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COLLEGE OF BUSINESS
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STUDIES PROGRAM

FACTORS AFFECTING E-GOVERNMENT ADOPTION IN BAHRAIN

A Master Project (MGT698) submitted in partial fulfillment of the requirement for the MBA degree

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TABLE OF CONTENT

ACKNOWLEDGEMENT ..... **I**

TABLE OF CONTENT ..... **II**

LIST OF TABLES ..... **V**

LIST OF FIGURES ..... **V**

ABSTRACT ..... **VI**

CHAPTER 1: INTRODUCTION **1**

1.1 Background of the study 1

1.2 Problem Statement 1

1.3 Research Objectives 2

1.4 Significance of the Study 3

1.5 Limitations of the Study 4

1.6 Organizational of the study 4

CHAPTER 2: LITERATURE REVIEW **6**

2.1 Introduction 6

2.2 Definition of E-government 6

2.3 E-government Adoption Background 7

2.4 E-government Advantages and Challenges 10

2.5 Recent E-government Adoption studies in GCC 12

2.5.1. Oman 12

2.5.2. Kingdom of Saudi Arabia 13

2.5.3. Qatar 13

2.5.4. Kuwait 14

2.5.5. United Arab Emirates 14

2.6 E-government in Bahrain 15

2.7 Technology Acceptance Theories 17

2.7.1. Unified Theory of Acceptance and Use of Technology 18

2.8 Factors affecting E-government adoption 18

CHAPTER 3: RESEARCH METHODOLOGY **22**

3.1 Introduction 22

3.2 Research design 22
3.3 Research Framework 22
3.4 Research Hypotheses 24
3.5 Conceptual and operational definition of variables 24
3.6 Population and Sample 25
3.6.1. Population 25
3.6.2. Sample and Sampling method 26
3.7 Data Collection Procedures 26
3.8 Questionnaire Design 26
3.9 Data Analysis Procedures 27
CHAPTER 4: DATA ANALYSIS AND FINDINGS 28
4.1 Descriptive Data Analysis 28
4.2 Reliability measurement 29
4.3 Demographic Distinctions 30
4.3.1. Gender and number of e-government users: 31
4.3.2. Education and number of e-government users: 32
4.3.3. Age and number of e-government users: 33
4.3.4. Income and number of e-government users: 35
4.4 Regression Results 36
4.5 Summary of the Results 37
CHAPTER 5: DISCUSSION, CONCLUSION, AND RECOMMENDATIONS 40
5.1 Introduction 40
5.2 Discussion Pertaining to Demographic Distinctions 40
5.2.1. Gender: 41
5.2.2. Age: 41
5.2.3. Education: 42
5.2.4. Income: 42
5.3 Discussion Pertaining to the factors that affect E-Government Adoption 43
5.3.1. Significant factors (Effort Expectancy & Facilitating Conditions): 43
5.3.2. Moderate Significant factor (Performance expectancy): 44
5.3.3. Not Significant factor (Social Influence): 44
5.4 Conclusion of the study 44

5.5 Recommendations 45

REFERENCES 47

APPENDIX 1: SURVEY STATEMENTS 52

APPENDIX 3: UNITED NATIONS MEMBER STATES MEASURMENT 54

APPENDIX 4: DISPARITY IN USE OF INTERNET BETWEEN MEN AND WOMEN 55

APPENDIX 5: USE OF INTERNET FOR CIVIC AND POLITICAL PARTICIPATION, BY AGE GROUP, EU-28, 2013 (% OF INTERNET USERS) 56

APPENDIX 6: SUMMARY OF DEMOGRAPHIC INFORMATION 57

APPENDIX7: SURVEY QUESTIONS 59

LIST OF TABLES

Table 2-1: World e-government leaders in 2014 10
Table 0-1: E-Gov development of Gulf Cooperation Council - GCC**Error! Bookmark not d**
Table 3-1: Conceptual and operational definitions of variables..... 25
Table 4-1: Demographic Analysis 29
Table 4-2: Reliability Statistics 30
Table 4-3: Gender as a Factor of E-government Users and Nonusers 31
Table 4-4 : Education as a Factor of E-government Users and Nonusers..... 32
Table 4-5: Age as a Factor of E-government Users and Nonusers..... 34
Table 4-6: Income as a Factor of E-government Users and Nonusers 35
Table 4-7: Results of Regression Analysis..... 36
Table 4-8: Findings Summary 38

LIST OF FIGURES

Figure 2-1: Bahrain E-Gov Portal 16
Figure 3-1: Research Model..... 23

ABSTRACT

Electronic government (e-government) was lunched as an online technique to enhance the government productivity and to provide citizens with more accurate, time saving, high quality services. Although e-government has improved the way of communication and treatment of government services for citizens, the adoption of e-government has been less than satisfactory in most countries. The aim of this paper is to investigate main factors affecting the adoption of e-government in the Kingdom of Bahrain by gathering empirical evidence based on the Unified Theory of Acceptance and the Use of Technology (UTAUT). 186 citizens were surveyed using the amended version of the UTAUT model and a regression analysis was implemented to test the factors affecting the adoption of e-government. The study data reveal four independent variables (Performance expectancy, Effort expectancy, Peer review, and Facilitating conditions) that determine citizens' use of e-government services. A regression analysis was conducted to examine the influence of the factors. Reliability test reported values of the various constructs vary between (0.74) and (0.91). The findings reveal that effort expectancy and facilitating conditions strongly determine citizens' intention towards e-government. Additionally, performance expectancy was found to determine citizens' use of e-government services with moderate significance. Recommendations for practice and research are discussed.

Key words: E-government, Adoption, UTAUT, Bahrain.

CHAPTER 1:INTRODUCTION

1.1 Background of the study

The worldwide establishment of electronic government (e-government) concept led to execute public service transactions in more efficient and effective way. E-government is considered a major breakthrough for many countries including the Kingdom of Bahrain as a step forward in facilitating the delivery of services to its citizen in an efficient and timely manner, all for the purpose of gaining citizen satisfaction.

In order to activate the adoption of e-government effectively, the e-government applications and tools should promise to emulate private sector offering and meet high standard quality and accessibility of public services. For this achievement, it is necessary to provide an increased number of online services through different channels like portal, mobile, call centers, and post offices (OECD, 12-13 March 2007).Currently, e-government enabled transparent access and improved communication for citizens through deep understanding of citizen's needs and requirements and comprehensive architecture which should result in a high percentage of e-government users (Alshehri, Steve, & AlGhamdi, 2012).Moreover, it has been noticed that the frequency of online e-government application visitors and the number of e-government users started to increase since 2006 in Arab countries (OECD, 12-13 March 2007).

1.2 Problem Statement

According to the United Nations E-government Survey report (UN, 2014) which assesses the e-government development status in 193 countries in 2014, all the 193 member states now have national websites (see Appendix354), but the majority remain at the low or intermediate levels of

e-government development. However, this report finalize that even in the case of countries with highly advanced Information and communication Technology (ICT) infrastructures, and human resources, it can be difficult to move to the higher stages or levels of e-government transactional adoption and development. Therefore it is clear that factors other than national income of the country such as citizen intention and awareness toward the use of e-government applications are equally important along with adequate e-government programs.

Knowing the impact of such factors on the adoption of Bahraini citizens to the E-Government services will help the Bahraini Government to develop the needed strategies to encourage and increase the use of these services, then increasing the efficiency of the governmental services. Therefore the research problem can be expressed in the following statement:

"Examining the factors that affect the adoption of E-Government services in Kingdom of Bahrain"

1.3 Research Objectives

It has been noticed that a number of studies and researches were conducted in the developing countries to measure and test whether the government in the kingdom of Bahrain is providing and facilitating the procedures to implement the e-government programs and whether it is supplying the required instructions and software applications to enhance the use of e-government. With this in mind, the aim of this study is to dig more into the factors that actuate the adoption of e-government services in the kingdom of Bahrain at citizen perspective. This study is structured to investigate four key factors namely, Performance expectancy, Effort expectancy, Social influence, and Facilitating conditions that influence Bahraini citizens to accept and use e-government programs. The study applied an amended Unified Theory of Acceptance and the use of Technology UTAUT model which provide gainful insights for understanding an individual's intentions of using e-government applications (Venkatesh,

Morris, Davis, & Davis, 2003). Also this study will consider other four demographic factors: Gender, Age, Education and income level for descriptive inferential statistic analysis to determine the percentage and type of e-government adopters.

The overall objective of this study is to examine the factors that affect E-Government services adoption in Bahrain. More specifically, the study aims to achieve the following:

1- Examine the effect of performance expectancy on the adoption of E-Government services.
2- Examine the effect of effort expectancy on the adoption of E-Government services.
3- Examine the effect of Social influence on the adoption of E-Government services.
4- Examine the effect of Facilitating conditions on the adoption of E-Government services.
5- Examine the effect of the demographic variables on the adoption of E-Government services.

1.4 Significance of the Study

The e-government is considered a relatively a new mechanism to save time and cut down costs for many public related services. Hence, the research will outline and measure the important key factors that expedite the project of e-government adoption. The research framework will enable policy and decision maker in the government sectors to gain deeper insight into the determinants of e-government, and the general adoption pattern in the Kingdom of Bahrain.

1.5 Limitations of the Study

Although the UTAUT model applied in this study will explain the variance in Performance expectancy, effort expectancy, social influence, and facilitating conditions, there are much of other variance related to other factors will not be explained. This study only takes into account the critical factors that affect the citizens' intention in the success of e-government adoption. In fact, the true success of e-government adoption requires the proper and equal participation of government agencies and citizens. Additionally, obtaining the necessary data was somewhat of a challenge as statistical tests normally require a larger sample size to ensure that the sample is a fair representation of the population. This limitation is relevant in this study given that it is a quantitative research.

