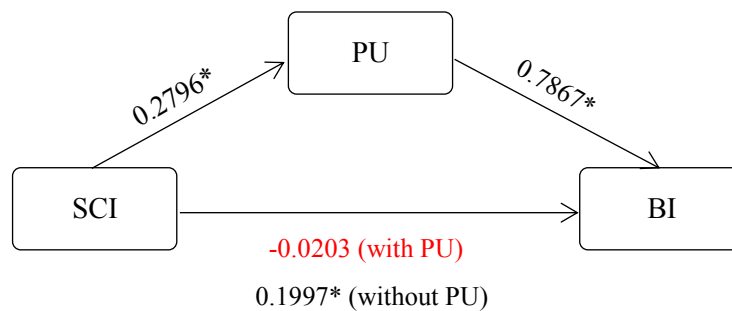
As Figure 4.21 illustrates, the standardized regression coefficient between SCI and PU was statistically significant, as was the standardized regression coefficient between PU and BI. The standardized indirect effect was $(0.2796)(0.7867) = 0.2200$, CI [0.1092, 0.3688], see Table 4.59. This result indicates that the bootstrap confidence does not contain zero, since it contains values between 0.1092 and 0.3688. This means that the indirect effect of SCI on BI is significant at a level greater than 0.05. This also means that the population value is not zero and the population value of the indirect effect lies somewhere between 0.1092 and 0.3688. In other words, this result confirms that there is a significant indirect effect of SCI on BI as mediated by PU.

Table 4.59: The Indirect Effect of SCI on BI

	Effect	Boot SE	BootLLCI	BootULCI
PU	0.2200	0.0662	0.1092	0.3688

Since the indirect effect of SCI and BI is statistically significant, we can conclude that the mediation has occurred. This means that the path of the indirect relationship between SCI and BI with the mediated effect of PU is stronger than the direct relationship between SCI and BI. This result indicates that PU is a strong mediator of the relationship between SCI and BI.

Figure 4.21: The Coefficient for the Relationship between SCI and BI as Mediated by PU



4.5.3.3 The Relationship between SID and BI as Mediated by PU

The direct relationship between SID and BI with the effect of the other variables was presented above in this chapter. In this section, the results of the relationship between SID and BI with the mediated effect of PU are discussed. The statistical indirect influence of the factor PU (the mediating variable) on the

relationship between SID and BI is shown in Table 4.60. The following table shows the results of the mediation analysis using PROCESS tool, Model 4, by Hayes (2012). The model summary and overall fit statistics, as well as the regression analysis of model 1, is presented in this table. This model explains the direct relationship between SID (independent variable) and PU (mediating variable). In this table, the R square of model 1 indicates the variance in the dependent variable (PU), which can be explained by the independent variables SID. R square shows that 26.01% variation in PU is explained by SID. The F-test is highly significant, $F(1, 225) = 79.1112, p < 0.001$. This means that the independent variables SID is statistically significant in predicting PU. Thus, these findings indicate that the regression models are a good fit for the data. The regression analysis shows that SID significantly affects PU at a significance level of $p < 0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result shows that SID has a significant influence on PU with a confidence level that greater than 95% and estimated coefficient of this model is 0.5100.

Table 4.60: The Relationship between SID and BI as Mediated by PU (Model 1)

Outcome: PU							
	R	R-Square	MSE	F	df1	df2	sig
	0.5100	0.2601	0.7431	79.1112	1	225	0.000
Model 1	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0000	0.0572	0.0000	1	-0.1127	0.1127	
SID	0.5100	0.0573	8.8945	0.0000	0.3970	0.6230	

Table 4.61 shows the model summary and overall fit statistics and the regression analysis of model 2. This model explains the relationship between SID and BI with the effect of the PU. In this table, R square shows that 61.01% variation in BI is explained by SID and PU. Since more than 50% of the variation is explained, this means that the model is good for interpretation. The findings of this table also show that the F-test is highly significant, $F(1, 224) = 175.2735, p < 0.001$. This indicates that the independent variable SID is statistically significant in predicting BI with the mediated effect of the PU. The results of regression analysis in model 2 show that PU significantly affects BI at a significance level of $p < 0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result shows that PU has a significant influence on BI, the confidence level greater than 95% and the estimated coefficient of this model is 0.7859. On the other hand, the results show that the relationship between SID and BI is insignificant at level 0.8440, which is greater than the acceptable level 0.05. This result means

that SID with the mediated effect of PU has an insignificant effect on BI.

Table 4.61: The Relationship between SID and BI as Mediated by PU (Model 2)

Outcome: BI							
	R	R-Square	MSE	F	df1	df2	sig
	0.7811	0.6101	0.3934	175.2735	2	224	0.000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.000	0.0416	0.0000	1.0000	-0.0820	0.0820	
PU	0.7859	0.0485	16.2041	0.0000	0.6904	0.8815	
SID	-0.0096	0.0485	-0.1970	0.8440	-0.1051	0.0860	

Table 4.62 shows the regression analysis of the full model. This model explains the relationship between SID and BI as mediated by PU. In this table, R square shows that 15.31% variation in BI is explained by SID and PU. The F-test is highly significant, $F(1, 225) = 40.6803, p < 0.001$. This indicates that the independent variables SID and PU are statistically significant in predicting BI. The result of regression analysis in Table 4.62 shows that SID significantly affects BI at a significance level of $p < 0.001$. The result confirms that SID has a significant influence on BI with greater than 95% confidence level and estimated coefficient of this model is 0.3913.

Table 4.62: The Relationship between SID and BI as Mediated by PU (Total Effect Model)

Outcome: BI							
Model Summary	R	R-Square	MSE	F	df1	df2	sig
	0.3913	0.1531	0.8506	40.6803	1	225	.0000
Model	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0000	0.0612	0.0000	1.0000	-0.1206	0.1206	
SID	0.3913	0.0614	6.3781	0.0000	0.2704	0.5122	

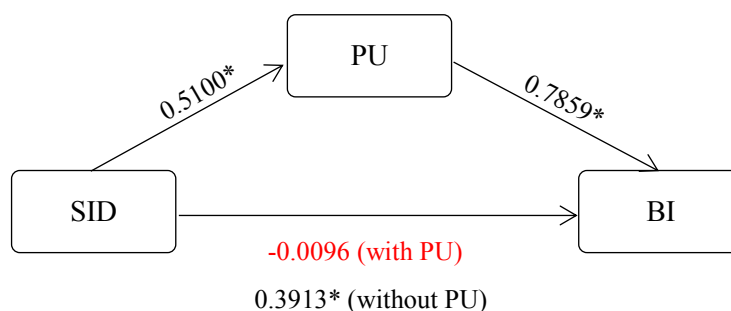
As Figure 4.22 illustrates, the standardized regression coefficient between SID and PU was statistically significant, as was the standardized regression coefficient between PU and BI. The standardized indirect effect was $(0.5100)(0.7859) = 0.4009$, CI [0.2835, 0.5523], see Table 4.63. Moreover, the bootstrap confidence does not contain zero, which means the indirect effect of SID on BI is significant at a level greater than 0.05. This also means that the population value is not zero and the population value of the indirect effect lies somewhere between 0.2835 and 0.5523. In other words, this result confirms that there is a significant indirect effect of SCI on BI.

Table 4.63: The Indirect Effect of SID on BI

	Effect	Boot SE	BootLLCI	BootULCI
PU	0.4009	0 .683	0.2835	0.5523

Since the indirect effect of SID and BI is statistically significant, we can conclude that the mediation has occurred. This means that the path of the indirect relationship between SID and BI with the mediated effect of PU is stronger than the direct relationship between SID and BI. This result indicates that PU is a strong mediator of the relationship between SID and BI

Figure 4.22: The Coefficient for the Relationship between SID and BI as Mediated by PU



4.5.3.4 The Relationship between SCI and BI as Mediated by TOG

The direct relationship between SCI and BI with the effect of the other variables was presented above in this chapter. According to the conceptual model, the factor SCI has two indirect relationships with BI. The first indirect relationship is mediated by one mediating variable (TOG). The second indirect relationship is mediated by two mediating variables (TOG and PC). In this section, the results of the indirect relationship

between SCI and BI will be discussed based on the mediated effect of TOG. The following table (Table 4.64) shows the results of the mediation analysis using PROCESS macro tool, Model 4, by Hayes (2012). The model in this Table 4.64 explains the direct relationship between SCI (independent variable) and TOG (mediating variable). In this table, R square shows that 2.63% variation in TOG is explained by SCI. The F-test is highly significant, $F(1, 225) = 6.0321, p=0.0148$. This means that the independent variables SCI is statistically significant in predicting TOG. The regression analysis shows that SCI significantly affects TOG at a significance level of $p=0.0148$. In other words, the result shows that SCI has a significant influence on TOG, the confidence level is greater than 95% and the estimated coefficient of this model is 0.1619.

Table 4.64: The Relationship between SCI and BI as Mediated by TOG (Model 1)

Outcome: TOG							
	R	R-Square	MSE	F	df1	df2	sig
	0.1623	0.0263	0.9780	6.0321	1	225	.0148
Model 1	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0003	0.0659	0.0296	0.9764	-0.1121	0.1121	
SCI	0.1619	0.0659	2.4560	0.0148	0.0320	0.2919	

Table 4.65 shows the results of model 2, which explains the relationship between SID and BI with the effect of the TOG. R square shows that 19.91% variation in BI is explained by SCI and TOG. The findings of this table also show that the F-test is highly significant, $F(1, 224) = 27.6001, p<0.001$. This indicates that the independent variable SCI is statistically significant in predicting BI with the mediated effect of TOG. The results of regression analysis in model 2 show that TOG significantly affect BI at a significance level of $p<0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result shows that TOG and SCI has a significant influence on BI, the confidence level is greater than 95% and the estimated coefficients are 0.4002 and 0.1423 respectively.

Table 4.65: The Relationship between SCI and BI as Mediated by TOG (Model 2)

Outcome: BI							
	R	R-Square	MSE	F	df1	df2	Sig.
	.4462	0.1991	0.8075	27.6001	2	224	0.000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0013	0.0599	0.0212	0.9831	-0.1168	0.1193	
TOG	0.4002	0.0608	6.5768	0.0000	0.2803	0.5201	
SCI	0.1423	0.0607	2.3432	0.0200	0.0226	0.2619	

Table 4.66 shows the regression analysis of the full model. This model explains the relationship between SCI and BI as mediated by TOG. In this table, R square shows that 15.31% variation in BI is explained by SCI and TOG. The F-test is highly significant, $F(1, 225) = 10.0434, p=0.0017$. This indicates that the independent variables SCI and TOG are statistically significant in predicting BI. The result of regression analysis in Table 4.66 shows that SCI significantly influences BI at a significance level of $p=0.0017$. The result confirms that SCI has a significant influence on BI, the confidence level is greater than 95% and the estimated coefficient of this model is 0.2071.

Table 4.66: The Relationship between SCI and BI as Mediated by TOG (Total Effect Model)

Outcome: BI							
Model Summary	R	R-Square	MSE	F	df1	df2	sig
	0.2076	0.0431	0.9605	10.0434	1	225	0.0017
Model	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0014	0.0653	0.0211	0.9832	-0.1274	0.1301	
SCI	0.2071	0.0653	3.1691	0.0017	0.0783	0.3358	

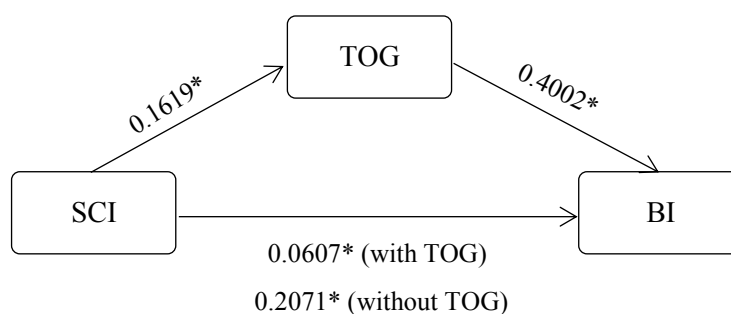
As Figure 4.23 illustrates, the standardized regression coefficient between SCI and TOG was statistically significant, as was the standardized regression coefficient between TOG and BI. The standardized indirect effect was $(0.1619)(0.4002) = 0.0648$, CI [0.0093, 0.1435], see Table 4.67. The bootstrap confidence does not contain zero, which means our indirect effect is significant at a level greater than 0.05. This means that the population value of the indirect effect lies somewhere between 0.0093 and 0.1435. In other words, this result confirms that there is a significant indirect effect of SCI on BI.

Table 4.67: The Indirect Effect of SCI on BI

	Effect	Boot SE	BootLLCI	BootULCI
TOG	0.0648	0.0330	0.0093	0.1435

Since the indirect effect of SCI and BI is statistically significant, we can conclude that the mediation has occurred. This means that the path of the indirect relationship between SCI and BI with the mediated effect of TOG is stronger than the direct relationship between SCI and BI. This result indicates that TOG is a strong mediator of the relationship between SCI and BI.

Figure 4.23: The Coefficient for the Relationship between SCI and BI as Mediated by TOG



4.5.3.5 The Relationship between SID and BI as Mediated by TOG

The direct relationship between SID and BI with the effect of the other variables was presented above in this chapter. The factor SID has two indirect relationships with BI. The first indirect relationship is mediated by one mediating variable (TOG). The second indirect relationship is mediated by two mediating variables (TOG and PC). In this section, the results of the relationship between SID and BI as mediated by one mediating variable (TOG) will be discussed. The following table (Table 4.68) shows the results of the mediation analysis using PROCESS macro tool, Model 4, by Hayes (2012). The model in this table explains the direct relationship between SID (independent variable) and TOG (mediating variable). In this table, R square shows that 25.27% variation in TOG is explained by SID. The F-test is highly significant, $F(1, 225) = 75.3935, p < 0.001$. This means that the independent variable SID is statistically significant in predicting TOG. The regression analysis shows that SID significantly affects TOG at a significance level of $p < 0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result shows that SID has a significant influence on TOG with greater than 95% confidence level and

estimated coefficient of this model is 0.5038.

Table 4.68: The Relationship between SID and BI as Mediated by TOG (Model 1)

Outcome: TOG							
	R	R-Square	MSE	F	df1	df2	sig
	0.5027	0.2527	0.7507	75.3935	1	225	0.000
Model 1	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0017	0.0578	0.0296	.9764	-0.1121	0.1121	
SID	0.5038	0.0580	8.6829	0.0000	0.3895	0.6182	

Table 4.69 shows the results of model 2, which explains the relationship between SID and BI with the effect of the TOG. R square shows that 21.92% variation in BI is explained by SID and TOG. The findings of this table also show that the F-test is highly significant, $F(1, 224) = 31.1571, p < 0.001$. This indicates that the independent variable SID is statistically significant in predicting BI with the mediated effect of TOG. The results of regression analysis in model 2 show that TOG significantly affects BI at a significance level of $p < 0.001$. This means that the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, the result shows that TOG and SID has a significant influence on BI with greater than 95% confidence level and an estimated coefficient of 0.3073 and 0.2314 respectively.

Table 4.69: The Relationship between SID and BI as Mediated by TOG (Model 2)

Outcome: BI							
	R	R-Square	MSE	F	df1	df2	sig
	0.4682	0.2192	0.7873	31.1571	2	224	0.000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0018	0.0592	0.0309	0.9753	-0.1147	0.1184	
TOG	0.3073	0.0686	4.4809	0.0000	0.1721	0.4424	
SID	0.2314	0.0687	3.3658	0.0009	0.0959	0.3668	

Table 4.70 shows the regression analysis of the full model. This model explains the relationship between SID and BI as mediated by TOG. In this table, R square shows that 14.86% variation in BI is explained by SID and TOG. The F-test is highly significant, $F(1, 225) = 38.9071, p < 0.001$. This indicates that the independent variables SID and TOG are statistically significant in predicting BI. The result of regression analysis in Table 4.70 shows that SID significantly influences BI at a significance level of $p < 0.001$. The

result confirms that SID has a significant influence on BI with greater than 95% confidence level and estimated coefficient of this model is 0.3862.

Table 4.70: The Relationship between SID and BI as Mediated by TOG (Total Effect Model)

Outcome: BI							
Model Summary	R	R-Square	MSE	F	df1	df2	sig
	0.3854	0.1486	0.8546	38.9071	1	225	0.0000
Model	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0024	0.0616	0.0382	0.9695	-0.1191	0.1238	
SID	0.3862	0.0619	6.2376	0.0000	0.2642	0.5082	

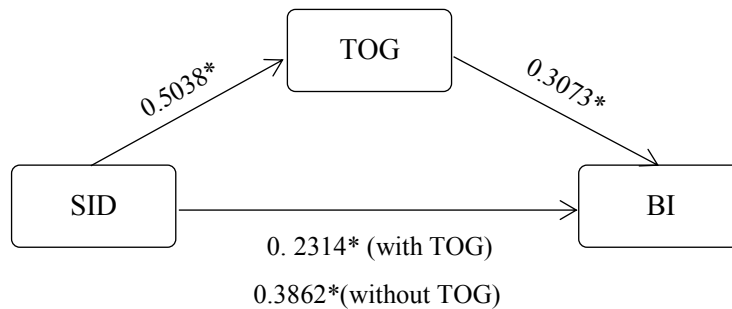
As Figure 4.24 illustrates, the standardized regression coefficient between SID and TOG was statistically significant, as was the standardized regression coefficient between TOG and BI. The standardized indirect effect was $(0.5038)(0.3073) = 0.1548$, CI [0.0822, 0.2542], see Table 4.71. The bootstrap confidence does not contain zero, which means our indirect effect is significant at a level greater than 0.05. This means that the population value of the indirect effect lies somewhere between 0.0822 and 0.2542. In other word, this result confirms that there is a significant indirect effect of SID on BI.

Table 4.71: The Indirect Effect of SID on BI

	Effect	Boot SE	BootLLCI	BootULCI
TOG	0.1548	0.0432	0.0822	0.2542

Since the indirect effect of SID and BI is statistically significant, we can conclude that the mediation has occurred. This means that the path of the indirect relationship between SID and BI with the mediated effect of TOG is stronger than the direct relationship between SID and BI. This result indicates that TOG is a strong mediator of the relationship between SID and BI.

Figure 4.24: The Coefficient for the Relationship between SID and BI as Mediated by TOG



4.5.3.6 The Relationship between TOG and BI as Mediated by PC

The direct relationship between TOG and BI with the effect of the other variables has been tested previously in this chapter. This section discusses the results of the indirect relationship between TOG and BI as mediated by PC. Table 4.72 shows the results of the mediation analysis using PROCESS macro tool, Model 4. The model in this table explains the direct relationship between TOG (independent variable) and PC (mediating variable). In this table, R square shows that 42.04% variation in PC is explained by TOG. The F-test is highly significant, $F(1, 225) = 161.7469, p < 0.001$. This means that the independent variables TOG is statistically significant in predicting PC. The regression analysis shows that TOG significantly affects PC at a significance level of $p < 0.001$, the estimated coefficient of this model is 0.6486.

Table 4.72: The Relationship between SID and BI as Mediated by TOG (Model 1)

Outcome: PC							
	R	R-Square	MSE	F	df1	df2	sig
	0.6484	0.4204	0.5825	161.7469	1	225	.0000
Model 1	B	SE	t	Sig.	LLCI	ULCI	
Constant	-0.0073	0.0509	-0.1437	0.8858	-0.1076	0.0930	
TOG	0.6486	0.0510	12.7180	0.0000	0.5481	0.7491	

Table 4.73 shows the results of model 2, which explains the relationship between TOG and BI with the effect of PC. R square shows that 30.38% variation in BI is explained by PC and TOG. The findings of this table also show that the F-test is highly significant, $F(1, 224) = 48.4420, p < 0.001$. This indicates that the independent variable TOG is statistically significant in predicting BI with the mediated effect of PC. The

results of regression analysis in model 2 show that PC significantly affects BI at a significance level of $p < 0.001$ and an estimated coefficient of 0.4632, while TOG has an insignificant influence on BI.

Table 4.73: The Relationship between TOG and BI as Mediated by PC (Model 2)

Outcome: BI							
	R	R-Square	MSE	F	df1	df2	sig
	0.5512	0.3038	0.7019	48.4420	2	224	0.000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0044	0.0559	0.0794	0.9368	-0.1056	0.1145	
PC	0.4632	0.0735	6.3007	0.0000	0.3183	0.6080	
TOG	0.1229	0.0735	1.6718	0.0960	-0.0220	0.2678	

Table 4.74 shows the regression analysis of the full model. This model explains the relationship between TOG and BI as mediated by PC. In this table, R square shows that 17.93% variation in BI is explained by TOG and PC. The F-test is highly significant, $F(1, 225) = 48.7284$, $p < 0.001$. The result of regression analysis in Table 4.74 shows that TOG significantly influences BI at a significance level of $p < 0.001$ and estimated coefficient of this model is 0.4233.

Table 4.74: The Relationship between TOG and BI as Mediated by PC (Total Effect Model)

Outcome: BI							
Model Summary	R	R-Square	MSE	F	df1	df2	sig
	0.4235	0.1793	0.8237	48.7284	1	225	0.0000
Model	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0010	0.0605	0.0173	0.9862	-0.1182	0.1203	
TOG	0.4233	0.0606	6.9806	0.0000	0.3038	0.5428	

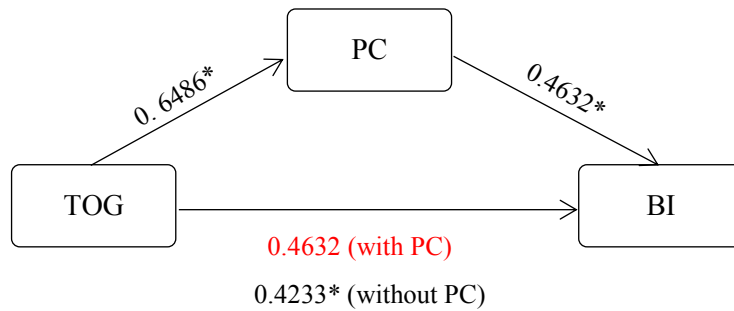
As Figure 4.25 illustrates, the standardized regression coefficient between TOG and PC was statistically significant, as was the standardized regression coefficient between PC and BI. The standardized indirect effect was $(0.6486)(0.4632) = 0.3004$, CI [0.1817, 0.4284], see Table 4.75. The bootstrap confidence does not contain zero, which means the indirect effect of the relationship is significant at a level greater than 0.05. This means that the population value of the indirect effect lies somewhere between 0.1817 and 0.4284. In other words, this result confirms that there is a significant indirect effect of TOG on BI.

