E-GOVERNMENT ADOPTION AND IMPLEMENTATION IN DEVELOPING COUNTRIES:

AN EXPLORATORY STUDY OF ADOPTION SUCCESS FACTORS FOR E-GOVERNMENT SERVICES TO CITIZENS (G2C) IN LIBYA

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Abstract

Since the advent of Internet and communication technologies, E-government has become a Subject of considerable importance to the developed and developing countries, providing these countries with many potential opportunities to improve the quality of public services, provide cost-effective service delivery, and promote a better relationship between citizens and governments than that associated with traditional modes of public services delivery. However, the few existing studies in the field of IS related to the adoption and diffusion of online public services in the context of developing countries reveal that citizens remain sceptical about accepting internet-based technologies. This raises the question among researchers, scholars, and practitioners involved in the development and implementation of ICT, of how governments can increase citizen adoption and level of usage of the new electronic delivery channel in respect of public services in developing countries.

The primary objectives of this study are twofold. Firstly, it aims to identify the critical success factors in respect of E-government adoption and implementation in Libya, from the citizen perspective, and secondly, it aims to determine the inter-relationships among these factors in the Libyan context. In doing this it assesses the usefulness of the Technology Acceptance Model (TAM) as a basis for the development of a conceptual framework enabling rational, informed decisions underlying and predicting citizen satisfaction with E- government services in Libya. To achieve its aims, the study undertakes five main tasks, these being: (1) a review of the literature, (2) a preliminary field investigation to ensure the appropriateness of the research approach chosen for the study, (3) a pilot study to assess the reliability and validity of the research model, (4) the development of hypotheses and scales, and (5) the development and validation of a research model via a questionnaire survey. Triangulation of the data is achieved by using qualitative interviews as well as a quantitative survey. The data from the study is then compared and contrasted with the literature from which the theoretical framework for the contextualisation and interpretation of findings was developed.

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Acknowledgments

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

The introduction of e-government., intended to improve the provision of public services, has in fact, brought with it radical change in societies around the world. Consequently, there is still much debate about the adoption of e-government principles, and the way in which these are implemented; and in certain countries, especially those that are still developing, the that implementation of e-government presents many challenges. Indeed, such challenges occur for developed countries with all their resources and advancement, so the situation for developing contexts can be seen as a genuine struggle in many respects such as infrastructure provision. Additionally, it has to be recognised that e-government initiatives must be tailored to the particular needs of specific societies, since different countries have different circumstances, and a uniform approach in the implementation of e-government is unlikely to be successful in all contexts. Indeed, such an approach may hinder the achievement of the objectives of e- government.

Within the Arab World, Libya is one country that has set its sights on the adoption of e- government as a means of providing services in public sector institutions. The rationale for such a position is that e-government is believed to be capable of improving the efficiency, cost and quality of the information and services that are provided by government to citizens, companies, employees and other government agencies. However, despite this agreed objective, and the fact that so far plans and strategies have been developed to facilitate the implementation of e-government, as yet the introduction of e-government applications has not really taken hold; and the reality is that its adoption is extremely Low, and at the individual level, it is even lower. Of course, the political regime change and the revolutionary and bloody events surrounding that change in 2011, have combined to place Libya within a very difficult set of circumstances, and currently the country is in period of recovery which will take time to finish. This positions Libya within a very specific context, and consequently, the planning and strategic development associated with the facilitation of e-government must take this into account. At the same time, it is recognised that the whole e-government issue represents a comparatively new research topic, and as yet the

antecedents of its effectiveness or otherwise are still being investigated. Hence, there is a need for the proposed research, which is motivated in part by the need to know how to proceed if Libya's e-government programme is to be successful. In introducing the general background to the adoption and implementation of e-government services and applications in Libya, this first chapter presents an overview of the research problem, and a rationale for pursuing the study. It then establishes the study's aims, the three research questions to be asked in order to achieve these aims, and the four objectives associated with them. Additionally, a brief indication of the methodology employed is given. And a short discussion of the study's contribution to knowledge is provided. The chapter ends with an indication of how the research is organised.

1.2 Background to the Research Problem

As a concept, e-government has raised the interest of many researchers in the past decade, and as a starting point, a number of contributions have been provided by academics in the field, such as Carter and Belanger (2005), Gilbert et al. (2004), and Warkentin et al. (2002). In essence, e-government refers to the electronic provision of information and services for citizens and other individuals, companies, and institutions, and in recent years, most national governments worldwide have launched their own internet websites. Indeed, the United Nations (2010) reports that according to its own e-government survey conducted in 2010, 189 of the 192 Member States (98%) had some online presence whether this is a national portal or ministry website. West (2008) also noted a high volume of government websites globally, offering services for citizens, such as databases, and other facilities supported by audio and video input.

Undoubtedly, the take up of e-government is gaining pace as confirmed by Deloitte (2011) after a study in Technology, Media and Telecommunications that revealed an increase of 15% (up to 90%) from the previous year (2010, when the usage was reported as being 75%), in the number of businesses in developed countries using at least one e-government service. Moreover, it is not only central governments that are moving to an online presence, since local governments' implementation rates are also high, as indicated by research in the US which revealed an increase in electronic communication in the various municipalities in certain States of America. As noted by Scott (2006), the relevant percentages ranged from 53.2% in the state of Oklahoma to 80% for the State of Washington.

Nonetheless, regardless of these success stories in the implementation of e-government, both nationally and locally, it has been found by many researchers that at the level of the citizen, participation rates are low (Wang, 2003; Choudrie and Dwivedi, 2005; Fu et al., 2006; Kumar et al., 2007; Belanger and Carter, 2008; Gupta et al., 2008). Indeed, Kumar et al. (2007) report the global average for government website usage by citizens as being only 30%. This phenomenon has been attributed by Carter and Belanger (2008) to a preference among many people to use traditional methods of communication. And in fact, despite determined efforts by government to engage citizens in their online strategy, it is clear that face-to-face communication, telephone, and fax are more popular than internet methods (Carter and Belanger, 2008). In Taiwan, for example, it was found by Wang (2003) that fewer than 8% of taxpayers used e-tax systems, and whilst that figure was seen to rise to 40% in 2006 by Fu et al. (2006), it remains that the majority of citizens prefer to make their tax returns on paper documents. Clearly, some countries have advanced more rapidly than others in their e- government adoption, but even so, as noted by Kumar et al. (2007), the rate of implementation globally has not been at the level expected. Indeed, the majority of empirical studies in both developed and developing countries have confirmed this state of affairs.

In developing countries in particular, there is low citizen awareness of e-government services and applications, and it has been reported by Al Nagi and Hamdan (2009), that only 21% of citizens appreciate what is available. Likewise, in a similar study of developing countries, Al- Awadhi and Morris (2008) found this percentage to be 23.6%.

Other researchers in the field include Gichoya (2005), Tung and Rieck (2005), Weerakkody et al. (2007), Al-Nagi and Hamdan (2009), Al-Kaabi (2010), and Abu-Shanab et al. (2010), among others. These scholars have explored e-government from the information system (IS) perspective, but have generally focused on the government (supply-side) viewpoint rather than the citizen (client-side). And yet others have attempted to establish critical success factors in respect of e-government implementation, but again the government perspective has been the driver of such investigations.

The problem remains, however, of poor adoption rates among citizens (Belange and Carter, 2008; Choudrie and Dwivedi, 2005; Gupta et al., 2008; Kumar et al., 2007, Fu

et al., 2006; Wang, 2003), and there is little in the literature to provide insight in this respect.

1.3: Rationale for the Study

Libya is no exception to the general comments made so far, and especially given the fragmentation and turmoil the country has undergone in the last year, the country faces a number of challenges to its e-government aim. Moreover, it can be appreciated that the aim for an online government presence is an important one to achieve since that presence can play a large role in re-integrating the nation.

However, there has been no research to date that has focused on the critical success factors in respect of e-government in Libya, from the citizen perspective; and consequently, there is an urgent need for Libyan policy-makers to establish the barriers to the adoption by citizens of e-government services and applications, and to determine the inter-relationships among these factors and their link to decisions made by citizens to adopt or reject online services. Without such knowledge and understanding, implementation will fail. The proposed study aims to provide that knowledge and understanding by identifying the critical success factors in respect of the implementation of e-government services from the citizen perspective, and testing them empirically to evaluate their contribution.

The rationale for the study is further strengthened by the fact that whilst the particular research context of the study is Libya, there will be good potential for the results to be generalised to other Arab nations where there is a shared culture, and possibly, shared circumstances. This will represent a contribution to the wider literature since it is also noted that the research into e-government adoption in the Arab World is at an early stage and consequently, this addition will benefit the currently, small body of knowledge in this respect.

1.4: Aims of the Study

The study aims to identify the critical success factors in respect of e-government adoption and implementation in Libya, from the citizen perspective, and to determine the inter- relationships among these factors in the Libyan context. In order to achieve these aims, three main research questions, and four research objectives are formulated as follows:

1.4.1: Research Questions

- What factors influence the successful adoption, acceptance, and usage of e-government (G2C) services by citizens in Libya?
- What are the interrelationships among these factors that affect the successful adoption and implementation of e-government services and applications in Libya?
- How can the findings of this research study be used to benefit the public sector entities in other developing countries with similar circumstances to Libya?

1.4.2: Research Objectives

1- To increase knowledge and understanding of the government-to-citizens (G2C) e- government services in Libya.

2- To develop and examine the (TAM) Technology Acceptance Model depicting the main factors influencing citizen adoption of government services in Libya.

3- To explore the interrelationships among each of the factors that influence citizen adoption of e-government services.

4- To generate insights into the e-government phenomenon by providing some explanations for the findings, suggesting recommendations, and pointing to future directions.

1.5 Methodology

The study adopts a mixed methods design, in which both qualitative and quantitative data are gathered. It collects primary and secondary data, the secondary data coming from the relevant literature, and the primary data being obtained through empirical fieldwork in Libya. In surveying the literature, the Technology Acceptance Model (TAM) proposed by Davis et al. (1989) is found to be a strong basis for considering the research questions, and when integrated with a set of variables (trust, awareness, satisfaction, web quality) taken from various studies already conducted and reported in the literature, this framework is extended for use as a model in the empirical aspect of the study. In this respect, it forms the basis of a questionnaire to be administered to a large random sample of Libyan citizens, and of an interview schedule to be used with several key players involved in the development and implementation of Libya‘s e-government project. Consequently, primary data are secured from these two avenues.

1.6 Contribution to Knowledge

The study makes a theoretical contribution to the literature on e-government generally, but particularly in the developing country context. It also contributes to the literature concerning e-government in the Arab World. Additionally, it is of benefit to policy-makers and system designers in Libya specifically, and in developing countries and Arab countries, where some of the same critical success factors may apply as a result of cultural similarities.

1.7 Structure of the Thesis

Chapter One has introduced the issue to be studied, given the motivation for the study, and presented the aims, research questions, and research objectives. It has then given an indication of what methods are used to answer the research questions, and thus, achieve the aims and objectives of the study. The intended contribution to knowledge has also been mentioned.

Chapter Two provides a general background to the context of the research, i.e. the country of Libya, in terms of geographical location, demographic structure, political environment, socio- economic environment, and cultural environment. Within this context, it highlights the state of e-readiness of the nation, the need for e-government, and the reality of the current e- government programme.

Chapter Three introduces the concepts, theories, models and perspectives discussed in previous studies related to the research problem. It includes a detailed review of the e- government initiatives in Middle Eastern countries, where the cultural environment is similar to that of Libya.

Chapter Four formulates a number of hypotheses based on the research problem identified in the previous chapters, and a research model is developed.

Chapter Five provides a comprehensive discussion of the methodology employed in the study. It includes the methods used, sample details, and the way in which the empirical data is collected and analysed.

Chapter Six presents the analysis of the empirical data in relation to the conceptual framework.

Chapter Seven provides a discussion of the findings of the empirical data in the light of the literature reviewed earlier in the thesis.

Chapter Eight concludes the thesis, presents some recommendations, considers the contribution to knowledge, acknowledges the study‘s limitations, and makes suggestions for future research.

CHAPTER TWO

THE LIBYAN CONTEXT

2.1 Introduction

This chapter provides detailed information relating to the research context. In order to fully understand the situation in which the empirical research is undertaken, some background information regarding the country's geography, population, colonisation and consequent influence upon the culture is provided. A discussion of the political administration and the effect this has had on the development of communication within and outside the country is then offered, and from this detail, the chapter proceeds to identify the country's state of e-readiness, and the current facilities in relation to e-government.

2.2 Geographical Location and Population

Libya is a developing Arab country that occupies an area of land measuring approximately 1,774,440 Sq km, making it the fourth largest country in the African continent, and the seventeenth largest country in the world. To the north, the country has a long coastline of 1,950 km with the Mediterranean Sea, whilst it is bounded in the east by Egypt (with a border of 1,150 km) and south-east by Sudan (with a border of 383 km). To the west, Libya has borders with Algeria (982 km) and Tunisia (459 km), and to the south it is has borders with Niger (354 km), and Chad (1,055 km) (Al-Mabrouk and Soar, 2009; Terterov and Allace, 2002). Despite the territory being large, the vast majority of it (over 90%) is inhabitable being desert or semi-desert, and suffering from harsh Saharan climatic conditions (Terterov and Allace. 2002). Consequently, the Mediterranean coastline with its more favourable climate has been comparatively urbanised and is home to the vast majority of the population. Indeed, Libya's three main cities are Tripoli, Benghazi, and Sabah, all on the northern coastline, but separated by large distances. The capital of the country is Tripoli, where approximately one fifth of the country's total population live.