1.6 Organizational of the study

This study consist of five chapters, the following is a brief description of each chapter contents:

Chapter 1 Introduction: begins with overview about the study, followed by background of the study, problem statement, and the objective of the study. Furthermore, it discusses the significance of the study, and finally it highlights the scope and limitations of the study.

Chapter 2 Literature Review: comprises the literature review on the important concepts and studies introduced in the e-government adoption. The chapter is divided into five main sections which illuminate the definition of e-government, e-government adoption background, e-government advantages and challenges, and factors affecting e-government adoption.

Chapter 3 Methodology: this section consist of the methodology used in conducting the study with a detailed description of the research design, population and sample, research model, and conceptual and operational definition of research variables. Finally, this section outlines the data collection procedures and analysis.

Chapter 4 Findings: presents the statistical analysis and results. It illustrates and describes the results pertaining to demographic distinctions of the respondents, the reliability test of the scale, and regression analysis.

Chapter 5 Discussion, Conclusion, and Recommendations: the chapter provides a detailed discussion and comparison of results pertaining to demographic inferential statistics and to the regression analysis. The chapter also summarizes the findings and conclusions of this study. In addition, it provides recommendations for further research studies.

CHAPTER 2:LITERATURE REVIEW

2.1 Introduction

This chapter is divided into five main sections. It reviews the important concepts and studies that have been introduced in the area of e-government. The chapter commences with section 2.2 providing couple definitions of e-government. Section 2.3 outlines e-government adoption background. The fourth section 2.4 presents e-government advantages and challenges, and finally section 2.5 illustrates factors affecting the e-government adoption.

2.2 Definition of E-government

According to (Al-Rahbi, Al-Harasi, & Al-Wahaibi, 2012), defining the term e-government varies depending on the focus of each authors' study field. They also state that e-government is centered on six main aspects; technology, business, citizen, government, process, or a functional perspective. (Al-Shaf, 2009), on the other hand, defines e-government as making full use of the potential of technology to help put its citizens at the centre of the e-Services provided and which makes the citizens its intention. Authors Evans and Yen simply define e-government as a communication medium between the government and the citizens through computers and the web (Evans & David C, 2006). Accordingly, The United Nations Public Administration Network (UNPAN) defined e-government that it is about utilizing the Internet and the World Wide Web for delivering government information and services to citizens (Ronaghan, 2002). Definitions by each country differ as the priorities and strategies are different, but according to (OECD, 12-13 March 2007), the definitions fall into three main categories:

- E-government is defined as Internet (online) service delivery and other Internet-based activity such as e-consultation.
- E-government is equated to the use of ICTs in government. While the focus is generally on the delivery of services and processing, the broadest definition encompasses all aspects of government activity.
- E-government is defined as a capacity to transform public administration through the use of ICTs or indeed is used to describe a new form of government built around ICTs. This aspect is usually linked to Internet use.

2.3 E-government Adoption Background

The introduction of e-government has also resulted in a number of challenges for both citizens and governments of different countries (Seifert & R. Eric, 2002). Lack of access to e-Services, ease of use, security concerns, citizen's trust, and external influences are the main first step challenges that can affect or even diffuse the proper participation in e-government adoption programs (AlAwadhi & Anne, 2009). Various researchers stated that many of these challenges definitely have strong relationship with the adoption of e-government programs in various countries. Furthermore, (Venkatesh, Morris, Davis, & Davis, 2003) claim that the adoption of technology in processing government services can be affected by socio-cultural differences between people. For example, gender differences according to (Venkatesh, Morris, Davis, & Davis, 2003) research study, men tend to be more highly task-oriented than women and women tend to have lower self-efficacy, lower computer aptitude and higher computer anxiety than men. Obviously, most of developed and developing countries designed many strategies and plans collaboratively to overcome and cope with challenges in order to gain dual citizen and government satisfaction.

More than 14 years ago, the e-government prospects were discussed and established around the world. Several studies have argued that the acceptance of e-government adoption in the developed countries such as United States of America and United Kingdom is faster than the developing countries; as the potential of using digital technologies to improve public services and government-citizen engagements is slower and less effective in the developing countries (Kamal, Hackney, & Sarwar, 2013). On the other hand, the United Nations E-government survey for 2014 (UN, 2014) argued that the national income does not, by itself, constitute or guarantee e-government development. There are many countries that have significantly advanced their e-government despite relatively low national income, just as there are many countries which are lagging behind despite their relatively high income and thereby have good opportunities for future improvement.

Formerly, The United Nations survey report (UN, 2014) also found that citizens have been benefiting from better information access, efficient government management, more advanced e-service delivery and developed interactions with governments because the public is using technology more than before. In the survey, the United Nation has identified the top 20 countries in e-government development. The top three are Republic of Korea, Australia and Singapore. It is worthy to note that Bahrain was ranked the 18th country in e-government development and is the only Arab country to be in the top 20 (refer to Table 2-1). Most of the countries in the top 20 are a high-income country which is expected as they have the necessary funding to develop and implement e-governments services for their citizens. But again, the income level of a country is not generally an indicator of e-government development progress. The main enabler of good e-government progress is often putting in place an effective governance framework to support and manage a citizen-centric service delivery model, including a national ICT policy and e-government strategy, as well as strengthening institutions and building the capacities of public servants (UN, 2014).

It has been noticed that the citizen's awareness in Information and Communication technology along with their inherent intention for technology use, will definitely affect the success of e-government adoption. Consequently, various statistic studies using theoretical models were conducted by many researchers to find the relationship between the citizen's intention and their acceptance to use technology to adopt the e-government services. Most remarkable among these theories are the Theory of Reasoned Action (TRA) (Ajzen. I. , 2010), Theory of Planned Behavior (TPB) (Ajzen., 1985), Technology Acceptance Model (TAM) (Davis, Sep., 1989), Extension of the Technology Acceptance Model (TAM2) (Venkatesh & Davis, 2000), and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003).

Table 2-1: World e-government leaders in 2014

Country	Region	2014 EGDI	2014 Rank	2012 Rank	Change in Rank (2012–2014)
Republic of Korea	Asia	0.9462	1	1	-
Australia	Oceania	0.9103	2	12	↑ 10
Singapore	Asia	0.9076	3	10	↑ 7
France	Europe	0.8938	4	6	↑ 2
Netherlands	Europe	0.8897	5	2	↓ 3
Japan	Asia	0.8874	6	18	↑ 12
United States of America	Americas	0.8748	7	5	↓ 2
United Kingdom	Europe	0.8695	8	3	↓ 5
New Zealand	Oceania	0.8644	9	13	↑ 4
Finland	Europe	0.8449	10	9	↓ 1
Canada	Americas	0.8418	11	11	-
Spain	Europe	0.8410	12	23	↑ 11
Norway	Europe	0.8357	13	8	↓ 5
Sweden	Europe	0.8225	14	7	↓ 7
Estonia	Europe	0.8180	15	20	↑ 5
Denmark	Europe	0.8162	16	4	↓ 12
Israel	Asia	0.8162	17	16	↓ 1
Bahrain	Asia	0.8089	18	36	↑ 18
Iceland	Europe	0.7970	19	22	↑ 3
Austria	Europe	0.7912	20	21	↑ 1
Germany	Europe	0.7864	21	17	↓ 4
Ireland	Europe	0.7810	22	34	↑ 12
Italy	Europe	0.7593	23	32	↑ 9
Luxembourg	Europe	0.7591	24	19	↓ 5
Belgium	Europe	0.7564	25	24	↓ 1
Very High EGDI Average		0.8368			
World Average		0.4712			

Source: UN. (2014). *UNITED NATIONS E-GOVERNMENT SURVEY 2014: E-GOVERNMENT FOR THE FUTURE WE WANT*. United Nations Department of Economic and Social Affairs.

2.4 E-government Advantages and Challenges

Comparatively, the advantages and disadvantages of e-government establishment are the same for both developed and developing countries

(M. Alshehri, 2010). Up to the present time, it has been realized that the benefit of implementing the government services using online tools is much higher than clearing them manually or in a traditional manner.

According to (M. Alshehri, 2010), E-government applications allow people, businesses, and government sectors to access to available government information 24 hours a day, 7 days a week, which improves the quality of these services. Also his article claimed that the implementation of e-government will reduce cost and levels of organizational processes by streamlining and re- organizing operating procedures. Moreover, the using of e-government systems will improve the performance of government agencies and that it will deliver the public service effectively and efficiently for all customers. In addition, the article stated that e-government has great benefits regarding economizing and improving of governments' service operations, including efficiency, reduced transactional costs, increase the transparency and increased services for citizens. Furthermore, (AlAwadhi & Anne, 2009) used a series of focus groups to qualitatively explore factors that affect the adoption of e-government services in Kuwait. And interestingly, the finding showed that the majority of participants 86% will be encouraged to use e-government services since the importance of connections or "Wasta" is likely to be decreased. In fact, Wasta is a force in interpersonal networks which can pervade all of business in social life. As an advantage, e-government helps to decrease inequality between individuals and that all people would be given an equal chance to carry out their government transactions.

Although the numbers of benefits and advantages are unquestionable, e-government service implementation resulted in emerging a couple of challenges. Particularly, as argued by (M. Alshehri, 2010)there are three main negative points. Firstly, privacy and security concerns are the top of the citizens' priorities. There is a lot of information stored in e-governments that identity thefts are of serious concern. Moreover, many citizens are

afraid to be victims of retaliation from government workers and need assurance that their information is stored in an extremely secured and safeguarded environment. Secondly, e-government is dynamic and is in constant change. This means that automated procedures' flexibility is under threat for future requirements. Finally, censorship is a great concern as it is possible for people in the e-government to monitor citizens' activities.