Table 4.75: The Indirect effect of TOG on BI

	Effect	Boot SE	BootLLCI	BootULCI
PC	0.3005	0.0636	0.1817	0.4284

Since the indirect effect between TOG and BI is statistically significant, we can conclude that the mediation has occurred. This means that the path of the indirect relationship between TOG and BI with a mediated effect of PC is stronger than the direct relationship between TOG and BI. This result indicates that PC is a strong mediator of the relationship between TOG and BI.

Figure 4.25: The Coefficient for the Relationship between TOG and BI as Mediated by PC



4.5.3.7 The Relationship between SCI and BI as Mediated by TOG and PC

The conceptual model of this study hypothesized the indirect relationships between SI and BI. One of the indirect paths between them was discussed above, and the other path will be discussed in this section. This section discusses the relationship between SCI and BI with the mediated effect of two mediating variables that are TOG and PC. Table 4.76 shows the results of the mediation analysis using PROCESS macro tool. This time Model 6 by Hayes (2012) was adopted to run the analysis. This model studies the effect of two mediating variables on the relationship between the independent and dependent variable. The tested model in this analysis shows the relationships between the variables following this path:

SCI (independent variable) → TOG (first mediator) → PC (second mediator) → BI (dependent variable)

The model in Table 4.76 shows SCI predicting TOG. It explains the relationship between SCI (independent variable) and TOG (the first mediating variable). In this table, R square shows that 2.63% variation in TOG is explained by SCI. The F-test is highly significant, $F(1, 225) = 6.0321, p = 0.0148$. This means that the independent variable SCI is statistically significant in predicting TOG. The regression

analysis also confirms significant effect of SCI on TOG at a significance level of $p=0.0148$ and the estimated coefficient of this model is 0.1619.

Table 4.76: The Relationship between SCI and BI as Mediated by TOG and PC (Model 1)

Outcome: TOG							
	R	R-Square	MSE	F	df1	df2	sig
	0.1623	0.0263	0.9780	6.0321	1	225	0.0148
Model 1	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0003	0.0659	0.0039	0.9969	-0.1297	0.1302	
SCI	0.1619	0.0659	2.4560	0.0148	0.0320	0.2919	

Table 4.77 shows the results of model 2, which explains the relationship between SCI and PC (the second mediating variable with the mediated effect of TOG). R square shows that 42.44% variation in PC is explained by SCI and TOG. The findings of this table also show that the F-test is highly significant, $F(2,224) = 81.8551, p < 0.001$. This indicates that the independent variable SCI is statistically significant in predicting PC with the mediated effect of TOG. The results of regression analysis in model 2 show that TOG has a significant influence on PC at a significance level of $p < 0.001$ and an estimated coefficient of 0.6381, while SCI with the mediated effect of TOG has an insignificant influence on PC.

Table 4.77: The Relationship between SCI and BI as Mediated by TOG and PC (Model 2)

Outcome: PC							
	R	R-Square	MSE	F	df1	df2	sig
	0.6515	0.4244	0.5811	81.8551	2	224	0.000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	-0.0072	0.0508	-0.1419	0.8873	-0.1074	0.0929	
TOG	0.6381	0.0516	12.3625	0.0000	0.5364	0.7398	
SCI	0.0643	0.0515	1.2483	0.2132	-0.0372	0.1658	

Table 4.78 shows the results of model 3, the model of the indirect effect. This model explains the relationship between SCI and BI with the mediated effect of TOG and PC. R square shows that 31.63% variation in BI is explained by SCI, TOG, and PC. The findings of this table also show that the F-test is highly significant, $F(3, 221) = 34.0792$, $p < 0.001$. This indicates that the independent variable SCI is statistically significant in predicting BI with the mediated effect of TOG and PC. The results of the regression analysis in model 3 show that TOG has an insignificant influence on BI, $p = 0.1259$. On the other hand, PC has a significant influence on BI at level $p < 0.001$ and the estimated coefficient is 0.4509. SCI also has a significant influence on BI at a significance level $p = 0.1133$, the estimated coefficient is 0.1133. These results mean that TOG does not predict BI, but PC predict BI.

Table 4.78: The Relationship between SCI and BI as Mediated by TOG and PC (Model 3)

Outcome: BI							
	R	R-Square	MSE	F	df1	df2	sig
	0.5624	0.3163	0.6925	34.0792	3	221	0.000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0045	0.0555	0.0815	0.9351	-0.1048	0.1139	
TOG	0.1125	0.0732	1.5361	0.1259	-0.0318	0.2568	
PC	0.4509	0.0733	6.1538	0.0000	0.3065	0.5953	
SCI	0.1133	0.0564	2.0077	0.0459	0.0021	0.2245	

Table 4.79 shows the regression analysis of the full model. This model explains the direct relationship between SCI and BI without the influence of the mediating variables. In this table, R square shows that 4.31% variation in BI is explained by SCI. The F-test is highly significant, $F(1, 225) = 10.0434$, $p = 0.0017$. The result of regression analysis in Table 4.79 shows that SCI significantly influence BI at significant level of $p = 0.0017$ and the estimated coefficient of this model is 0.2071.

Table 4.79: The Relationship between SCI and BI as Mediated by TOG and PC (Total Effect Model)

Outcome: BI							
Model Summary	R	R-Square	MSE	F	df1	df2	sig
	0.2076	0.0431	0.9605	10.0434	1	225	0.0017
Model	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0014	0.0653	0.0211	0.9832	-0.1274	0.1301	
SCI	0.2071	0.0653	3.1691	0.0017	0.0783	0.3358	

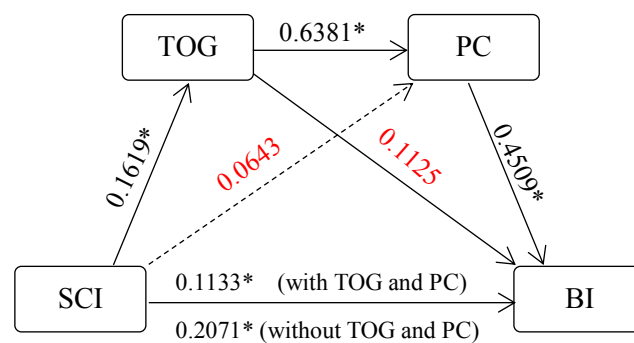
Figure 4.26 illustrates the standardized regression coefficients between SCI and TOG, TOG and PC, PC and BI, as well as SCI and BI. These relationships were statistically significant. Table 4.80 shows the indirect effect between SCI and BI. Model 1 in this table explains the relationship between SCI and BI with single mediation that is TOG. The result of model 1 shows that zero lies within the bootstrapped confidence intervals range from -0.0017 to 0.0658. This means that the indirect relationship of this model does not exist. In other words, there is no mediation affect the relationship between SCI and BI. Thus, we can conclude that the indirect effect of TOG is insignificant. As for model 2 in Table 4.80, it explains the relationship between SCI and BI with double mediators that are TOG and PC. The results of the bootstrapped confidence intervals show that zero does not occur between the LL and UL of the confidence interval since the confidence intervals range from 0.0078 to 0.1106. This means that the indirect effect of TOG and PC is significant. Model 3 shows the relationship between SCI and BI with the mediated effect of the second mediating variable (PC). This path has not been proposed in the conceptual model of this study; however, including this path was necessary in this test for running this analysis. The result of model 3 shows that bootstrapped confidence intervals range from -0.0017 to 0.0658, which means that that zero lies within this range. This means that the indirect relationship of this model does not exist. Thus, we can conclude that the mediated effect of PC is insignificant.

Table 4.80: The Indirect Effect of SCI on BI

	Effect	Boot SE	BootLLCI	BootULCI
Total:	0.0938	0.0472	0.0137	0.2016
Model 1 :	0.0182	0.0161	-0.0017	0.0658
Model 2 :	0.0466	0.0251	0.0078	0.1106
Model 3 :	0.0290	0.0259	-0.0124	0.0917

Since the indirect effect of SCI on BI as mediated by TOG and PC is statistically significant, but insignificant with single mediation. We can conclude that the mediation has occurred. This means that the path of the indirect relation between SCI and BI with the mediated effect of TOG and PC is stronger than the indirect relation with a single mediator. This result indicates that TOG and PC together are strong mediators of the relationship between SCI and BI.

Figure 4.26: The Coefficient for the Relationship between SCI and BI as Mediated by TOG and PC and PC



4.5.3.8 The Relationship between SID and BI as Mediated by TOG and PC

This section discusses the relationship between SID and BI with the mediated effect of two mediating variables that are TOG and PC. The following table (Table 4.81) shows the results of the mediation analysis using Model 6 from PROCESS macro tool in SPSS. The tested model in this analysis shows the relationships between the variables as follows:

SID (independent variable) → TOG (first mediator) → PC (second mediator) → BI (dependent variable)

The model in Table 4.81 explains the relationship between SID (independent variable) and TOG (the first mediating variable). In this table, R square shows that 2.63% variation in TOG is explained by SID. The F-test is highly significant, $F(1, 225) = 75.3935, p < 0.001$. This means that the independent variable SID is statistically significant in predicting TOG. The regression analysis also confirms the significant effect of SID on TOG at a significance level of $p < 0.001$ and the estimated coefficient of this model is 0.5038.

Table 4.81: The Relationship between SID and BI as Mediated by TOG and PC (Model 1)

Outcome: TOG							
	R	R-Square	MSE	F	df1	df2	sig
	0.5027	0.2527	0.7507	75.3935	1	225	0.0000
Model 1	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0017	0.0578	0.0296	0.9764	-0.1121	0.1155	
SID	0.5038	0.0580	8.6829	0.0000	0.3895	0.6182	

Table 4.82 shows the results of model 2, which explains the relationship between SID and PC (the second mediating variable) with the mediated effect of TOG. R square shows that 47.71% variation in PC is explained by SID and TOG. The findings of this table also show that the F-test is highly significant, $F(2, 224) = 101.2926, p < 0.001$. This indicates that the independent variable SID is statistically significant in predicting PC with the mediated effect of TOG. The results of regression analysis in model 2 show that TOG has a significant influence on PC at a significance level of $p < 0.001$ and an estimated coefficient of 0.4837. Similarly, SID with the mediated effect of TOG has a significant influence on PC.

Table 4.82: The Relationship between SID and BI as Mediated by TOG and PC (Model 2)

Outcome: PC							
	R	R-Square	MSE	F	df1	df2	sig
	0.6908	0.4771	0.5276	101.2926	2	224	0.000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0010	0.0484	0.0215	0.9828	-0.0944	0.0965	
TOG	0.4837	0.0561	8.6155	0.0000	0.3730	0.5943	
SID	0.3074	0.0563	5.4635	0.0000	0.1965	0.4183	

Table 4.83 shows the results of model 3, the model of the indirect effect. This model explains the relationship between SID and BI with the mediated effect of TOG and PC. R square shows that 31.11% variation in BI is explained by SID, TOG, and PC. The findings of this table also show that the F-test is highly significant, $F(3, 221) = 33.2695, p < 0.001$. This indicates that the independent variable SID is statistically significant in predicting BI with the mediated effect of TOG and PC. The results of regression analysis in model 3 show that TOG and SID have an insignificant influence on BI with a p-value of 0.1623 and 0.1384 respectively. On the other hand, PC has a significant influence on BI at level $p < 0.001$ and the estimated coefficient is 0.4192. These results mean that TOG and SID do not predict BI, but PC predicts BI.

Table 4.83: The Relationship between SID and BI as Mediated by TOG and PC (Model 3)

Outcome: BI							
	R	R-Square	MSE	F	df1	df2	sig
	0.5578	0.3111	0.6977	33.2695	3	221	0.000
Model 2	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0014	0.0557	0.0250	0.9801	-0.1084	0.1111	
TOG	0.1045	0.0746	1.4019	0.1623	-0.0424	0.2515	
PC	0.4192	0.0772	5.4310	0.0000	0.2671	0.5713	
SID	0.1025	0.0689	1.4870	0.1384	-0.0333	0.2383	

Table 4.84 shows the regression analysis of the full model. This model explains the direct relationship between SID and BI without the influence of the mediating variables. In this table, R square shows that 14.86% variation in BI is explained by SID. The F-test is highly significant, $F(1, 225) = 38.9071, p < 0.001$. The result of regression analysis in Table 4.84 shows that SID significantly influence BI at a significance level of $p < 0.001$ and the estimated coefficient of this model is 0.3862.

Table 4.84: The Relationship between SID and BI as Mediated by TOG and PC (Total Effect Model)

Outcome: BI							
Model Summary	R	R-Square	MSE	F	df1	df2	sig
	0.3854	0.1486	0.8546	38.9071	1	225	0.0000
Model	B	SE	t	Sig.	LLCI	ULCI	
Constant	0.0024	0.0616	0.0382	0.9695	-0.1191	0.1238	
SID	0.3862	0.0619	6.2376	0.0000	0.2642	0.5082	

Figure 4.27 illustrates the standardized regression coefficients between SID and TOG, TOG and PC, PC and BI, and SID and BI were statistically significant. Table 4.85 shows the indirect effect between SID and BI. Model 1 in this table explains the relation between SID and BI with single mediation that is TOG. The result of model 1 shows that zero lies within the bootstrapped confidence intervals range from -0.0234 to 0.1317. This means that the indirect relation of this model does not exist. In other words, there is no mediation affect the relationship between SID and BI. Thus, we can conclude that the indirect effect of TOG is insignificant.

Model 2 explains the relationship between SID and BI with double mediators that are TOG and PC. The results of the bootstrapped confidence intervals show that zero does not occur between the LL and UL of the confidence interval since the confidence intervals range from 0.0535 to 0.1802. This means that the indirect effect of TOG and PC is significant.

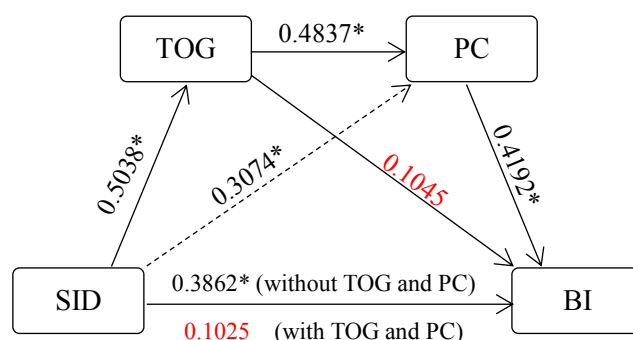
Model 3 shows the relationship between SID and BI with the mediated effect of the second mediator PC. This path does not exist in the conceptual model of this study; however, including this path was necessary in this test for running this analysis. The result of this relationship is significant since zero does not occur within this range of the bootstrapped confidence intervals, from 0.0556 to 0.2447. Thus, we can conclude that the indirect effect of PC is significant.

Table 4.85: The Indirect Effect of SCI on BI

	Effect	Boot SE	BootLLCI	BootULCI
Total:	0.2837	0.0690	0.1658	0.4369
Model 1:	0.0527	0.0392	-0.0234	0.1317
Model 2:	0.1021	0.0309	0.0535	0.1802
Model 3:	0.1289	0.0480	0.0556	0.2447

Since the indirect effect of SID on BI is statistically insignificant if mediated by TOG and PC or mediated by TOG only, but significant if mediated by PC. Based on the coefficients, the effect of PC is stronger than the influence of double mediation, TOG and PC, on the relationship between SID and BI. Thus, we conclude that TOG and PC are mediators of the relationship between SID and BI; however, the mediated effect of PC is stronger than the mediated effect of both TOG and PC together.

Figure 4.27: The Coefficient for the Relationship between SID and BI as Mediated by TOG and PC and PC



4.6 Additional Analysis

This section shows the results of additional analyses of the relationships between variables. These relationships were not added to the conceptual model of this study, but were studied in order to determine the existence of any additional relationships between the variables. The results of regression analysis of the relationship between TOG and TOI as well as the relationship between SI (dependent variable) and PEOU (dependent variable) are discussed below in this section.

4.6.1 Simple Regression Analysis (TOG and TOI)

This section provides an analysis of the relationship between the independent variable (TOG) and the dependent variable (TOI). The following table (Table 4.86) shows the linear regression model summary and overall fit statistics. In this table, R square indicates the variance in the dependent variable (TOI), which can be explained by the independent variables TOG. R square shows that 53% variation in TOI is explained by TOG. This value is above the suggested level of prediction (50%), which means that TOG can be a good predictor of TOI. Similarly, the adjusted R Square indicates that 42.8% of the variation in TOI is explained by TOG. These results indicate that the model is acceptable for interpretation.

Table 4.86: Model Summary (TOI and TOG)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.728 ^a	0.530	0.528	0.68655378

a. Predictors: (Constant), TOG

The regression table (Table 4.87) shows the estimated coefficient of the model. This table shows that TOG significantly affect TOI at significance level of $p < 0.001$. Moreover, the result indicates that t-value of TOG is greater than the p-value. These results mean that TOG has a significant influence on TOG with a confidence level greater than 95%.

Table 4.87: The Regression Analysis of TOI and TOG

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
1	(Constant)	-.009	0.046		-.189	0.850
	TOG	0.727	0.046	0.728	15.848	0.000

a. Dependent Variable: TOI

4.6.2 Regression Analysis of SI and PEOU

This section shows the results of the regression analysis of the relationship between two independent variables that represent the SI, which are SCI and SID, and the dependent variable (PEOU). Table 4.87 shows the linear regression model summary and overall fit statistics. The R square in this table shows that 27.6 % variation in PEOU is explained by both SCI and SID. This value is below the suggested level of prediction (50%). However, as suggested by Doane and Seward (2016), sometimes low R square gives useful predictions. Thus, we decided to continue the analysis based on that.

Table 4.88: Model Summary (SI and PEOU)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.526 ^a	0.276	0.270	0.85442809

a. Predictors: (Constant), SCI and SID

The regression in Table 4.89 This table shows that both SCI and SID significantly affect PEOU at a significance level of $p < 0.001$. This result means that SCI and SID have a significant influence on PEOU with a confidence level greater than 95%.

Table 4.89: The Regression Analysis of SI and PEOU

Model	B	Std. Error	t	Sig.
1 (Constant)	5.884E-17	0.057	0.000	1.000
SCI	0.243	0.057	4.283	0.000
SID	0.466	0.057	8.199	0.000

a. Dependent Variable: PEOU

4.7 Summary of Analyses and Hypotheses Testing Results

This chapter reports the results of hypothesis testing. In order to test the hypotheses, a demographic analysis was conducted, followed by reliability analysis, EFA, and then multiple regression analysis and the mediation analysis. The results of the reliability analysis show that all constructs, TOI, TOG, PC, PU, PEOU, and SI, have a high Cronbach's alpha greater than the recommended value of 0.80. Moreover, the values of the corrected item-total correlation of all items were greater than the suggested value of 0.30. In other words, all variables had a significant load on their respective factors. As for the factor analysis, the

KMO for all variables had a high homogeneity of the variances with values greater than the acceptable level at $p < 0.001$. At this stage, items from TOG, PU, PEOU, and SI were deleted to solve the collinearity problem. The total variance explained of all variables was between 64.1% and 84.3%, which is greater than the acceptable level of 50%. The variables TOI, TOG, PC, PU, and PEOU were reduced into one component for each. This component explains most of the variance. The variable of SI is the only variable that had two components, SCI and SID. The regression analysis was conducted to study the relationships between the variables. The multiple regression analysis conducted on seven independent variables (TOI, TOG, PC, PU, PEOU, SCI, and SID) and two dependent variables (BI and BI 4). The result of the regression analysis showed that PEOU, PU, TOI, and education level have a significant effect on predicting the behavioral intention to use e-government at a significance level less than 0.05. These results support H_5 and H_6 , except for the relationship between TOI and BI. Although TOI has a significant influence on BI, result of the regression analysis shows that this relationship is negative. This means that, the greater the confidence of individuals in the Internet, the less they intend to use e-government services. This finding contradicts our hypothesis that the relationship between TOI and BI is positive. Thus, we conclude that since this relationship is negative, then H_2 is not supported.

The mediation analysis with regression analysis was conducted to study the indirect relationship between: SCI and BI as mediated by PU, SID and BI as mediated by PU, SCI and BI as mediated by TOG, SID and BI as mediated by TOG, SCI and BI as mediated by TOG and PC, SID and BI as mediated by TOG and PC, PEOU and BI as mediated by PU, and TOG and BI as mediated by PC. The results of the mediation analysis show that all these relationships are significant at a significance level less than 0.05.

Moreover, the regression analysis between all the independent variables and BI 4 was conducted to examine the influence of TOI, TOG, PC, PU, PEOU, SCI, and SID on the behavioral intention of the mandatory use of e-government. The indirect relationships between the independent variables and BI 4 have not been examined in this study. The results of the regression analysis showed that all the moderating variables (age, gender, hometown, education level, occupation), PU, PEOU, and SCI had a significant influence on predicting the behavioral intention to the mandatory use of e-government at level of $p < 0.05$, except gender and occupation at a significance level of $p < 0.10$. This study focuses on determining the influence of the independent variables on BI. Thus, the hypothesis testing will be based on the dependent variable BI. The following Table 4.90 and Table 4.91 show a summary of the hypotheses testing results, based on the relationships between all independent variables and the dependent variable BI, which explains the behavioral intention to use e-government services in a voluntary environment.