In terms of its population, Libya has one of the highest growth rates worldwide. Estimated at 5.3 million (Terterov and Wallace, 2002), the population includes a large number of expatriate workers;-, and is increasing at the rate of 3.5% annually. In fact, virtually half of the Libyan population is under 20 years old, making it a very youthful

country, of which 86% of the population lives in the major cities. Again, this represents one of the highest rates of urbanisation globally. During the Gaddafi regime, education was given a priority such that now there are many people who are highly qualified, and literacy within Libya is one of the highest levels in Africa (Information Department of the Great Jamahiriya, 2010). This is a direct result of the education policy which makes education for children between 6 and 15, both free and compulsory. The language of instruction in all schools is Arabic, while both English and Italian are used in commerce for reasons indicated in subsequent paragraphs.

2.3 Libya's History in Brief

It is possible to trace the origins of human settlement in Libya back to the Stone Age, around 10000 to 2000 BC, in the world's prehistoric period. Art produced by humans at that time is seen in the many engravings and paintings found in caves in the mountains, mainly in Libya's south. It is also known that the indigenous people of Libya have experienced long periods of colonisation as invaders have sought to exercise control over the country's people and natural resources. Such colonisation has been essentially at the hands of Mediterranean empires, the first such example being in the 12th century BC. Over the subsequent centuries, Libya has been either entirely, or in part, controlled by a variety of foreign powers, including the Phoenicians, Carthaginians, Greeks, Romans, Spaniards, Vandals, and Byzantines. That said, only the Greeks and Romans left their mark in architectural terms, such that today those cultures can be seen in the ruins at Cyrene, Leptis Magna, and Sabratha, which have become tourist magnets for historians and cultural travellers alike (General People's Committee for Tourism, 2006; Information Department for the Great Jamahiriya, 2010).

Not surprisingly, the involvement of different cultures also influenced the development of religion within the Libyan culture. In this respect, from the 7th century AD, a wave of Islam is evident, started by the Muslim Arabs in their mission to control all of North Africa and the Iberian Peninsula. Thereafter, Islam and the Arabic language and culture took root in Libya, and as noted by Al-Mabrouk and Soar (2009), Islam is now the state religion, and approximately 97% of all Libyans are Sunni Muslims. However, with Italy's colonisation of Libya resulting from the Italo-Turkish War, which began in 1911, a European influence was introduced. The name Libya, previously adopted by the Greeks to refer to all of North Africa with the exception of Egypt, was given to the territory by Italy in 1934, which embraced the three provinces of

Cyrenaica, Tripolitania, and Fezzan (Terterov and Wallace, 2002; Country Review, 2006; General People's Committee for Tourism, 2006; Information Department for the Great Jamahiriya, 2010).

The Italian colonisation came to an end in 1943, during the Second World War, when both Britain and France became involved in the country's administration. In this respect, the British controlled Tripolitania and Cyrenaica, and the French administered Fezzan, until 1951 when Libya became an independent country on 24 December of that year. In so doing, Libya became the first country to obtain its independence through the auspices of the United Nations, which had passed a resolution on 21 November 1949, supporting the claim for Libya to achieve its independence before 1 January, 1952 (Terterov and Wallace, 2002; Library of Congress, 2006). As noted earlier, however, the heavy Italian and British influence within the country left a legacy in as much as both Italian and English are used in the commercial and trade life of Libya.

From the period since independence and up to 1 September 1969, Libya was ruled by a monarchy, but the Al-Fateh Revolution of that year brought the collapse of the royal government when a coup was effectively conducted by a group of young army officers led by Colonel Muammar al-Qaddafi, and a republic was established, entitled the Libyan Arab Republic. From that time, wide-ranging political reforms were introduced, beginning essentially in 1972 when the regime established a new political, administrative, and legislative system that constituted a socialist state for the people, and was supposedly governed by the people. This was followed in 1976 with the creation of the General People's Congress, a new representative body as the country's government (Terterov and Wallace, 2002; Country Review, 2007; Information Department of the Great Jamahiriya, 2010). In 1977, the republic was officially renamed as the Great Socialist People's Arab Jamahiriya (GSPLAJ), according to the Third Universal Theory espoused in the Green Book created by Qaddafi (Al-Mabrouk and Soar, 2009). In the 1980s local assemblies were established throughout the country as a means of practising the new version of democracy associated with the Third Universal Theory (Agnaia and Gherian, 1997). During this period, the emphasis was on expanding state-owned enterprises, eradicating any form of private business, and basically purging the country of all its foreign enterprises (Sturman, 2003). Libya existed as a one-party state without any formal constitution. And not surprisingly, all government efforts were made to resist influence from outside, with the

result that communication was heavily controlled and strong censorship was in evidence, which naturally had an impact upon the speed with which electronic means of communication was allowed to be introduced for the masses.

However, after 40 years of the Qaddafi regime and a foreign policy that had subjected Libya to damaging economic sanctions and political isolation during the 1990s, the people of Libya rose up in rebellion as part of the Arab Spring of 2011, and the regime was itself overthrown after a long period of civil hostilities. Libya is currently in a re-building process under the administration of a democratically-elected government.

2.4 Libya's Social and Economic Heritage

In social terms, Libya manifests the characteristics of other Islamic countries. Tribalism continues to prevail, and from that the extended family, clan, and village are all important in the social networking practised by Libyans. Indeed these bonds are significant influences upon people's relationships with individuals and with their greater communities (Agnaia and Gherian, 1997), as can be seen in the way that tribal heads, through various means, control important appointments in the public sphere, which in turn means that they have people in high places who will ensure their interests are met. This is reflected ultimately in policy- making and legislation. Clearly, it can be understood that resulting from this tribal involvement and power, is a culture of corruption and nepotism as personal relationships take precedence over objective dealings, and recruitment to public posts is interfered with in the interests of placing friends and relatives in positions for which they may not be qualified. This undoubtedly has an impact on the quality of public service that can be delivered to citizens since there is much room for incompetent people to be appointed to important jobs, and for incompetent companies to be successful in tendering. Hence, Libya's social heritage presents a challenge for effective government.

At the economic level, the country has become rich through its abundant oil and gas reserves, the revenues from which have enabled the consolidation of social services (such as the free education already mentioned), and indeed has the fifth highest GDP in Africa (http://tinyurl.com/p4aqw7). That said, over the last two decades especially, the need to diversify the economy has become recognised and after the lifting of the economic sanctions against Libya, a considerable privatisation effort was made, such that in 2007, state policy was amended to attract international investors to the

Libyan construction sector in a bid to develop the country's basic infrastructure. In addition, a budget of US50 billion was established for the development of housing, and tourism infrastructure, involving the provision of telecommunication services, a rail network, roads, and airports (http://crgp.stanford.edu/news/global_projects).

2.5 Libya's Political Administration and Readiness for E-government

As mentioned earlier, in the Qaddafi period the objective was mainly to develop Libya's resources for the people of the country, and for many years foreign investment was banned (Country Review, 2007; Information Department of the Great Jamahiriya, 2010). The government controlled all the country's resources, and by also controlling the state-operated, and semi-autonomous media, it ensured that disaffected views among the population were suppressed, and that information from outside Libya which might ignite political unrest was prevented from reaching the population. Basically, the revolutionary leadership had a stranglehold on communication, and published only what it deemed necessary as a means of initiating reform (Agnaia and Gherian, 1997). Information concerned with government was surrounded by an air of secrecy, and not surprsingly, there was no desire to increase the potential for e-government by creating a state of e-readiness which might encourage citizens to search for information. A definite lack of transparency prevailed within the political regime, and the slight increases in openness that gradually occurred were purely and simply a response to the country's greater involvement with international agencies and investors, whose own need for good corporate governance and disclosure exerted some sense of pressure on Libyan enterprises.

This sense of pressure, which it is true to say, has been felt around the globe, does clearly include the notion of e-government as a means of changing the way government works, because nowadays, in both developed and developing countries worldwide, increasing amounts of information are being placed online by governments and business alike with the aim of easing and enhancing the communication between governments and citizens (Bhatnagar, 2004). Moreover, as noted by Jaeger and Thompson (2003), the technological advances of the 1990s have completely re-configured the way people live and work, thereby offering a new way for individuals and organisations (implicitly governments) to communicate with other people. Furthermore, the benefits of increased citizen satisfaction are appreciated by governments as ICT enables them to interact with citizens on a 24/7 basis (Wimmer

and Traunmuller, 2004; Schiavetta, 2005). With these realisations of the value of e-government, it is no longer a choice that governments can make; rather, electronic communication is accepted as a necessity because of the more complex needs of individuals, global competition, and in general, the new demands brought by the Information Age.

This whole scenario is particularly the case in developing countries such as Libya. And perhaps in recognition of the importance of rising to this challenge, a budget of US14 billion for communication and electricity for 2009 was established by the Libyan administration, purely to facilitate the intention to launch e-government services throughout the country (http://crgp.stanford.edu/news/global_projects). Without doubt, that budget is an indication that the Libyan government was convinced of its need to have an online presence and facility. However, the likely success of any e-government initiative is entirely conditioned by the degree of readiness within the country for the adoption of electronic communication and transaction, and in this respect, as already intimated, Libya's political situation over the past four decades is relevant, since it has presented some unique challenges to the country.

One such challenge has resulted from the sanctions imposed by the US and the UN in 1982 since these had the effect of allowing Libya's existing technologies to stagnate as the embargo took hold. Lasting from 1982 until 2004, the economic and political sanctions faced by Libya meant that despite the country producing 2% of the world's total oil output, its infrastructure remained poor as it lacked the technological expertise required to construct this. Furthermore, the air embargo imposed by the UN lasted from 1990-1999 (Mark, 2005), ensuring no flight links between Libya and anywhere else in the world. Hence, imports of the kind that would have advanced education and other industries and services were further hindered as their transportation met insurmountable obstacles in some cases (Simons, 1993). Undoubtedly, industry suffered given the lack of technological transfer resulting from these conditions. Moreover, less than 40% of the total population comprised the country's workforce as 9% of the population were retired and a massive 50+% of the population were engaged in full-time study, which was free, but brought the of a large number of people seeking employment when they are qualified. In the current conditions of heavy urbanisation and poor infrastructure making travelling to other areas of employment difficult, and often dangerous (Almizan, 2009), there may be no

jobs to be found. Moreover, when conducting government transactions, many people are often required to travel thousands of kilometres to their ‗local cities'. Clearly, e-government services for all sectors of the economy would ease the problems since these would dispense with the need for many people to travel, or at least minimise unnecessary travelling as government information can be provided on the web and financial transactions performed in the same way. And particularly in areas such as education, health care delivery, civil and public services, e-government has a vital role to play, serving communities better and costing citizens less effort, time and money. So, there are strong reasons for Libya to take steps to achieve a state of e-readiness, and subsequently tap into potential for e-government. Moreover, in this respect, a distinct benefit can be seen in the large population of is still in education since ICT courses can be provided in schools and universities with the overall outcome that awareness is raised among over half the population, of the potential of and for e-government services, and skills are developed to allow people in education to use such services. That said, it is recognised that lack of awareness concerning new technologies is a definite challenge in the adoption of e-government services (Abdulrazzaq et al., 2003), and in a website questionnaire devised by the Director of Libyan e-government services to establish users evaluation of the government website, it emerged that the majority of people in Libya had no real idea of the meaning of e-commerce, e- business, e-government services, and/or ICTs. When it is also considered that there have been no legal frameworks established for e-government services and e-business in Libya, and that simultaneously, government officials do not always want to share information (either with other government departments or citizens), the obstacles to e-readiness and hence, e- government initiatives can easily be understood (Libyan Prime Ministry homepage, 2010).