2.5 Recent E-government Adoption studies in GCC

It is obvious that adoption of e-government has increased in many Gulf Cooperation Council countries over the time, but the rate of adoption varies from country to country, and also the factors which affect the adoption of e-government differ from one country to another. This section presents findings of related studies in different GCC countries.

2.5.1. Oman

Like many developing countries, Oman adopted e-government in late twentieth century. The e-Oman initiatives contain a wide range of initiatives and services designed to electronically transform the government and pave the way for a knowledge-based economy. Oman's rapid progress in the use of e-government services is confirmed by the United Nations annual e-government survey report (UN, 2014) that shows Oman is ranked 48th in the world on the UN e-government development index, but this progress and the adoption can be affected by many factors. According to (Al-Rahbi, Al-Harasi, & Al-Wahaibi, 2012) study that aimed to identify and describe the technical factors affecting the adoption of e-government in different e-government agencies in Oman, the most important factor when dealing with e-government projects is the ICT infrastructure and it must be well planned because it contains both data centers and network. Also the study claimed that technical expertise is the second important factor, after having the ICT

infrastructure, the need of IT expertise is a must in order to deal with all kinds of issues related to the e-government projects services, such as developing, maintaining, controlling and protecting different aspects of the e-services.

2.5.2. Kingdom of Saudi Arabia

According to United Nation (UN, 2014) survey report, Saudi Arabia was ranked 35th in e-government development worldwide ranking. To enhance and improve the e-government adoption rate, many studies were conducted in the kingdom of Saudi Arabia for better understanding of key factors that defuse the use of e-government. Most of those studies were implemented to examine the human factors, particularly the psychological, cultural and social elements of e-government users. Based on (Alsaif, 2013) study, the results revealed that both trust of internet and performance expectancy significantly influence the intention to use e-government. Similarly, the study conducted by (Alshehri, Steve, & AlGhamdi, 2012) proved that performance expectancy, effort expectancy, and facilitating conditions had positive effect on behavior intention to use e-government services. In another study by (Hamner & Al-Qahtani, 2008), the technology acceptance model was applied to analyze factors in Saudi Arabia that influence citizens to adopt e-government, and the findings showed that e-government adoption and willingness for use were correlated with security issues, internet knowledge, level of education and age.

2.5.3. Qatar

The state of Qatar was ranked 44th in the e-government development process as presented by United Nations annual survey report (UN, 2014). (Al-Shafi & Vishanth, 2009) studied factors affecting e-government adoption in the Qatar and they build a research model that contain organizational,

technical, political, and social influences. They claimed that the success of e-government project implementation is highly predicted by citizen's perspective and their behavior towards the adoption of e-government.

2.5.4. Kuwait

As per United Nation survey report (UN, 2014) for e-government development, Kuwait was ranked 49th country to held development plans and strategies to improve e-government implementation. (AlAwadhi & Morris, 2008) utilized Unified Theory of Acceptance and Use of Technology to examine the citizen's adoption of e-government. The study applied social influence with peer influence in order to match citizen society. Performance expectancy, effort expectancy, and social influence were found to determine citizen's behavior intentions, while facilitating conditions and behavior intentions influence citizen's use of e-government applications.

2.5.5. United Arab Emirates

Within the Gulf Cooperation Council (GCC) countries, United Arab Emirates was ranked 32 globally in developing e-government services and offering their citizens advanced e-services and information accessible in an effortless way (UN, 2014). The aforementioned ranking indicates that UAE has a good implementation of e-government as it is the second top country among GCC after Bahrain. (Al-Zaabi, 2012) studied qualitative aspect of e-government adoption. He adopted a diverse perspective and applied the DOI, TAM and e-commerce theories in a G2E context. Using a small sample population it was understood that departments within the organization that are far sighted, strategic and involved with technology development and implementation readily accept and use innovation. Comparatively departments that involve daily operation functions are not readily willing to

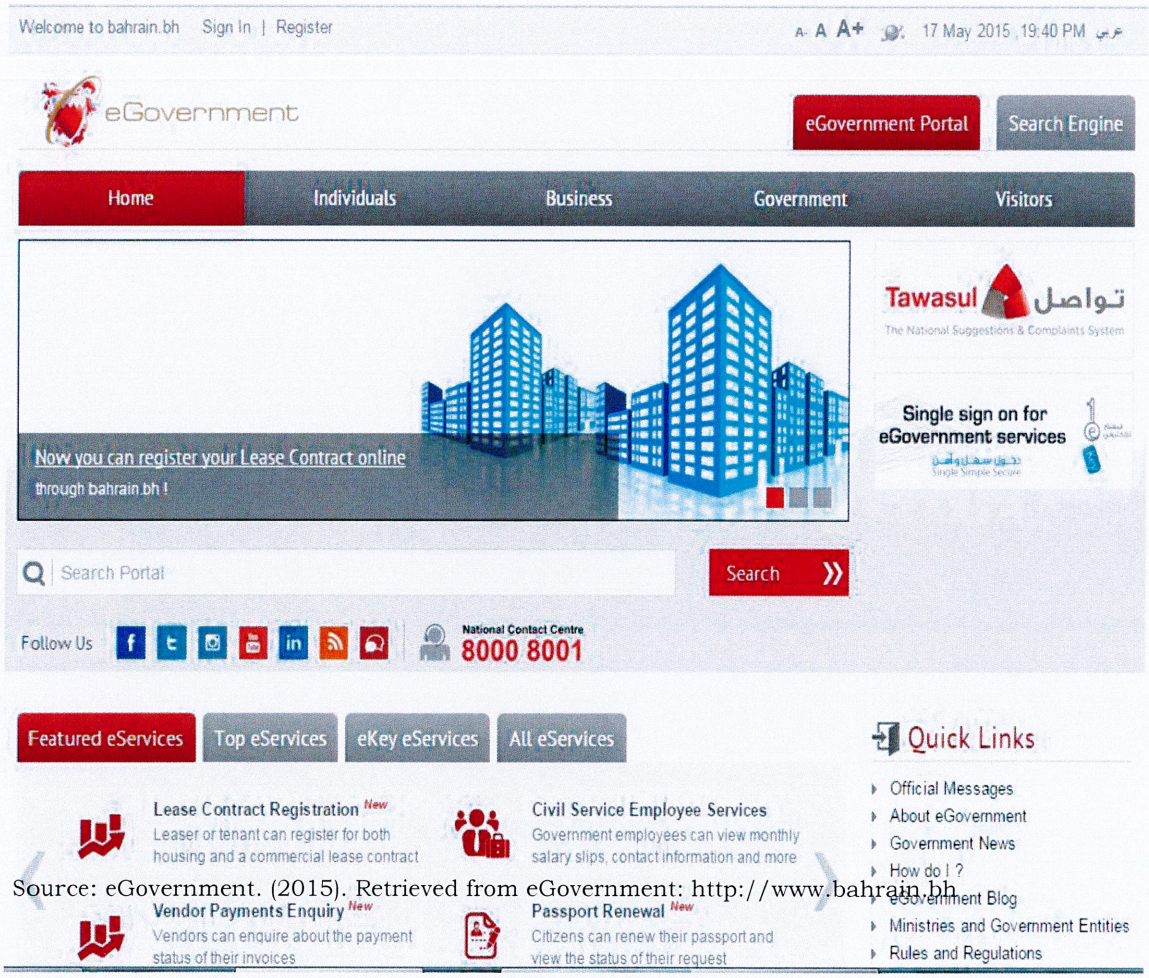
embrace innovation. Instead the department displayed a certain amount of resistance to change.

2.6 E-government in Bahrain

The e-government program in Bahrain was started in May 2007 through a portal (www.bahrain.bh) through which services are delivered to the citizens (refer to Figure 2-1). The portal started with 30 services and expanded to more than 90 services in 2009 and more than 200 in 2010 to more than 280 in recent years. With over 15 million requests, transactions worth USD 11million have been conducted. Most of the services are end-to-end between different ministries. E-Government servicing revolves around citizen centricity which aims to provide end-to-end services to customers at the first instant and is the core principle of service delivery. The mobile channel of e-government was launched in 2009 as well with 15 services. There is a lot of potential of mobile-based e-government as the mobile penetration in Bahrain is more that 130% Figures from (TRA, TRA Annual Report, 2008).

As mentioned earlier in this paper, Kingdom of Bahrain was ranked 18th country in the e- government development in the top 20 countries around the world (UN, 2014). Hence, at the beginning of 2010 Kingdom of Bahrain was rated top in the region (refer Table 2 -2) according to the United Nation's e-Government Readiness Report, which uses an index of six key factors such as the online population, internet and mobile phone users (TRA, TRA Annual Report, 2009).

Figure 2-1: Bahrain E-Gov Portal



Source: eGovernment. (2015). Retrieved from eGovernment: http://www.bahrain.bh

In order to maintain and progress the top rate ranking level of e-government development in Bahrain. The eGovernment Authority designed many programs and strategies such as conducting comprehensive periodic studies to measure customer satisfaction level of the e-government transaction index, and awareness level. Furthermore, the eGovernment Authority lunched the e-government excellence award. It is granted to citizens who provide innovative ideas that maximize the excellence of e-government work (eGovernment, 2015).

Table 2-2: E-Gov development of Gulf Cooperation Council - GCC

Country Name	Organization	EGDI 2014	2014 Rank	2012 Rank	Change in Rank
Very High EGDI					
Bahrain	GCC Member	0.8089	18	36	↑ 18
High EGDI					
United Arab Emirates	GCC Member	0.7136	32	28	↓ 4
Saudi Arabia	GCC Member	0.6900	36	41	↑ 5
Qatar	GCC Member	0.6362	44	48	↑ 4
Oman	GCC Member	0.6273	48	64	↑ 16
Kuwait	GCC Member	0.6268	49	63	↑ 14
Regional Average		0.6838			
World Average		0.4712			

Source: UN. (2014). *UNITED NATIONS E-GOVERNMENT SURVEY 2014: E-GOVERNMENT FOR THE FUTURE WE WANT.* United Nations Department of Economic and Social Affairs.