Table 4.90: Hypotheses Testing (Direct Relationships)

Hypothesis	Path	Coefficient	Sig	Hypothesis testing result
H _{1a}	TOG→BI	0.043	0.530	Not supported
H ₂	TOI→BI	-0.160	0.016	Not supported
H ₃	TOG→PC	0.659	0.000	Supported
H ₄	PC→BI	0.008	0.903	Not supported
H ₅	PU→BI	0.750	0.000	Supported
H _{6a}	PEOU→BI	0.441	0.042	Supported
H ₇	PEOU→PU	0.748	0.000	Supported
H ₈	SCI→BI	-0.012	0.790	Not supported
	SID→BI	0.002	0.961	Not supported
H ₉	SCI→TOG	0.1619	0.0148	Supported
	SID→TOG	0.5038	0.000	Supported
H ₁₀	SCI→PU	0.2796	0.000	Supported
	SID→PU	0.5100	0.000	Supported

Table 4.91: Hypothesis Testing (Indirect Relationships)

Hypothesis	Path	Hypothesis testing result
H _{1b}	TOG→PC→BI	Supported
H _{6b}	PEOU→PU→BI	Supported
H _{8b}	SCI→PU→BI	Supported
	SID→PU→BI	
H _{8c}	SCI→TOG→PC→BI	Supported
	SID→TOG→PC→BI	

Chapter 5: Analysis for Non-use of E-government

5.1 Introduction

This section provides a descriptive analysis of participants' demographic profile for the e-government non-users. The objective of this section is to provide a better understanding of the factors that influence the citizens' behavioral intention to not use e-government services. As mentioned previously, 122 out of 349 respondents say that they do not use e-government service, which means 35% of the total number of participants who do not accept e-government services. This large number of our population may provide good information that helps determine the key influences on their intention to not use e-government services. The behavioral intention in this case was predicted by PEOU, PU, PC, TOI, TOG, and SI. These variables were measured by 13 items. The following table shows the items that were used to measure the variables.

Table 5.1: Survey Items for No Use of E-government

Construct	Item
PEOU	<ol style="list-style-type: none"> 1. Government websites are not easy to use. 2. Government websites have performance issues. 3. Government services are not clear and not understandable.
PU	<ol style="list-style-type: none"> 1. Government websites do not provide a service that I would use. 2. Using e-government services is a waste of time. 3. E-Government services are not useful.
PC	<ol style="list-style-type: none"> 1. The decision making process of government online services is not transparent. 2. Government online services make the boundaries of responsibility less clear.
TOG	<ol style="list-style-type: none"> 1. I don't trust the government. 2. Government is not capable to protect my privacy via the website. 3. Government websites are not secure and the security system is easy to hack.
TOI	The Internet has no enough safeguards to make me feel comfortable using it to transact personal business with government agencies.
SI	People who are in my social circle told me not to use e-government.

5.2 Demographic Profile for E-government Non-users

This section shows the finding from the demographic profile of 122 participants who do not use e-government, including finding related to the gender, age, hometown, education level, and occupation. The findings are shown below.

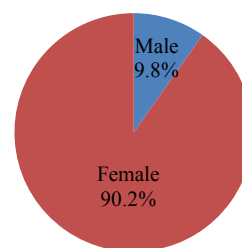
5.2.1 Gender of E-government Non-users

As shown in Table 5.2 and Figure 5.1, the majority of the 122 respondents who have never used e-government services were female (90.2%), while only 9.8% of them were male.

Table 5.2: Gender of All Respondents

Gender	Frequency	Percentage
Male	12	9.8%
Female	110	90.2%
Total	122	100%

Figure 5.1: Gender of All Respondents



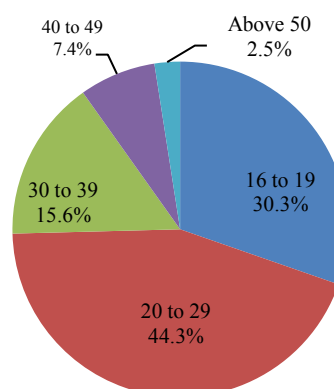
5.2.2 Age of E-government Non-users

The results show that the age group with the largest percentage of respondents was 20-29 with 44.3% of responses, followed by the age group of 16-19 comprised of 30.3% of the total respondents. The age group of 30-39 represented 15.6% of the total respondents. On the other hand, the oldest groups of 40-49 and above 50 represented 7.4% and 2.5% respectively of the total respondents who do not use e-government services (see Table 5.3 and Figure 5.2).

Table 5.3: Age of Non-users

Age	Frequency	Percentage
16 to 19	37	30.3%
20 to 29	54	44.3%
30 to 39	19	15.6%
40 to 49	9	7.4%
Above 50	3	2.5%
Total	122	100%

Figure 5.2: Age of Non-users



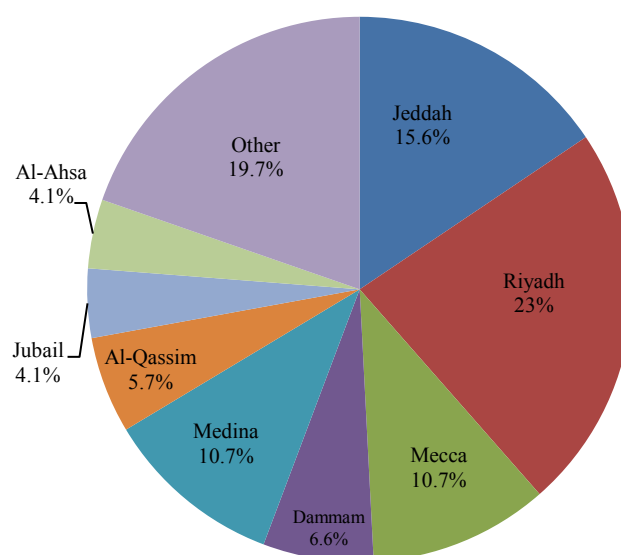
5.2.3 Hometown of E-government Non-users

The results of the hometown of the respondents who have never used e-government revealed that the majority of the respondents were from the capital city Riyadh (23.0 %). This is followed by 15.6% were from Jeddah city. Then, 10.7% of the respondents were from Mecca city. Similarly, 10.7% were from Medina. This is followed by 6.6%, 5.7%, and 4.1% of the respondents were from Dammam city, Al-Qassim, and Al-Ahsa respectively. 19.7% were from different cities. Table 5.4 and Figure 5.3 show the details of the findings.

Table 5.4: Hometown of Non-users

Hometown	Frequency	Percentage (%)
Jeddah	19	15.6%
Riyadh	28	23.0%
Mecca	13	10.7%
Dammam	8	6.6%
Medina	13	10.7%
Al-Qassim	7	5.7%
Jubail	5	4.1%
Khobar	0	0.0%
Al-Ahsa	5	4.1%
Other	24	19.7%
Total	122	100%

Figure 5.3: Hometown of Non-users



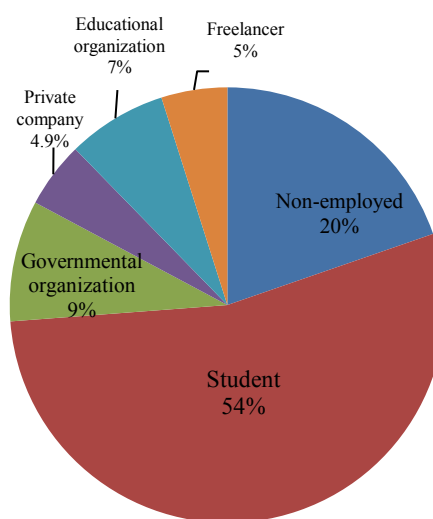
5.2.4 Education Level of E-government Non-users

As shown in Table 5.5 and Figure 5.4, the majority of respondents who have no experience using e-government services, hold a bachelor degree (42.9%). This is followed by 36.9% with high school level, followed by 6.6% for both under high school and master degree level, while 0.8% of the respondents were not educated.

Table 5.5: Education Level of Non-users

Education Level	Frequency	Percentage
Not educated	1	0.8%
Under high school	8	6.6%
High school	45	36.9%
Bachelor degree	60	49.2%
Master degree	8	6.6%
Doctoral degree and above	0	0.0%
Total	122	100%

Figure 5.4: Education Level of Non-users



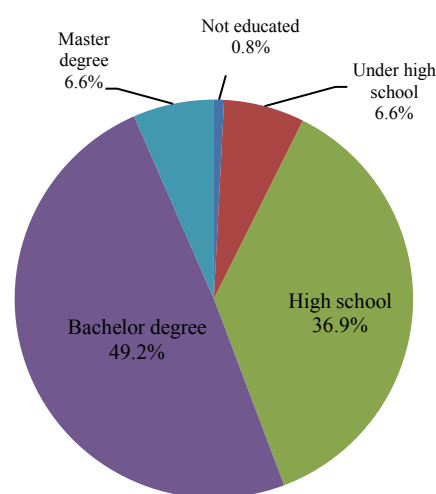
5.2.5 Occupation of All Non-users

The results of Table 5.6 and Figure 5.5 show that 54.1% of the respondents were students. This is followed by 19.7% of the respondents were non-employed. 26.2% in total were employees. In particular, 9.0% of the e-government's non users were working for governmental organization, followed by 7.4% were working at educational organization, while 4.9% were working for a private organization and similarly 4.9% were freelancers. In general, we can say that 73.8% of participants who have never used e-government services are non-employed people, by adding both students and non-employed participants, while the rest (26.2%) were employees.

Table 5.6: Occupation of Non-users

Occupation	Frequency	Percent %
Non-employed	24	19.7%
Student	66	54.1%
Governmental organization's employee	11	9.0%
Private company's employee	6	4.9%
Educational organization	9	7.4%
Freelancer	6	4.9%
Total	122	100%

Figure 5.5: Occupation of Non-users



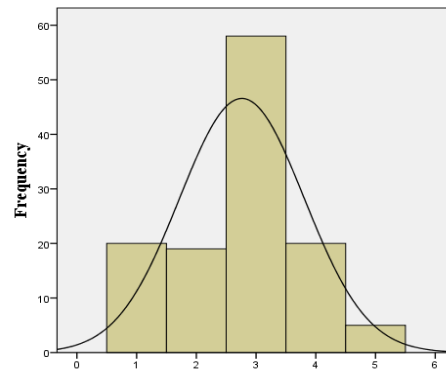
5.3 Perceived Usefulness

PU in this case was measured by three items. These items were measured by 5-point Likert scale³. Table 5.7 shows the results of the respondents to item 1. This table shows that 16.4% agree that government websites do not provide the services they would use. Similarly, 16.4% strongly disagree, while only 4.1% strongly agree. On the other hand, the majority of the responses were neutral to this question, 58% of the responses. This question does not give enough information about the respondents' perception of the usefulness of e-government. Figure 5.6 also shows that the majority of the responses were neutral. Therefore, we conclude that this item is not a strong predictor of the behavioral intention to use e-government.

Table 5.7: Government websites do not provide a service that I would use

		Frequency	Percent %
Valid	1	20	16.4%
	2	19	15.6%
	3	58	47.5%
	4	20	16.4%
	5	5	4.1%
Total		122	100%

Figure 5.6: Government Websites Not Provide Services I Would Use



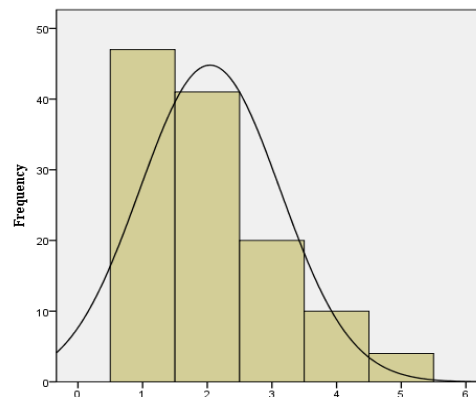
The next table (Table 5.8) shows the results of item 2. This table shows that 38.5% strongly disagree and 33.6% disagree that using government websites is a waste of time. On the other hand, only 11% in total agree that using e-government services are a waste of time. Figure 5.7 also shows that the majority of the 122 respondents believes that using government websites do not a waste their time. It is clear that people have a positive perception of e-government that it saves time.

³ 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, and 5= strongly agree.

Table 5.8: Using Government Online Services is A Waste of Time

		Frequency	Percent %
Valid	1	47	38.5%
	2	41	33.6%
	3	20	16.4%
	4	10	8.2%
	5	4	3.3%
Total		122	100%

Figure 5.7: Using Government Online Services is A Waste of Time

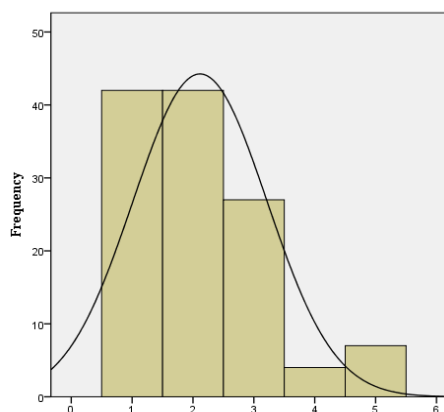


The following table (Table 5.9) shows the results of item 3. This table shows that 68.8% of the responses in total disagree that e-government services are not useful, 34.4% strongly disagree and 34.4% disagree. While only 22.1% of the responses were neutral about the usefulness of its services. On the other hand, only 9% in total think that e-government services are not useful. Figure 5.8 also shows that the majority disagreed that e-government services are not useful.

Table 5.9 : E-government services are not useful

		Frequency	Percent %
Valid	1	42	34.4%
	2	42	34.4%
	3	27	22.1%
	4	4	3.3%
	5	7	5.7%
Total		122	100%

Figure 5.8: E-government services are not useful



In conclusion, by taking the average of all three items (see Table 5.10), we can see that the results are evenly divided between agree, disagree, and neutral. It is clear that 57.64% (29.77% strongly disagree, 27.87% disagree) of the respondents have positive perception of the usefulness of e-government services, while only 13.70% in total have negative perception of e-government services' usefulness. In other words,

the results show a negative relation between the respondents' behavioral intention to use and their perception of the services' usefulness.

Table 5.10: The Average of the Three Items of PU

		Frequency	Percent %
Valid	1	36	29.77%
	2	34	27.87%
	3	35	28.67%
	4	11	9.30%
	5	5	4.40%
Total		122	100%

5.4 Perceived Ease of Use

PEOU, in this case, is measured by three items. These items were also measured by 5-point Likert scale. The following table (Table 5.11) shows the results of the respondents of item 1. This table shows that 40% (13.1% strongly agree and 27% agree) of the responses agree that government websites are not easy to use. On the other hands, in total 42.6% of the responses think that e-government websites are easy to use, while 17.2% were neutral. Figure 5.9 also shows that frequencies for scales are almost equal. The result indicates that the responses of this item are split into two halves, the first half supporting that e-government is easy to use and the other half is the opposed. These results do not give a clear prediction of the influence of the ease of use on the behavioral intention.

Table 5.11 : Government websites are not easy to use

		Frequency	Percent %
Valid	1	25	20.5%
	2	27	22.1%
	3	21	17.2%
	4	33	27.0%
	5	16	13.1%
Total		122	100%

Figure 5.9: Government websites are not easy to use

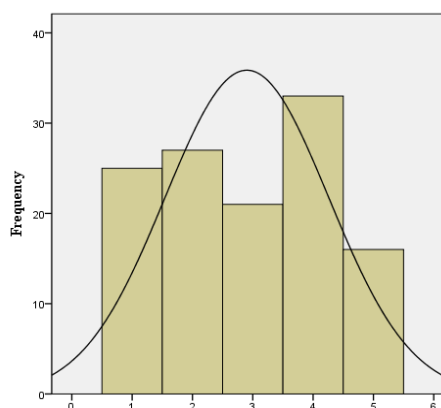


Table 5.12 and Figure 5.10 show the results of item 2. This table shows that the majority of the responses (36.9%) were neutral toward the performance of e-government websites. 17.2% of the responses disagree that e-government websites have performance issues, while 16.4% strongly disagree. On the other hand, in total 29.5% think that e-government websites have problems in the services performance. Based on these results, 33.6% are showing positive perception toward the performance of e-government service, while 29.5% have a negative perception. These results do not show enough information to predict the influence of PEOU on behavioral intention to use e-government.

Table 5.12: Government Websites Have Performance Issues

		Frequency	Percent%
Valid	1	20	16.4%
	2	21	17.2%
	3	45	36.9%
	4	24	19.7%
	5	12	9.8%
Total		122	100%

Figure 5.10: Government Websites Have Performance Issues

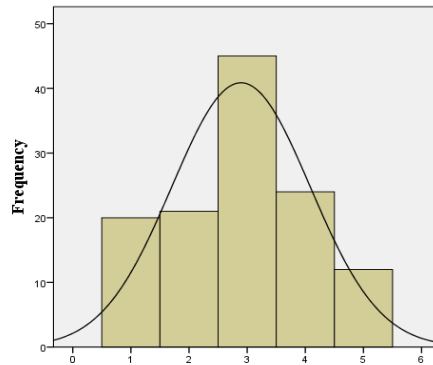
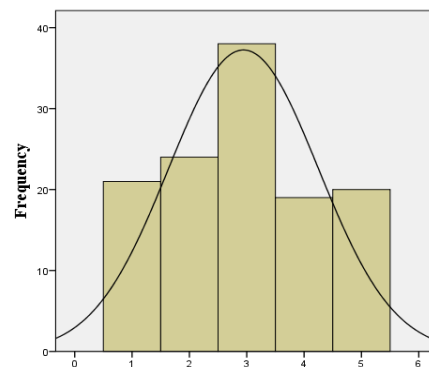


Table 5.13 and Figure 5.11 show the results of item 3. This table shows that 32% of the responses in total agree, 16.4% strongly agree and 15.6% agree that e-government services are not clear and are not easy to understand, while 31.1% of the responses were neutral about the clarity and the understandability of the services. On the other hand, 36.9% in total think that e-government services are clear and easy to understand.

Table 5.13: E-government Services Are Not Clear and Not Understandable

		Frequency	Percent %
Valid	1	21	17.2%
	2	24	19.7%
	3	38	31.1%
	4	19	15.6%
	5	20	16.4%
Total		122	100%

Figure 5.11: E-government Services Are Not Clear and Not Understandable



It is clear that the results are evenly divided between agree, disagree, and neutral. These results do not give a specific direction to understand citizens' perception toward the ease of use of e-government services. Based on the results, it seems that about 30% of the responses have positive perception toward the ease of using e-government services and almost similar percentage of the responses have negative perception of it. Thus, we can say that based on the responses to this question we cannot predict the influence of e-government services clarity and understandability on the behavioral intention of citizens to use e-government services.

In conclusion, by taking the average of all three items (see Table 5.14), the results indicate that, in average, 33.87% (13.10% strongly disagree, 20.77% disagree) of the responses have positive perception of the ease of using e-government services, while larger number of the responses, 37.7% in total, perceive e-government not easy to use. In other words, the results indicate that a positive perception of the ease of using e-government may positively influence the behavioral intention of 30% of citizens and vice versa. Therefore, we can say that based on this study, approximately 30% of the citizens are not willing to use e-government because they believe that its services are not easy to deal with.

Table 5.14: The Average of the Three Items of PEOU

		Frequency	Percent %
Valid	1	22	18.03%
	2	24	19.67%
	3	35	28.40%
	4	25	20.77%
	5	16	13.10%
Total		122	100%

5.5 Perceived Corruption

PC in this case is measured by two items. The following table (Table 5.15) shows the results of item 1. This table shows that the majority of the responses, 45.1%, were neutral toward the transparency of the decision making in e-government, Figure 5.12 also show that most of the responses are neutral. While 32% in total, 16.4% strongly disagreeing and 15.6% disagreeing, disagree that the decision making process is not transparent. On the other hand, 23% of the responses agreed that the decision-making process is not transparent. This result does not show enough information about the respondents' perception of the

transparency of the government, therefore we can say that this item is not a strong predictor of the behavioral intention to use e-government.

Table 5.15: The Decision Making Process is Not Transparent

		Frequency	Percent
Valid	1	20	16.4%
	2	19	15.6%
	3	55	45.1%
	4	18	14.8%
	5	10	8.2%
Total		122	100%

Figure 5.12: The Decision Making Process is Not Transparent

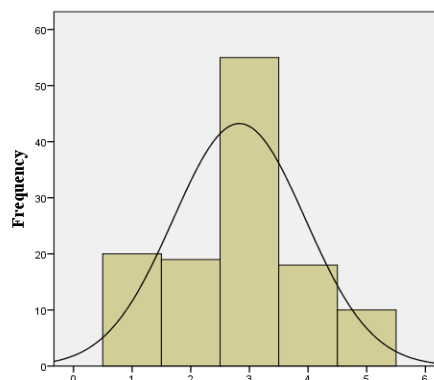
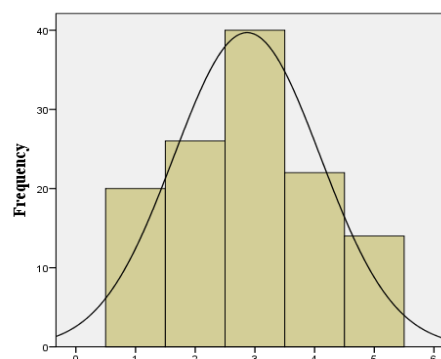


Table 5.16 shows the results of item 2. Similar to item 1, that the majority of the responses, 32.8%, were neutral toward that the e-government does not make the boundary of responsibilities clearer (see Figure 5.13). While 21.3% disagreed and 16.4% strongly disagreed that e-government makes the boundaries of responsibility less clear. On the other hand, 29.5% in total think that it makes the boundaries of responsibility less clear. These results indicate that in total 37% of people think that e-government plays a role in making the boundaries of responsibility more clear. Therefore, we can say that this item shows how citizens' perception of corruption, influence their behavioral intention to use e-government.