Such obstacles are further compounded by the technological infrastructural problem mentioned earlier, and the fact that the number of people owning computers is less than 50% of the total population. Together these factors present challenges to the implementation and adoption of e-government as access is by no means universal. The costs associated with internet access are very high in Libya, and only people who have this facility at work escape such costs. Moreover, there is limited bandwidth available, and internet service providers find it too expensive to buy large volumes of bandwidth, resulting in a very large time lag, which impacts negatively on the usability

and hence, efficiency of the network within Libya (Libyan Prime Ministry homepage, 2006). Other infrastructural problems arise with the availability of landlines, it being reported that in 2005, there were only ten landlines to every 100 people in the country (Woodward, 2005), thereby generating a substantial digital divide among the population. However, despite these deficiencies, there have been gradual improvements in as much as the younger population in particular has provided a strong impetus for the creation of many internet cafes, where they spend much of their spare time. This type of venture has considerably increased access to people who have no internet availability either through their work or via their personal possession of computers at home (Information Department of the Great Jamahiriya, 2010; Doing Business and Investment in Libya, 2010). There is, nonetheless, just one authorised Internet Service Provider in Libya, that being the Libya Telecom and Technology Company (LTT), which has a bandwidth of 5 MB that connects it to Canada, and to Italy through a fibre optic cable with a capability of 150 MB and a bandwidth of 45 MB (Information Department of the Great Jamahiriya, 2010; LTT, 2010). Whilst a dial-up connection is believed to be one of the cheapest, and hence, most popular ways of securing an internet connection (Young, 1999), telephone lines in the country, as already mentioned, are not sufficient. In 2010, subscribers to dial-up service amounted to 55,000, all accessing servers located in the country‘s principal cities (Tripoli, Misratah, Zawia, Khoms, Zletin, Benghazi, Sirte, Houn, Sabha, and Biniwaleed). The Tripoli dial-up facility is the best, having rates of around 33 kbps. However, humidity and cable disconnections affect the lines which in turn creates problems, and these difficulties are magnified in small towns where realistically, there is no reliable internet access (Doing Business and Investment in Libya, 2010; Information Department of the Great Jamahiriya, 2010). Asymmetric Digital Subscriber Line (ADSL) is also available but the costs associated with both this, and the dial-up facility, are high compared to other service providers, although it is true to say that these costs are falling dramatically. Additionally, the LTT Company provides a leased line service, the cost of which has also decreased. Wireless networking services are also provided by LTT, and are used by public and private enterprises, government and educational institutions, and Internet Service Providers (ISPs). In addition, DVB-RCS, which offers a broadband satellite solution, is available but LTT is the only company authorised to provide this service.

In fact, the greatest market in Libya is for one-way only service, where individuals can receive but not transmit. Two-way services that allow both sending and receiving cannot be accessed without a special permit, and such authorisation is only given to certain government companies for example, oil companies that are located in the desert and require connections to function effectively (Information Department of the Great Jamahiriya, 2010; LTT, 2010). Clearly, internet use cannot be promoted with the expectation that users will adopt it in the absence of reliable telecommunication tools, and whilst the Libyan government may strive for e-readiness, the various infrastructural challenges discussed must be overcome before there can be any real hope of success (Hossian et al., 2005).

In this situation, exploration of the use of television and mobile telephones as a mechanism for delivering e-government services is needed, being possibilities that many other technologically-developing nations are considering as a means of securing adoption of the fundamental ideas associated with electronic communication between government and citizens. However, in addition to these technology-orientated obstacles, there are also cultural challenges associated with the use of ICTs, and hence, with the aim of establishing e- readiness and e-government in Libya, since Libyan people generally do not like to seek help, believing this to be a sign of weakness. Clearly, in the introduction and adoption of e- government there are many areas where help is needed to promote abilities, and indeed to bring about changes in attitude such that the traditional and preferred ways of conducting transactions on a face-to-face basis can be phased out in favour of _dialogue‘ through IT. This implies that the secretive nature of Libyan people, characteristic of the MENA countries generally, has to change such that they become willing to share information on a much wider basis. Currently, there have been no efforts to address these issues, public sector workers still suffer from a lack of computer skills and management expertise, and are therefore, predisposed to keep their traditional methods, so the challenge to e-government does not simply come from citizens but also from within the public sector machine. In this respect, it can be seen that the private sector is more in tune with the need for online transactions (Banayo, 2002), maybe because these are not perceived as posing a threat to organisations, whereas the transition to e-government services is part of a wider mission to rethink government‘s role, and those working for it are concerned about their own job retention. Nevertheless, there is an urgent need for the

educational system in Libya to promote as far as possible the notion of e-government services, through skill-building, and the development of knowledge and understanding in the matter.

2.6 The Internet in Libya and the State of e-readiness

Having considered the potential for e-government in Libya, which was for many decades severely affected by the old but enduring political regime with its desire to limit political participation, it is now appropriate for the new powers to focus on the means for e- government. Clearly, it is not possible to provide e-government services without internet access, which in itself is a fundamental contributor in the drive to create e-readiness. In this respect, the demand for such capability is growing in Libya, witnessed especially among the younger population as Libyans are increasingly attracted to the growing number of internet cafes, which have become their favorites haunts. Simultaneously, most companies now have internet accounts, and private access from home is becoming available. It is anticipated that Libya will see a similar growth in cyber technology as that evidenced in other North-African markets (Information Department of the Great Jamahiria, 2010; Doing Business and Investment in Libya, 2010). As mentioned, the only authorised Internet Service provider in Libya is the Libya Telecom and Technology Company (LTT), which delivers all services, and as previously indicated it has a connection with Canada via satellite connection (5 MB bandwidth) and with Italy via fibre optic cable with a capacity of 150 MB and a bandwidth of 45 MB (Information Department of the Great Jamahiriya, 2010; LTT, 2010). Accessing the Internet through a dial-up connection is the most popular, and one of the cheapest means of connecting to the internet (Young, 1999), and according to the LTT, the number of subscribers to this service in Libya in 2010was around 55,000. The LTT provides this service through access servers throughout most of Libya‘s main cities (Tripoli, Musratah, Zawia, Khoms, Zletin, Benghazi, Surt, Houn, Sabha, and Biniwaleed). However, whilst the dial-up connection is good in Tripoli, achieving rates of about 33 kbps, end users do meet certain difficulties concerned with the line conditions, principally because of humidity and cable disconnection. Not surprisingly, whilst the large cities are serviced with satisfactory dial-up connection facilities, some smaller towns experience poor landline connection levels and in reality have inadequate ICT infrastructure which prevents individuals from using the internet (Doing Business and Investment in Libya, 2010; Information Department of the Great

Jamahiriya, 2010). Asymmetric Digital Subscriber Line (ADSL) is also provided within Libya. However, the charge for ADSL and dial-up services is high relative to other countries. That said, the cost of internet connection is dramatically reducing and the capacity levels and service quality rising. As reported by LTT (2010), reductions can be seen in dial-up costs which were 0.4 Libyan Dinar (LD) (£0.2) per hour in 2006 compared to 4 LD (£2) an hour 1999. The charge for ADSL in 2006 was 50 LD (£25) per month plus an initial installation fee of 150 LD (£75). Furthermore, the LTT also provides a leased-line service in the country, and the company's internal documents acknowledge that this service could be delivered using ADSL or ATM access. These documents show the belief that the use of ATM could provide organisations with voice and video conferencing. Leased-line services are available at different speeds ranging from 256 kbps up to 8Mbps, and encouragingly, the cost of leased-line, as with other costs, has fallen dramatically, to for example, 9,000 LD (£4,500) in 2006 for 265 kb, from 55,000 LD (£27,500) just four years earlier, in 2002. Wireless Networking Services are also available from the LTT. According to the LTT, highly secure wireless broadband products are deployed within Libya by public and private enterprises, government and educational institutions, and ISPs. In addition, DVB-RCS, a broadband satellite solution, is available in Libya, being provided by many companies, and offering one-way and two-way connection. However, the only authorised company to provide the service is LTT. One-way (receiving) services are in greatest demand, with two-way (receiving and sending) service being restricted to particular government companies which are granted permits for this facility. An example is the oil companies which need to effect good communications between the oil fields in the desert and headquarters (Information Department of the Great Jamahiriya, 2010; LTT, 2010).

2.7 E-government in Libya

Clearly, advancements in Libya's technological infrastructure over the last decade have prepared the ground for improved governance through e-government. This marks some progress in keeping with the rest of the world, since from the mid-1990s; governments worldwide have been undertaking major initiatives in a bid to capitalise upon the enormous potential of the internet in order to enhance the process of government. In this matter, it is recognised that like the personal computer, the internet has become

an indispensable tool in the routine administration of government (cdt.org, 2005). E-government is the birth of a new market and the advent of a new form of government that is a powerful force in the internet economy, bringing together citizens and businesses in a network of information, knowledge, and commerce. This has particular meaning in countries where there are long distances between cities, such as in Libya, where government transactions must be conducted in local cities, or even the capital and some people must journey thousands of kilometres to complete such business. E-government removes the need for such expense in time and money. Simultaneously, it enables governments to be more transparent to citizens and businesses by providing access to more of the information generated by government (UNCTAD, 2007; Laudon and Laudon, 2006).

According to Daniel (2002), e-procurement is among the e-government services, and this allows transparency in the bidding process for projects and supply, and offers opportunities to smaller businesses, which are otherwise precluded from bidding on large government procurement projects. Furthermore, once the e-government strategy of a country has been formulated, agencies, bureaucracies, and public services will be aligned towards promoting those sectors which have been pinpointed for growth. The many possible reasons for adopting e-government include: 1) Improving services to citizens; 2) Improving the productivity (and efficiency) of government agencies 3) Strengthening the legal system and law enforcement 4) Promoting priority economic sectors 5) Improving the quality of life for disadvantaged communities and 6) Strengthening good governance and broadening public participation (Daniel**,** 2002), Government-to-consumer (G2C) business has shown good usage, as seen for instance, in the situation where speeding fines, and driving licence renewals can all be conducted online, bringing benefits to government agencies as well as to customers (Awad, 2004). E-government services are designed to increase the efficient flow of information between government institutions and businesses, and may also permit information exchange between government bodies of different nations. These services may use some G2C and G2B components, but generally they require more direct access to databases and applications (cdt.org, 2006). There are several key factors that define the core areas of an enabling e-government environment. However, the variety of visions, goals, and policies associated with e-

government do not facilitate the generation of precise comparative indicators. That said, some indicators can serve as reliable benchmarks of a country‘s ability to launch, sustain, perfect, and promote an effective e-government programme, such as those concerned with telecommunications (numbers of PCs, internet hosts, telephone lines) since, in the absence of these, a country is incapable of mounting online service delivery. However, it is observed that only a partial account of a country‘s overall e-government environment can be gained by analysing website content, access patterns, online services, and official information (cdt.org, 2010; UNCTAD, 2010, and that cultural attitudes as already mentioned, must also be considered. Several different ends can be served through e-government, such as: improved delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, and more efficient government management. Less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions are also known outcomes. And indeed, some of these can encourage cultural progress, as for instance, the nepotism and favouritism prevalent in tribal societies such as in Libya, and which only serve to sustain injustice in government, are weakened where greater transparency is introduced and opportunities for corruption reduced. In the Libyan context, e-government can thus be seen as having the potential to bring many benefits such as 1) increasing the efficiency of the country‘s economy, 2) enhancing levels and quality of service, 3) improving the government‘s relationship with the public and private sectors of the local economy, and 4) imposing greater transparency (Information Department of the Great Jamahiriya, 2010). In fact, e-commerce is rapidly changing the foundation of the Libyan government‘s policies and improving the government‘s online communication strategies such that economic expansion is supported. Nonetheless, in comparison with its near neighbours, Egypt and Tunisia, both of which are poorer in terms of national revenue, Libya is way behind in its e- government programme (Business Middle East, 2013). Currently, a number of functions can be managed via a government portal. These include making job applications for public sector positions, registering new businesses, obtaining customs clearance, accessing national examination results, national identity numbers, and paying taxes and other bills. However, whilst these services are available, they are limited in as much as there remains a need for all documentation to be presented to government officials for

verification, and this still requires citizens to travel, often making long and arduous, and in many instances, unsafe journeys to the appropriate government office. Libya's poor position in comparison in e-government progress with its less affluent neighbours results essentially from administrative conditions, whereby both the fixed-line and mobile network systems, and the postal system, are nationalised, being owned and operated by the government. The effect of this situation is that the ordinary mail system is unreliable, and international postal services, extremely poor, with the average time for airmail being between 7 and 12 days (General People's Committee for Tourism, 2006), and surface mail taking much longer. In fact, there is no guarantee that any mail will be delivered, and it is recommended that business correspondence be managed via courier services (General People Committee for Tourism, 2006; eBiz Libya, 2007). Furthermore, the country has only around 605,000 fixed lines serving a population of 6.3 million, and only 40,000 mobile users (a penetration rate of less than 1 percent) and 10,000 Internet service subscribers.

Nonetheless, advancements have occurred, and the percentage of individuals owning landlines in 1995 (5.9%) had doubled in 2002, reaching almost 10%. This increase was accompanied by a corresponding interest in mobile telephones, the Libyan Mobile Technology Company reporting in 2006 that subscriber numbers to its service exceeded one million, and dial-up subscribers being recorded in LTT internal documentation as having reached 55,000. Development and growth are generally slow, but this does not reflect lack of demand; rather it is the product of caution on the part of the old political regime, and the unstable situation which has continued since the overthrow of that regime in 2011. Demand is certainly present, as seen in the rapid spread of internet cafés, of which there are over 50 in Tripoli alone. And not surprisingly, internet users are mainly young people and teenagers who surf the net mostly for leisure and entertainment, which is perhaps safer than socialising on the streets.