2.7 Technology Acceptance Theories

Theories and models in technology adoption research have played a critical role as it provides frameworks to guide research design and interpret research results. There are a numerous number of theories and models employed in studying individuals' intention and adoption of new technologies. One of the well known models related to technology adoption is the technology acceptance model (TAM), originally proposed by Davis in 1986 (Park, 2009). TAM has proven to be a theoretical model in helping to explain and predict user behavior of information technology (Legris, Ingham, & Collerette, 2003). According to (Davis, Sep., 1989) TAM identified two theoretical constructs including Perceived Usefulness and Perceived Ease of Use that affect the intention to use a system. Another well identified theory is Theory of Reasoned Action (TRA) that explains an individual's behavior based on his or her behavioral intention (Ajzen, 1991). Also Theory

of Planned Behavior (TPB) is a well established social theory that states the specific salient beliefs influence behavioral intentions and subsequent behavior (Ajzen, 1991). In 2000, most of the above mentioned theories were updated to perceive more constructs such as Enhanced Technology Acceptance Model (TAM2). (Venkatesh & Davis, 2000) enhanced the TAM to Extended Technology Acceptance Model (TAM2), which provides a detailed explanation of the key forces underlying judgments of perceived usefulness. Similarly, the Unified Theory of Acceptance and Use of Technology model (UTAUT) was developed to address the limitation in (TAM2).

2.7.1. Unified Theory of Acceptance and Use of Technology

UTAUT provides a view of how the variables of intention and behavior evolve over time. It assumes that there are three direct determinants of intention to use (performance expectancy, effort expectancy, and social influence) and two direct determinants of usage behavior (intention and facilitating conditions) (Venkatesh, Morris, Davis, & Davis, 2003). These relationships are moderated by gender, age, experience, and voluntariness of use. Empirical testing of UTAUT shows that performance expectancy, effort expectancy, and social influence have significant relationships with the intention to use technologies (Venkatesh, Morris, Davis, & Davis, 2003). UTAUT is one theory that covers most of the individual independent variables including gender, age, experience, and voluntariness of use as moderating variables.

2.8 Factors affecting E-government adoption

Like any other new technology concept, the introduction and establishment of e-government has also resulted in a number of challenges for both citizens and governments of different countries (Al-Shafi & Vishanth, 2009). The most investigated challenges or factors are Lack of access to e-Services, trust, culture, and security. The study will focus on factors that affect the

adoption of e-government from citizen perspective. Therefore, it will hire the Unified Theory of Acceptance and Use of Technology UTAUT model (Venkatesh, Morris, Davis, & Davis, 2003). Venkatesh is the founder of this theory, and he created this theory to test user intentions to use any information system. This theory is the latest establishment model and it is more useful than other models as it associates all the previously designed models. As argued by (Alzahrani.M.E, 2012) the UTAUT model encompasses the maximum number of factors that have been found to have significant influence over adoption of technology. The previously established models are, TRA, TAM, TPB, Motivational Model MM, The Combined TAM and TPB (C-TAM-TPB), the Model of PC Utilization MPCU, DOI, and Social Cognitive Theory. Each of the previously established models was designed to apply a number of constructs that attempt to predict the user's behavior toward using information system. Most of the above mentioned theories which were established before the introduction of UTAUT model, lack to employ social factors to explore the inherent intentions of the user to use the information system. However, the aggregation of all the eight theories above compose the Unified Theory of Acceptance and Use of Technology UTAUT that can result in the fullness and a comprehensive analysis for this study. This Model was amended to properly suite and fit the aspects of this study field. The UTAUT model contains four determinants that explain the adoption of e-government in the kingdom of Bahrain:

1. ***Performance expectancy***, which is "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh, Morris, Davis, & Davis, 2003). This construct is measured by four statements (refer Appendex1 page.52) which test the usefulness of outcome, quickness, effectiveness, and easiness. Performance expectancy is measured using a number of variables: System's effectiveness, system's improvement of work performance, system's improvement of

productivity, chance to gain transferable skills, and better control of work (Algharibi & Theodoros, 2011).

2. ***Effort expectancy***, which is "the degree of ease associated with the use of the system" (Venkatesh, Morris, Davis, & Davis, 2003). (Refer Appendex1 P.52). Effort expectancy is related to complexity and the perceived ease of using e-government application and system. According to (Venkatesh, Morris, Davis, & Davis, 2003) this construct can be measured by a number of variables namely, Easiness of accessing e-government data, clarity of data, ability to identify relevant data, smoothness of interacting with the system, and system's overall presentation and outline.

3. ***Social influence***, which is "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh, Morris, Davis, & Davis, 2003)(Refer Appendex1 P.52). this determinant refers to what extent the user is likely to be influenced by others either positively or negatively. For example, citizens family and friends may impact on citizens believes and decisions. Similar to other constructs in this study, social influence is measured by a good number of variables namely, Organizational encouragement; organizational pressure for change; management communication and involvement in the change process; experience of a demo beforehand; and availability of an "open door" policy to discuss aspects related to change.

4. ***Facilitating conditions***, which are "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh, Morris, Davis, & Davis, 2003) (Refer Appendex1 P.52). this variable refers to the proper availability of the necessary resources and knowledge to adopt the e-government services. (Venkatesh, Morris, Davis, & Davis, 2003)

claimed that this construct should be measured by five variables, Comprehensiveness of manual or training session; ability to imagine applying the system to conducts tasks; mention of the extensiveness of search criteria; offer of steps that are logical to use, apply, and recall; and cover of all essentials to perform tasks and overcome difficulty.

The proposed model assumes that the Performance expectancy, Effort expectancy, Social influence, and Facilitating conditions have a strong relationship and influence on the intention to adopt and implement the e-government services.

CHAPTER 3:RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology used to conduct this study. It begins with the research design. Secondly, it indicates the research framework followed by research hypotheses. Also the Conceptual and operational definition of variables was discussed in this chapter briefly. Furthermore, the chapter highlights the population and sample methods, Questionnaire Design, Data Collection Procedures, and data analysis procedures.

3.2 Research design

The research methods used to implement this study were descriptive and quantitative methods, which consist of gathering data through a survey and then conducting Regression analysis to prove the significance of the independent explanatory variables based on the UTAUT amended model. To meet this, a survey questionnaire was designed after a careful review of several related literatures. The survey option was selected to save time, effort, cost, and to gain more reliable quantitative answers.

3.3 Research Framework

A research model was adapted using the revised UTAUT model. This model was revised by eliminating the effect of moderator factors namely age, gender, education and income level. Therefore, the model assumes that the adoption of e-government in the kingdom of Bahrain will be effected by four main variables: performance expectancy, effort expectancy, social influence, and facilitating conditions (refer Figure 3-1). The following is the brief description of each variable:

- Performance expectancy: is the degree to which an individual believes that using the system will help him or her to attain gains in job performance.
- Effort expectancy: is the degree of ease associated with the use of the system.
- Social influence: is the degree to which an individual perceives that important others believe he or she should use the new system.
- Facilitating conditions: is the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system.



Figure 3-1: Research Model

3.4 Research Hypotheses

Based on the literature given, the research hypotheses were clearly constructed in the following section using the aforementioned developed model scheme:

H1: The e-government adopters in the Kingdom of Bahrain differ significantly in terms of gender, age, income level and education level.

H2: There is a positive significant relationship between performance expectancy and the adoption of e-government in Bahrain.

H3: There is a positive significant relationship between effort expectancy and the adoption of e-government in Bahrain.

H4: There is a positive significant relationship between social influence and the adoption of e-government in Bahrain.

H5: There is a positive significant relationship between facilitating conditions and the adoption of e-government in Bahrain.

3.5 Conceptual and operational definition of variables

This section will provide the conceptual and operational definitions of all variables. The conceptual definition illustrate the meaning of the variable in terms of the theories of a specific discipline, while an operational definition defines exactly the variables and how they are measured within the context of the study. The Table 3-1summarizes each variable with its conceptual and operational definitions.

Table 3-1: Conceptual and operational definitions of variables

variables	conceptual	Operational
Performance Expectancy (independent)	The degree to which an individual believes that using the system will help him or her to attain gains in job performance. (Venkatesh, Morris, Davis, & Davis, 2003)	A four-item questionnaire on a five-point Likert scale. They were developed from a part of a questionnaire by (AlAwadhi & Morris, The Use of the UTAUT Model in the Adoption of E government Services in Kuwait, 2008)
Effort Expectancy (independent)	The degree of ease associated with the use of the system. (Venkatesh, Morris, Davis, & Davis, 2003)	A six-item questionnaire on a five-point Likert scale adopted and developed from (AlAwadhi & Morris, The Use of the UTAUT Model in the Adoption of E government Services in Kuwait, 2008)
Social Influence (independent)	The degree to which an individual perceives that important others believe he or she should use the new system. (Venkatesh, Morris, Davis, & Davis, 2003)	A four-item questionnaire on a five-point Likert scale developed from the (AlAwadhi & Morris, The Use of the UTAUT Model in the Adoption of E government Services in Kuwait, 2008)
Facilitating Conditions (independent)	The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system. (Venkatesh, Morris, Davis, & Davis, 2003)	A five-item questionnaire on a five-point Likert scale developed by (AlAwadhi & Morris, The Use of the UTAUT Model in the Adoption of E government Services in Kuwait, 2008).

3.6 Population and Sample

3.6.1. Population

The target population for this research was citizens who live in the Kingdom of Bahrain and who frequently need to conduct government

services and transactions. Therefore, Bahraini citizens over eighteen years old who use public sectors services are considered as a population for this study.