Table 5.16: E-government makes the boundaries of responsibility less clear

		Frequency	Percent
Valid	1	20	16.4%
	2	19	15.6%
	3	55	45.1%
	4	18	14.8%
	5	10	8.2%
Total		122	100%

Figure 5.13: E-government makes the boundaries of responsibility less clear



In conclusion, by taking the average of both items (see

Table 5.17) the results indicate that the majority of responses, 45.10%, were neutral and did not share enough information about their perception of corruption. 32% of the responses believe that e-government reduces the level of corruption and increase the transparency, while 23% disagree. Based on these results, we can say that despite the citizens' perception of corruption, it does not affect their intention to use e-government services significantly. As shown in the table a large proportion have a positive perception of corruption and yet have no intention to use e-government. Therefore, we conclude that PC cannot predict the behavioral intention to use e-government.

Table 5.17: The Average of the Two Items of PC

		Frequency	Percent %
Valid	1	20	16.40%
	2	19	15.60%
	3	55	45.10%
	4	18	14.80%
	5	10	8.20%
Total		122	100%

5.6 Trust of Government

TOG is measured here by three items. Table 5.18 and Figure 5.14 show the results of item 1. This table shows that the majority of the responses, 63.1%, trust the government, While 20% neutral and 16.4% agree that they do not trust the government. This result indicates that citizens' trust in the government has no effect on their intention to use e-government services.

Table 5.18: I Do Not Trust the Government

		Frequency	Percent %
Valid	1	51	41.8%
	2	26	21.3%
	3	25	20.5%
	4	7	5.7%
	5	13	10.7%
Total		122	100%

Figure 5.14: I Do Not Trust the Government

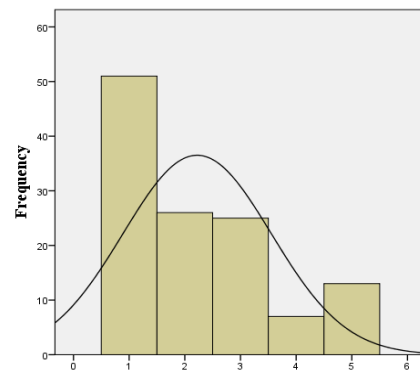
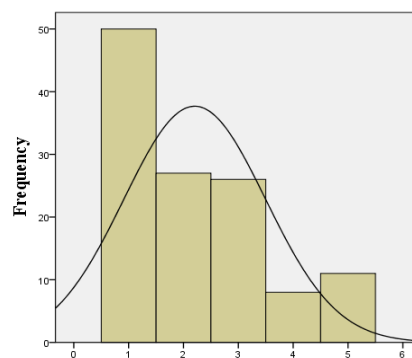


Table 5.19 shows the results of item 2. Similar to item 1, that the majority of the responses, 63.1% in total, believe that government is capable to protect the privacy via e-government websites. Figure 5.15 also shows that most of the responses strongly disagree or disagree that the government is not capable to protect the privacy via its websites. On the other hand, only 15.6% think that the government is not capable to protect the privacy. From these results, it is clear that citizens have a positive perception of the government and they trust the government to protect their privacy. However, this trust does not influence their behavioral intention to use its online services.

Table 5.19: Government is Not Capable to Protect the Privacy Via Website

		Frequency	Percent %
Valid	1	50	41.0%
	2	27	22.1%
	3	26	21.3%
	4	8	6.6%
	5	11	9.0%
Total		122	100%

Figure 5.15: Government is Not Capable to Protect the Privacy Via Website

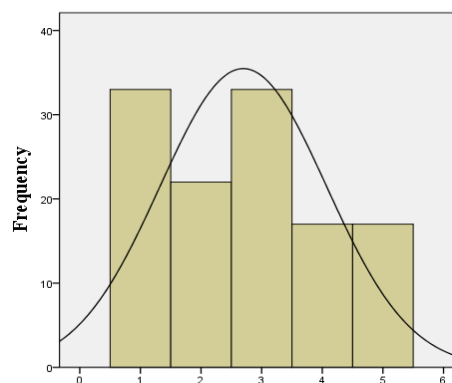


The next table (Table 5.20) shows the results of item 3. The results show that 27% of the responses strongly believe that government websites are not easy to hack, 18% agreed, and 27% were neutral. On the other hand, 27.8% in total believe that the system is easy to hack. Figure 5.16 also shows that the most of the responses load in 1 and 3.

Table 5.20: Government Websites Are Easy to Hack

		Frequency	Percent %
Valid	1	33	27.0%
	2	22	18.0%
	3	33	27.0%
	4	17	13.9%
	5	17	13.9%
Total		122	100%

Figure 5.16: Government Websites Are Easy to Hack



In conclusion, by taking the average of all three items (see Table 5.21), the results indicate that the more than half of the responses, 57.07% trust the government and they believe in government capability to protect their privacy and to provide secure services. 22% of the responses were neutral, while 20% do not trust the government and do not believe that the government is capable to provide secure services and capable protect their privacy online. Based on these results, we can say that despite the citizens' positive perception of government, it does not influence their intention to use its online services. Therefore, we conclude that TOG is not a strong predictor to the behavioral intention to use, or not use, e-government in this case.

Table 5.21: The Average of the Three Items of TOG

		Frequency	Percentage %
Valid	1	45	36.60%
	2	25	20.47%
	3	28	22.93%
	4	11	8.73%
	5	14	11.20%
	Total	122	100%

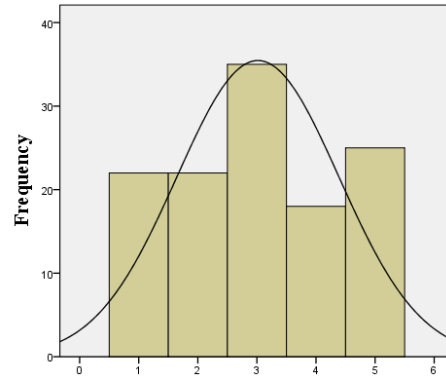
5.7 Trust of the Internet

TOI is measured here by one item. This item measures whether the Internet has secured enough to conduct a personal transaction or not. Table 5.21 and Figure 5.17 show that 36% of respondents believe that the Internet has enough protections to make them feel comfortable using it to transact personal business with government agencies. While, 35% believe that the Internet is not safe for transacting personal business even with government agencies. 28.7% of the responses were neutral. These results show that about 30% of the sample would not use e-government because they do not trust the internet. On the other hand, almost 30% trust the internet, but they are not willing to use e-government services. Therefore, we can say that in this case TOI is not a strong predictor of citizens' intention to use e-government.

Table 5.22: The Internet Has not Enough Protections

		Frequency	Percent %
Valid	1	22	18.0%
	2	22	18.0%
	3	35	28.7%
	4	18	14.8%
	5	25	20.5%
Total		122	100%

Figure 5.17: : The Internet Has not Enough Protections



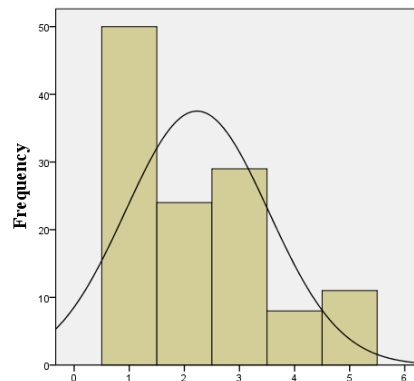
5.8 Social Influence

SI is measured here by one item. This item measures whether the social influence has an effect on the behavioral intention to use e-government or not. Table 5.22 and Figure 5.18 show that 41% of the responses strongly disagree and 19.7% disagree that people in their social circle would negatively influence their intention to use e-government. In addition, 23.8% of the responses were neutral and 6.6% agreed that people influence their intention, while 9% strongly agreed that their intention to use e-government influence by other people. These results indicate that SI has no strong effect on behavioral intention. Thus, we can say that social influence in this case cannot predict the behavioral intention to use e-government.

Table 5.23: Social Influence Has No Effect on the Intention to Use E-government

		Frequency	Percent %
Valid	1	50	41.0%
	2	24	19.7%
	3	29	23.8%
	4	8	6.6%
	5	11	9.0%
Total		122	100%

Figure 5.18 : Social Influence Has No Effect on the Intention to Use E-government



5.9 Summary of Findings

This analysis was carried out based on 122 respondents about the reason for not intending to use e-government services. The results of this analysis showed that about 30% of respondents did not use e-government services because they do not trust the Internet security and protection. Moreover, more than 30% of respondents expressed their intention not to use e-government services because they believe that they are not easy to use. On the other hand, more than half of the respondents have a positive perception about the usefulness of using e-government. Despite this positive perception, respondents still were not willing to use e-government services. This means that their intention not to use e-government has not been affected by this positive perception of the usefulness of the services. Additionally, more than 60% of the respondents trust the government and it is clear that this trust had no role in changing their intention toward not using e-government. As for perceived corruption, most of the respondents' were neutral. Thus, we conclude that perceived corruption was not a clear predictor of the respondents' intention not to use the services.

Chapter 6: Discussion and Conclusion

6.1 Introduction

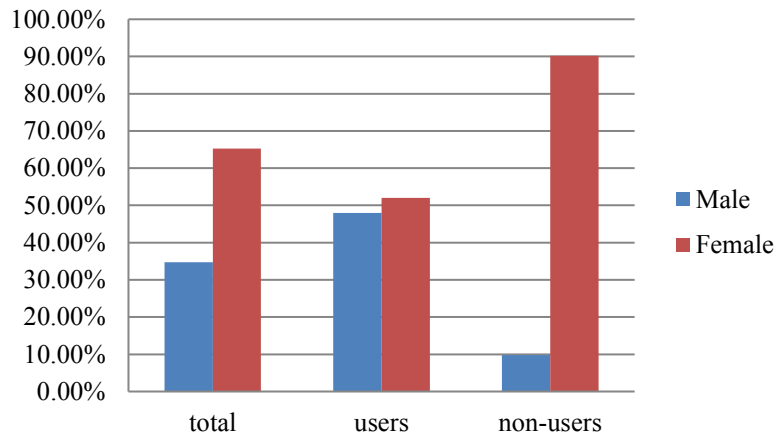
This chapter presents the research findings by answering the research questions. In this chapter, the key findings from the descriptive statistical analysis are discussed. Then, in order to answer the main research question, the role of each construct of the conceptual model is reviewed. This is followed by discussing the significance of research findings and the implication for theory and practice. Finally, the limitations of the study are identified, and then this chapter concludes by suggesting directions and proposing new models for future research.

6.2 Findings from the Demographic Analysis

This section discusses the results from the participants' demographics survey. The demographic information consists of five items: gender, age, hometown, education level, and occupation. The results of 349 participants indicate that the majority of the participants are female (65.3%). The highest number of participants is from the age group of 20-29 years old, consisting of 141 respondents (40.4%), followed by the age group 30-39 years old, consisting of 89 respondents (25.5%). Most respondents are from the capital city Riyadh, consisting of 93 respondents (26.6%), followed by Jeddah city, consisting of 73 respondents (20.9%). These results show that citizens live in urban areas have better accessibility to the Internet. The findings also show that the majority of participants hold a bachelor degree, consisting of 199 respondents (57.02%). The number of the holders of the bachelor degree, master degree, and doctoral degree shows that 73.64% of the citizens are highly educated, which, in turn, indicates that our sample tends to be active and willing to use the Internet to search for information. Furthermore, 41.3% of the participants for this study are students. This means that almost half of the participants are experts in using the Internet and have experience in searching for information online, and therefore, have the ability to understand the type of services provided by the government electronically.

Moreover, the results indicate that 227 out of 349 participants had an experience using e-government services. Although most of the participants in this survey are females, only 118 out of 228 females (50% of the total females' participants) are using e-government services. On the other hand, 90% of the male participants (109 out of 121) are e-government service users. In other words, we can say that men are more willing to use e-government services than women. Figure 6.1 shows a comparison between the usage of e-government among females and males.

Figure 6.1: Comparison of the E-government Usage among Males and Females



This could be explained by the fact that the ability to access certain information and services are available to men more than women in Saudi Arabia’s context. This may explain why male e-government users are more than female users in this study. In addition, the majority of e-government users are between the ages of 20-39. This result is expected, especially since participants from this age group need to use e-government services for several purposes as the only way to interact with government. For example, citizens between the ages of 20-39 have to renew their national identity two times as a minimum, based on the laws and regulations in Saudi Arabia, and the only way to make an appointment for the renew is using government online service called “Absher”. Similarly, if they need to renew the driver license or to register for government jobs, they must use one of the government’s online services.

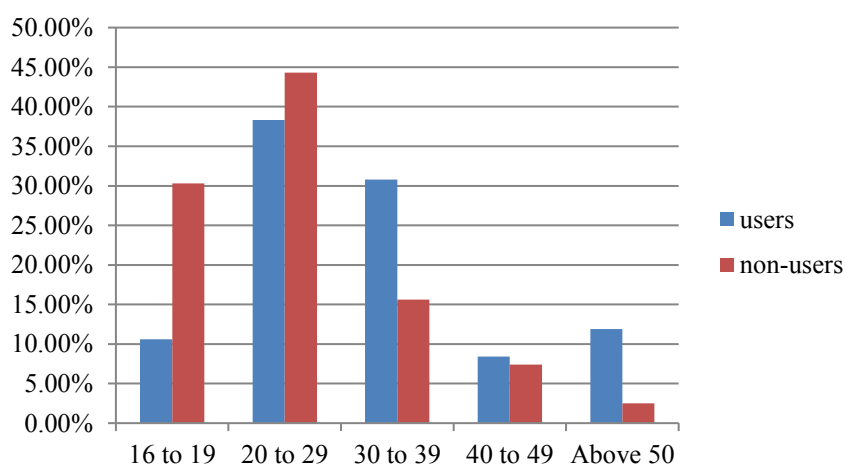
In addition, according to Internet World Stats (2016), the internet users in Saudi Arabia are 64.7% of the population and most of the users are between the ages 16-35. The finding of our study is consistent with this statistical analysis by Internet World Stats (2016). Thus, we conclude that this age group is the most aware of electronic transactions and has greater access to e-government services. Furthermore, the majority of e-government users reside in Riyadh (28.6%) and Jeddah (23.8%), which are urban areas, where there is more wealth and better internet access everywhere. Most of e-government users hold a bachelor degree (61.2%). This indicates that the citizens are highly educated and aware of using the internet in general. 34.4% of e-government users are students, followed by government workers who constitute 20.3%. This means that students and government employees are most likely to use e-government services than other categories. This unexpected result can be explained by that students need to use e-government services sometime for educational purposes. Similarly, government employees need to use its services to improve

their performance at work as these services are related to the job content.

In terms of non-users of e-government services, the results revealed that only 9.8% of the male participants do not use e-government, meanwhile the majority of the non-users are female (90.2%). What we have mentioned earlier in this section about the ability of males to access more services than females can be an explanation of these results. Moreover, the results revealed that the age group of 20-29 uses e-government services the least. Despite this result, we cannot conclude that all the people between the ages 20-29 uses e-government services the least. This is because gender plays a role in this case since the majority of the e-government's non-users are females (see Figure 6.1). We believe that gender has a greater role than the age in determining the likelihood of using e-government services.

Furthermore, the results show that the age group of 16-19 is the second category that has a high number of e-government non-users. If we compare the results of e-government users and non-users of this age group, we can see that only 10.6% of the participant from this age group represents the users of e-government, while 30% represent the non-users (see Figure 6.2). In other words, the non-users between the ages 16-19 are more than the users in this age group. Despite the fact that the people in this age group are the most aware of the technology and more willing to adopt new technology, these results are expected because that the people in this age group are either students or non-employees. In other words, this category has limited accessibility to e-government services and most likely their parents have the authority to conduct electronic transactions with the government for them. This explains why this category has a higher percentage of e-government's non-users than the users in the same age group.

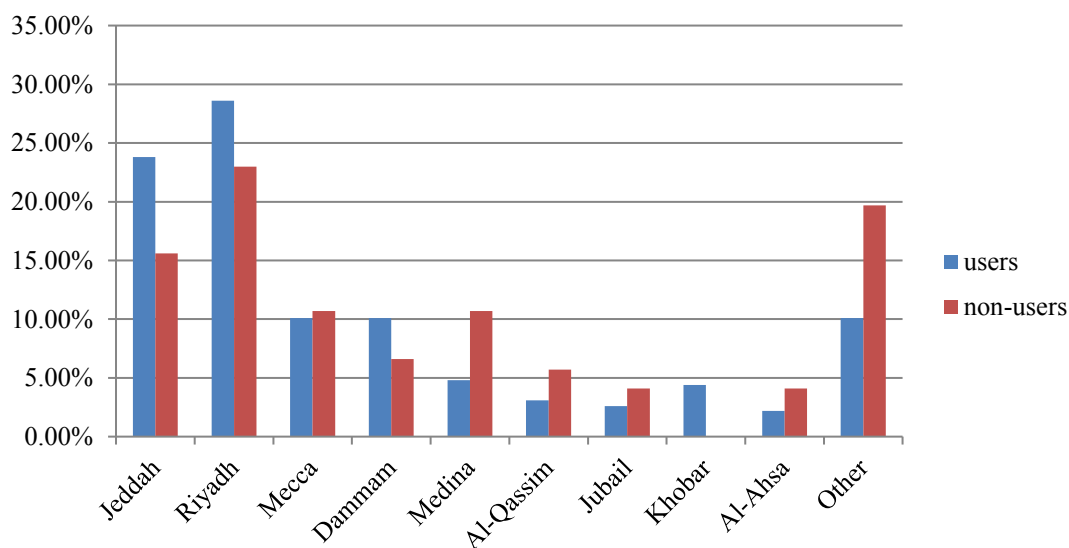
Figure 6.2: Age Comparison of the E-government's Users and Non-users



As for the age group of 30-39, the results revealed that people in this category constitute 30.8% of e-government users and 15% of the non-users. These results were expected because the people in this category are mostly employees, which mean that they often need to use e-government services more than others, either to carry out the tasks for the work or to benefit from e-government services such as social insurance.

In terms of the non-users' hometown, the results showed that most of the e-government's non-users are from the capital city (Riyadh), constitute of 23%, followed by the second-largest city (Jeddah), constitute of 15.6%. The results of the analysis of e-government users revealed that most of the users are also from the same urban areas. The following column chart (Figure 6.3) shows a comparison of the hometown of e-government users and non-users.

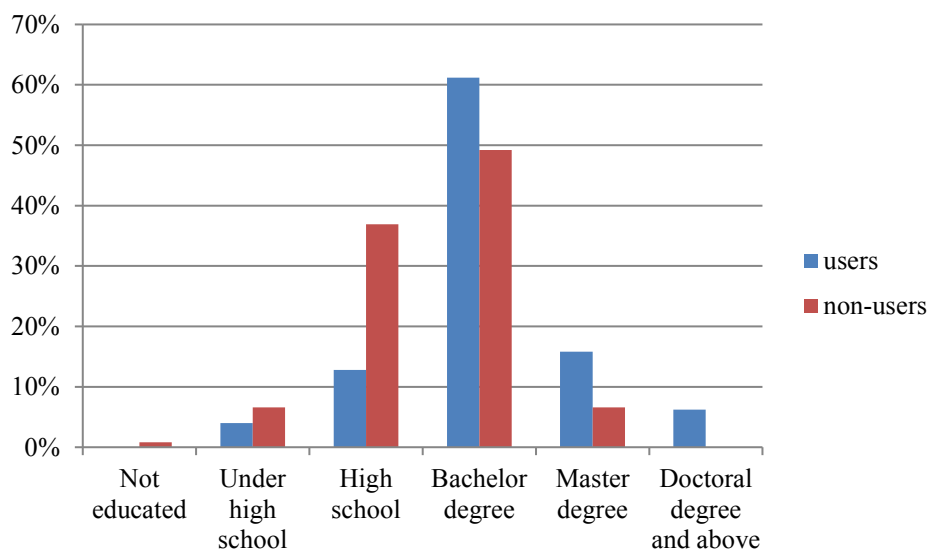
Figure 6.3: comparison of e-government users' and non-users' hometown



As shown in Figure 6.3, the majority of the e-government's users are from the Riyadh city and Jeddah city. Similarly, the majority of the e-government's non-users are from the same cities. However, these results do not mean that these urban areas have the largest number of non-users, but mean that most of the respondents to this questionnaire were from these cities. This because they have a better Internet accessibility compared to smaller cities, which allow them to participate in this study online survey from the first place. Thus, the results cannot be generalized to explain the adoption of e-government, however, explain that citizens who live in urban areas are more aware of the new technology and more willing to access the Internet. Thus, we can say that the potential users of the e-government services are most likely to be citizens from these urban areas.

In terms of the non-users' education level, the results show that most of the respondents with no experience using e-government services are bachelor degree level (49.2%), including bachelor students and bachelor degree holders, followed by high school level (36.9%). The following chart (Figure 6.2) shows a comparison of the educational level of e-government's users and non-users.

Figure 6.4: A Comparison of the Educational Level of E-government's Users and Non-users



Since the bachelor degree level may refer to the bachelor students and the bachelor degree holders, this lead to conclude that participants from high school level are most likely between the ages 16-19, which mean that they are still students. Similarly, some participants from the bachelor degree level are between the ages 16-19. Moreover, the result from the analysis also shows that 54% of e-government's non-users are still students. This result supports our argument that respondents' who are from the bachelor degree level or high school level are young people who have a limited accessibility for the e-government services. Furthermore, as shown in Figure 6.4, the high school level of e-government's non-users is higher than the e-government users, which also can be explained by the limited accessibility for the services. Thus, this explains why the majority of the non-users are from these two educational levels.