From the above discussion, a number of conclusions regarding the potential for e-government in a practical, rather than a political sense, can be drawn. Firstly, it can be seen that as yet e- commerce in Libya is still in its infancy, and hence there is no heavy involvement in using the internet for transactions, whether commercial or governmental. Certainly, the traditional trade infrastructure is long and better established than the e-commerce infrastructure. Consequently, where e-commerce

exists, it operates as a complementary force to traditional means of trading in goods and services. However, as noted by Hamed (2004), e-commerce, whilst perceived as a threat by some traders, is only a problem for those whose products and services are of poor quality, and the removal of custom tariffs on over 3,500 imported commodities will being reductions in the cost of products which in turn will reduce the potential negative impact of e-commerce on traditional businesses. Indeed, this move will also bring greater transparency to all transactions involving imported goods since the previous tariff system was extremely complex, ranging from zero to 425%, thus encouraging bureaucracy, smuggling, and corruption (Economist Intelligence Unit Limited, 2005). Under the new arrangements, trade volumes will be increased, thereby improving the country‘s economic position, and that of traditional traders, leaving room for the co-existence of both traditional and electronic means of conducting commerce.

Another conclusion to be drawn from the foregoing discussion is that as over 50% of Libya‘s population is in education, the means exist by which the majority of the population can be taught how to interact with technology and use e-government services effectively. At the same time, however, this large slice of the population in education establishments means that Libya requires an enormous teaching force, and there is an urgent need for e-government services particularly in the education sector, to provide training and education in parts of the country where there are no appropriate educational facilities, and where individuals are required to travel. Travel is not safe in Libya. Indeed, road accidents claim between 30 and 44 lives each week (Almizan, 2009 htp: //tinyurl. com/165eok). Moreover, the country remains unstable and where travel can be avoided, it should be. Using e-government, education and skills training can be more widely disseminated, thereby addressing the skill shortage; and other areas such as health care delivery, civil and public services, and of course e-commerce can all be improved. The appreciation of the value of e-government leads to a consideration of the country‘s resources to improve its current e-government programme, and in this respect it can be said that like many other developing nations, Libya‘s skilled manpower and finances are not infinite. Hence, it is essential to determine which e-government services should be first on the agenda for development and improvement, but before doing this it is imperative to establish which factors are the most important in encouraging adoption of the technology.

Certainly, the delivery methods are critical in securing adoption, and in this respect governments have been researching, designing, and implementing several mechanisms other than the internet, known as ‗e-channels'. Landlines, mobile phones, and interactive digital television (iDTV) are all being promoted in some countries as technologies that can provide the opportunity for greater numbers of the population to access e-government services. Indeed, in countries where there are few homes with personal computers and where there are large sections of the population who are either old or illiterate, the use of television as a channel for the delivery of e-government services is very attractive. Libya is such a country, since whilst few individuals own computers, television and mobile phones are common and well-understood. However, these media are not sufficient in themselves and can only serve as complements to the internet.

Awareness of new technologies is clearly another critical component of the e-government strategy (Abdulrazzaq et al., 2003), and again in Libya, this emerges as a problem. In June 2005, the Libyan government launched its website, initially targeting a few key services such as providing information about legislative, law, and Prime Ministerial activities. The website also included a questionnaire canvassing opinion on the value of the site, the results revealing that the majority of people were ignorant about e-commerce, e-business, e-government services, and ICTs. Since that time, there has been no formulation of Libyan e-government services, or of any legislation governing e-business laws, as for example, regarding the use of digital signatures. And it is noted that government officials do not always readily share information with each other, and certainly not with their customers (Libyan Prime Ministry homepage, 2006); thus, it can be seen that there is no impetus from government officials to embark upon a proper e-government initiative.

This tendency to be secretive is a cultural characteristic of the Libyan people, and hence, in planning the move to e-government services, efforts need to be made to help Libyans re-think the way in which they transact with each other such that users, government, and businesses engage in dialogue mediated by ICTs, and form the habit of sharing information on the internet rather than doing this in a one-to-one situation. However, it is challenging to bring about such profound changes, since the history clearly shows fear and anxiety surrounding governance, there are definite

concerns about surrendering 'power, and there is no record of co-operation and co-ordination among public organisations, government officials, and citizens.

Moreover, officials and corporation managers are reluctant to ask for help in their use of ICTs, believing this would be a sign of their inadequacy, and some may also fail to recognise that they need training and support. In this situation, whilst those currently in education have opportunities to acquire the skills and abilities to use ICTs, there is a need for continuous professional development (CPD) in the realms of ICT awareness and capability for government staff and the general public who will use e-government services. Another vital ingredient is an up-to-date, efficient, and efficient telecommunication infrastructure which enables access by the masses, and as already discussed, Libya currently has limited bandwith, and the cost of using new technologies remains high in comparison with other countries. The long lag time associated with the bandwith has a negative impact upon the efficient usability of the network, and as noted by Woodward (2005), the problem of insufficient landlines for the population compounds this difficulty, serving as one of the main barriers to Internet use. Essentially, Libya is on the wrong side of the Digital Divide in international terms. There is no doubt that the full benefits of e-government are only realised when the majority of a country's citizenship has access to the internet, and can participate in the activity, and this is an issue which must be addressed by the Libyan government (Hossian et al., 2005).

However, the available channels are currently being used to provide some e-government services, as a forerunner to complete e-government which can be achieved once the many challenges identified have been overcome. In this situation, Libya's educational system seems to represent the most suitable candidate where e-government services can be expanded. The National Transition council (NTC),which currently functions as the interim government in Libya, with the acknowledgement of the United Nations, is focused on introducing democratic processes to the country (NTC, 2011). Not surprisingly, in this mission, the role of ICT is important, since with it, the government has the opportunity to place a vast array of information online for the general public, thereby increasing the chances of everyday people to take part in the democratic process. As noted elsewhere in this thesis, Libya is a large country, and cities and communities are separated, thereby causing the isolation of people in

villages and effectively preventing their participation in civic matters. At the same time, the tribal system which is traditionally part of Libyan society creates hierarchies and hidden lines of authority which may preclude individuals from visibly participating in democratic activities.

Technology can play an important role in the improvement of democratic process (e.g. polls, surverys, results compilation, election campaigns etc) and Libya also can benefit from the latest development in this regard. However there is a need for greater internet access, and computer literacy training for a large portion of the population that have not had such input via the educational system. Likewise, needs exist to support the monitoring of voting by mobile, and for the government itself to enhance its e-government initiative such that it has a wider reach. Currently, the limitations in the development of ICT in Libya are restricting the potential for e-government. Consequently, the attention is turning to the use of mobile phones which are within the financial capability of most of the population. Indeed the decade from 2000 to 2010 witnessed a dramatic rise in the penetration of mobile phones in Libya, the statistics showing that in 2001 this was reported as just 1% of the population, whereas in 2010, it had risen to 171%, a figure which confirms that many people have multiple subscriptions (International Telecommunication Union ITU, 2012). In contrast, internet penetration rate remained at just 14% in 2010, a situation which compares unfavourable with many other countries in the region see Figures 1.

The poor experience of broadband access in the Middle East and North Africa (MENA) region has been understood for some time, and recently (March 2012) a plan to expand this was launched by the World Bank. The intention is to create regional broadband infrastructure networks by using the existing infrastructure as a foundation (World Bank, 2012). The prediction is that within the next five years, the MENA region will experience the fastest growth rate in broadband access in the world, as traffic is anticipated to more than double as a result of the improved facilities. Currently, there are 24 Libyan cities where high- speed wireless Internet access is available, and there is also an ongoing project to develop a fibre-optic network to service over 13,000 km of Libyan territory (ITU, 2012).

These advancements in ICT were precluded before the emergence of the National Transition Council since during the Kaddafi regime controls on both communication

and the media were strict. In the aftermath of the revolution, however, the regulatory framework relating to the media has been substantially relaxed, and when combined with continued advancements in infrastructure, these factors can be seen as underpinning a massive expansion in the demand for Internet access, and in the willingness of ordinary members of society to engage in civic matters online. Hence, the e-Libya initiative launched by the NTC is seeking to capitalise upon these possibilities by pursuing the following four objectives: open and transparent government; the provision of government services online; improved ecommerce capacities; and the improved use of technology in the educational system (Ministry of Communication and Informatics [CIM], 2012). Such developments could have significant impacts upon Libya's economy and political development.

In terms of political advancement, a 200-seat General National Assembly was democratically elected on 7 July, 2012, with a 62% voter participation rate. The impending constitutional referendum and separate presidential election, present opportunities for the Libyan population to be further involved in the democratic process, but in order to support these possibilities it is necessary to focus on the role of ICT and ensure that it can be effectively used by citizens. In this respect, the recommendations are that there should be an SMS election monitoring campaign for the coming elections; improved ICT training in schools; and technical assistance to support e-government initiatives. More details of service provided by Libya's e-government initiative as follows:

1-Applying for employment in oil companies through e-government websites

2-Applying for National (ID) Number and you got all details of that through e-government website

3-National Exam accessing National Exam results (students) result through e-government websites

4- Custom clearance obtaining custom clearances through e-government websites

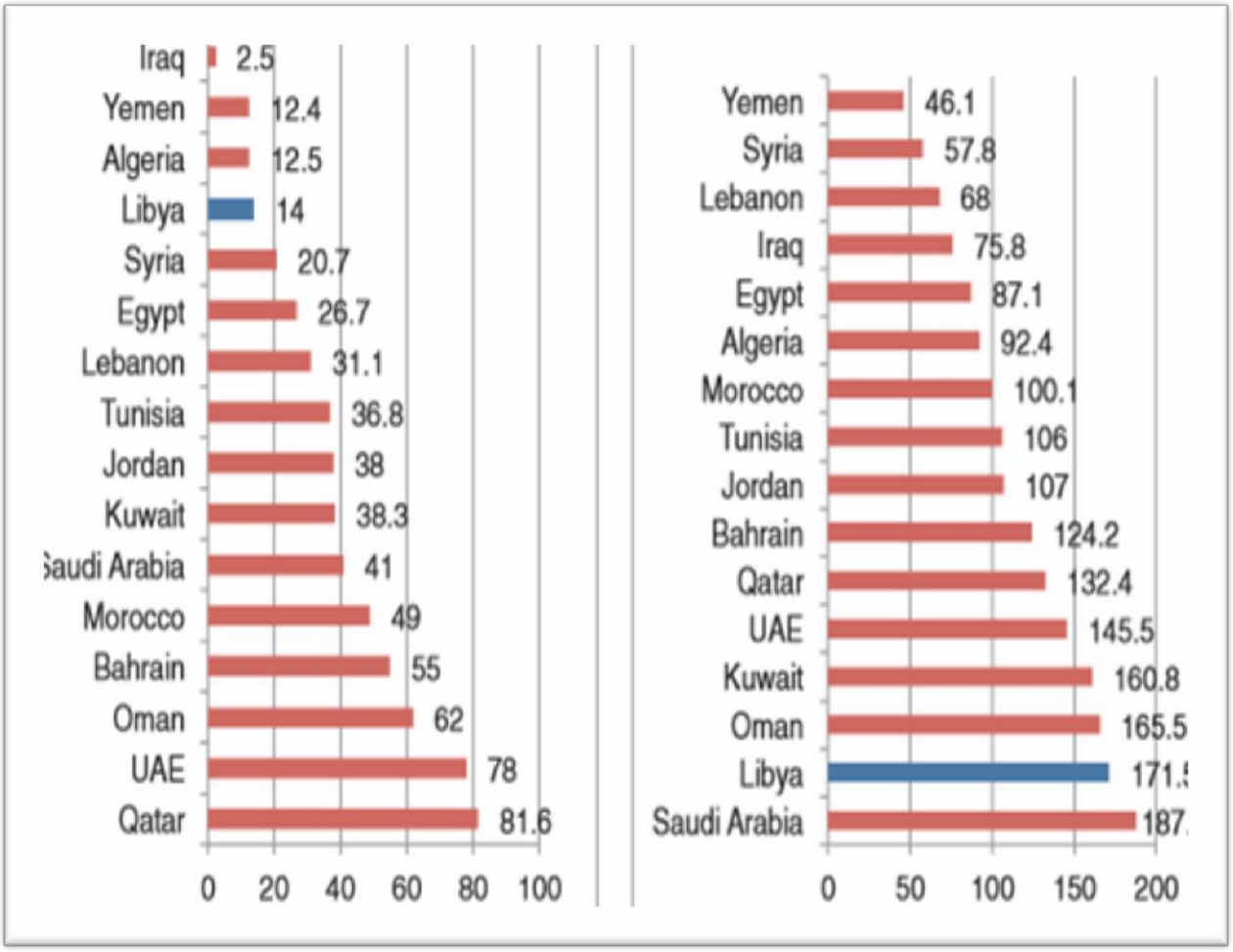

Figure 1 compartive percentage of Individuals Using the Internet, Mobile Phone Subscriptions (per 100 people) Souce ITC 2012

2.8 Summary

This chapter introduced the state of the art in e-government in Libya. It has highlighted by considering the country‘s geographical position and population issues, its history, which has highlighted the very many cultural influences that have been brought to bear on the indigenous peoples of the country, its social and economic heritage, its political administration and the potential for e-government arising from that particular administration, the availability of the internet and the state of e-readiness in the country and, finally, aspects relating to the concept of e- government, and an indication of what is currently provided for citizens by the government portal. In the following chapter, the research literature concerning e-government adoption in other countries is reviewed.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

In this chapter, a thorough review of the relevant literature is undertaken. The chapter begins with a general introduction to e-government, and then proceeds to analyses the concept and consider the various definitions provided by researchers so far. The staged development of e- government initiatives is then discussed, showing the usual progression in their adoption. Thereafter, the chapter discusses e-government adoption in detail, the categories of e- government, and current research on e-government adoption. It then proceeds to address the issue of e-government in developed and developing countries, considers two examples of Morocco, South Africa and Jordan that are similar in culture to Libya, and then discusses the various theories of adoption which are reported in the literature. The chapter ends with a short summary.