3.6.2. Sample and Sampling method

The targeted sample was selected from the larger population to describe the whole group. This selection applied Convenience Sampling method because the population is just too large that it is impossible to include every individual or every citizen, as well as, it is not feasible, practical or theoretically sensible to do random sampling. For accurate representative of large population, the selection process was conducted to question citizens in the Kingdom of Bahrain who were employed in government ministries and agencies.

3.7 Data Collection Procedures

The data collection process took place in April'2015 and the study population for this research consisted of all citizens in the Kingdom of Bahrain. Therefore, the survey questions were emailed to 400 Bahraini citizens who use public sector services. As well as, an online link was developed for the same survey questions and distributed through other social Medias like Facebook, Twitter, Google+, LinkedIn, and Whatsapp. A follow up post card reminder emailed after about 4 days. From 400 scattered questionnaires, 201 responses were received but 43 of those responses were discarded because some respondents left part of the survey questions unanswered. Thus, the total of responses which were used for the regression and other analysis were 185 responses.

3.8 Questionnaire Design

The survey consisted of twenty four close ended questions which limit the respondent to answer in multiple choice formats. The questionnaire questions were translated in Arabic language along with a brief introduction and definition of e-government services in the Kingdom of Bahrain. Furthermore, a couple of e-government service examples were provided to support the questions, and to facilitate the reading and understanding the concept of the questions. Also the research questionnaire involved two sections, the first section is for demographic data and the second section for measuring the main independent and dependent variables. Four questions were developed to get demographic information and the remaining twenty questions were designed to meet the main requirement of this study. Correspondingly, likert scale (5-point scale) and 'yes' or 'no' question pattern were used to group and analyze the information accurately using SPSS V21.

3.9 Data Analysis Procedures

Prior to data analysis, unsatisfied collected survey information was discarded from the selection, as those data did not meet the criteria of selection. All the received data were coded for the purpose of examination. The SSPS was used to analyze the data as follows:

- Descriptive statistics: were used to describe the basic features of the data in research that provides simple summaries about the sample. As well as, crosstab analyze option was used to test the first hypothesis.

- Regression Analysis: this test was performed to measure the difference in the variances between the tested variables, and that examined the four last hypotheses.

CHAPTER 4:DATA ANALYSIS AND FINDINGS

The accumulated data through survey to measure performance expectancy, effort expectancy, social influence, facilitating conditions, gender, age, education level, and income of all respondents were exported to SSPS V21 software application to get better analysis of demographic descriptive and regression output results.

4.1 Descriptive Data Analysis

This part of analysis consists of assessing and describing the collected data in the study (see Appendix57), it is important because it helps to simplify large amounts of data in a sensible way. In this paper, this part presents a brief overview of Bahraini citizen's participation. Table 4-1 summarizes the demographic information which was analyzed using SPSS V21 software application.

The demographic detail shows that 58% were females and 42% were males. Most of the respondents (40%) were less than 25 years old, and that traced by the range from 25 to less than 35 years were 26.5%, and then the age range from 35 to less than 45 years were 17%, and finally the age range from 45 years and above were 16%. In respect to the educational level, the larger part of the respondents (40%) were at the level of high school or less, 23% of the respondents were holding bachelors degree and only 16% were holding diploma degree, the remaining 22% of the respondents were at higher graduate studies level. In terms of income, the highest rate of 48% was for the income range from BHD 1000 to less than BHD 2000, followed by 20.5% for respondents whose income were at BHD 2000 or above, then 15% of respondents were earring between BHD 500 and less than BHD 1000, lastly the percentage corresponding to the income less than BHD 500 is 16%.

Table 4-1: Demographic Analysis

			Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Valid	Female	108	58.4	58.4	58.4
		Male	77	41.6	41.6	100.0
Age	Valid	Less than 25 years	74	40.0	40.0	40.0
		25 to less than 35 years	49	26.5	26.5	66.5
		35 to less than 45 years	32	17.3	17.3	83.8
		45 to less than 55 years	13	7.0	7.0	90.8
		55 and above	17	9.2	9.2	100.0
Education	Valid	High School or less	74	40.0	40.0	40.0
		Diploma	29	15.7	15.7	55.7
		Bachelor	42	22.7	22.7	78.4
		Graduate Studies	40	21.6	21.6	100.0
Income	Valid	Less than BD 500	30	16.2	16.2	16.2
		BD 500 - to less than BD 1000	28	15.1	15.1	31.4
		BD 1000 - to less than BD 2000	89	48.1	48.1	79.5
		BD 2000 and above	38	20.5	20.5	100.0

4.2 Reliability measurement

Reliability is an important measurement for determining the overall validity of a study experiment and improving the strength of the results. The idea behind reliability is that any other researchers must be able to implement the same experiment and get the same results. According to (Joppe, 2000) and cited by (Golafshani, 2003), reliability is the extent to which results are consistent over time and an accurate representation of the total population

under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable. Cronbach's Alpha One of the most popular reliability statistics in use today. Cronbach's alpha determines the internal consistency or average correlation of items in a survey instrument to gauge its reliability. To assess the variables in this research, all of the 18 questions were analyzed using SPSS to measure the level of consistency (refer Table 4-2). The cronbach's alpha for this study is .80 which is greater than the acceptable level of reliability 0.7. (Hinton, C., I., & Cozens, 2004) Have suggested four points for reliability acceptance, which includes excellent reliability (0.90 and above), high reliability (0.70- 0.90), moderate reliability (0.50-0.70) and low reliability (0.50 and below).

Table 4-2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.803	.812	18

4.3 Demographic Distinctions

The demographic distinctions were examined and analyzed using inferential statistics. Based on (Tokunaga, 2015), Inferential statistics are procedures used that allow researchers to infer or generalize observations made with samples to the larger population from which they were selected. This study assumes that the differences in Gender, Age, Education level, and the income will effect differently on the number of e-government users. For example in case of gender, a research study might need to know whether males or females differ in the adoption of e-government services. Do males

are more likely to use the e-government services? Are the male e-government adopters higher than females? Correspondingly, a Chi square test was implemented in this paper which is one type of inferential statistic methods. Chi square test was used to compare between the observed data and the expected frequencies and determine whether there is a statistically significant difference among variables.

4.3.1. Gender and number of e-government users:

In terms of e-government adopters among Bahraini citizens, Table 4-3 shows that there are 55% females compared to 45% males. And the percentage of non e-government female users is 74% which is greater than the non e-government male users (25%). Pearson Chi Square test provides that there is no significant difference between the number of e-government users and gender, as the P = .034. The gender in the kingdom of Bahrain does not play great rule in the adoption of e-government. In other words, women and men were equally associating and contributing to finalize most of e-government services.

Table 4-3: Gender as a Factor of E-government Users and Nonusers

Gender		E-government users		Total
		No	Yes	
Female	Count	26	82	108
	% within E-government users	74.30%	54.70%	58.40%
Male	Count	9	68	77
	% within E-government users	25.70%	45.30%	41.60%
Total	Count	35	150	185
	% within E-government users	100.00%	100.00%	100.00%

Chi-Square	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.495[a]	1	.034

4.3.2. Education and number of e-government users:

Table 4-4 presents number of e-government adopters holing different level of education degrees in the Kingdom of Bahrain. The Table 4-4 indicates that the most of e-government users are holding high Graduate studies (31.4%). Followed by bachelor degree holders (20%), and diploma degree holders (20%). Finally, the education level of high school or less is corresponding to 26.6%. It has been noticed that the ratios are somewhat convergent at all levels of education. In terms of non e-government users, the most of non e-government users were noted to have low level of education (42%). The Pearson's Chi – square test verified that there was no significant difference between the level of education and the number of e-government users. This reveals the majority of the citizens in the Kingdom of Bahrain were able and willing to learn and adopt the e-government services regardless of their education level.

Table 4-4 : Education as a Factor of E-government Users and Nonusers

Education	E-government users		
	Yes	No	Total

High School or less	Count	10	63	74
	% within E=government users	28.6%	42.0%	40.0%
Diploma	Count	7	22	29
	% within E-government users	20.0%	14.7%	15.7%
Bachelor	Count	7	35	42
	% within E-government users	20.0%	23.3%	22.7%
Graduate Studies	Count	11	30	40
	% within E-government users	31.4%	20.0%	21.6%
Total	Count	35	150	185
	% within E-government users	100.0%	100.0%	100.0%

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	2.411[a]	3	.492

4.3.3. Age and number of e-government users:

Table 4-5 disclosed that the lower the age of Bahraini citizens, the higher the percentage of e-government use. The rate of e-government use decreases at group above 45 years old category. The largest percentage of e-government users were at age less than 25 years (41%).on the contrary, the older age group, less than 35 years, (26.7%), then less than 45 years group, (16%), and then above 55 years age group were 8.7%. therefore, the

age played certain role to success the adoption of e-government. In like manner, Table 4-5 disclosed that the pattern of non e-government users were on the same direction of "yes" e-government users. The lower the age of Bahraini citizens, the higher the number of non e-government user. The majority of non e-government users (34%) were less than 25 years old. Pearson Chi-Square test represented that there was a significant difference between ages and the users of e-government services.

Table 4-5: Age as a Factor of E-government Users and Nonusers

Age		E-government users		Total
		No	Yes	
Less than 25 years	Count	12	62	74
	% within E-government users	34.3%	41.3%	40.0%
25 to less than 35 years	Count	9	40	49
	% within E-government users	25.7%	26.7%	26.5%
35 to less than 45 years	Count	8	24	32
	% within E-government users	22.9%	16.0%	17.3%
45 to less than 55 years	Count	2	11	13
	% within E-government users	5.7%	7.3%	7.0%
55 and above	Count	4	13	17
	% within E-government users	11.4%	8.7%	9.2%

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.475	4	.001

4.3.4. Income and number of e-government users:

Table 4-6 showed that the largest rate of e-government users (46%) dropped between citizens whose income range from BHD 1000 to less than BHD 2000. And then the remaining adopters rate were equal (27%) for all income range categories (less than BHD 500, from BHD 500 to less than BHD 1000, BHD 2000 and above). In case of non e-government users, the highest percentage of e-government users (57%) was from group of income range from BHD 1000 to less than BHD 2000. It has been noted that citizens with high range of income were more likely to use the e-government applications. Pearson Chi-Square test represented that there was a significant difference between income and the users of e-government services.