6.3 E-government Experience

The items that represent the e-government experience in this study are about the use of e-government services in general term. These items are questions about the last use of the services, and the frequent use of them. The results revealed that 31% of the e-government users have used the services within the past six

months, followed by 22.03% used the services this month. However, the majority of the respondents who have an experience using government services tend to use them only several times a year (39.65%) , while 18.94% tend to use them once a month. It is clear that although most of the participants have experience using government services, this use is limited to several times a year. Most of the respondents said that the last use of e-government services was within the last six months, from the time the survey was conducted. This illustrates the lack of the use of e-government services and shows that this use is not continuous.

6.4 E-government Adoption Construct

The main aim of this study is to identify the key factors that influence citizens' intention to use e-government services. The conceptual model that has been validated in this study is based on TAM (perceived usefulness and perceived ease of use), perceived trustworthiness (trust in the government and trust in the Internet), UTAUT (social influence), and perceived corruption. This model was tested with two main dependent variables that are the behavioral intention to use e-government (voluntary) and the behavioral intention to use e-government services (mandatory). The regression analysis was conducted to examine the research model in order to identify the relationships among the key factors of the citizens' usage of e-government in Saudi Arabia's context. The findings reveal that perceived usefulness, perceived ease of use, the trust in the Internet, and education level have a significant influence on citizens' intention to, voluntary, use e-government services. Moreover, the factors of perceived usefulness, perceived ease of use, social influence, age, gender, hometown, educational level, and occupation have a significant influence on the behavioral intention of the mandatory use of e-government services. These findings are discussed below.

6.4.1 The Role of Citizens' Trust in E-government

This section discusses the findings related to citizens' trust in the government and trust in the Internet. The findings related to the following hypotheses and answer the following sub-questions:

Sub-question 1: How does citizens' trust on government affect their intention to use e-government services?

Sub-question 2: How does citizens' trust on the Internet affect their intention to use e-government services?

Sub-question 3: How does citizens' trust on the government affect their perception of government corruption?

H₁ *The citizens' trust in the government (TOG) positively affects their behavioral intention (BI) toward using e-government.*

H₂ *The citizens' trust in the Internet (TOI) positively affects their behavioral intention (BI) toward using e-government.*

H₃ *The citizens' trust in the government (TOG) negatively affects their perception of government corruption (PC).*

The citizens' trust in the Internet and trust in the government are identified in the literature as key factors in predicting the intention to use e-government (Carter and Belanger, 2005; Tolbert and Mossberger, 2006). The trustworthiness factors related to the Saudi context were included in the research model for hypothesis testing. The results related to H₁ are discussed below.

The first hypothesis, H₁, discusses two relationships between trust in the government and the behavioral intention. These relationships show the direct and the indirect effect of citizens' trust in the government. Thus, hypothesis 1 can be further divided into two hypotheses that are:

H_{1a} *The citizens' trust in the government (TOG) has a direct positive relationship with their behavioral intention (BI) toward using e-government*

H_{1b} *The trust in the government (TOG) has a positive indirect relationship with the behavioral intention (BI) that is mediated by perceived corruption (PC).*

The study found that trust in the government has insignificant direct influence on citizens' intention to use e-government services. Contrary to the prediction, this result rejects H_{1a}. This can be explained by the fact that trust of government, along with the influence of other factors, is not a significant predictor of the behavioral intention to use e-government. The descriptive statistics indicate that 65% of the total numbers of participants, who have an experience using e-government, trust the government, while 63% of participants who have never used e-government said the same thing. This illustrates that the Saudi citizens, whether e-government users or not, trust the government and this trust obviously has no impact on their intention to adopt the services. This result is consistent with the previous research by Carter (2008). As suggested by Carter (2008), citizens may perceive the government and its online services as completely different things that do not integrate each other. This may explain why there is no significant direct relationship between citizens' trust in the government and their behavioral intention. Thus, we conclude that trust in the government does not necessary directly determine the citizens' intention to use e-government, whether the use is voluntary or mandatory.

For the relationship between citizens' trust in the government and their behavioral intention as mediated by their perception of corruption, the results show that perceived corruption has a significant influence on this relationship. The direct relationship between the trust in the government and perceived corruption, without the effect of the other factors, also proved to be significant, which supports H₃. Similarly, the direct relationship between perceived corruption and citizens' behavioral intention, without the effect of the other factors, proved to be significant. This result indicates that when citizens trust the government then their negative perceptions of its corruption decline. On the other hand, when they believe that the government is highly corrupted, then, accordingly their intention to use its online services will decrease.

As mentioned earlier, citizens trust the government anyway and this trust has insignificant effect on their intention to use e-government. However, once this trust is mediated by their perceptions of corruption, the intention to use the services will clearly be affected by these perceptions. Thus, we can say that citizens' perceptions of corruption play an important indirect role in predicting their behavioral intention towards the use of e-government in a voluntary environment.

These findings could be seen as the result of the definition of the trust of the government from citizens' perspective. Citizens' definition of government trust may refer to the trust in the government's performance and its capability to control and handle anything for the benefit of citizens. Their perspective of trust in government, in this case, may not include the trust in its performance in terms of transparency and accountability. Perhaps because of this narrow perspective, they have no clear picture of how this trust may affect their intention towards using the e-government system. However, when they consider the corruption in terms of the lack of transparency and accountability, citizens most likely will link these two factors with their trust in the government and accordingly influence their decision towards the use of e-government services. This explains why citizens' trust in government has an indirect relationship to their behavioral intention towards adopting the e-government system.

The second hypotheses, H₂, discuss the direct relationship between the trust in the Internet and the behavioral intention. The finding shows that the trust in the Internet has a significant negative influence on citizens' intention to use e-government. The influence of the trust in the Internet on the behavioral intention has been examined in previous research. These studies either confirm the positive relationship between the trust in the Internet and behavioral intention (Carter and Belanger, 2005; Carter, 2008; Weerakkody, 2008) or confirm that there is no relationship between them (Alomari, et al., 2012). Until now, there is no study that confirms the negative relationship between the trust in the Internet and behavioral intention. Contrary

to the prediction, this result confirms the negative relationship between them. Thus, we can say that Saudi citizens do not trust the Internet. In other words, the less is their confidence in the Internet, the greater is their intention to use e-government. This unexpected result cannot be generalized and it could be explained by the recent hack of a famous virus called “Shamoon” (Alarabiya, 2017). This virus attacked the online government websites, including the Ministries of Labor and Social Development and the Ministry of Communication and Information Technology, to penetrate the data and to destroy it electronically. Due to the impact of this virus on government websites, citizens’ confidence on the Internet has been affected. Hence, since the survey of this study was conducted in the same period, we believe this issue significantly affected the responses to the items that are related to the trust in the Internet. Some of the survey participants stated that they cannot trust the internet since the appearance of this virus. In addition, citizens’ lack of trust in the Internet could be explained as the lack of confidence in conducting any transaction with any online service, such as online shopping, and not only government services. Citizens may believe that e-government services are the only reliable services on the Internet to conduct a transaction with. Citizens’ trust in the Internet may be limited to browsing. However, because they trust the government, they are willing to use the Internet, despite their lack of confidence in it, to conduct an online transaction with the government. Hence, we argue that this relationship between citizens’ trust in the Internet and their intention to use e-government services are formed because of the influence of their trust in the government. In other words, the trust in the Internet is better as a mediator than to as a direct predictor of the behavioral intention of the citizen. In this case, the result revealed that the trust in the internet is a better predictor for the citizen's behavioral intention if it was a mediator of the relationship between the trust in the government and the behavioral intention to use the services. The regression analysis supports this argument and shows the existence of this relationship between the trust in government and the trust in the internet with significance level of $p < 0.001$ and coefficient of 0.727 (see Table 4.86). Based on the above evidence that is presented in Table 4.86, the influence of the citizens’ trust in the government on their trust in the Internet is confirmed. Thus, we can say that trust in the Internet can be also a strong mediator of the relationship between the citizens’ trust in the government and their behavioral intention towards using e-government services. This result is also aligned with the literature *Alsaif (2014)*, where it is found that the trust in the government has a positive influence on the trust in the Internet. This illustrates that Saudi citizens have no trust in the Internet and their lack of trust in it causes them to adopt e-government services because they trust the government. Thus, the findings confirm that the trust in the Internet determines the intention to use e-government services and strong mediator of the relationship between the trust in the government and the

intention to use e-government services.

With respect to the influence of trust on the behavioral intention in a mandatory environment, the results show that both trust factors had no effect on citizens' intent to use e-government. This result can be explained by the fact that citizens' trust the government anyway and this does not depend on what the government offering in its online services. Another explanation is that since the use is mandatory in this case, citizens have no full control over their decision. This means that their decision will not be affected by their trust because ultimately they will use the services because they have no choice but to use them. Thus, as suggested by Ajzen (1985) it is better to consider factors such as the perceived behavioral control to predict citizens' intentions if they have no full control over their decision. This factor should become a critical component to understand the adoption of e-government in a mandatory environment. Therefore, for further study, it is better to mediate the relationship between the trustworthiness factors and the behavioral intention with the factor of perceived behavioral control. This will provide a better understanding of e-government adoption in a mandatory environment. This factor has not been added to this study since we are examining both the mandatory adoption and the voluntary adoption.

6.4.2 The Role of Perceived Corruption in E-government

This section discusses the direct relationship between perceived corruption and behavioral intention to use e-government. The findings that will be discussed are related to the following hypothesis and answer the following sub-question:

Sub-question 4: How does the citizens' perception of government corruption affect their intention to use e-government services?

H₄ The citizens' perceptions of corruption (PC) negatively affect their behavioral intention (BI toward using e-government).

Perceived corruption is defined in this study as the perceptions of citizens that the government lacks integrity and accountability to accept the responsibility for its actions, and to disclose the information and decision-making process in a transparent manner. The direct effect of perceived corruption on the behavioral intention (mandatory and voluntary), with the effect of the other factors, is proved to be insignificant in this study, which means H₄ is not supported. Similarly, in the case of the e-government's non-users, the results revealed that citizens' perceptions of corruption have no strong influence on their decision to not adopt e-government. Meanwhile, it proved to be a strong mediator of the relationship

between trust in the government and behavioral intention, as discussed above. Thus, we can say that perceived corruption may play an important indirect role in predicting citizens' behavioral intention, but has no direct role in predicting their behavioral intention to adopt e-government. One possible explanation of this result is that the corruption from the citizens' point of view is linked to what the government is doing in traditional terms, rather than its progress on its online services. Citizens' may think that the traditional government and e-government are two different things. This means that they link corruption to the traditional government. On the other hand, they most likely link e-government to the websites' performance, such as the ease of use the service, and the benefit obtained from these services. Citizens' perceptions of corruption alone are not a sufficient measure of their intention to use e-government. However, if their perceptions of corruption integrated with their trust in the government, their trust and perception of corruption may influence their intentions. For instance, if citizens trust the government, they will believe that the government has sufficient integrity and accountability to accept the responsibility for its action either in the traditional way or the electronic way. Accordingly, this trust and positive perceptions of corruption positively affect their willingness to adopt the e-government and vice versa. In other words, citizens' perception of corruption and their trust in the government are complementary to each other in predicting the citizens' intention to use e-government services. Thus, for further study, it is better to integrate the factor of trust in government with the factor of perceived corruption under the name of "trust in the government". This integration will expand the definition of trust in the government to include points related to the concept of corruption, such as transparency, accountability, and responsibility. This, therefore, will provide a better understanding of the influence of citizens' trust in the government on their behavioral intention to adopt e-government.

6.4.3 The Role of Perceived Usefulness in E-government

The fourth factor examined in this study is perceived usefulness. This section discusses the significant findings related to the following hypothesis

Sub-question 5: How does citizens' perception about the usefulness of e-government services affect their intention to use these services?

H₅ *The citizens' perceptions of the usefulness (PU) positively affect their behavioral intention (BI) to use e-government services.*

Perceived usefulness is one of the most important factors that has been studied in the context of the acceptance of e-government. In this study, citizens' perceptions of e-government usefulness refer to the

advantage of using its services, such as the benefits of saving time and money and increase the efficiency of the interaction with the government. The result of this study shows that perceived usefulness has a significant positive influence on the behavioral intention to use e-government in both a voluntary and a mandatory environment, at significance level of $p < 0.001$ and $p < 0.05$ respectively. These results support H₅. Perceived usefulness seems to be the most significant determinant of citizens' behavioral intention towards using e-government. The strength of this result is not surprising since it has been confirmed in previous studies (Warkentin et al., 2002; Carter and Belanger, 2005; Carter, 2008; AlAwadhi and Morris, 2009).

In terms of the e-government's non-users, the results show that the usefulness of the services is important for the citizens. The non-users of e-government seem to be very positive about the usefulness of e-government services in Saudi Arabia's context; however, they are still not willing to use the services and this may be due to different reasons.

These results mean that citizens were able to compare the online services provided by the government with its traditional way. Citizens were able to recognize the benefits of using e-government, such as saving their time and money. This illustrates that for Saudi citizens, the benefit of e-government services is much more important than other factors such as the ease of using the service and trust factors. Citizens are not willing to use any e-services, even if it is easy to use, unless it is useful. It is likely that citizens are willing to ignore the disadvantages they may encounter while dealing with the e-government in order to gain the benefits they expected from its services and this may explain why perceived usefulness is the strongest determinant at behavioral intention. Thus, despite the impact of other factors in the citizen's decision, their perception of the usefulness of the services has the largest role in their decision to use e-government services.

6.4.4 The Role of Perceived Ease of Use in E-government

This section shows the role of citizens' perception of the ease of use in predicting citizens' intention to use e-government services. The significant findings related to the following hypotheses and sub-question will be discussed.

Sub-question 6: How does citizens' perception of the ease of using e-government services affect their intention to use these services?

H₆ *The citizens' perceptions of the ease of use (PEOU) has a positive influence on their behavioral intention (BI) to use e-government services.*

H₇ *The citizens' perceptions of the ease of use (PEOU) positively affect their perceptions of the usefulness (PU).*

These two hypotheses show the direct and indirect influence of perceived ease of use on the behavioral intention. Hypothesis 6 explains two directions of this relationship that can be divided in the following two hypotheses

H_{6a} *The citizens' perception of the ease of use (PEOU) has a positive direct influence on their behavioral intention (BI) to use e-government services.*

H_{6b} *The citizens' perception of the ease of use (PEOU) has a positive indirect influence on their behavioral intention (BI) to use e-government services as mediated by their perception of the usefulness (PU).*

Citizens' perception of the ease of use in this study refers to the easy use of the website, the easy access to the website, the accessibility to information, flexible services, and sufficient customer support. The study found that perceived ease of use has a significant positive influence on citizens' intention to use e-government in both a voluntary and mandatory environment, at a significance level of $p < 0.05$. These results support H_{6a}. This means that the services' ease of use is a significant driver for the citizens' decision to adopt e-government. This also means that whether adoption is mandatory or voluntary, ease of use is always important from the individual's point of view. Moreover, it revealed that perceived ease of use has a significant positive influence on the perceived usefulness, which supported H₇. These results are not surprising since these relationships have been proposed by Davis et al. (1989) and are also confirmed in many studies (Warkentin et al., 2002; Carter and Belanger, 2005; Carter, 2008; AlAwadhi and Morris, 2009).

As for the e-government non-users, the results reveal that 37.7% of the respondents are not willing to adopt e-government because they believe the services are not ease to use. This shows the importance of the ease of use in creating positive intentions towards the use of a website or e-services in general.

These results illustrate that citizens' perception of the ease of use is required before their perception of the usefulness of the services. Citizens' perception of the online services provided by the government consists of how easy is the access to the websites and how easy is finding information, and how sufficient is the customer support. In other words, if citizens' perceptions of the ease of use of e-government were positive, this positively affects their willingness to use its services continuously.

As the results showed in this study, perceived usefulness is a strong mediator of the relationship between citizens' perception of ease of use and their behavioral intention, which support H_{6b} and H₇. In other words, perceived ease of use is an important predictor of citizens' intention to use e-government services. However, this prediction becomes stronger if mediated by the perceived usefulness. The mediated effect of perceived usefulness is important not only for predicting the behavioral intention to use the services, but for predicting the continuity of the use. This illustrates that for Saudi citizens, their intention to continuously use a service is largely related to the extent of the benefits they were seeking to gain, which makes them return to use the service again. Therefore, we can say that integrating citizens' perception of the ease of use with their perception of the usefulness plays an important role not only in predicting their behavioral intention but to predict their decision to use e-government services continuously.

6.4.1 The Role of Social Influence in E-government

The role of social influence in predicting citizens' intention to use e-government services has been examined in this study. This section discusses the significant findings related to the following hypotheses and answers the following sub-question:

Sub-question 7: How does the social influence affect Citizens' intention to use e-government services?

H₈ *The social influence (SCI, SID) affects the citizens' behavioral intentions (BI) to use e-government services.*

H₉ *The social influence (SCI, SID) affects the citizens' trust in the government (TOG).*

H₁₀ *The social influence (SCI, SID) affects the citizens' perception of the usefulness (PU) of the e-government services.*

The study discusses the direct and indirect relationships between the social influence and citizens' intention to use e-government services. Hypothesis 8 can be further divided into three hypotheses that explain three directions of this relationship as follows:

H_{8a} *The social influence (SCI, SID) has a positive direct effect on the citizens' behavioral intentions (BI) to use e-government services.*

H_{8b} *The social influence (SCI, SID) has a positive indirect effect on the citizens' behavioral intentions (BI) as mediated by their perception of the usefulness.*

H_{8c} The social influence (SCI, SID) has a positive indirect effect on the citizens' behavioral intentions (BI) as mediated by their trust in the government (TOG) and their perception of the corruption (PC).

The social influence in this study refers to the degree to which other people's beliefs will affect someone to use e-government. The findings related to social influence will be discussed from two aspects. The first aspect is the influence of the social circle, such as family, friends, and other important people, on the individual's decision to adopt e-government. The second aspect is the influence of these people on the decision of whether to trust the government or not and to believe that the system is useful or not. Conversely, the results show that social influence from both aspects has an insignificant effect on the behavioral intention to use e-government if the use was voluntary. Similarly, the results of the e-government's non-users analysis show that social influence has no effect on their decision to not use e-government. These results mean that H_{8a} is not supported. Previous studies show that social influence has a direct effect on the behavioral intention to use e-government (Al Awadhi and Morris, 2008; Al-Shafi and Weerakkody, 2009; Sahari et al., 2012). However, the results of our study agree with Hussein et al. (2010) who investigated the effect of social norms on an online tax-filing service and found that it has no influence on the intention to use the online tax-filing services. Alshehri et al. (2012) and Al-Sobhi et al., (2011) also found an insignificant correlation between social influence and the intention to use e-government.

The finding of this study can be explained by the nature of the participants. The majority of the participants are from the age group 20-29 and 30-39 with a high level of education. Highly educated people over than 20 years old are usually willing to make their own decisions without being influenced by others' opinions.

Another explanation that can be taken into account is that the Saudi citizens are in fact deeply influenced by the social circle because of the cultural influence. The Saudi society is a conservative society and is strongly influenced by the tribal system and religious adherence, which means that Saudis influence and follow each other. In other words, the influence of the society goes beyond the influence on the decision into taking the decision itself. For example, the family has a major role in an individual's decision-making. An individual's decision depends on the unanimous decision of the family. However, the respondents in this study said that their decisions are not influenced by their social circle. Thus, we believe that this social pressure may have negatively influenced the participants' responses to the questions that asked about the influence of the social circle on their decisions, as suggested by Cialdini et al.(1991) that the an individual's behavior or beliefs change based on the real or imagined group pressure. Especially that the majority of the

respondents were over than the age of 20, which means they are, or they believe that they are, able to take their own decisions.

Further explanation for this result is that social influence has no influence on the behavioral intention to use e-government within a voluntary environment. Venkatesh et al. (2003) found in his study on the acceptance of users of IT that social influence has an insignificant relationship with the adoption of technology if the adoption was voluntary. The results of this study support this argument, since social influence proved to be insignificant if the use was voluntary, but significant if the use was mandatory.

In addition, the finding of this study shows that the social influence has a significant effect on citizens' behavioral intention to use e-government if the use was mandatory. In particular, the first aspect, which is the influence of the social circle, proved to be significant, while the second aspect, the influence of social circle in the decision, proved to be insignificant in this study. These results show that the social circle's influence plays an important role in predicting citizens' behavioral intention to use e-government within a mandatory environment. This finding also supports Venkatesh et al. (2003) argument that the voluntary use has an insignificant relationship with the intention to use e-government. This is because in this study the relationship between the social influence and the behavioral intention is confirmed to be insignificant within a voluntary environment, but significant within a mandatory environment. This finding is consistent with the literature Al-Khowaiter et al. (2015), where it found that social influence has both a direct and indirect effects of encouraging the mandatory use of a Human Resource Information System (HRIS) in Saudi ministries.