3.2 Introduction to e-government

According to Rogers and Fairweather (2003), in the late 1990s and early 21st century, governments worldwide perceived the significant contribution to their governance from the emergence of ICT (i.e. Internet), recognising a potential that had exceeded many expectations. Earlier, Stratford and Stratford (2000) explained that the 21st century would witness huge technological revolutions resulting in an Information Society. Now, a decade on, governments globally have reaped the benefits from ICT which has helped in transforming government structures, processes and, strategies (Janssen et al., 2011). The changes made to governmental services through ICT have improved the efficiency and speed of general public services (Sharma and Gupta, 2002). Consequently, governments have come to rely heavily on the internet as the main source of interaction between themselves and customers, and hence, the internet is playing an important role in transforming governmental services (Seifert and Chung, 2009). The implementation of e-government has demonstrated the effectiveness of ICT in dealing with both the public and private sectors in any country. Ho (2002) recognises that the development of e-government is heavily linked to prior

developments in e-commerce. Eyob (2004) emphasises the aim of such initiatives as being to serve e-government stakeholders (e.g. Businesses, employees, citizens and other governmental agencies) in order to build trust, while improving service efficiency, reducing the cost, and ensuring transparency (Howard, 2001; West, 2004).

Clift (2004) explained that the emergence of e-government in the 1990s led many governments to compete in an attempt to provide the best online services for their customers. According to Hasan (2003), governments can gain advantages from ICT by computerising clerical jobs, supporting decision-making, and enhancing the communication and transformation to be achieved by re-engineering service delivery using the internet. Governments worldwide vary in their speed of adopting and using e-government services; some provide services one-dimensionally, offering simple presence services online, whilst others use a more advanced two-way communication, allowing electronic transactions between government services and citizens/businesses (West, 2005). And yet other governments have extended their online services by providing and promoting democratic participation, referred to as electronic democracy or e-democracy (Layne and Lee, 2001; Moon, 2002). In the UK, the adoption of e-government began between 1994 and 1999 (HO, 2002), such that now all local governments have good internet presence through official websites (Moon, 2002). These governmental websites range in their services from online payments, permit and licensing applications, to providing online documentation, simultaneously facilitating communication with customers via e-mail (Meijwe et al., 2009). Howard (2001), and Bassanini (2002), observe that such services have allowed governments globally to improve efficiency of services between themselves and their clients, to reduce costs, and to encourage participation in the democratic process. Backus (2001) explained that the objectives of e-government are either internal or external, the internal objectives being associated with government operations that aim to reduce costs, improve administrative work, and enhance productivity, while the external objectives focus on providing services to customers while ensuring efficiency, effectiveness, and the satisfaction of customer needs. Kim et al. (2007) observed that e-government is not concerned with automating governmental institutions but rather, aims at re-engineering governmental processes in order to increase productivity. There are many advantages to be gained from e-government, but the main one is its

potential to integrate public institutions, thereby enhancing the way public and private sectors interact with government (Sharma, 2004; Ndou, 2004; Montagna, 2005). When summarising the benefits of e-government, Rocheleau and Wu (2005), and Griffin et al. (2007) identify similar outcomes. Firstly, they note that e-government facilitates speedy government transactions which are available 24/7, and that could lead to transparency. Secondly, they point to the fact that e-government reduces the operational costs of government, and the cost of citizen transactions by using electronic facilities such as e-mail and mobile rather than the traditional methods (e.g. face-to-face, mail and telephone calls or faxes). Thirdly, e-government increases satisfaction among citizens towards governmental services while encouraging economic and social developments. The emergence of e-government has clearly helped governments across the world as it provides many advantages to citizens, but researchers are still trying to define e-government and indeed, its success over the years. Hence, this area of research can be considered relatively new. In the following sections, e-government and its services will be defined.

3.3 E-government and its Definitions

The necessity for e-government is recognised by most governments throughout the world, but some countries are struggling to fully implement this facility (Avgerou et al., 2006). Since its emergence, e-government has been defined by many researchers, yet no one uniformly- agreed definition exists that fully explains what comprises e-government. According to Peristeras and Tarabanis (2004), the fact that e-government is still in its infancy, explains why the exact dimensions of the concept have not yet been fully articulated. In his definition, Pardo (2000:2) explained it as -a dynamic mixture of goals, structures and functions. This characterisation shows how complex the government and its structures are; hence, it could be also understood that it is difficult to transform the traditional services provided by government such that they are managed via an online approach. In this respect, governments face many challenges that could hinder the adoption of e-government, it being noted by Pedro (2000) that they must focus on government functions rather than on implementing ICT. Pedro (2000) emphasises the fact that the implementation of e-government requires hard work and careful consideration, since it demands radical changes in many aspects of governmental services and indeed their users, in order

to build trust and a good relationship between the parties. Specifically, Pedro (2000:3) argued:

> Government agencies must keep asking themselves three questions: what government business functions are we responsible for? How can we responsibly transform our current business models while incorporating new and emerging technologies? Are these new business models reflective of the collective concerns and priorities of the public; or do they threaten the public trust?

Citizens'expectations have increased with the arrival of the internet, and as noted by Abdul Karim (2003), that has placed pressure on governments to improve their performance in serving the public. The introduction and the use of ICT have allowed governments to reform their services through e-government, but as already indicated, a sound appreciation and definition of this concept has not yet been achieved; and as argued by Palvia and Sharma (2007), it is very important to gain a holistic understanding of e-government, especially before attempting to implement it on a big scale. Indeed, Ndou (2004) points to the poor and narrow understanding of the concept of e-government, and the processes and functions it allows, as one reason for its failure in adoption. The OECD (2003) explained the concept as a way of using ICT, mainly the internet, as a tool to improve and achieve better government, but there is no reference to reform in this definition, and hence, it is difficult to see how it might improve performance. Additionally, the World Bank (2004) defined e-government as the use of ICT to improve the efficiency, effectiveness, accountability and transparency in governmental services. In a similar vein, Choudrie et al. (2004) explained e-government as an internet-based action which allows citizens access to governmental services, information and expertise while enhancing their participation in, and satisfaction with, the government. Again, there is no mention of reform in governmental services in either of these definitions, which Yong and Koon (2003) perceive as a shortcoming, since they believe e-government should focus on areas that could affect the reform process of government institutions. Other definitions have concentrated on the relationship between government and citizens, for example Layne and Lee (2001) indicated that e-government is explained through the use of technology (internet) by the government to allow accessible services to its stakeholders (employees, citizens, business partners and governmental agencies). This definition clearly stresses the importance of technology in improving the relationship between governments and their citizens, since the technology provides a more convenient way of obtaining

governmental services. The government and citizen relationship is often referred to as G2C. Other definitions of e-government are considered narrow, for example the UN (2003) defined e-government as the use of the internet as well as the worldwide web (WWW) in a way to provide governmental services to citizens. A consideration of this definition reveals its main focus to be on the technological aspects, whereas the concept of e-government can be appreciated as being much more comprehensive than suggested by this focus. A broader definition of e-government is provided by Nordfors et al. (2006) who indicate that e-government is divided into four areas namely: e-administration, e-democracy, e-services, and e-commerce. Looking at these areas, it can be seen that each is slightly different in the way it operates. Another broader definition has come from Ndou (2004) who also identified four main areas for a complete understanding of e-government, these being:

1. E-administration which refers to the computerisation of governments' administrative functions in the various organisational levels.

2. E-citizen which refers to the means and the needs that are required to build trust between citizens and the government, and which improve interaction between both parties, and increase mutual satisfaction.

3. E-services which refer to the ability to provide governmental services that are available to stakeholders at all times.

4. E-society which aims at providing a good electronic relationship between the government and its various sectors in society, i.e. the relationships between government and citizens (G2C), government and business (G2B), government officials and other government institutions (G2G).

According to Seifert and Petersen (2002), this definition stresses the need for enhanced and good interaction between government and society in an effort to build mutual trust, and this is the ultimate aim of many developing countries (Al-shafi and Weerakkody, 2009). Dow et al. (2002) perceive e-government as a revolution in the area of public administration, since it not only reflects on services delivery but it is also concerned with transforming the relationship between stakeholders and government. And in another consideration of e- government, Schedler and Scharf

(2002) stress that when investigating and defining the concept, it is essential to differentiate between the two terms government‘ and governance‘ which are often confused, but which in fact are different, and complement each other.

Governance refers to the power and authority of various elements of society, whilst government refers to tools that are used to perform government activities and process government policies through public sector institutions. It could be argued that the use of ICT in public administration is the easiest definition of e- government, according to Margetts and Dunleavy (2002), who simply defined e-government as the way of making government processes and the development of policies, electronically available. This definition focuses on the movement from policy to performance. And a similar definition is offered by Grant and Chao (2005), who explain that e-government is a change initiative using ICT capabilities, and that has three goals. The first is to develop and provide high quality, the second is to achieve the effective management of relationships between constituents, and the third is to recognise the objectives of citizens social and economic development, at local society, state, national, and international levels. In another definition, Caldow (1999) stated that e-government is explained as the application of ICT to improve government relations with businesses, citizens, public institutions, and government officials. Furthermore it is characterised as a powerful tool to manage and integrate large amounts of existing information to make it easily available to citizens through the internet. According to Lieber (2000), e-government refers to the implementation of models that are cost effective for citizens, federal employees, industry, and other stakeholders. These models enable all stakeholders to successfully conduct online transactions. Specifically, Lieber (2000) is interested in considering the strategies, electronic transactions technology, government, and how they can all be integrated in the implementation of e-government. Other researchers have described e-government differently. Chandler and Emanuels (2002) for example, perceive e-government merely as a tool, and argue that the importance attached to it emanates from the use of its applications. Riley (2001) has the same view, believing that the tool has limited value in itself, and that its importance derives from its ability to be applied in reaching certain targets and goals.

Clearly, the above definitions do not provide a comprehensive understanding of e-government as a concept, despite increasing interest, and according to several

researchers (e.g. Jaeger, 2003; Misra, 2006; Schuppan, 2009), two main reasons underlie the inability to provide an all-encompassing definition. One is that e-government has a number of applications which suggest various perspectives and hence, characterisations (i.e. there is no one clear form of e-government), and the second reason is the fact that e-government is perceived from different angles, i.e. those of the society, institutions, and businesses, as explained previously. Furthermore, Thanh (2008) observes that differences in economic and cultural circumstances have changed the objectives of implementing e-government in developing countries, and this explains why the process can be hard to implement in these countries. Indeed, it is a struggle to place government services online and allow online transactions, at the same time as transforming government structures, processes and functions.

3.4 E-government and the Process of Development

E-government is still relatively young in concept as already mentioned, but it is widely in use, and it is possible to identify stages in the way it is implemented. In this respect, a number of researchers (e.g. Al-Dosari and King, 2007; Irani et al., 2006; Klievink and Janssen, 2009; Moon, 2002; West, 2004) explain that the evolution of an e-government initiative can be observed through a number of stages that lead to improved services and interactions. The core focus of these researchers is on the characteristics of e-government and its services, and they have explained that three stages are apparent, starting with the dissemination of information, moving on to the provision of transaction services, and finally on to interactive services. However, it has been suggested by these scholars that the stages of e-government evolution could differ according to certain aspects of development (technological, social, and organisational), whilst others claim that the implementation process associated with e-government is not different from that of the implementation of ICT.

According to Howard (2001), e-government passes through the three stages of publishing, interacting, and transacting, in its development, and the main focus is on how the internet and its characteristics are able to transform government services between these stages. Other than the technological aspects of e-government, there are organisational and managerial aspects, and these too must be considered in the development of e-government initiatives. Lee (2001), for example, believed that e-

government evolves in three stages, starting with cataloguing, progressing to transacting, and finally to vertical and horizontal integration. The focus is on the technological and organisational aspects, although not at the expense of ensuring integration between the provision of public services and data. This process is also supported by West (2004), who suggested four stages for e-government as follows: the billboard stage, the partial delivery stage with full integrated service delivery, the interactive democracy stage, and accountability. Similarly, the Gartner Group (2000) also introduced four stages to describe the development of e-government, these being: the web presence, the interaction, the transactions, and transformation stages. These stages are closely linked with the technological and organisational aspects of e-government. Other researchers such as Moon (2002), have explained the development of e-government via five stages which focus on the technical sophistication level and the interaction with users. These stages are: the simple information dissemination stage which is explained as one-way communication, the request and response stage which is considered two-way communication, the service and financial transactions stage, the horizontal and the vertical integration stage, and lastly, the political participation stage. Similarly, McDonagh (2002) explained the evolution of e-government through five stages starting with distributing the information, moving on to the communication and interaction with the government, then the complex interactions and transactions made by citizens with government, then citizen access to services, and finally the governmental services are mixed with commercial applications.