Table 4-6: Income as a Factor of E-government Users and Nonusers

Income		E-government users		Total
		No	Yes	
Less than BD 500	Count	3	27	30
	% within E-government users	8.6%	18.0%	16.2%
BD 500 - to less than BD 1000	Count	1	27	28
	% within E-government users	2.9%	18.0%	15.1%
BD 1000 - to less than BD 2000	Count	20	69	89
	% within E-government users	57.1%	46.0%	48.1%
BD 2000 and above	Count	11	27	38
	% within E-government users	31.4%	18.0%	20.5%

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.079[a]	3	.001

4.4 Regression Results

Table 4-7: Results of Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.933[a]	.867	.867	.359

a. Predictors: (Constant), PE, EE, SI, FC

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	437.138	4	145.046	19.979	.000[b]
	Residual	67.936	180	.069		
	Total	505.074	184			

a. Dependent Variable: User Of eGov

b. Predictors: (Constant), PE, EE, SI, FC.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	2.188	.099		22.179	.000
	PE	.040	.008	.014	.186	.004
	EE	.807	.007	.817	.777	.000
	SI	.002	.011	.134	1.800	.852
	FC	.570	.021	.199	2.664	.000

a. Dependent Variable: User Of eGov

The result of the regression analysis related to the e-government adoption (see Table 4-7) indicates that the relation is strong and positive. Adjusted R square is 0.867, and this means 87% of the variance in the e-government adoption is explained by the variance of Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Condition. Adjusted R-squared gives the percentage of variation explained by only those independent variables that in reality affect the dependent variable. Also the results in (Table 4-7) presents that the relationship between the independent and the dependant factors is significant. The highest coefficient β=0.807 corresponds to effort expectancy as a determinant of e-government adoption, then the facilitating conditions β=0.570, and then the performance expectancy facto β=0.040, finally, the social influence is loading the lowest coefficient β=0.002. As demonstrated Effort Expectancy and Facilitating conditions have the largest impact in the explanation of variation to adopt e-government services. As well as, they are positively and strongly correlated to the adoption of e-government. This is followed by Performance Expectancy construct which has a positive and moderate significant impact on the adoption of e-government. In contrast, Social Influence is not considered to be significant predictor even it has a positive relation with e-government adoption.

4.5 Summary of the Results

To assess and measure the factors of E-government adoption, the collected data were tested and analyzed using SPSS V21. The factors Gender, Age, Education, and Income were considered to analyze and examine the first hypothesis (see

4.6

4.7

4.8

Table **4-8**). Whereas, Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions were employed to measure how they

affect the adoption of e-government in the Kingdom of Bahrain, thus it investigated and tested the hypotheses 2, 3, 4, and 5. The following (

4.9

4.10

4.11

Table 4-8) provides a brief summary of each mentioned hypotheses and whether they are accepted or rejected.

Table 4-8: Findings Summary

Hypothesis	**Finding**	**Conclusion**
H1: The e-government adopters in the Kingdom of Bahrain differ significantly in terms of gender, age, income level and education level.	• The descriptive analysis indicates that the different groups of gender and educations have almost equal percentage of actual use of e-government applications. This means that the variances in gender and education do not have significant effect on the adoption of e-government in Bahrain. • The higher the income will tend to greater adoption of e-government. • The younger Bahraini citizens are more likely to adopt e-government services.	50% of the hypothesis is Supported
H2: There is a positive significant relationship between *performance expectancy* and the adoption of e-government in Bahrain.	• β=0.040	The hypothesis is Not Highly Supported

H3: There is a positive significant relationship between *effort expectancy* and the adoption of e-government in Bahrain.	• β=0.807	The hypothesis is Supported
H4: There is a positive significant relationship between *social influence* and the adoption of e-government in Bahrain.	• β=0.002	The hypothesis is Not Supported
H5: There is a positive significant relationship between *facilitating conditions* and the adoption of e-government in Bahrain.	• β=0.057	The hypothesis is Supported

CHAPTER 5:DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses and concludes the findings gathered from the data analysis of the survey which was implemented to examine citizen's adoption and their intention of the national Bahraini e-government services. The findings were presented in several sections. The first discussion is pertaining to the descriptive demographic findings obtained through inferential statistic analysis on the adoption of the e-government system. The second discussion is pertaining to the regression analysis of the four factors affecting the adoption of e-government namely, Performance expectancy, effort expectancy, social influence, facilitating conditions. Finally, this section will summarize the main aspects of the study as well as the results of the findings. In addition, it will provide recommendations and suggestions for further research studies.

5.2 Discussion Pertaining to Demographic Distinctions

This study assumes that the differences in Gender, Age, Education level, and the income will effect differently on the number of e-government users and nonusers. The actual inferential statistic results proved that there is no significant correlation between different groups of gender, education levels and the number of e-government adopters and non adopters. In other words, the adoption of e-government is not limited or performed by

certain group of gender or certain group of education level. The inferential statistic results also presented that the higher level of citizen's income, will lead to greater intention to use e-government services. As well as, the results provided that the lower the age of Bahraini citizens, the higher the number of e-government users.

5.2.1. Gender:

A couple of research studies in the Middle East stated that the adopters of e-government will be more from male than female gender (Al-Shafi & Vishanth, 2009). Conversely, the results of this paper confirmed that the proportions of female and male citizens in the Kingdom of Bahrain are convergent in respect to the use of e-government services (refer Table 4-3).In comparison with other western countries, the United Nations annual report (UN, 2014) stated that the there are more women users of the Internet than men, the majority of countries display the norm where men have an edge over women refer Appendix55. Overall, gender plays a very limited role in the adoption of e-government in Bahrain.

5.2.2. Age:

Many seniors or older Bahraini citizens remain largely unattached from online life and they do not use the internet at all for any government or non-government services. The finding results supported that the majority of e-government users are from group less than 25 years old. Logically, the kids are not allowed to perform any kinds of government services. Also the young school students are not fully independent to hang out such services. Thus, the results confirmed that the higher the age the more likely the citizen to enter and perform e-government services. Similarly, the statistic findings of 2013 survey on Information and Communication Technology in EU (SEYBERT & REINECKE, 2013) clarified that most internet users in the

aged group 16 – 24 took part in online consultations or votes on civic or political issues (refer Appendix56).

5.2.3. Education:

In term of education, the common sense says that the more educated people are more likely to use the technology and e-government services, but this study found that the relationship between education and e-government adoption is poor. All the different levels of education among Bahraini citizens have a convergent rate of e-government adoption. Moreover, the second highest group of e-government users is from high school or less category. In contrast with statistical studies in European countries (SEYBERT & REINECKE, 2013), There was significant divergence between level of education and the number of e-government users. They found that the individuals with a high level of education were nearly twice that for those with a low level of education. The reason behind the equal share of e-government users with regard of different levels of education in Bahrain could be the policy of mandatory requirement by some ministries to clear many of e-government services online for example, renewing expired ID smartcards through Central Informatics Organization website in the Kingdom of Bahrain.

5.2.4. Income:

According to the results of this study, Bahraini citizens with higher household income levels are more likely to access the internet and perform e-government services. Citizens who are living in lower income households are still somewhat less likely to use the e-government services. Furthermore, several studies on developed countries were concluded the strong relation between income level and the adoption of e-government services, it has been underlined by (Alshihi, 2006) that UK government

websites are more likely to be accessed by those segments of the society that have higher income and education. Also the digital research on e-government adoption (Niehaves, Gorbacheva, & Plattfaut, 2013) in European countries confirmed that the internet e-government usage rises with having high income. The findings here are totally in line with previous studies.

5.3 Discussion Pertaining to the factors that affect E-Government Adoption

The results from linear regression analysis provided evidence that Effort Expectancy and Facilitating Conditions (independent variable) significantly explain Intentions to adopt e-government (dependent variable). The independent Social Influence factor can explain moderate significant intentions to adopt the e-government services. In other hand, Performance Expectancy was not considered to be a significant predictor in this model.

5.3.1. Significant factors (Effort Expectancy & Facilitating Conditions):

The effort expectancy construct is the degree of ease associated with the use of the system (Venkatesh, Morris, Davis, & Davis, 2003). The findings suggested that the effort expectancy has a positive effect on the use of e-government services. Certainly, the greater believe in the easiness of using e-government applications by the individual, the more likely he or she will use the e-government services. In like manner, the facilitating conditions factor in this study is the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system. The findings explains that the higher individual believe of the infrastructure existence, the more likely he or she will tend to use e-government services. The results provide a positive effect on the use e-government services.

5.3.2. Moderate Significant factor (Performance expectancy):

Performance expectancy is the degree to which an individual believes that using the system will help him or her to attain gains in job performance (Venkatesh, Morris, Davis, & Davis, 2003). According to this paper results, performance expectancy construct has moderate positive significant effect on e-government adoption. The higher the individual believe of valuable outcome, the more likely he or she adopt the e-government services.