Moreover, the results show that the social influence has a significant indirect effect on citizens' behavioral intention if mediated by their perception of the usefulness. In other words, both social circle's influence and the social influence on decision have a positive significant indirect effect on citizens' behavioral intention if mediated by their perception of the usefulness. This means that there is a positive correlation between perceived usefulness and social influence, which support H_{8b} and H_{10} . Furthermore, there is a significant indirect effect of social influence on citizens' intention as mediated by their trust in the government and their perception of the corruption, which support H_{8c} and H_9 . These results mean that the social influence has a stronger role in influencing individuals' perceptions or beliefs than influencing their decision. It is clear that the Saudi citizens are more likely to be influenced by other people's opinions about the government and its services and this may encourage them to adopt the services. If the citizens believe that the e-government services are useful, they most likely will influence the people in their social circle

about the usefulness of the services, and therefore these people will create positive perceptions of the benefits they will gain from using the services, which convince them to adopt these services. Similarly, the citizens' confidence in the government and the transparency of its performance may influence their social circle to trust the government and accordingly create a positive perception of its transparency and, therefore, influence their decision to adopt e-government services. Furthermore, the social influence has a significant effect on citizens' perception of corruption. This relationship was discovered in the analysis. This result means that the social influence has a strong effect on the way that people see the performance of the government. If the citizens perceived the government corrupted based on the influence of their social circle, then citizens will most likely not decide to adopt e-government services and vice versa. Thus, we conclude that the social influence has no direct role in predicting the citizens' decision to adopt e-government services or not. However, it has a significant role in changing their perceptions from negative to positive, or the opposite, and, therefore, increases the possibility of their adoption, or continues use, of the e-government services. For further study, it is better to study the factor of social influence as an indirect factor because it seems not to affect an individual's intentions directly, but affects other factors that, in turn, influence the intentions. It is also important to extend the meaning of the social influence by adding the influence of social media because of its significant role in influencing people's decisions.

6.5 Citizens' Adoption of E-government

The study employed multiple regression analysis and mediation analysis techniques to evaluate the proposed model. The proposed model included six independent variables, five moderated variables, and one dependent variable. The study shows that the validated model explains about 61% of the variance of the behavioral intention to adopt e-government from the citizens' perspective. The proposed model seems to have a reasonable predictive power, which is comparable with previous findings in the literature. The study shows that the key factors in the model have a significant impact on citizens' behavioral intention to use e-government in Saudi Arabia. In particular, perceived usefulness, perceived ease of use, and trust in the internet have a significant direct impact on citizens' intention. Furthermore, both the trust in the government and the social influence have an indirect impact on citizens' intention to use e-government in Saudi Arabia if the use was voluntary. Education level is the only moderator variable that has a strong impact on the strength of the relationships between the key factors and the behavioral intention. Among these factors, perceived usefulness proved to have the strongest impact on citizens' intention. The social influence proved to be a strong determinant of perceived usefulness, perceived ease of use, trust in the

government, and perceived corruption. Perceived corruption proved to have a stronger impact as a mediator of the relationship between citizens' trust in the government and their intention and between the social influence and citizens' intention.

The findings of testing the determinants of the citizens' decisions to not use e-government show that the ease of use has a significant impact on their decision to not use the services. While the other factors proved to have no significant impact on the decision to not use the services.

In terms of the predictors of the social influence, the study suggests that it is generally formed by three predictors' family members, friends, and social circle in general term. However, the first two predictors were dropped from the proposed model because of the model fit during the factor analysis. The finding of evaluating the social influence reveals that social influence plays a greater role in influencing the citizen's intention indirectly than what it plays in the direct form. The social influence does not affect citizens' intention or decision directly, but affects the process of creating these intentions, which contains their perceptions in general term.

With respect to the trust factors, the finding of evaluating the trust in the government reveals that it has a significant indirect effect on citizens' intention to use e-government. Citizens with more trust in the government are more likely to have positive perceptions toward its level of corruption, and therefore they will be more willing to trust the Internet to conduct an online transaction with the government. Moreover, the trust in the government proved to be a strong mediator of the relationship between social influence and citizens' behavioral intention. As for the trust in the Internet, the findings show that it has a significant negative impact on citizens' behavioral intention to use e-government.

Lastly, with respect to the mandatory use of e-government, the study shows that perceived usefulness, perceived ease of use, and the social circle's influence have a significant direct impact on citizens' intention to use e-government in Saudi Arabia if the use was mandatory. The moderator variables of age, gender, hometown, education level, and occupation have a significant impact on the relationship between the factors and the intention to use e-government. The influence of the social circle and the age of the citizens have the strongest impact on their behavioral intention to use e-government in a mandatory environment. Moreover, the social influence is the only factor that has an indirect impact on citizens' behavioral intention if mediated by their trust in the government and their perception of corruption, if the use of e-government was mandatory.

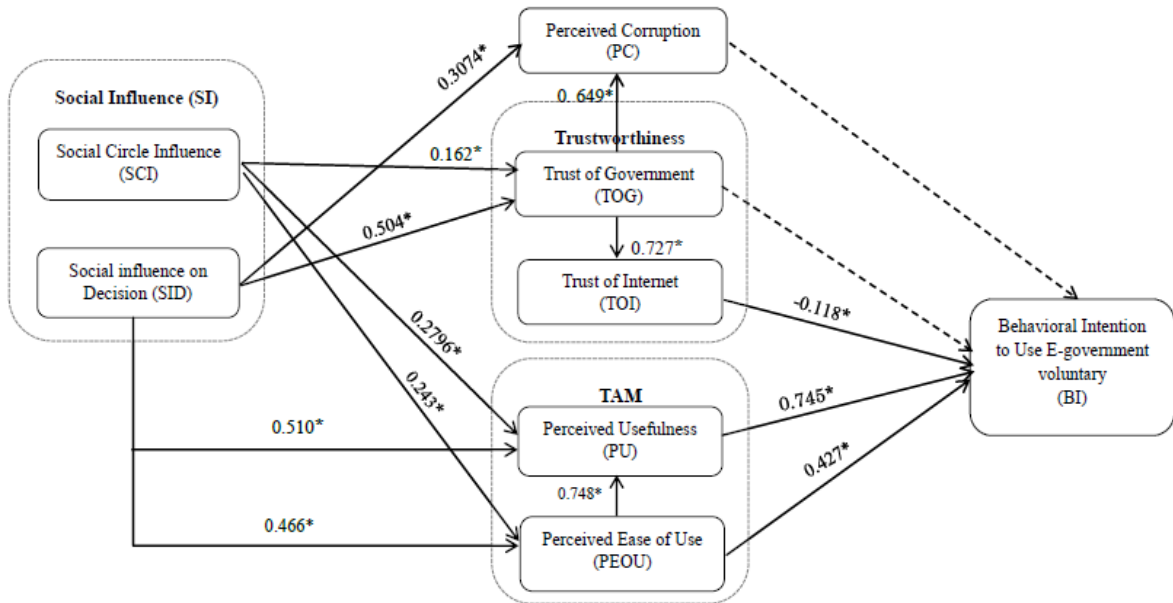
In summary, it can be concluded that the key aspects of citizens' adoption of e-government are five predictors, which are perceived ease of use, usefulness, social influence, the trust in the government, and the trust in the Internet. These predictors either predict citizens' behavioral intention directly or indirectly.

6.6 The Empirical Model for E-government Adoption

Based on the identified and presented results in chapter 4 and 5, the empirical model of this study is presented. This model takes into account the empirical results of the relationships that have been proposed initially in this study as well as the newly discovered relationships during the analysis, which were discussed in the previous two chapters. In this model the moderating variables was eliminated because they proved to have no influence on the other factors, except the education level, Also their effect on the indirect relationships is not tested in this study. The following figure illustrates the empirical model of the e-government adoption in a voluntary environment.

The empirical model illustrates the indirect relationship between the social influence factors (the social circle influence and the social influence on the decision) and the intention to use e-government if these relationships were mediated by one or two of the following factors: perceived corruption, the trust in the government, perceived ease of use, and perceived usefulness. The model also illustrates the direct relationship between perceived ease of use and the intention to use e-government, as well as the indirect relationship between them if this relationship was mediated by perceived usefulness. The direct influence of the factors of trust in the Internet and perceived usefulness on the intention to use e-government and their influence on other relationships are presented in this model. The correlation coefficients between the variables are presented in Figure 6.1, excluding the coefficient between perceived corruption and the behavioral intention and between the trust in the government and the behavioral intention. This is because during the regression analysis the results revealed that there is no direct influence of these factors. However, from the PROCESS analysis, the direct relationship has emerged as preceded by another factor. In addition, the value of the coefficient changes according to the variable that precedes each of these factors. For example, if the trust in the government mediated the relationship between the social circle influence and the behavioral intention, the coefficient will be 0.4002. On the other hand, if it mediated the relationship between the social influence on the decision and behavioral intention, the coefficient will be 0.3073. Thus, there is no fixed value of the coefficient that can explain the relationship between perceived corruption or the trust in the government and the behavioral intention for the overall empirical model.

Figure 6.5: The Empirical Model for E-government Adoption



6.7 Citizens' Adoption of E-government: Guidelines for the Government

By combining the findings from the survey of both users and non-users, guidelines for government to foster citizens to use e-government services can be proposed. The proposed guidelines below are based on the main six factors that were presented earlier in this study.

- Perceived usefulness:** perceived usefulness is identified as the most influential factors on citizens' behavioral intention to use e-government. It is important that the government re-evaluate its services in terms of the benefit that citizens can receive. The government should ensure that its websites provide beneficial services to citizens that are competitive to the traditional way of providing the same services. This can be achieved through providing services that can be handled in a short amount of time without any cost and the most important to bear in mind is the citizens' perceptions about the efforts they may make in order to obtain services. Moreover, the mandatory use of some services may be the key of e-government diffusion. If the mandatory services were valuable for citizens, this will create positive perceptions towards e-government services in general and, thus, extend the scope of use to include the voluntary services. To achieve that, the government should make efforts to increase the citizens' awareness of the usefulness of the e-government. This may be done by conducting campaigns that introduce the e-government initiative and its key services on a wider scale and explains its benefits and the difference between it and the traditional way. Another way of

increasing the citizens' awareness is that providing an educational chance for citizens, such as improving the ICT education.

- **Perceived ease of use:** perceived ease of use is identified as an important and influential factor for users and non-users. As mentioned earlier, Saudi citizens are Internet heavy users and the rate of using is growing every year. This means that they are experts in dealing with websites, whether to browse or to conduct a transaction, and they can distinguish whether the service is easy to use or not. However, despite their internet experience, they prefer to deal with effortless services. Therefore, it is important for the government to make an effort to keep pace with modern technology and build a good image of its services in terms of the ease of use. As mentioned above, this can be done through a campaign that explains how citizens' friendly are the services. Moreover, the government should take into consideration that the Saudi society is a society that prefers image expressions rather than the written ones. This reflects the ease of use from their perspective. Thus, the government should match their perception by designing a professional websites that attract citizens to use, considering maintain the quality of the services, the security, and the accessibility. Moreover, the government should make more efforts in providing the necessary technical support when needed. This is through providing trained staff capable of providing the best support for the citizens 24 hours in case they face any technical trouble.
- **Trustworthiness and perceived corruption:** the trust in the internet is an important predictor of the adoption of the e-government services, while the trust in the government is an important indirect factor for the adoption. It is important for the government to make more efforts to increase citizens' trust in it. The government should explain to the citizens that e-government is linked to what the government seeks to achieve. In other words, the government should also clarify its goals and vision in terms of e-government. It also should clarify to the citizens the importance of e-government services to what the government is trying to reach in order to facilitate the lives of citizens and to improve the economy of the country. This makes the citizen participate in reaching these goals, which increase their trust in the government. It is important for the government to gain the citizens' trust in e-government. This can be done by improving the security of websites and proving its capability to protect citizens' privacy electronically. In order to deepen the citizens' trust in the government, it is important for the government to increase its efforts to show the citizens the transparency of its electronic transactions and decisions. This is through providing guidelines of the rules, the regulations, the method of decision-making, as well as the process that the electronic

transaction goes through until it is done. Moreover, provides consulting services would also help creating public relationships between the government and citizens and will make citizens aware of what the government is doing. Government also should improve its communication with the citizens by providing live chat services. This, therefore, will strengthen their trust in the government.

- **Social influence:** the social influence is an important indirect predictor of the adoption of e-government. Therefore, it is important for the government to make a greater effort to highlight the importance of the e-government and to highlight the advantages of using it. These efforts can be directed towards increasing the citizen's trust in the government and creating positive perceptions about the usefulness and ease of using the services. Despite that this study ignored the role of social media in the social influence; social media may be an important influential on the citizens' decision since it can reach a larger number of citizens. Therefore, the government should use the social media as a way for its campaign to provide a better understanding of e-government, what services it offers, and the advantages of using its services for the citizens. It is also important for government to conduct advertising research to deepen its understanding of citizens needs so it can design the perfect campaign. Moreover, the government should provide an online review of its service where citizens can share their opinion about the services. This could strongly influence the citizens' decision and, therefore, increase the use of e-government services, as suggested by Mo et al., (2015), the online review has a strong influence on the individual's behavior, especially if the review was a positive one.

6.8 Research Contributions and Implications

The findings of this study contribute to the understanding of the influencing factors on the adoption of e-government from Saudi citizens' perspective. This research constitutes a ground that contributes to e-government research and practice. The implications arising from this study are presented below.

6.8.1 Theoretical Implications

The study has provided insights into the factors that influence the adoption of e-government in Saudi Arabia from the citizens' perspective. The theoretical implications of this study are as follows:

- This study proposed a new model explaining the adoption of e-government. The adoption of e-government has been widely studied and several strong models, such as TRA, TPB, DOI, and TAM, have been used to determine the main influences on an individual's behavior. The proposed model in this study is based on these previous models. The factors studied in the research model have been determined comprehensively in previous literature, which showed that there is a lack of consideration for the dimensions that shape each factor. This study, unlike previous studies, redefined the dimensions and expanded the meaning of each factor to be broader and comprehensive in explaining the factors.
- The model in this study examined two aspects the usage environments which are the mandatory and voluntary environment. This study examines the factors that affect the behavioral intention considering both environments. Most of the previous research has not clarified their focus on any particular aspect. In this study, the same model is tested in both environments to determine the difference in the factors that affect the behavioral intention. It is the first study to draw attention to examine both the mandatory and the voluntary, which can fill the gap that previous literature have not considered.
- The proposed model examined the influences on behavioral intention to use e-government in several respects, such as the intention for the initial use and the intention to continually use. The main outcome of the comprehensive review of the literature showed a lack of consideration of the continued use of e-government. This study is one of the very few studies to discuss this aspect in the context of e-government.

- The study provides evidence for the significant role of the key factors on citizens' intention to adopt e-government. This study examined both the e-government users and non-users. As there is no research dedicated to exploring the factors that influence the citizens' decision to not use e-government, this study addressed a gap in the knowledge. This study is the only known research study that has considered the non-users to provide a better understanding of the influences on their intentions.
- The proposed model can be a reference for future studies and can be tested in other contexts, considering several minor modifications in the model. This model can also be tested in the government context. For example, it can be studied on the government employees specifically to know these factors, social influence, trust, corruption, ease of use, and usefulness, affect their acceptance of e-government, taking into account that the application of e-government is mandatory. Moreover, this model can be applied in the context of organization to examine the employees' acceptance of the new adopted technology.
- The results of this research contribute to helping policy makers and governments to implement e-government services tailored to the requirements of citizens, reflecting the personal characteristics of users, and encouraging high levels of adoption, which more likely to lead to successful implementation of the e-government program.
- The proposed model was studied on the developing country of Saudi Arabia. The finding of this study expected to add value to existing literature by using the research model to identify the e-government adoption in developing countries that have similar characteristic to Saudi Arabia.
- This study constitutes an addition to the literature and contributes to identifying research gaps in the e-government adoption field and may set an example for other developing countries.

6.8.2 Practical Implications

In spite of Saudi Arabia's efforts to implement e-government and expand its success in line with its vision of 2030, the use of e-government is still low. There is still a need to expand the research on the key factors affecting the citizens' adoption of e-government not only in the context of Saudi Arabia but in general. Further study of these factors is very important to the success of an e-government initiative. This is because the impact of these factors is not constant. The government should always be prepared to improve its performance based on the factors that influence the citizen' decision. This study attempted to determine the

most important factors affecting adoption in Saudi Arabia. The results of the study have several significant implications that may assist the Saudi government by providing guidelines to expand its understanding of the influence of different factors in the decision of the Saudi citizens to use e-government.

This study confirmed that the factors that are not related directly to the performance of the e-government, such as the trust in the government and social influence, have an indirect relationship with the behavioral intention to use e-government. In contrast, the factors that are related to its performance, the factors that include the assessment of the individual, such as the ease of use, the usefulness and the trust in the internet, have a direct relationship with the intention to use e-government. These results are the first of their kind and, thus, will be a foundation for understanding the difference between the factors that directly affect the behavioral intention and those that have indirect effects on the behavioral intention. These results open the doors for further studies on the effects on intention into sensory and non-sensory effects on behavioral intention to adopt an e-service.

The results of this study help the government in imposing ways to help citizens understand the e-government and encourage them to use it. This study found that both the perceived ease of use and perceived usefulness are very important in citizen decision. These two factors were proposed by Davis et al. (1989) in the TAM and then validated in many literature (Warkentin et al., 2002; Carter and Belanger, 2005; Carter, 2008). The results of the current study are consistent with these studies. Therefore, the Saudi Arabian government can take advantage of these results to improve the e-government performance and thus enhance the citizens' adoption.

These results also contribute to helping the government to re-evaluate the resource needed for the successful adoption and the performance of the e-government., which accordingly contributes to restructuring the administrative structure of e-government. This can be done by launching an executive program applied initially to the government employees, aiming to expand their understanding and perception of e-services. The implementation of a suitable training program for government officials is very important because that the willingness of citizens to adopt e-government indicates the success of the internal implementation of e-government among its employees.

This result of the current study shows that trust in government has a significant effect on the trust in the Internet. This result has been revealed in only one study by Alsaif (2014). This result means that the trust in the government plays an indirect role in influencing the intentions of the citizens. In addition, the citizens' trust in the Internet depends on their trust in the government. This rare result enriches the literature content

and opens doors for further research on this relationship in future studies. Therefore, the government can take advantage of this result and focus on building trust with the citizens and encouraging them to use e-government.

This study found that social influence affects many factors, such as the trust in the government, the perceived corruption, perceived ease of use, and perceived usefulness. This result is different from most previous studies that show the direct effect of social influence on the behavioral intention. Our study shows that the social influence is stronger in influencing the behavioral intention indirectly. This finding means that factors related to citizens' perceptions or related to the performance of e-government and the quality of its service are heavily influenced by social influence. The government can use this result to enhance the positive social influence because it will contribute to enhancing the positive perceptions of the citizens and encourages them to adopt e-government, which contributes to the diffusion of e-government.

The results of this study reflect the conservative Saudi society in gender segregation in normal life. This extended to giving wider powers of accessibility to carry out e-government transactions to males more than females. This explains the decrease in the number of female users in this study. The government can use this result to restructure the way of providing the services. Therefore, the Saudi Arabian government must raise awareness among female citizens about the available services, and most importantly, provide equal accessibility to all services for both male and female. This will encourage more citizens to adopt e-government.

The results of the study showed that there is a difference between the factors that affect the behavioral intention of the mandatory adoption and the voluntary adoption. The social influence found to be the only factor affecting the citizens' behavioral intention in the case of the mandatory use of the e-government, while the results explain broader details in the case of voluntary use. These results mean that there is a need to expand the study of the mandatory use of e-government in future studies. Moreover, these results can help the government to understand how to influence its employees when implementing new mandatory services to perform the job. It also helps the government to distinguish between the factors that influence its employees' adoption and the citizens' adoption if the services were mandatory. Providing a suitable environment for the mandatory adoption is important for encouraging more citizens' to use its online services.

6.9 Conclusion

The purpose of this study was to explore the key factors that influence the citizens' intention to adopt e-government services in Saudi Arabia. This study provided a conceptual model and an empirical analysis to test the model in the context of Saudi Arabia. The conceptual model was formed based on the literature and theoretical models. These models are the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and the perceived trustworthiness factors which were adopted from Carter and Belanger's (2005) study. The factors of perceived ease of use (PEOU) and perceived usefulness (PU) were adopted from the TAM; trust in the government (TOG) and trust in the Internet (TOI) were adopted from Carter and Belanger's (2005) acceptance model; the social influence was adopted from UTAUT. A new factor that was introduced to the conceptual model is the level of perceived corruption. The model was moderated by the effect of five control variables. The control variables are age, gender, hometown, education level, and occupation. The model showed the direct and the indirect influence of these factors on the citizens' behavioral intention (BI). The data was then collected from the Saudi citizens to examine their intentions to use e-government services. The behavioral intention to use e-government in this study carried out two aspects, which are the behavioral intention to use e-government in a mandatory environment and in a voluntary environment. However, the main focus of the analysis was based on the voluntary use of e-government.

This study applied multiple approaches to the research methodology, which incorporated both quantitative and qualitative approaches. The qualitative approach was applied first to identify the knowledge gaps and to develop the conceptual model. Then, a quantitative approach was applied to test the conceptual model and hypotheses empirically in order to produce a final empirical model that shows the interrelationship among the constructs.

For the quantitative approach, a survey questionnaire was developed to measure the constructs. Before the survey distribution, a pilot survey was conducted on a sample size of 9 participants. Then, the survey was distributed online using Google Forms. The survey garnered responses from 349 Saudi citizens. Several statistical techniques were conducted to analyze the quantitative data set for the users of e-government services (227 of the respondents), such as a demographic analysis, reliability analysis, exploratory factor analysis, regression analysis, and mediation analysis. The analyses were carried out using SPSS (version 24) program and PROCESS macro tool (version 2.16) in SPSS. As for the e-government's non-users, only a descriptive analysis was conducted to understand the influences on their decision to not use the services.

The results of the survey indicated that the trust in the internet, the perceived ease of use, and the perceived usefulness are direct determinants on the citizens' decision to use e-government services; meanwhile, the trust in the government and the social influence are indirect determinants on the citizens' decision to use e-government when the use was voluntary. The results showed that the perceived corruption variable has a strong influence on other relationships, such as the relationship between the social influence and the behavioral intention as well as the relationship between the trust in the government and the behavioral intention. Moreover, the study found that the citizens' trust in the government influences their trust in the Internet; meanwhile, their perceptions of the ease of using the services influence their perceptions of the service's usefulness. In addition, the social influence has a strong effect on most of the constructs, PEOU, PU, PC, and TOG, but does not affect directly the citizens' behavioral intention. Finally, the results of the empirical model showed that the factors that are related to the performance of the e-government have a direct impact on the citizens' decision, while the factors that are not related to the e-government's performance, but rather to the citizens' perceptions, have an indirect impact on their decision to adopt e-government services when the adoption was voluntary.