In 2003, Accenture also suggested five stages of development, these being: 1) the online presence, 2) simple transaction stage for citizens, 3) service availability so that citizens can realise the services from different government agencies, 4) mature delivery so that citizens can realise ownership, authority, intra-agency relationship and better partnership between different levels of the government, and 5) the transformation of services so they are available in an easy and effective way on the internet. The evolution of e-government is also explained by Deloitte research (2000), which suggests six stages: the publication of information, two-way transactions, and multi-purpose portals, personalisation of portals, clustering of common services and ensuring integration, and the transformation of enterprises. All these stages proposed by different researchers, are however, suggested purely as a means of understanding

the evolution of e-government, and it is important to acknowledge that they do not address the speed with which the e-government application develops.

Moreover, they are all the outcome of research conducted in developed countries, where overall stages of national development are often very different from the developing country context, where infrastructures might not lend a logical or smooth transition from one stage to The other. Specifically, when considering the developing country environment, Al-Dosari and King (2007) provided three stages of e-government evolution. The first stage is referred to as the milestone stage and includes forming the e-government entity, developing an electronic law (e-law), and securing an authenticated system and secured payment. The second stage includes advanced technology features including single point of access, single sign on portal, and a number of access channels. The third stage includes the services category including developed complex transactional service. Considering these three stages, it is possible, as explained by Al-Dosari and King (2007), to view them as representing four stages i.e. the initial stage, the developing stage, the advanced stage, and the optimal stage. Furthermore, these researchers explain that the stages are affected by the technological capacity of the country involved, and that this may be insufficient to make the transition between the different stages. Additionally, other aspects, such as the government‘s readiness, the service priority system, and the actual implementation plan, are all critical success factors in respect of e-government adoption in the developing country context.

3.5 E-government adoption and Implementation

E-government adoption has become a necessity in many countries worldwide, and according to Mulgan and Albury (2003), there are four reasons for this:

1. Government must become effective in the way it provides information and services to the general public. It should be abreast of modern technology, and use this to keep up with the pace required when responding to the needs of citizens.

2. The world‘s population is continually growing, bringing increasing diversity, and different social classes, and lifestyles. Governments should acknowledge these demographic characteristics and seriously strive to meet the diverse needs of

society today, which are hugely affected by technology.

3. There is a need to increase efficiency and effectiveness in the delivery of services. Aita (2004) argues that this is achieved by e-government's ability to reduce the cost of services compared to traditional methods, reform internal processes, enable faster decision-making, reform relationships with businesses and encourage economic development, show transparency and accountability, save time, enhance public administration, and enhance the e-society via training courses to meet the current market.
4. It is vital to improve social services for citizens. Helling et al. (2005) argue that e- government allows for the empowerment of poor and marginalised areas, improves public infrastructure services, and also improves local governance.

Clearly, the above motives for pursuing e-government are inter-related and complimentary. Yet, the public sector still suffers from poor application of ICT, despite the evidence that technological advances have led to improvements in education (Light, 2009), health (Bukachi and Pakenham-Walsh, 2007), commerce (Fong and Fong, 2009), and indeed in the private sector, leading to higher revenues and more competitive markets. However, the needs of citizens rather than higher revenues that are also of importance in the drive towards e-government. Morris (2008) makes the point that people in modern life have high expectations of government services, assuming that their different needs and demands will be met. Likewise, Heath (2000) identified greater demands for increased governmental services from businesses, and argued that technology would satisfy these demands. Furthermore, Siddiquee (2006) has explained that the adoption of e-government will lead to higher expectations from citizens as they seek access to public services at all times and from any location without restriction.

Clearly, however, the financial motive is important in the pursuit of e-government (Kelley and Kolsaker, 2004), since the process stimulates adjustment and reform in local companies that could in it, create competitive advantages, and provide more accessible statistics that are of help to government decision-makers.

There are various reasons and motives behind the use of e-government, all of which clearly stress the importance of this technology in today's society. In order to

properly understand and implement e-government these motives should be fully appreciated so that the use and success of the initiative can be maximised, and efficient, reliable and accountable services can be provided for citizens.

However, despite the diffusion of e-government websites and the growing investment in e- services at both national and local government levels, as indicated in Chapter One, several researchers have reported the low level of citizen adoption of e-government services (Belanger and Carter, 2008; Carter and Belanger, 2004; Chudrie and Dwivedi, 2005; Kumar et al., 2007; Fu at al., 2006; Wang, 2003).

Specifically, Belanger and Carter (2008) found that irrespective of governments growing investment in electronic services, citizens are still more likely to use traditional methods, e.g., telephone calls or in-person visits, than the internet to interact with government. Kumar et al. (2007) also highlighted this problem, reporting that the rate of e-government adoption globally has fallen below expectations, although some countries are doing better than others. Nonetheless, it should be noted that research has also provided empirical evidence that the problem occurs in both developed and developing countries, although studies of G2C adoption in developing countries have reported significantly low levels.

In Taiwan, for example, Wang (2003) found that only 8% of taxpayers used the electronic tax-filing system, and four years later, Fu et al. (2006) discovered that whilst this figure had increased, it still only reached 40%, since the majority of taxpayers remained unprepared to change from paper documentation to electronic submissions, and consequently, the problem of under-utilisation continues.

Libya‘s record shows the same problem of low level G2C adoption. Indeed, statistics provided by Al-Nagi and Hamdan (2009), and Al-Awadhi and Morris (2008), indicate that only 21% and 23.6% of citizens respectively in the developing countries they investigated are aware of e-government services and applications.

However, as already noted, developed countries do not attract much more success. Indeed, Kumar et al. (2007) reported that the global average for government website usage by citizens in Canada is only 30%. Similarly, only 27% of Polish citizens, and 23% of Hungarians have adopted e-government services (Al-Adawi, 2005). The problem of low level citizen adoption of e-government services has also been reported by

Choudrie and Dwivedi (2005), who examined the citizen awareness and adoption of e-government services in the United Kingdom by surveying 1,600 households. Surprisingly, they found that 76% of respondents were not even aware of the ‗government gateway' in the UK, and that only 6% of respondents had actually registered for this. They recommended that UK government agencies should devote more energy to understanding the problem of low adoption.

In contrast, in the United States, the percentage of G2C adoption of e-government information and services is higher. In 2005, 52% of taxpayers filed their tax returns electronically (Gallant et al., 2007), and another study of G2C e-government adoption in the US found that 52% of respondents were using the internet to gather information about, or from the government (Crater and Belanger, 2004).

Clearly, there are disparities in citizen adoption, and due to these notable differences worldwide, several researchers (Gilbert et al., 2004; Gupta, 2008; Fu, 2006; Kumar et al., 2007; Tung and Rieck, 2005) all suggest the need for more research in the area of G2C e- government adoption in an effort to help governments to improve their understanding of the critical success factors in this respect, and hence, develop strategies to combat the obstacles that exist.

Undoubtedly, it can be concluded that governments still face the challenge of low G2C e- government adoption rates. However, while a large portion of the e-government adoption academic literature to date has focused on the national and local governments' adoption of e- government, relatively little is known about why, and under what circumstances, citizens adopt e-government service (Alhujran and Chatifeld, 2008; Carter and Belanger, 2005; Choudrie and Dwivedi, 2005; Gilbert et al., 2004; Reddick, 2005; Tung and Reck, 2005).

3.6 Categories of e-government

The main task of governments worldwide is to provide a good service to their stakeholders, and consequently, it is essential to create a good interface between the government agencies and their consumers (Asgarhani, 2005). Due to the diverse needs of stakeholders, governments have sought to divide their e-government services into four categories, namely services for Government to Citizens (G2C), Government to Business (G2B), Government to Employees (G2E), and Government to Government

(G2G), the first two categories being considered external and the other two internal (Backus, 2001). These categories are explained in the following sub-sections.

3.6.1 Government to Citizen (G2C)

As already indicated, e-government essentially aims to provide citizens with governmental services that focus on their needs and that benefit them, and the fulfilment of this aim demands mutual trust. In G2C, governments focus on citizens when designing their services, aiming to meet their needs and high expectations (Horan et al., 2006; Ho, 2002). The type of services provided to citizens can range from basic health and social services to complex services such as transactions and paying taxes, and social security services (Riley, 2001; Fang, 2002; Halachmi, 2004; Sagheb-tehrani, 2007). By providing these services, G2C allows the consolidation of democracy through the involvement of citizens in the formation of policies and in decision-making (Ndou, 2004).

3.6.2: Government to Business (G2B)

DeBenedictis et al. (2002) explained that this category is concerned with the relationship between the government and its services, and commercial and non-commercial organisations. G2B benefits businesses through the use of single point access to information and digital communication with government agencies. The service is provided through an electronic marketplace (e-marketplace) where commercial activities are listed and organised (Fang, 2002). According to Ndou (2004), the G2B category aims at improving the interaction between government and businesses by modernising practices and removing the bureaucracy which is common in the public sector, and especially in developing countries. G2B invites the private sector to enhance the economy, and according to Stoke (2005), allows governments to assess their relationships with business, thereby facilitating economic growth. Examples of services provided in this category are customs declarations, business registration, submission of data and paying tax (Sagheb-Tehrani, 2007).

3.6.3: Government to Employee (G2E)

This category is mainly concerned with the level of interaction between the government and its employees. Employees' needs should be met and considered as they contribute greatly to the success of e-government. Although this category is often considered part of the G2G category, here it is highlighted how important employees are when

applying e-government as they participate in delivering and managing the services provided to the stakeholders. G2E ensures that employees are skilful and aware of their rights and therefore, this category should be considered with great importance (Ndou, 2004; Fang, 2002).

3.6.4: Government to Government (G2G)

Government to government services are concerned with the interaction between government institutions. According to a number of researchers (e.g. Pagano and Cook, 2004; Sagheb- Tehrani, 2007), this category includes services such as disbursing government grants, training officials from the government, and other internal governmental services. Pagano and Cook (2004) stressed that this category is very important since it allows interaction with other categories. In many cases, stakeholders in one category require details and information from other categories making these categories inter-related, and it is explained by Riley (2001) that government systems consists of a number of sub-systems, and the G2G role is to enhance the co-operation between the different governmental institutions. Different governmental departments can share resources, pool skills, capabilities, and databases in order to enhance the efficiency of services (Ndou, 2004).

The above categories of e-government can help in assessing the usefulness and the way governmental services operate when using technology. Consequently, together, they have a combined role in realising the primary goals of e-government, since the attention paid to all the different dimensions of e-government widens the appreciation of the technology and its capacity, and helps all stakeholders to make full use of the facilities afforded by e- government.

3.7 Research on e-government adoption

Researchers have generally taken one of two perspectives when studying e-government adoption, these being either the supply, or the demand side (Reddick, 2005). The former concerns the origin of public services whatever that might be, whether the actual government or its agencies, and whether at the local, state or national level (Reddick, 2005). Studies into the supply side have considered the critical success factors for the adoption of e-government services (Moon, 2002; Holden et al., 2003; Ciborra and Navarra, 2005; Norris and Moon, 2005), which have included: IT infrastructure, financial resources, human resources, and change management. On the

other hand, the demand concerns the end users of public services, whether these are employees of the government, businesses, or indeed, the intended main receivers, citizens (Reddick, 2005). Studies into the demand side have focused on the critical success factors for effective adoption by end users (Carter and Belanger, 2005; Gilbert et al., 2004; Phang et al., 2005; Fu et al., 2006; Belanger and Carter, 2008), and have identified trust, culture, perceptions, beliefs, and experience, as influential factors. The critical success factors in respect of both the supply and demand side are now considered.

3.7.1 E-Government Adoption from the Supply Side

Irrespective of the widespread take-up of e-government, locally and nationally, digital maturity has not been reached (Moon, 2002; Norris and Moon, 2005; Tung and Rieck, 2005; Huang, 2006), and in this matter, it is noted that in the US, at the municipal level, e-government is only somewhere between stage I (simple information dissemination/one-way communication) and stage II (request and response/two-way communication). Only a small number of US municipalities, for example, provide advanced services such as e-payment (Moon, 2002; Norris and Moon, 2005). This is a scenario that is repeated nationally, with it being found that only 16% of governments worldwide provide an e-payment facility (UN Global E-Government Survey, 2008). Likewise West (2008) found that only half of all e- government websites worldwide offer integrated electronic services, and in the Arab World, Chatfield and Alhujran (2007) report that only three countries (out of 22) have this facility, and these are among the Gulf States. Clearly, there is a global issue concerning the non-availability of advanced e-government services, and not surprisingly, there has been a concentration in studies of e-government adoption and implementation, on the supply-side, and especially on the complexity of services involved (Alhujran and Chatfield, 2008). Within the literature that has been produced, certain factors have been highlighted, such as: business strategies (Janssen and Cresswell, 2005), top management support (Al-Shehry et al., 2006; Ndou, 2004), red tape (Welch and Pandey, 2007), organisational capacity (Holden et al., 2003; Norris and Moon, 2005), change management (Ndou, 2004), and technical capacity (Al-Shehry et al., 2006; Ebrahim and Irani, 2005).