5.3.3. Not Significant factor (Social Influence):

As stated by (Venkatesh, Morris, Davis, & Davis, 2003) the social influence is the degree to which an individual perceives that important others believe he or she should use the new system. The regression findings implies that the correlation between social influence and the e-government adoption is not significant and week. That means Bahraini citizens are not influenced by social peers in term of e-government adoption. Similarly, the research handled by (Al-Qeisi, Dennis, Hegazy, & Abbad, 2015) to measure UTAUT factors in Jordan, Saudi Arabia and Egypt concluded that the effect of social influence on behavioral intentions toward using e-government services is weak. Moreover, such unimportant effects of social influences on the adoption of e-government services within the UTAUT context are also reported findings under different web-based technology applications and studies.

5.4 Conclusion of the study

This paper investigated main factors affecting the adoption of e-government services in the Kingdom of Bahrain. 185 citizens were surveyed using the amended version of the Unified Theory of Acceptance and the Use of Technology UTAUT model and a regression analysis was implemented to test the related factors affecting the adoption of e-government namely, performance expectancy, effort expectancy, social influence, and facilitating conditions. Furthermore, the collected demographic data were tested using inferential statistic analysis in order to measure variances in term of e-government usage, and that to test whether the e-government adopters in the Kingdom of Bahrain differ significantly in terms of gender, age, income, and education level. The result of the regression analysis supports the effect of Performance Expectancy, Effort expectancy, and Facilitating conditions towards e-Government adoption in Bahrain since all the three variables found to have a significant relationship with dependent variable. Among the independent variables, effort expectancy shows the highest impact on the e-government adoption. The results does not support social influence variable to have significant effect on e-government adoption. The inferential statistic result confirmed that the e-government adopters in the Kingdom of Bahrain differ significantly in terms of age, and income level. At the same time, the inferential results confirmed that there are no significant differences in gender and education in term of e-government adopters. In general, the government should implement policies that emphasize the easiness, efficiency, and useful outcomes of e-government process. They should conduct awareness campaigns to inform public citizens about the real benefits they would be gained from the system.

5.5 Recommendations

The summary findings of this study have a number of important implications to both researchers and practitioners. Since this is the first known study that investigates citizen's intention and acceptance of e-

government services in the Kingdom of Bahrain. It will provide the theoretical foundation for researchers to develop future studies. For practitioners, understanding the key constructs in the proposed research framework is crucial in the design and development of e-government services with high citizen adoption. Using the research results, the following recommendations can be suggested: New e-government services should be seamlessly integrated into citizen transaction without requiring extraneous steps, equipment, and training. Therefore, the e-government services should be designed in a way to enforce these aspects by citizens; it should be designed in a highly easy manner with the focus on the effort required by the citizen that influences their intention toward using e-government services. Furthermore, the design of the e-government services has to be understandable and well compatible with the majority of citizen's experience, expectation and objectives. As a future research studies, this research has to be expanded to increase the sample size with measuring other dimensions or variables of e-government adoption such as the impact of citizen quality of life, e-government promotions, citizens skills and awareness campaigns, roomers, and internet broadband. In addition, this research paper provides an initial endeavor to understand the adoption of e-government services in Bahrain from citizen's perspective only. Therefore, future studies can be encouraged to be implemented from an e-government agencies perspective.

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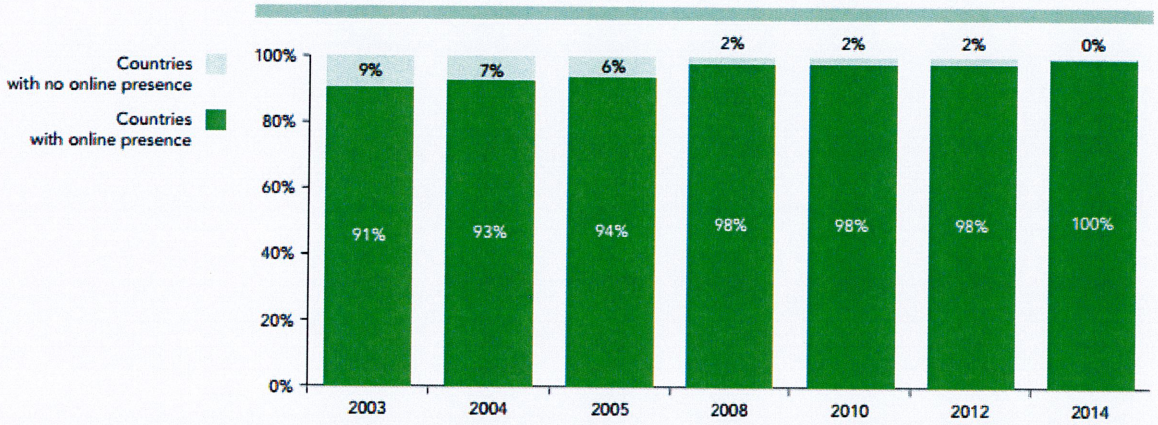
APPENDIX 1: SURVEY STATEMENTS

1	Using the e-government system technology would enable me to accomplish tasks more quickly.	1. Performance expectancy Statements
2	Using the e-government system would enhance to complete the task more effectively.	
3	Using the e-government system would make it easier to complete tasks.	
4	I would find the e-government system useful.	
5	Learning to operate the e-government system would be easy for me.	2. Effort expectancy Statements
6	My interaction with the e-government technology would be clear and understandable.	
7	I would find the government system flexible to interact with.	
8	It would be easy for me to become skilful at using e-government system.	
9	Using the e-government technology takes too much time from my normal duties.	
10	Overall, I believe that the e-government system is easy to use.	
11	People who are important to me think that I should use e-government applications to complete government transactions.	3. Social influence Statements
12	I would only use online e-government services if I needed to.	
13	I would use the online e-government services if my	

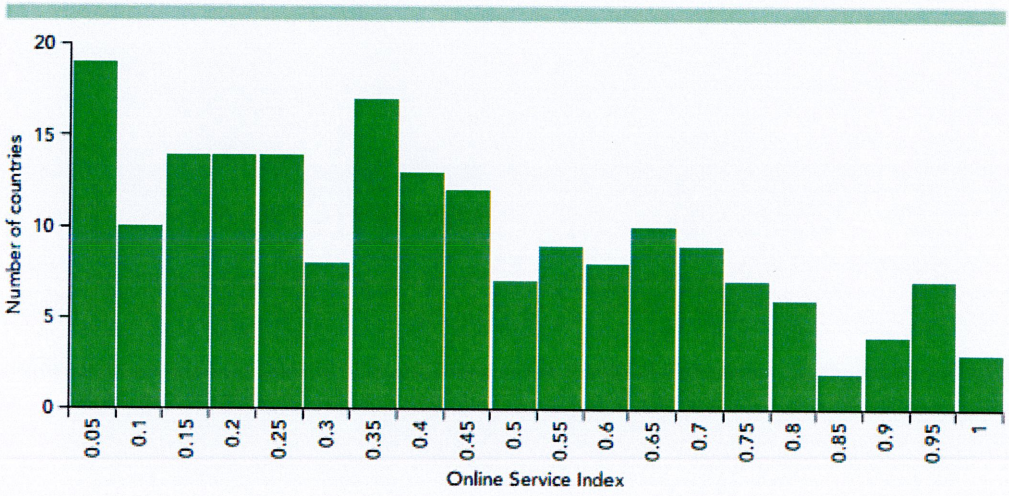
	friends used them.	
14	I have the resources necessary to use the e-government system.	3. Facilitating conditions Statements
15	I have the knowledge necessary to use the e-government applications.	
16	Given the resources, opportunities and knowledge to use e-government applications, it would be easy for me to use the system.	
17	I think that using the e-government applications fit well with the way I like to work.	
18	Using e-government applications fit into my work and life style.	

APPENDIX 3: UNITED NATIONS MEMBER STATES MEASURMENT

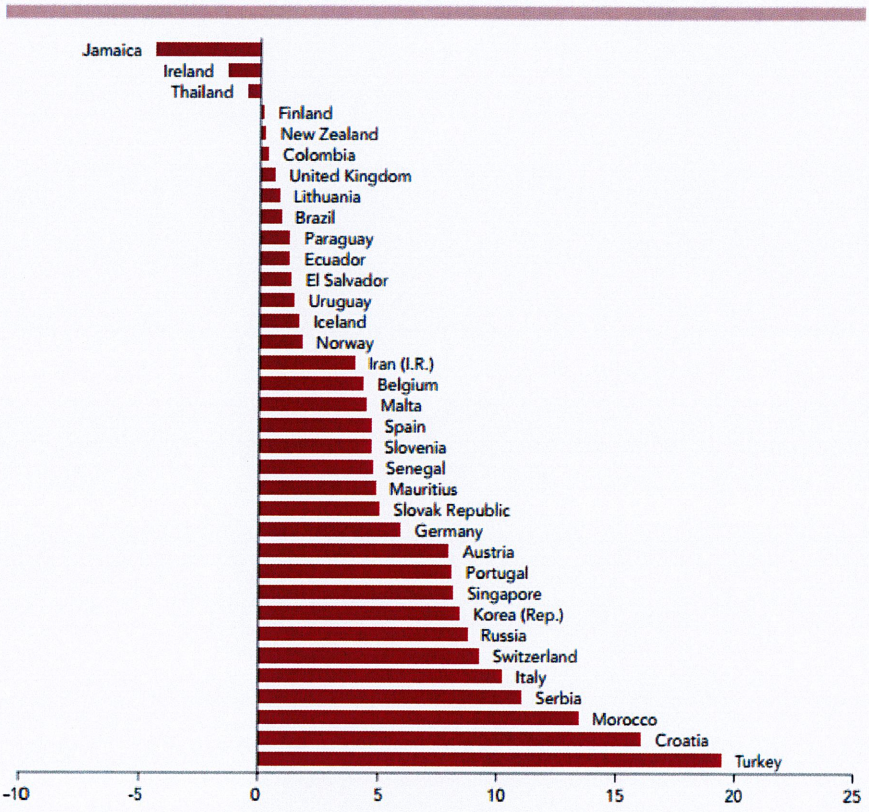
% of UN Members with no online presence, 2003–2014