Furthermore, the results showed that the social influence variable is the only determinant, beside the control variables (age, gender, education, occupation, and hometown), when citizens decide to use e-government in a mandatory environment. The social influence affects the citizens' behavioral intention directly and indirectly when the adoption of e-government is mandatory, while the other factors have no influence on their intentions to adopt e-government. As for the descriptive analysis of the e-government's non-users, the results indicated that the perceived ease of use is the most influential factor on the citizens' decision to not use the services.

In conclusion, the citizens' successful adoption of e-government in a country such as Saudi Arabia depends on their expectation of the services that are provided by the government as well as the government's efforts to improve e-government services. Therefore, the results of this study could be of utmost importance for decision makers in the government to reach more citizens. Despite the Saudi Arabian government's efforts in the recent years to develop an IT-based economy, in line with the Saudi's vision of 2030 (Saudi Vision 2030, 2016), it is still important for the government to make more efforts to understand the citizens' needs, as these needs drive the improvement of the technology. As mentioned earlier in chapter 2, the Saudi Arabian government has developed two strategic plans to implement e-government. The first plan focused on laying the foundation for the technological side of e-government and the second plan focused on improving the efficiency of the services and the interaction with citizens. In continuation of the two previous

strategic plans, the government should focus more on the citizens rather than the technology. It is important that the government initiates a new plan, starting from 2018, that aims to attract the citizens and expand the adoption of e-government services. This can be achieved by providing the appropriate services that are beneficial and are aligned with the citizens' needs and expectations. It is also important for the services provided by the government via websites, or mobile phone applications, to be protected, easy to use, efficient, and providing an appropriate supported. The government should also carry out advertising campaigns through social media to educate citizens about the services, their advantages, and the benefit of using them. Taking into account the suggestions presented in this study will help the government to draw up an appropriate business strategy that improves the citizen's perception of its online services, and enhances their trust in the government, which, in turn, will increase their intention to use e-government. Thus, governments, in general, should make more efforts to have usable and interactive services. If the citizens' fundamental priorities can be adequately addressed, the adoption of e-government services is likely to increase in Saudi Arabia.

6.10 Research Limitations

In this study, every effort has been made in an attempt to develop a complete research model that provides a better understanding of the influencing factors on the adoption of e-government services in Saudi Arabia. Reliability and the validity measurements and several statistical techniques were used to determine the robustness of the model. However, some limitations were identified in this study like any other research study. The possible limitations of this study are highlighted below:

- There was a gender-imbalance in the total sample of this study, as the number of female participants in the survey was greater than male participants. This may affect the reliability of the results of this study and affect the generalization of the results.
- The questionnaire was distributed online, which means that the sample population was limited to the internet users who may be influenced by different factors than the citizens that do not use the Internet. This also may affect the generalization of the results of this study. Although the sample of this study represents 73.8% of the Saudi population who use the Internet according to the Internet World Stats (2017), it is still important to understand the behavior of the non-Internet users. Therefore, it is important in future research to take into consideration the distribution of the questionnaire in the traditional method, traditional paper questionnaire, especially among the sample who does not use the

Internet, which consists of 26.2% based on the Internet World Stats (2017).

- Even though this study examines the behavioral intention among the e-government users and the non-users, the conceptual model was tested only on the users of e-government, but not on non-users. Therefore, this study was unable to provide a reliable measurement of the negative influence of the factors on the citizens' decision adequately. Studying the citizens' behavioral intention to not use e-government in a broader way is important to form a clearer picture of the factors that contribute to the successful diffusion of e-government.
- Another limitation is that the same conceptual model of this study was tested on the citizens' behavioral intention to use e-government in both a mandatory environment and in a voluntary environment. However, the factors affecting the voluntary adoption may be different than those that affect the mandatory adoption and this study was unable to consider the difference between them. The conceptual model was initially designed based on the factors that influence the voluntary use of the e-government, but has been applied to the mandatory use of it as well. Thus, it is important to focus on studying the mandatory adoption of e-government in further studies.
- The empirical analysis of this study examined the effect of the social influence based on the effect of the social circle. This study was unable to test appropriately the influence of family members, friends, and social media, as a scale of social influence, on the citizens' intention to use e-government. Further research may be needed to test the influence of these three factors to provide a better understanding of the citizens' behavioral intention to adopt e-government.

6.11 Future Research

The limitations of this study lead to the importance of expanding the scope to further research in order to expand the understanding and the knowledge about e-government adoption and diffusion. Thus, further research pathways need to be considered, including the following areas:

- The conceptual model of this study can be tested in other contexts, which enhances the validity and the robustness of the model. For example, the model can be applied to other developing countries. The model can be tested on an organization, such as the adoption of new information system in an organization among the employees.
- The same model can be applied to study the Saudi society, taking into account additional factors, such as factors related to the cultural influence, which is influential in a collectivist culture such as Saudi culture.
- The model can be studied in the context of Saudi females, as the ability to access some e-government services is limited as mentioned previously; however, as the position of Saudi women starts to change in line with the Vision 2030, and women will have a larger role under this initiative. The model of behavioral intention to adopt needs to take this into consideration. Thus, it will become more important to understand the adoption of e-government by women in Saudi Arabia, since it plays an important role in the success of e-government diffusion in Saudi Arabia.
- The model of this study can be used to examine a particular service in Saudi Arabia. For example, the service Abshir, to determine the difference between the citizens' intentions to use e-government services in general and their intention towards using this particular service.
- In future studies, it is important to broaden the definition of the trust in the government. This can be done by integrating the definition of the perceived corruption and the definition of the trust in the government under a single definition that includes both aspects.
- The model of this study can be tested further within an organization, taking into account the addition of other factors such as employees' training.

In conclusion, the results of this study lead us to an interesting further research question that has not been adequately studied in the previous literature. This question may open the door for further important research:

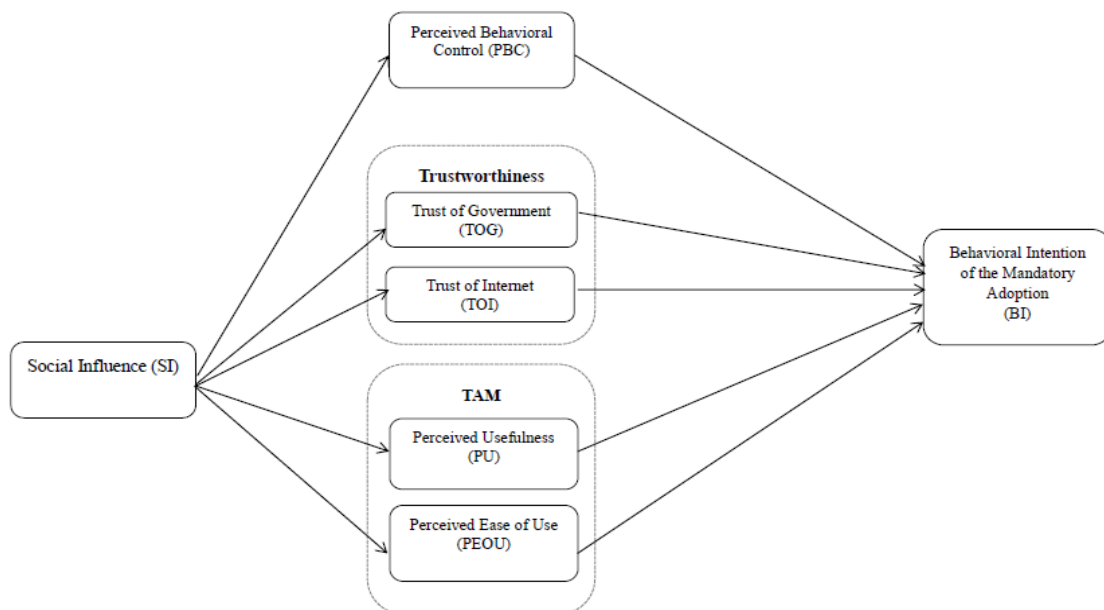
What are the key factors that affect the adoption of e-government in a mandatory environment?

For further research into this question, we propose two models in the hope that they will be studied in the future.

Model 1: The adoption of e-government services by the citizens in a mandatory environment.

The first model can be studied in the context of citizens’ adoption of e-government or the adoption of new technology in general. The factor of Perceived Behavioral Control (PBC) was proposed in this model for future studies. This factor was adopted from the Theory of Planned Behavior (TPB) by Ajzen (1985). This factor becomes a critical component in predicting the citizens’ intention to adopt e-government services, especially in a mandatory environment when the citizens have no full control of their behavior. In this revised model the trust in the government and the perceived corruption will be combined in one factor. The social influence definition will be revised to refer to the social circle, family member, friends, college, and social media.

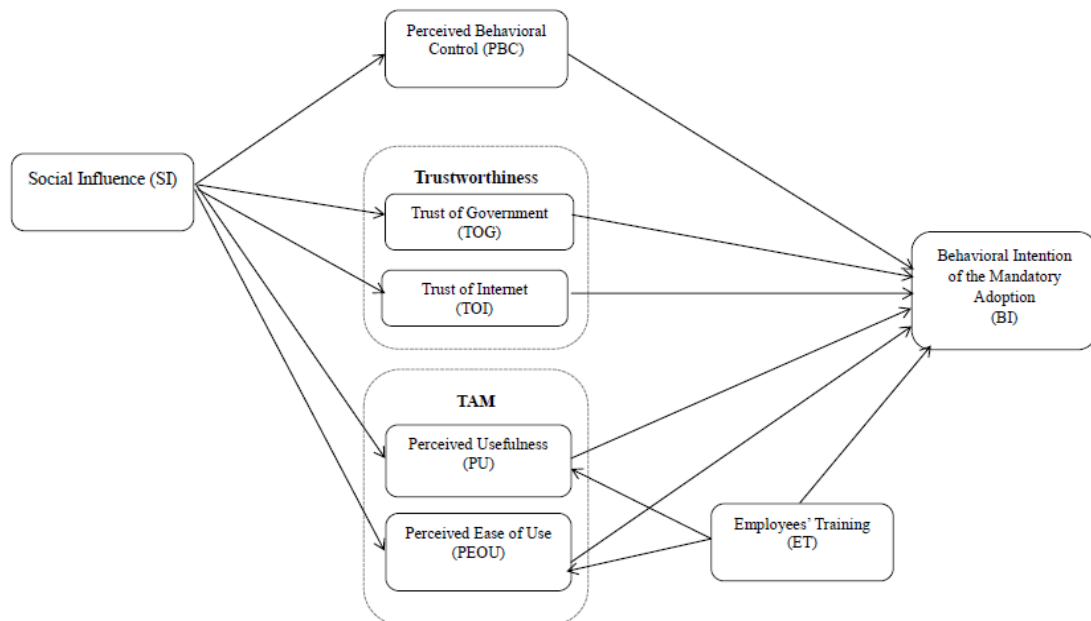
Figure 6.6: A Conceptual Model of Citizens’ Adoption of E-government Services in a Mandatory environment



Model 2: The adoption of e-government services by governmental employees in a mandatory environment.

The second model can be studied in the context of employees' adoption of e-government. In this model two additional factors were proposed. These factors are the perceived behavioral control and the employees' training. The factor of employees' training was proposed in this model due to the fact that training can positively affect the attitudes of employees toward adopting new technology in general. This model can be studied in the context of the adoption of new technology within an organization in general, not only on the e-government's adoption context. In this model, the social influence refers to the social circle and colleagues.

Figure 6.7: A Conceptual Model of Employees' Adoption of E-government Services in a Mandatory environment



This study has attempted to fill the gap in knowledge for e-government adoption by the citizens' in within Saudi Arabia. In future work, it is recommended to expand the scope of the conceptual model of this study to other countries. Furthermore, the newly proposed models are suggested to be studied in Saudi Arabia, or other countries that share similar characteristics. This research has responded to the gap in knowledge by focusing on the citizen's behavior, therefore, we suggest testing Model 2 in future work since the internal adoption, within organizations, was not considered by many researchers.

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Appendix A

The analysis of the indirect relationships between the independent variables and BI4 using PROCESS Analysis in SPSS

a. The indirect relationship between PEOU and BI4 as mediated by PU

Model = 4

Y = BI4

X = PEOU

M = PU

Sample size 227

Outcome: PU

Model Summary

R	R-sq	MSE	F	df1	df2	p
.7501	.5627	.4393	289.4624	1.0000	225.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	.0000	.0440	.0000	1.0000	-.0867	.0867
PEOU	.7501	.0441	17.0136	.0000	.6632	.8370

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.1082	.0117	1.8303	1.3269	2.0000	224.0000	.2674

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8106	.0898	31.2998	.0000	2.6336	2.9875
PU	-.1835	.1361	-1.3486	.1788	-.4517	.0847
PEOU	.2199	.1361	1.6159	.1075	-.0483	.4881

***** TOTAL EFFECT MODEL *****

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0607	.0037	1.8370	.8322	1.0000	225.0000	.3626

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8106	.0900	31.2430	.0000	2.6333	2.9878
PEOU	.0822	.0902	.9123	.3626	-.0954	.2599

***** INDIRECT EFFECTS *****

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
PU	-.1377	.1025	-.3335	.0690

b. The indirect relationship between SCI and BI4 as mediated by TOG

PROCESS Analysis in SPSS

Model = 4

Y = BI4

X = SCI

M = TOG

Sample size 227

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.1623	.0263	.9780	6.0321	1.0000	225.0000	.0148

Model

	coeff	se	t	p	LLCI	ULCI
Constant	.0003	.0659	.0039	.9969	-.1297	.1302
SCI	.1619	.0659	2.4560	.0148	.0320	.2919

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2407	.0579	1.7399	6.8260	2.0000	223.000	.0013

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.8005	.0879	31.8474	.0000	2.6272	2.9738
TOG	-.0313	.0893	-.3500	.7266	-.2073	.1448
SCI	.3285	.0891	3.6863	.0003	.1529	.5041

***** TOTAL EFFECT MODEL *****

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2396	.0574	1.7330	13.5829	1.0000	223.0000	.0003

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.8005	.0878	31.9101	.0000	2.6276	2.9735
SCI	.3235	.0878	3.6855	.0003	.1505	.4964

***** INDIRECT EFFECTS *****

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOG	-.0051	.0179	-.0487	.0246

c. The indirect relationship between SCI and BI4 as mediated by PU

PROCESS Analysis in SPSS

Model = 4

Y = BI4

X = SCI

M = PU

Sample size 227

Outcome: PU

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.2791	.0779	.9262	19.0023	1.0000	225.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	.0000	.0639	.0000	1.0000	-.1259	.1259
SCI	.2791	.0640	4.3592	.0000	.1529	.4052

Outcome: BI4

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.2580	.0666	1.7288	7.9857	2.0000	224.0000	.0004

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8106	.0873	32.2062	.0000	2.6386	2.9825
PU	-.1200	.0911	-1.3175	.1890	-.2995	.0595
SCI	.3635	.0911	3.9908	.0001	.1840	.5430

***** TOTAL EFFECT MODEL *****

Outcome: BI4

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.2436	.0593	1.7344	14.1891	1.0000	227.0000	.0002

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8106	.0874	32.1537	.0000	2.6383	2.9828
SCI	.3300	.0876	3.7668	.0002	.1574	.5026

***** TOTAL, DIRECT, AND INDIRECT EFFECTS *****

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
PU	-.0335	.0274	-.1000	.0114

d. The indirect relationship between SCI and BI4 as mediated by TOG and PC

PROCESS Analysis in SPSS

Model = 6

Y = BI4

X = SCI

M1 = TOG

M2 = PC

Sample size 227

Outcome: TOG

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.1623	.0263	.9780	6.0321	1.0000	225.0000	.0148

Model

	coeff	se	t	p	LLCI	ULCI
Constant	.0003	.0659	.0039	.9969	-.1297	.1302
SCI	.1619	.0659	2.4560	.0148	.0320	.2919

Outcome: PC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6685	.4469	.5581	89.6929	2.0000	224.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	.0001	.0498	.0028	.9978	-.0980	.0983
TOG	.6487	.0506	12.8233	.0000	.5490	.7483
SCI	.0875	.0505	1.7341	.0843	-.0119	.1870

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2442	.0597	1.7445	4.6736	3.0000	223.0000	.0035

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8005	.0881	31.8048	.0000	2.6270	2.9741
TOG	.0177	.1180	.1504	.8806	-.2148	.2503
PC	-.0756	.1187	-.6367	.5250	-.3094	.1583
SCI	.3351	.0898	3.7303	.0002	.1581	.5122

***** TOTAL EFFECT MODEL *****

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2396	.0574	1.7330	13.5829	1.0000	227.0000	.0003

Model	coeff	se	t	p	LLCI	ULCI
Constant	2.8005	.0878	31.9101	.0000	2.6276	2.9735
SCI	.3235	.0878	3.6855	.0003	.1505	.4964

***** INDIRECT EFFECTS *****

Indirect effect(s) of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	-.0117	.0206	-.0591	.0250
Ind1 :	.0029	.0239	-.0424	.0580
Ind2 :	-.0079	.0146	-.0473	.0144
Ind3 :	-.0066	.0132	-.0443	.0127

Indirect effect key

Ind1 : SCI → TOG → BI4

Ind2 : SCI → TOG → PC → BI4

Ind3 : SCI → PC → BI4

e. The indirect relationship between SID and BI4 as mediated by TOG

PROCESS Analysis in SPSS

Model = 4

Y = BI4

X = SID

M = TOG

Sample size 227

Outcome: TOG

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5027	.2527	.7507	75.3935	1.0000	225.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	.0017	.0578	.0296	.9764	-.1121	.1155
SID	.5038	.0580	8.6829	.0000	.3895	.6182

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0170	.0003	1.8463	.0321	2.0000	222.0000	.9684

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8000	.0906	30.9099	.0000	2.6215	2.9785
TOG	.0186	.1050	.1770	.8597	-.1884	.2256
SID	.0071	.1053	.0678	.9460	-.2003	.2146

***** TOTAL EFFECT MODEL *****

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0122	.0001	1.8383	.0330	1.0000	225.0000	.8559

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8001	.0904	30.9776	.0000	2.6219	2.9782
SID	.0165	.0908	.1818	.8559	-.1624	.1954

***** TOTAL, DIRECT, AND INDIRECT EFFECTS *****

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOG	.0094	.0590	-.0975	.1336

f. The indirect relationship between SID and BI4 as mediated by PU

PROCESS Analysis in SPSS

Model = 4

Y = BI4

X = SID

M = PU

Sample size 227

Outcome: PU

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.5196	.2699	.7333	83.1931	1.0000	225.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	.0000	.0568	.0000	1.0000	-.1120	.1120
SID	.5196	.0570	9.1210	.0000	.4073	.6318

Outcome: BI4

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.0218	.0005	1.8511	.0532	2.0000	224.0000	.9482

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8106	.0903	31.1234	.0000	2.6326	2.9885
PU	-.0325	.1059	-.3071	.7590	-.2413	.1762
SID	.0269	.1059	.2537	.7999	-.1819	.2356

***** TOTAL EFFECT MODEL *****

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0074	.0001	1.8437	.0122	1.0000	225.0000	.9122

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8106	.0901	31.1862	.0000	2.6330	2.9882
SID	.0100	.0903	.1104	.9122	-.1680	.1880

***** INDIRECT EFFECTS *****

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
PU	-.0169	.0570	-.1267	.1028

g. The indirect relationship between SID and BI4 as mediated by TOG and PC

PROCESS Analysis in SPSS

Model = 6

Y = BI4

X = SID

M1 = TOG

M2 = PC

Sample size 227

Outcome: TOG

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5027	.2527	.7507	75.3935	1.0000	225.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	.0017	.0578	.0296	.9764	-.1121	.1155
SID	.5038	.0580	8.6829	.0000	.3895	.6182

Outcome: PC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6971	.4860	.5189	104.9575	2.0000	224.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	-.0063	.0480	-.1313	.8957	-.1009	.0883
TOG	.4996	.0557	8.9731	.0000	.3899	.6093
SID	.2971	.0558	5.3234	.0000	.1871	.4071

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0185	.0003	1.8546	.0253	3.0000	223.0000	.9946

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8001	.0908	30.8408	.0000	2.6212	2.9790
TOG	.0117	.1229	.0951	.9243	-.2305	.2538
PC	.0138	.1269	.1090	.9133	-.2362	.2639
SID	.0030	.1120	.0270	.9784	-.2178	.2238

***** TOTAL EFFECT MODEL *****

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0122	.0001	1.8383	.0330	1.0000	225.0000	.8559

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8001	.0904	30.9776	.0000	2.6219	2.9782
SID	.0165	.0908	.1818	.8559	-.1624	.1954

***** INDIRECT EFFECTS *****

Indirect effect(s) of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	.0135	.0725	-.1100	.1739
Ind1 :	.0059	.0676	-.1286	.1407
Ind2 :	.0035	.0343	-.0643	.0719
Ind3 :	.0041	.0425	-.0742	.0978

Indirect effect key

- Ind1 : SID → TOG → BI4
- Ind2 : SID → TOG → PC5 → BI4
- Ind3 : SID → PC → BI4

h. The indirect relationship between TOG and BI4 as mediated by PC

PROCESS Analysis in SPSS

Model = 4

Y = BI4

X = TOG

M = PC

Sample size 227

Outcome: PC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6484	.4204	.5825	161.7469	1.0000	223.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	-.0073	.0509	-.1437	.8858	-.1076	.0930
TOG	.6486	.0510	12.7180	.0000	.5481	.7491

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0184	.0003	1.8462	.0377	2.0000	222.0000	.9630

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8001	.0906	30.9104	.0000	2.6216	2.9786
PC	.0150	.1192	.1257	.9001	-.2200	.2499
TOG	.0125	.1192	.1044	.9169	-.2226	.2475

***** TOTAL EFFECT MODEL *****

Outcome: BI4

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0164	.0003	1.8381	.0599	1.0000	223.0000	.8069

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.8000	.0904	30.9791	.0000	2.6219	2.9781

TOG	.0222	.0906	.2447	.8069	-.1563	.2007
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***** INDIRECT EFFECTS *****

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
PC5	.0097	.0850	-.1650	.1707

Appendix B

Questionnaire Survey (English Version)

E-government Services in Saudi Arabia

The purpose of this questionnaire is to study citizens' acceptance of e-government in Saudi Arabia. The information in this survey will be used only for research purposes and will not be shared with any organization or any government agency.