3.7.2 E-Government Adoption from the Demand Side

Undoubtedly, from the demand side it is the citizen who becomes the focus of investigation (Carter and Belanger, 2005), since e-government services are primarily for his/her benefit, but as already indicated this is a relatively uninvestigated area of research as highlighted by several researchers (Alhujran and Chatfield, 2008; Carter and Belanger, 2005; Reddick, 2005; Tung and Rieck, 2005).

In their consideration of the demand side, Carter and Belanger (2004) suggested an adoption framework for use within the US, in which they used the Diffusion of Innovation Theory as a means of highlighting the influences brought to bear on citizens when they make their decision to adopt or reject e-government initiatives. It was found from the study conducted by these researchers that the important influences in determining intention to adopt, were the ways in which individuals perceived the image, the potential advantage, and the perceived compatibility of the services. Furthermore, Carter and Belanger (2004) argued for greater knowledge and awareness among citizens as a critical success factor in this respect. Interestingly, the important dimension of the Technology Acceptance Model - perceived ease of use - did not feature as being influential, and this is explained by the fact that the small sample (140) was comparatively computer literate. Indeed, in recognition of this shortcoming, these researchers conducted another study a year later in which a larger sample of US citizens was used, and which employed an integrated (TAM and DOI) model together with the construct of trustworthiness as its conceptual underpinnings. It was found that perceived ease of use, compatibility and trustworthiness were the principal influences upon citizens, whereas in the prior study undertaken by these same researchers (2004), the opposite emerged. Undoubtedly, a wider sample including people of varying degrees of computer literacy produced a more generalised outcome. And not surprisingly, the facts of knowledge and awareness were also registered as important. Despite the 2004 study not highlighting perceived image and relative advantage as critical factors, the 2005 survey found that these were in fact relevant, again possibly because the sample size and demography were different. The model used by Carter and Belanger (2005) was also employed by Schaupp and Carter (2005) to investigate the specific group of young voters in the US, and interestingly, it was found that perceived usefulness, compatibility, and trust, all emerged as influences, whereas perceived ease of use, image, and relative advantage did not. It is obvious that

these three studies, whilst conducted in the same national and cultural context, and within a very short space of time of each other, nonetheless produced contrasting outcomes, and this justifies the need for more research since even within a fairly controlled environment, these differences in results are occurring, and need to be investigated. Of course, the type of sample is of relevance, in which respect, it has been demonstrated (Phang et al., 2005) that Singaporean senior citizens' intention to adopt e-government services is influenced in the main by perceived usefulness. Aspects such as the safety of online transactions and the perceived ease of use also emerge as significant antecedents of senior citizens perceived usefulness, whereas issues such as image and compatibility appear to have no bearing on the adoption decision. Phang et al. (2005) attributed the outcome of their study to the cultural context of Singapore, but it can be pointed out that their results were in fact entirely in tune with the TAM's original assumptions. In their study of the intentions of Taiwanese citizens to use the e-Tax system, Fu et al. (2006) achieved the same outcomes as Phang et al. (2005) in Singapore. Fu et al. (2006) used a theoretical framework incorporating the TPB, TAM and other factors, including perceived risk, and compatibility, obtaining results to the effect that the perceived risk and the independent variables in the TPB (subjective norm, self-efficacy, resource facilitating conditions, and technology facilitating conditions) had no power to explain the attitudes of Taiwanese taxpayers towards the electronic tax collecting system. Using the same type of sample, Wang (2003) also explored the critical success factors in relation to the adoption by Taiwanese citizens of the e-Tax facility. Using the TAM as his theoretical basis, Wang (2003) introduced the dimension of perceived credibility, as a means of indicating whether potential users had any genuine belief in an e-Tax system. Perceived credibility was suggested as embracing security and privacy issues. Wang's (2003) study found computer self-efficacy to influence intention to adopt the e-Tax system through perceived usefulness, perceived ease of use, and perceived credibility. The greater the level of computer self-efficiency, the greater the predisposition to adopt since the beliefs about ease of use and usefulness are enhanced in such a situation.

In another study conducted in Taiwan, Hung et al. (2006) used the TPB in an effort to pinpoint the influences upon citizens' adoption of e-government services, finding that ease of use, perceived usefulness, perceived risk, compatibility, trust, self-efficacy,

external influences, interpersonal influence, and facilitating conditions, are all interconnected in the decision to adopt or reject. Furthermore, specifically in respect of the e-Tax system, a relationship was found between the attitude and behavioural intention to adopt. And in yet another Taiwanese study, Chua et al. (2004) explored the potential influences in respect of the acceptance of e-tendering. These researchers also used the TPB, finding that factors such as user satisfaction, driven by information accuracy, and perceived usefulness of the ETS, are all positive influences in this respect. Additionally, a correlation between attitude and behavioural intention to adopt was found. Furthermore, it was established that increased awareness and enhanced knowledge of IT and the internet are positive factors for the e-tendering system. Citizen awareness was also the subject of a UK study by Choudrie and Dwivedi (2005), who used this when exploring the adoption of e-government. These researchers found that citizens' demographic characteristics had the power to explain the adoption of e-government services, mentioning gender, age, education, income, and social class. Indeed individuals with the internet at home were found to be more likely to use e-government services. And in a US study, Reddick (2005) also presents citizen demographics and social characteristics as an explanation for differences in rates of acceptance of e-government services. Specifically, gender, age, education, type of work, online experience, and the characteristics of e-democracy including trust in the government, change of government policies and political party affiliation, are influential in citizen decision-making in this arena. Reddick (2005) found in particular that individuals who are more pro- e-government initiatives are those who are more familiar with government officials, who have high-income, have experience in using the internet, who want to change government policies, and who trust the state government. Older citizens appeared as being less likely adopters. It is true that many researchers have explored the part played by trustworthiness (the government side) in influencing the intention to adopt and use e-government services and applications in the US (Carter and Belanger, 2005), and a few of these studies have addressed the role of trust (the citizen side) as a potential influence on the intent to adopt and use e-government services and applications (Warkentin et al., 2002; Carter and Belanger, 2004; Schaupp and Carter, 2005; Horst et al., 2007). However, the results indicate a disparity in cross-cultural studies regarding the importance of the role of trust and trustworthiness in this respect. The importance of security and privacy in the decision

to support e-government initiatives has been pursued by other researchers (Gilbert et al., 2004; Conklin, 2007), who have highlighted the need for citizens to feel that their personal data is being properly protected, and that there is a need to increase public trust in e-government services and applications. Some scholars have formulated models of citizen adoption of e-government services, and in this respect Warkentin et al. (2002) proposed a framework including citizen trust, as well as perceived usefulness, perceived ease of use, perceived risk, perceived behavioural control, and cultural dimensions. Positive relationships were found between trust and the citizen‘s intention to adopt and use e-government services, and indeed between perceived usefulness, perceived ease of use, and perceived behavioural control, and the intention to adopt. Perceived risk revealed a negative correlation, whereas cultural variables, and in particular power distance and uncertainty avoidance, were shown to strongly relate with citizens‘ intention to adopt. In respect of power distance, individuals from countries ranking high on this dimension were shown to be more predisposed to adopt, as were those from countries ranking high on uncertainty avoidance. Kumar et al. (2007) also generated a model including the user‘s characteristics, including perceived risk and perceived control, as well as web design issues, including perceived usefulness, perceived ease of use, and several other factors that foster user satisfaction, and increase the likelihood of adoption of e-government. Their study revealed that the user‘s characteristics (experience in the use of the Internet, perceived risk, and perceived control) did explain the take up of e-government services, and recommended that e-government websites should be better designed so that the content was accurate, was easy to browse, easy to access, and enabled personalisation. In a study conducted in Thailand by Wangpipatwong et al. (2008), the TAM was used together with the variable of computer self-efficacy as a vehicle to explore intention to continue to use e-government services. It was found that both perceived usefulness and perceived ease of use were influential in this respect, and that computer self-efficacy was influential upon the perceived ease of e-government use, and hence, upon Thai citizens‘ intention to continue to use e-government services. However, Wang (2003) found no correlation between computer self-efficacy and perceived ease of e-government use.

In the Arab World, there have been few research studies in the area of e-government adoption, either from the demand or supply side. However, one study that has addressed this issue, from both sides, is that of Al-Shihi and McGrath (2004), who used the Sultanate of Oman as their case study, and found that citizen characteristics, such as IT literacy, age, education, and income were explanatory variables. Young citizens, educated citizens, and individuals with high income showed greater predisposition to adopt e-government services, as did those with computer and internet expertise. Al-Shihi and McGrath (2004) also identified the major obstacles facing the Sultanate in its efforts to progress with e-government initiatives, summarising these obstacles as lack of experience in the use of IT, lack of awareness and knowledge of e-government services, and lack of trust in government and technology alike.

In a study of the adoption of e-government services in Kuwait, Al-Awadhi and Morris (2008) investigated the influences upon citizens, using the UTAUT. They found that factors such as facilitating conditions, peer influence, performance expectancy, and effort expectancy, are what Kuwaiti citizens consider when they make their decision to adopt or reject e- government services. Additionally, factors such as culture and trust were highlighted as worthy of more research. And in Qatar, Al-Shafi et al. (2009) also used the UTAUT to establish the behavioural intention of citizens to adopt e-government. Three factors emerged from the data as being important in this respect: performance expectancy, social influence, and facilitating conditions. However, cultural factors which were not explored, were indicated as worthy of research. It can be seen that far more research has been conducted in the developed countries than in the developing ones in relation to the adoption of e-government. Moreover, that gap in knowledge is particularly acute in Arab countries, where arguably there is a need for more research given the fact that in most of the Arab World, if e-government initiatives have been implemented, they are largely voluntary. Hence, it is even more important to explore the influences upon individuals in their intention to adopt e-government services.

3.8 E-government Adoption and Implementation in Developed and Developing Countries

E-government and the use of ICT is not easy to implement, and as previously mentioned, even in advanced countries, there are many challenges to its effective adoption. In the developing countries, however, those challenges are much greater (Al-

Shafi and Weerakkody, 2009), and in this section, distinctions are drawn between the development of e- government in both contexts.

It is therefore, appropriate to briefly examine the differences in those contexts such that the factors which appear to impinge upon the implementation of ICT and e-government can be properly understood, and consequently, the question of what differentiates developed from developing countries needs to be established. Two decades ago the UN (1993) identified three criteria to denote the least developed countries, these being:

- Income per capita - countries with high gross domestic product (GDP) per capita were described as developed countries.
- Industrialisation - countries in which the tertiary and quaternary sectors of industry dominated were described as developed.
- The Human Development Index (HDI) combining an economic measure, national income, with other measures, indices for life expectancy and education, has become prominent – countries with a very high HDI rating were described as developed. Unlike GDP, HDI takes into account the way in which a country‘s income translates into opportunities for individuals to access education and healthcare, and thus to achieve greater levels of human development.

More recently, Kofi Annan, the former Secretary General of the United Nations, defined a developed country as -one that allows all its citizens to enjoy a free and healthy life in a safe environment and in which civil society is able to insist, not only on material wellbeing, but on improving standards of human rights and environmental protection as well (Annan, 2000).

The World Bank (2013), on the other hand, focuses on income as an indicator of the developed/developing classification, suggesting four income groups as follows:

- Low income countries with a gross national income (GNI) per capita of US$1,005 or less.
- Lower middle income countries with a GNI per capita between US$1,006 and US$3,975.
- Upper middle income countries with a GNI per capita between US$3,976 and

US$12,275.

- High income countries with a GNI above US$12,276.

And concentrating on developing countries, only, the World Trade Organization (WTO) suggests five different groups (Kasteng et al., 2004) as follows:

- Least Developed Countries (LDCs) (50)
- Food insecure countries, with the exception of the LDCs (34)
- Developing countries with special need for rural development (44)
- Significant net agricultural-exporting developing countries (4)
- Advanced developing countries (14)

Moreover, the UN categorises developing countries according to whether they are oil-exporting, or oil-importing, and consequently Libya, together with all the Gulf countries (Saudi Arabia, Bahrain, Kuwait, Oman, Qatar, and the United Arab Emirates) are classified as developing and oil-exporting countries (Chalcraft, 2010).