Distribution of Online Service Index values

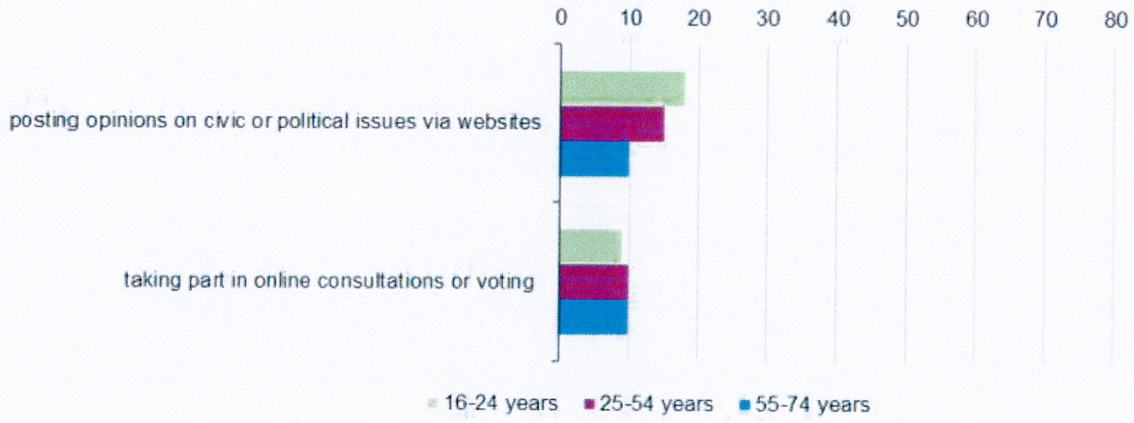


APPENDIX 4: DISPARITY IN USE OF INTERNET BETWEEN MEN AND WOMEN

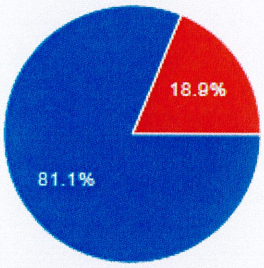


Source: Data from the ITU, based on national sources and Eurostat. http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

APPENDIX 5: USE OF INTERNET FOR CIVIC AND POLITICAL PARTICIPATION, BY AGE GROUP, EU-28, 2013 (% OF INTERNET USERS)



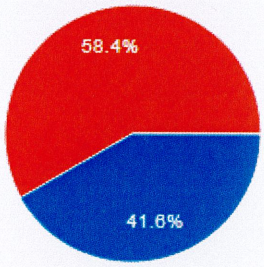
APPENDIX 6: SUMMARY OF DEMOGRAPHIC INFORMATION



1.1 Do you use e-government services?

Yes **150** 81.1%

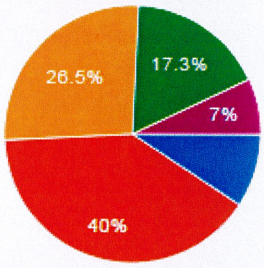
No **35** 18.9%



1.2 What is your gender?

Male 77 41.6%

Female 108 58.4%



1.3 What is your age?

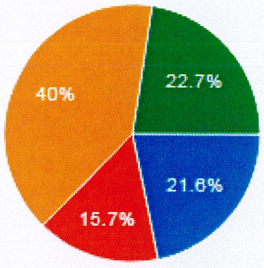
Less than 25 years **17** 9.2%

25 - to less than 35 **74** 40%

35 - to less than 45 **49** 26.5%

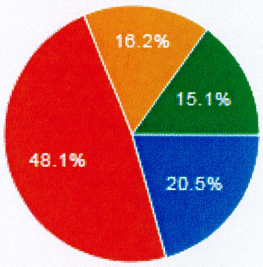
45 - to less than 55 **32** 17.3%

55 and above **13** 7%



1.4 What is the highest degree or level of school you have completed?

High school or less	الثانوية العامة او اقل	40	21.6%
Diploma	دبلوم	29	15.7%
Bachelors	بكالريوس	74	40%
Graduate studies	التعليم العالي	42	22.7%



1.5 What is your current income in BHD?

Less than BD 500	38	20.5%
BD 500 - to less than BD 1000	89	48.1%
BD 1000 - to less than BD 2000	30	16.2%
BD 2000 and above	28	15.1%

APPENDIX7: SURVEY QUESTIONS

E-government Survey

Dear Citizen,

I am conducting this survey to complete my Masters project. The aim of this Project is to assess the services provided by e-government. Your participation in this survey is valuable in order to improve the performance of e-government services.

عزيزي المواطن،

وُضع هذا الاستبيان لتقييم خدمات الحكومة الالكترونية وسهولة استخدامها. وإننا ننشد مساعدتك لتحقيق هدفنا من خلال قيامك بملء الاستبيان. إن الهدف الرئيسي من هذا الاستبيان هو محاولة معرفة رضا المستخدم من خدمات الحكومة الالكترونية ومدى الإلمام بها وثقته، ومعرفة جوانب القصور. إن مشاركتكم محل تقديرنا الشديد حيث يعتبر هذا الاستبيان جزء من متطلبات اتمام رسالة الماجستير.

التعريف: الحكومة الإلكترونية تهدف إلى تقديم الخدمات الحكومية على إختلافها عبر الوسائط الإلكترونية وأدوات التكنولوجيا وأهمها الإنترنت والإتصالات.

مثال: دفع فواتير الكهرباء والماء عن طريق الحكومه الالكترونيه (الانترنت) بدلامن الذهاب شخصيا الى وزارة الكهرباء والماء والاصطفاف في الطابور لتخليص المعامله يدويا.

Do you use e-government services?* هل تستخدم خدمات الحكومه الالكترونية؟*

- Yes
- No

What is your gender? الجنس *

- Male ذكر
- Female أنثى

Age: What is your age? العمر *

- Less than 25 years
- 25 - to less than 35

- 35 - to less than 45
- 45 - to less than 55
- 55 and above

Education: What is the highest degree or level of school you have completed? مرحلة التعليم*

- High school or less الثانوية العامة او اقل
- Diploma دبلوم
- Bachelors بكالريوس
- Graduate studies التعليم العالي

Income: What is your current income in BHD? الدخل *

- Less than BD 500
- BD 500 - to less than BD 1000
- BD 1000 - to less than BD 2000
- BD 2000 and above

The following questions are five point likert scale 1-Strongly agree 2- Agree 3- Uncertain 4- Disagree 5-Strongly disagree.

Using the e-government system technology would enable me to accomplish tasks more quickly. *

ان تطبيقات الحكومة الالكترونية مفيده لتخليص المعاملات بسرعة اكبر.

Using the e-government system would enhance to complete the task more effectively. *

أن استخدام تطبيقات الحكومة الالكترونيه تؤدي الى انجاز الخدمات بفعالية .

Using the e-government system would make it easier to complete tasks. *

أن استخدام تطبيقات الحكومة الالكترونيه يجعل انجاز المهام أسهل .

I would find the e-government system useful. *

أن نظام الحكومه الالكترونية مفيده في انجاز الخدمات الحكومية.

Learning to operate the e-government system would be easy for me. *

أنا واثق بان التعامل مع وتشغيل نظام الحكومة الالكترونية.

My interaction with the e-government technology would be clear and understandable. *

أجد تفاعلي مع تكنولوجية الحكومة الالكترونيه واضح و مفهوم.

I would find the e-government system flexible to interact with. *

أرى ان استخدام الحكومة الالكترونيه مرن للتفاعل معه .

It would be easy for me to become skillful at using e-government system. *

أرى انه من السهل بالنسبة لي أن تصبح لدي المهاره لاستخدام تطبيقات الحكومة الالكترونيه.

Using the e-government technology takes too much time from my normal duties. *

أجد ان استخدام تكنولوجيا الحكومة الإلكترونية يأخذ الكثير من وقت واجباتي اليومية .

Overall, I believe that the e-government system is easy to use. *

عموما، أعتقد أن نظام الحكومة الإلكترونية سهل الاستخدام .

People who are important to me think that I should use e-government applications to complete government transactions. *

الناس المهمين بالنسبه لي يعتقدون بأنه يجب ان استخدم تطبيقات الحكومه الالكترونيه لتخليص المعاملات.

I would only use online e-government services if I needed to. *

سوف اقوم باستخدام خدمات الحكومه الالكترونيه عند حاجتي لها فقط.

I would use the online e-government services if my friends used them. *
سوف اقوم باستخدام خدمات الحكومه الالكترونيه عندما ارى اصدقائي يستخدمونها.

I have the resources necessary to use the e-government system. *
لدي الموارد اللازمة لاستخدام نظام الحكومة الإلكترونية.

I have the knowledge necessary to use the e-government applications. *
لدي المعرفة اللازمة لاستخدام تطبيقات الحكومه الالكترونيه.

Given the resources, opportunities and knowledge to use e government applications, it would be easy for me to use the system. *
نظرا لوجود الموارد والفرص والمعرفة لاستخدام تطبيقات الحكومة الإلكترونية، سيكون من السهل بالنسبة لي أن استخدام النظام.

I think that using the e-government applications fit well with the way I like to work. *
أعتقد أن استخدام تطبيقات الحكومة الإلكترونية يتناسب تماما مع الطريقة التي أحب في العمل.

Using e-government applications fit into my work and life style. *
استخدام تطبيقات الحكومة الإلكترونية يتناسب مع أسلوب عملي و حياتي.

To what extent you are satisfied with e-government services? *
الى اي مدى انت راض بخدمات الحكومة الالكترونية؟

Do you intend to adopt the e government services? *
هل تنوي استخدام نظام الحكومة الالكترونيه؟