* Required

1. Age *

Mark only one oval.

- 16 to 19
- 20 to 29
- 30 to 39
- 40 to 49
- Above 50

2. Gender *

Mark only one oval.

- Male
- Female

3. Your hometown *

4. Education level *

Mark only one oval.

- Was not educated in school
- Under high school
- High school
- Bachelor degree
- Master degree
- Doctoral degree and above
- Other: _____

5. You are: *

Mark only one oval.

- Not employed
- Student
- Government organization's employee
- Private company employee
- Educational organization
- Freelancer
- Other: _____

6. Have you ever used government online service of Saudi Arabia *

Mark only one oval.

- Yes Skip to question 7.
 No Skip to question 76.

Please answer the following questions

7. What government online services did you use? *

(please select all the services that you have used before)
Check all that apply.

- Absher
 Yesser
 Safeer
 Jadarah
 Other: _____

8. Have you used any non-mandatory services of e-government? (such as Commercial Fraud Notification, Saudi Post etc....) *

If your answer is "yes" write the name of the service, and if it's "No" write the reason

9. When was the last time you used the government online service? *

Mark only one oval.

- More than 2 years ago
 One year ago
 Within the last 6 months
 This month
 This week
 Today

10. How often do you use the online service of e-government? *

Mark only one oval.

- once a year
 Few times a year
 Monthly
 Few times a month
 Weekly
 Few times a week
 daily

Please evaluate your trust on internet and your trust government on a scale from 1 to 5

1= strongly disagree, 2=disagree, 3=neutral, 4=agree, 5= strongly agree

11. **The Internet has enough safeguards to make me feel comfortable using it to transact personal business with government agencies. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

12. **I feel assured that legal and technological structures adequately protect me from problems on the Internet. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

13. **The Internet is now a robust and safe environment in which to transact with government agencies. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

14. **I believe that government website is secured and the security system not easy to hack. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

15. **I think I can trust government agencies. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

16. **I believe that the government is capable to protect my privacy via website. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

17. **Government agencies can be trusted to carry out online transactions faithfully. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

18. **I trust government agencies keep my best interests in mind. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

19. **In my opinion, government agencies are trustworthy. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

20. **Online communication with governments will increase my trust in government. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

Please evaluate your perception of corruption on a scale from 1 to 5

1= strongly disagree, 2=disagree, 3=neutral, 4=agree, 5= strongly agree

21. **I believe that government online services make boundaries of responsibility more easily recognized. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

22. **I believe that government online services make actions highly visible. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

23. **I believe that using government online service increase the transparency of the whole system. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

24. I believe that government online services make it easier to see that government is doing the job it is supposed to do. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

25. I believe that government online service increase the honesty of government information and services. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

26. Government website provides clear policy and regulation for using the services. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

1= strongly disagree, 2=disagree, 3=neutral, 4=agree, 5= strongly agree

27. People who influence my behavior would think that I should use e-government. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

28. People who are important to me would think that I should use e-government. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

29. People who are in my social circle would think that I should use e-government. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

30. My parents influence my decision to use e-government services. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

31. **Brothers / sisters influence my decision to use e-government services.** *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

32. **Husband / wife influences my decision to use e-government services.** *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

33. **Son / daughter influences my decision to use e-government services.** *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

34. **Friends influence my decision to use e-government services.** *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

35. **People who are in my social circle would influence my trust in government.** *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

36. **People who are in my social circle would influence my perception of e-government usefulness.** *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

Please evaluate e-government generally from your point of view on a scale from 1 to 5

1= strongly disagree, 2=disagree, 3=neutral, 4=agree, 5= strongly agree

37. **E-government website would enable me to complete transactions more quickly.** *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

38. I think e-government websites would provide a valuable service for me. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

39. E-government websites Save me money in assessing government services. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

40. Using e-government services enable me to do business with the government anytime not limited to regular hours. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

41. I believe that using e-government website to access government services provide good public value. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

42. Using e-government websites increase my interaction with governments. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

43. Every use of e-government gives me benefit. *

Mark only one oval.

1 2 3 4 5

 strongly agree

44. Learning how to use e-government websites to access government services is easy for me. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

45. **It would be easy to use e-government websites to find information. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

46. **My interaction with e-government website to access government services is clear and understandable. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

47. **E-government website is flexible to interact with. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

48. **I find using e-government website to access government services easy to use ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

49. **When I face trouble in using e-government website I get a quick response form the support center. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

50. **E-government websites provide suitable support when needed. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

51. **Government online service is easier than the traditional way (face to face) ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

52. I intent to use e-government websites as needed *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

53. I expect that I would use the e-government websites to access government services in the future. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

54. I intend to use e-government websites to access government services frequently. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

55. I would use e-government service only because it is mandatory. *

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

***Optional: Please evaluate e-government services that you have chosen on a scale from 1 to 5**

We would appreciate it if you could evaluate specific e-government service (one of the services that you chose in question 7)

1= strongly disagree, 2=disagree, 3=neutral, 4=agree, 5= strongly agree

56. The service that you are evaluating in this section

57.website would enable me to complete transactions more quickly.

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

58. I think website would provide a valuable service for me.

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

59. websites Save me money in assessing government services.
Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

60. Using services enable me to do business with the government anytime not limited to regular hours.
Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

61. I believe that usingwebsite to access government services provide good public value.
Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

62. Usingwebsite increase my interaction with governments.
Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

63. Every use of.....service gives me benefit.
Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

64. Learning how to use website to access government services is easy for me.
Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

65. It would be easy to use.....website to find information.
Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

66. **My interaction with.....website to access government services is clear and understandable.**

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

67. website is flexible to interact with.

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

68. **I find using.....website to access government services easy to use.**

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

69. **When I face trouble in usingwebsite I get a quick response form the support center.**

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

70. website provide suitable support when needed.

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

71. online service is easier than the traditional way (face to face).

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

72. **I intent to use..... website as needed.**

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

73. I expect that I would use thewebsite to access government services in the future.
Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

74. I intend to use thewebsite to access government services frequently.
Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

75. I would useservice only because it is mandatory.
Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

Stop filling out this form.

I don't use government online services because

On a scale from 1 to 5 please answer the following questions

(1= strongly disagree, 2=disagree, 3=neutral, 4=agree, 5= strongly agree)

76. Government websites do not provide a service that I would use *
Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

77. Government websites are not easy to use *
Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

78. Using government online services is waste of time
Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

79. **Government websites are having performance issues.** *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

80. **Government services are not clear and not understandable.** *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

81. **Government online services are not useful.** *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

82. **I don't trust government.** *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

83. **Government websites would not provide a valuable service for me.** *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

84. **Government is not capable to protect my privacy via website.** *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

85. **Government websites are not secured and the security system is easy to hack.** *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

86. **The Internet has not enough safeguards to make me feel comfortable using it to transact personal business with government agencies. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

87. **The decision making process of government online services is not transparent. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

88. **Government online services make the boundaries of responsibility less clear. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

89. **Government websites have no accountability system to make sure government does what it is supposed to do. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

90. **People who are in my social circle telling me not to use e-government. ***

Mark only one oval.

1 2 3 4 5

strongly disagree strongly agree

91. **Other reasons (if you have other reason please specify your answer)**

Appendix C Questionnaire Survey (Arabic Version)

خدمات الحكومة الإلكترونية في المملكة العربية السعودية

الغرض من هذا الاستبيان هو دراسة قبول المواطنين للحكومة الإلكترونية في السعودية. سيتم استخدام المعلومات الواردة في هذه الاستبيان لإتمام البحث مرحلة الدكتوراه ولن يتم لن يتم إستخدام المعلومات الواردة في هذا الإستبيان بأي شكل من الأشكال ولا مشاركتها مع أي منظمة أو جهة حكومية.

* Required

1.

* العمر

.Mark only one oval

من 16 إلى 19

من 20 إلى 29

من 30 إلى 39

من 40 إلى 49

من 50 فما فوق

2.

* الجنس

.Mark only one oval

أنثى

ذكر

3.

* المدينة

4.

* المستوى التعليمي

.Mark only one oval

غير متعلم

أقل من المرحلة الثانوية

مستوى ثانوي

مستوى جامعي

مستوى ماجستير

مستوى دكتوراه فما أعلى

5.

* المهنة

.Mark only one oval

غير موظف

طالب

موظف في قطاع حكومي

موظف في قطاع خاص

موظف في قطاع التعليم

أعمال حرة

6. هل قمت باستخدام أي خدمة حكومية أونلاين *
.Mark only one oval

نعم

لا Skip to question 76.

فضلاً قم بالإجابة على الأسئلة التالية

7. ماهي الخدمة الحكومية التي قمت باستخدامها أونلاين *
.Check all that apply

أبشر

يسر

سفير

جدارة

Other:

8. هل قمت باستخدام أي خدمة حكومية إلكترونية بعد استخدامها غير إجباري (كخدمة البريد السعودي أو خدمة بلاغ) *
إذا كانت إجابتك (نعم) اذكر اسم هذه الخدمة و إن كانت إجابتك (لا) اذكر السبب

9. متى كانت آخر مرة استخدمت فيها أحد الخدمات الحكومية الإلكترونية *
.Mark only one oval

منذ أكثر من عامين

منذ عام واحد

خلال الـ 6 أشهر الماضية

هذا الشهر

هذا الأسبوع

اليوم

10. ما مدى استخدامك للخدمات الحكومية الإلكترونية *
.Mark only one oval

مرة في السنة

عدة مرات في السنة

شهرياً

عدة مرات في الشهر

أسبوعياً

عدة مرات في الأسبوع

يوميّاً

فضلاً قم بتقييم مدى ثقتك في الإنترنت وفي الأداء الحكومي من 1 إلى 5

1=لا أوافق بشدة 2= لا أوافق 3= محايد 4= أوافق 5= أوافق بشدة،

11. الإنترنت يحتوي على ضمانات كافية لتجعتني أشعر بالراحة عند استخدامه لمزاولة أعمالي مع الجهات الحكومية إلكترونياً *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

12. أنا على يقين من أن الهيكلة التكنولوجية و القوانين الحالية للإنترنت كافية لحماية من المشاكل التي قد تصادفني على الإنترنت *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

13. يعتبر الإنترنت في الوقت الحالي بيئة آمنة للتعامل مع الجهات الحكومي *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

14. أعتقد أن المواقع الحكومية محمية بشكل جيد وليس من السهل اختراقها *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

15. أعتقد أنه يمكنني الثقة بالجهات الحكومية عامة *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

16. أعتقد أن الحكومة لديها القدرة الكافية لحماية خصوصيتي في مواقعها الإلكترونية *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

17. أعتقد أنه يمكنني الوثوق بأن الجهات الحكومية تقوم بتنفيذ المعاملات الإلكترونية عبر الإنترنت بأمانة تامة *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

18. أنا على ثقة بأن الجهات الحكومية تعطي الأولوية لمصلحتي بشكل جيد *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

19. في رأيي، الجهات الحكومية جديرة بالثقة *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

20. التواصل عبر الإنترنت مع المواقع الحكومية يزيد من ثقتي في الحكومة *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

رجاءً قم بتقييم تصوراتك للفساد من خلال الأسئلة التالية على عداد من 1 إلى 5
1=لا أوافق بشدة 2= لا أوافق 3= محايد 4= أوافق 5= أوافق بشدة،

21. أعتقد أن الخدمات الحكومية الإلكترونية تجعل حدود المسؤوليات الحكومية أكثر وضوحاً *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

22. أعتقد أن الخدمات الحكومية الإلكترونية تجعل الإجراءات و الخطوات التنفيذية التي تقوم بها الحكومة أكثر وضوحاً *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

23. أعتقد أن استخدام الخدمات الحكومية الإلكترونية يرفع من نسبة الشفافية للأداء الحكومي *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

24. أعتقد أن الخدمات الحكومية الإلكترونية تجعل من السهل رؤية ما إن كانت الحكومات تقوم فعلياً بتنفيذ المهمات التي كلفت بها *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

25. أعتقد أن مواقع الحكومة الإلكترونية تزيد من نسبة مصداقية المعلومات والخدمات التي تقدمها الحكومة إلكترونياً *
.Mark only one oval

5 4 3 2 1

لا أوافق بشدة أوافق بشدة

26. توفر المواقع الحكومية الإلكترونية سياسات و قوانين واضحة لتسهيل استخدام خدماتها *
.Mark only one oval

5 4 3 2 1

لا أوافق بشدة أوافق بشدة

27. الأشخاص الذين لهم تأثير على سلوكي يعتقدون أنه ينبغي لي استخدام الخدمات الحكومية الإلكترونية *
.Mark only one oval

5 4 3 2 1

لا أوافق بشدة أوافق بشدة

28. الأشخاص المهمين بالنسبة لي يعتقدون أنه ينبغي لي استخدام الخدمات الحكومية الإلكترونية *
.Mark only one oval

5 4 3 2 1

لا أوافق بشدة أوافق بشدة

29. الأشخاص الذين في دائرتي الإجتماعية يعتقدون أنه ينبغي لي استخدام الخدمات الحكومية الإلكترونية *
.Mark only one oval

5 4 3 2 1

لا أوافق بشدة أوافق بشدة

30. والداي يؤثران بشكل قوي على قراري حول استخدام الخدمات الحكومية الإلكترونية *
.Mark only one oval

5 4 3 2 1

لا أوافق بشدة أوافق بشدة

31. اخوتي يؤثرن بشكل قوي على قراري حول استخدام الخدمات الحكومية الإلكترونية *
.Mark only one oval

5 4 3 2 1

لا أوافق بشدة أوافق بشدة

32. زوجياتي ياتوثر بشكل قوي على قراري حول استخدام الخدمات الحكومية الإلكترونية *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

33. ابني ابنتي ياتوثر بشكل قوي على قراري حول استخدام الخدمات الحكومية الإلكترونية *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

34. أصدقائي يوترون بشكل قوي على قراري حول استخدام الخدمات الحكومية الإلكترونية *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

35. الأشخاص الذين في دائرتي الإجتماعية يوترن على ثقتي في الجهات الحكومية *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

36. الأشخاص الذين في دائرتي الإجتماعية يوترن على تصوراتي حول فوائد الحكومة الإلكترونية *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

فضلاً قم بتقييم أداء الحكومة الإلكترونية في السعودية بشكل عام من خلال الأسئلة التالية
1=لا أوافق بشدة 2 = لا أوافق 3 = محايد 4 = أوافق 5 = أوافق بشدة،

37. مواقع الحكومة الإلكترونية تتيح لي فرصة إتمام المعاملات بسرعة أكبر *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

38. أعتقد أن مواقع الحكومة الإلكترونية تقدم لي خدمات قيمة *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

39. أعتقد أن استخدام الخدمات الحكومية إلكترونياً يقلل من انفاق الأموال *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
لا أوافق بشدة				أوافق بشدة

40. أعتقد أن استخدام الخدمات الحكومية إلكترونياً يسهل على القيام بمعاملاتي الحكومية في أي وقت *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
لا أوافق بشدة				أوافق بشدة

41. أعتقد أن استخدام مواقع الحكومة الإلكترونية للوصول إلى الخدمات الحكومية يقدم قيمة اجتماعية جيدة *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
لا أوافق بشدة				أوافق بشدة

42. أعتقد أن استخدام مواقع الحكومة الإلكترونية يزيد من تفاعلي مع الحكومات *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
لا أوافق بشدة				أوافق بشدة

43. كل استخدام لمواقع الحكومة الإلكترونية يعطيني فائدة *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
لا أوافق بشدة				أوافق بشدة

44. بالنسبة إلي تعلم الوصول إلى الخدمات الحكومية الإلكترونية سهل جداً *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
لا أوافق بشدة				أوافق بشدة

45. الوصول إلى المعلومات الحكومية من خلال المواقع الحكومية الإلكترونية سهل جداً *
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
لا أوافق بشدة				أوافق بشدة

46. التفاعل مع المواقع الحكومية الإلكترونية للوصول إلى الخدمات الحكومية واضح ومفهوم جداً *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

47. تعتبر المواقع الإلكترونية الحكومية مرنة للتواصل *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

48. مواقع الحكومة الإلكترونية سهلة الاستخدام *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

49. عندما أواجه مشكلة في استخدام أحد المواقع الحكومية الإلكترونية فإبني عادة أجد استجابة سريعة من الدعم الفني للموقع *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

50. المواقع الحكومية الإلكترونية توفر الدعم المناسب عند الحاجة. *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

51. الخدمات التي تقدمها المواقع الحكومية الإلكترونية أسهل من الطريقة التقليدية (وجهاً لوجه) *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

52. أنوي استخدام المواقع الحكومية الإلكترونية حسب حاجتي لها *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

53. أتوقع أنني سوف أستخدم المواقع الحكومية الإلكترونية للوصول إلى الخدمات الحكومية في المستقبل القريب. *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

54. أنوي استخدام المواقع الحكومية الإلكترونية بشكل متكرر للوصول إلى الخدمات الحكومية. *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

55. سوف أستخدم الخدمات الحكومية الإلكترونية فقط لأن استخدامها إلزامي. *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

اختياري: نحن نقدر وبشدة مساهمتك في اتمام هذه الدراسة و إذا كان لديك الوقت الكافي رجاءً
قم بتقييم خدمة حكومية محددة من خلال الأسئلة التالية
1=لا أوافق بشدة 2 = لا أوافق 3 = محايد 4 = أوافق 5 = أوافق بشدة،

56. الخدمة التي ستقومون بتقييمها

57. خدمة.....تتيح لي فرصة إتمام المعاملات بسرعة أكبر
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

58. أعتقد أن خدمة.....تقدم لي خدمات قيمة
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

59. أعتقد أن استخدام خدمة..... يقلل من انفاق الأموال
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

60. أعتقد أن استخدام خدمة.....يسهل عملية القيام بمعاملاتي الحكومية في أي وقت
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

61. أعتقد أن استخدام خدمة.....يقدم قيمة اجتماعية جيدة
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

62. أعتقد أن استخدام خدمة.....يزيد من تفاعلي مع الحكومة
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

63. كل استخدام لخدمة.....يعطيني فائدة
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

64. بالنسبة إلي تعلم الوصول إلى خدمة.....سهل جداً
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

65. الوصول إلى المعلومات الحكومية من خلال خدمة.....سهل جداً
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

66. التفاعل مع خدمة.....واضح ومفهوم جداً
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

67. تعتبر خدمة..... مرنة للتواصل
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

68. خدمة.....سهولة الاستخدام
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

69. عندما أواجه مشكلة في استخدام أحد خدمات..... فإنني عادة أجد استجابة سريعة من الدعم الفني للموقع
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

70. خدمة.....توفر الدعم المناسب عند الحاجة.
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

71. استخدام خدمة..... أسهل من التعامل بالطريقة التقليدية (وجهاً لوجه)
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

72. أنوي استخدام خدمة..... حسب حاجتي لها
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

73. أتوقع أنني سوف أستخدم خدمة..... للوصول إلى الخدمات الحكومية في المستقبل القريب.
.Mark only one oval

5	4	3	2	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
أوافق بشدة				لا أوافق بشدة

74. أنوي استخدام خدمة..... بشكل متكرر
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

75. سوف استخدم خدمة..... فقط لأن استخدامها إلزامي.
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

Stop filling out this form.

أنا لأستخدم الخدمات الحكومية الإلكترونية لأنه.....
1= لا أوافق بشدة 2 = لا أوافق 3 = محايد 4 = أوافق 5 = أوافق بشدة،

76. المواقع الحكومية لا توفر الخدمة التي أود أن استخدامها *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

77. المواقع الحكومية ليست سهلة الاستخدام *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

78. استخدام المواقع الحكومية مضيعة للوقت *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

79. المواقع الحكومية لديها مشاكل في الأداء *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

80. خدمات المواقع الحكومية ليست واضحة و صعبة الفهم *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

81. خدمات المواقع الحكومية ليست مفيدة *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

82. لا أتقن بالجهات الحكومية *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

83. المواقع الحكومية لاتقدم خدمات ذات قيمة بالنسبة لي *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

84. الحكومة غير موهلة لحماية خصوصية معلوماتي من خلال مواقعها *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

85. المواقع الحكومية غير محمية بشكل كاف و قابلة للاختراق بسهولة *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

86. الإنترنت لا يحتوي على أي ضمانات تجعلني أشعر بالراحة عند استخدامه لمزاولة أعمالي مع الجهات الحكومية إلكترونياً *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

87. عملية اتخاذ القرارات في المواقع الحكومية خالية من الشفافية *
.Mark only one oval

5	4	3	2	1	
أوافق بشدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	لا أوافق بشدة

88. الخدمات الحكومية الإلكترونية تجعل حدود المسؤوليات الحكومية أقل وضوحاً. *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

89. المواقع الحكومية لاتحتوي على نظام المساءلة (أو المحاسبة) للتأكد ما إن كانت الحكومة تنفذ المهام التي من المفترض أن تقوم بتنفيذها *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

90. الأشخاص الذين في دائرتي الإجتماعية أخبروني أن لا أتق بالجهات الحكومية *
.Mark only one oval

5 4 3 2 1
لا أوافق بشدة أوافق بشدة

91. أسباب أخرى (الرجاء كتابة الأسباب الأخرى بالتفصيل)