It has already been stated that the majority of developed countries have attempted to implement e-government, and indeed, many have formulated effective strategies in this respect, such as the use of best practices and platforms to ensure effectiveness and efficiency. According to Gronlund (2005), the e-government initiative started in the USA in the 1990s and was then transferred to the EU via the use of the e-initiative that appeared in the UK, Canada, Australia and Sweden. Nonetheless, no universal model that guarantees success has emerged so far. Developed countries have different experiences in the implementation and the adoption of e- government, having as their main concern, the desire to improve the quality of governmental services and increase citizens'satisfaction. Margetts (2006) explained that the main objective of e-government in the UK is to focus on the demand rather than the supply, and on the efficiency and quality of public services. However, changes in political systems, and the financial crisis of the recent years, pose problems for the economic and social aspects of society, and the actual provision of public services remains in jeopardy to a certain extent as austerity measures have become commonplace.

Given that e-government implementation is producing a challenge in developed countries, it can be understood that developing countries will encounter greater obstacles, meaning that efficiency and effectiveness of e-government services may be

very hard to achieve (Ndou, 2004; Al-Awadhi and Morris, 2008; Schuppon, 2009). Nonetheless, developing countries may learn from the achievements of developed countries in the realm of e-government, since the former are in desperate need of cost reductions, improvements in trust between citizens and governments, and improved accountability, and such benefits should be forthcoming from e-government (Kaaya, 2004). Shin et al. (2008) agree, making the point that developing countries are learning these lessons and doing their best to enhance participation and co- operation between different public institutions, to solve long-term problems such as corruption and the digital divide. Many developed and developing countries have resorted to the adoption and implementation of e-government services and applications, through the creation of best practices to build these services and applications effectively and efficiently.

In the UK, the government decided in 1999 to employ ICT to provide better services to citizens and companies, through the e-government, and local governments' electronic strategies (Margetts, 2006). The support for e-government is seen at the highest level, in a speech made by David Cameron, the UK Prime Minister in 2010. Then, the Prime Minister said:-

> Everyone can see that the old, top down, big government solutions aren't working. So it shouldn't be too hard to convince people that a completely new approach to solving these problems is necessary. And with the huge changes that are taking place in terms of information and technology and know-how, it shouldn't be too hard to convince people that such a new approach is possible.

Through the UK government portal (http://www.gateway.gov.uk/), individuals can access a variety of e-services (council tax, self-assessment, careers allowance, tax credits, etc. Furthermore, businesses (including employers, sole traders, farming organisations, charities, and other commercial and non-commercial organisations) can return VAT, and pay as you earn (PAYE) online, and view statutory notices and reminders. Similarly, agents (on behalf of other companies or individuals) can access services such as corporation tax online for agents and PAYE online for agents. All these stakeholders must register before accessing government services via the internet, but after this initial registration, individuals can transact and route messages reliably, thereby being able to communicate with government agencies from a single point of entry. Similarly, as Roy (2006) indicates, the government in Canada showed interest in the use of ICT, introducing this during its public sector reform in 1999. And likewise,

so too did the Bush administration when it began several government reform efforts in July 2001, known collectively as the President's Management Agenda (PMA), to make the federal government more results-oriented, efficient and citizen-centered (http://www.usa.gov/Topics/Includes/Reference/egov_strategy.)

Some developed countries find e-government a valuable tool in achieving various goals. For example, the Australian government sought to achieve three main objectives through its e- government initiative, these being: public services, internal efficiency, and increased participation in the community (http://australia.gov.au/). Others, like the US, have focused on three principles, and as a result have been citizen-centered, results-oriented, and market- driven (http://www.usa.gov/Topics/Includes/Reference/egov_strategy)

Many countries have sought to translate the vision behind e-government through the development of ICT tools, thus enabling people to benefit from the new e-services. Undoubtedly, ICT and particularly the internet are essential requirements for the adoption and implementation of e-government, as confirmed by the former US President George Bush, who said:-

> I will expand the use of the Internet to empower citizens by allowing them to request customized information from Washington when they need it, not just when Washington wants to give it to them. I believe true reform involves not just giving people information, but giving citizens the freedom to act upon it (http://www.wapa.gov/newsroom/pdf/annrep02.pdf)

It is clear that the developed countries perceive the benefits of e-government, especially in the public sector, and indeed strive to implement it, and it is also clear that in the developing countries where there are many problems facing their public sectors, e-government has great potential to improve communication and support democratic ideals. Consequently, many e- government projects have been undertaken in developing countries (Ndou, 2004; Al-Awadhi and Morris, 2008; Schuppan, 2009), and some such countries have been able to follow the developed countries' example in the public sector by introducing modern ICT, despite their less favourable economic, social, political and technological conditions. Kaaya (2004) suggests that the great potential for reducing costs, achieving more direct interaction with citizens, promoting government accountability, and economic improvement, serves as a

powerful incentive to adopt and implement e-government on a large scale.

Recently, developing countries have become focused on catching up with developed countries in respect of e-government services (Basu, 2004; Chen et al., 2006), through the provision of information required to activate participation and co-operation between public institutions, as well as assistance in resolving problems that have adversely affected the progress of these countries, such as corruption, the digital divide, poverty, and the spread of disease (Shin et al., 2008). However, these countries still have a long way to go to reach the stage of the developed countries in their implementation of e-government. For example, Basu (2004), and Chen et al. (2006) pointed to the need to consider the differences between the developed and developing country contexts, and the need to adapt the policies adopted by developed countries to suit the particular circumstances of developing ones. And Nour et al. (2008) promote the same idea, pointing out that the effectiveness and efficiency of e-initiatives, especially e-government, requires taking into account the diversity of governmental regulations and different cultures, social conditions, political, economic and even technological infrastructure, which as a whole reflect the context where e-initiatives are implemented. It is the case for most, if not all developing countries, according to Chen et al. (2006), that the strategies and plans based on the theories and experiences of developed countries may not apply to their particular contexts, because of the fundamental differences between their circumstances and those of the advanced nations. Accordingly, many e- government initiatives in developing countries still face the possibility of total or partial failure for reasons related to the conditions of implementation. Indeed, Al-Shafi and Weerakkody (2009) indicate that most developing countries are still in the preparatory phase of e-government, and that more effort is required for further development.

However, this focus on conditions is criticised by Montealegre (1999), who claims that the concentration should be on actions and behaviours, and on how to overcome the challenges rather than on what those challenges are. He argues that the focus on conditions and challenges produces results that are often normative and descriptive (Heeks, 2002), citing contextual issues, regulatory issues, institutional issues, change management, behavioural issues of individuals, and technical issues.

It can be understood from the discussion so far, that the e-government literature

does not concern itself with building new theories, but rather tends to employ the results of previous models in different contexts, and in some cases, without taking into account the differences between the contexts (Heeks and Bailur, 2007). This is consistent with the World Bank's (2004) observation that there is no comprehensive book for e-government; knowledge comes from practice; good practices create success. However, the weakness in methodology in existing studies on e-government could undermine the understanding of the relationship between society and technology implementation.

3.9 E-government in the Middle East and North Africa

Given the particular focus on Libya in this study, it is pertinent to examine the implementation and effectiveness of e-government initiatives in countries that have similar characteristics to Libya, and in this respect it is those in the Middle East that can be of help since these are the ones that share cultural traditions with Libya. Consequently, the behaviour and response of citizens to e-government services in the Middle Eastern countries can be expected to inform that of citizens in Libya. In terms of cultural similarities (UN-ESCWA,2009) has identified five dimensions on which nations can be similar or different, and briefly these are known as: power distance, individualism, masculinity, uncertainty avoidance, and the time orientation.

The Power Distance Index (PDI) measures the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally; Individualism (IDV) measures -the degree to which individuals are integrated into groups; Masculinity (MAS) considers -the distribution of roles between the genders; the Uncertainty Avoidance Index (UAI) measures a -society's tolerance for uncertainty and ambiguity and indicates the degree to which individuals are comfortable or otherwise in situations which are unstructured; and Long-Term Orientation (LTO), which measures the extent to which the society displays values associated with -respect for tradition and fulfilling social obligations (UN-ESCWA,2009). An important outcome of societies that score high on the UAI is that people look to strict codes of behaviour, and laws that are definite in what can and cannot be done. Clearly, this kind of tendency has implications for new methods of transacting with government which require greater flexibility on the

part of government and citizens. In a large study of cross-cultural values, (UN-ESCWA,2009), found that countries within the Arab World (he included Egypt, Saudi Arabia, United Arab Emirates (UAE), Kuwait, Libya, Iraq and Lebanon) shared similar values and essentially scored high on power distance, uncertainty avoidance, and masculinity, and low on individualism. Such outcomes have implications for e-government, basically presenting challenges as the essence of e- government requires a much more open and transparent society than is characterised by societies scoring high on these dimensions (UN-ESCWA,2009). Indeed, although approximately 30% of the population within the Middle East are connected to the internet, and the region shows one of the highest growth rates in terms of internet usage, it is notable that e-commerce has not prospered as expected, quite simply because individuals are reticent in engaging with business electronically. The first internet connection was established in 1992 by Egypt which did this via France (UN-ESCWA,2009), and this was followed in 1995, when Bahrain and Kuwait began to access the internet. Four years later, in 1999, Saudi Arabia allowed its citizens access to the internet (Asgarkhani, M. 2005). Such access is restricted. Most countries in the Arab World impose national proxy filtering systems to prevent unwanted materials such as certain political and believed to be obscene websites from being available to their citizens (Asgarkhani, M. (2005). In considering the maturity of countries in the Arab World with respect to ICT confidence and security, the United Nations Economic and Social Commission for Western Asia (UN- ESCWA, 2009) has grouped Saudi Arabia, Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, Egypt, Iraq, Jordan, Lebanon, Palestine, Sudan, Syria, and Yemen together, and categorised them according to the four maturity levels (UN-ESCWA, 2009). None of these countries is placed in Level 4 or Level 3, demonstrating that none of them shows maturity in ICT confidence and security. Syria and Yemen appear in Level 1, indicating that they lack standards and regulations in law, security and privacy related to ICT, and Saudi Arabia and Egypt appear at Level 2, demonstrating that they have the basic laws in place that counter the misuse of ICT and have built a secure e-transaction environment, but do not have sufficient measures to be able to secure information. It is clear that the fourteen members of this group still lack the appropriate regulations to protect people‘s information and their online privacy (UN-ESCWA, 2009). Indeed, most of the Arab countries do not have any legal framework for electronic transactions, and only Saudi

Arabia, Egypt, Bahrain, Jordan, Oman, Sudan, and UAE have e-transaction laws (UN-ESCWA, 2009). In a ranking completed by the Economist Intelligence Unit (2010) of the e-readiness for the digital environment, only four Arab countries featured in a listing of over 70 countries, thus indicating the poor quality of the ICT infrastructure in the rest of the Arab World. Of the four included, the UAE appears at position 32, Saudi Arabia at position 52, Egypt at position 57, and Algeria at position 68. The other Arab countries do not appear either because of a lack of information or low scores. There are examples of e-government presence in the Middle Eastern and North African countries, the following sub-sections, discuss them.

3.9.1 The Case of Morocco

Morocco formally laid the ground for its e-government initiative in August 1997, with the passing of 24/96 which allowed competition in all segments of the telecommunications market, and the privatisation of the historic provider (Kettani & and El Mahdi 2009). This was done as part of the move to promote modernisation and efficiency in the government administration. In particular, the focus was on public institutions providing social services in the fields of education and health care, by expanding their access to information technology and developing their capacity to use IT effectively. An on-line government initiative was launched with the aim of linking all departments and their staff, and was intended to be fully operational by the end of 2001. The process required the complete liberalisation of telecommunications by opening up the industry to the private sector which included licences to operate mobile and GMPCS networks in 2000 and the approval of over 1,800 ISPs and internet cafés. Many of the networks were subsidiaries of EU operators. Simultaneously, in order to implement the on- line government‘ programme, public tele-centres were established providing internet access to the general population, and telecommunications infrastructures were developed in rural areas to offer access to basic services, improve agricultural production, and promote the emergence of non-agricultural activities, and national e-commerce platforms.

Among the aims of providing greater access to education and training, the upgrading of businesses, culture, and closing the digital divide, the desires to implement the on-line‘ government initiative, supporting decentralisation and land-use planning, were paramount, with IT being used a land-use planning tool by

launching digital city projects and developing local portals, and a unifying national portal. Essentially, IT is used as a means of modernising Morocco's administration, promoting information access and exchange between the administration, citizens and businesses through on-line processes. The belief is that with the integration of common services and applications, the realisation of economies of scale, the introduction of standard data exchange procedures, and paying attention to data security, the administration can become more efficient and effective, and closer to citizens (Kettani & and El Mahdi 2009).

3.9.2 E-government in South Africa

As another example of e-government in Africa, the South African provision can be seen as a means of responding to the national constitution which obliges the State to furnish all citizens with wide access to government information (CapeGateway, 2009). Ochara (2008) noted that the developed nations promote e-government as one vehicle by which to alleviate problems related to poverty, and it is stated (CapeGateway, 2009) that access to information is a basic human right. In order to provide its e-government initiative, the South African government entered into a partnership with private organisations, and subsequently mounted a variety of ICT initiatives (Moodley 2005), including the Cape Gateway Project, Cape Information Technology Initiative, Tele-centres in rural areas in South Africa, SchoolNet South Africa Project, Mindset Network Organisation and the Khanya Project (Riordon 2009; Evoh 2007). Moreover, in an effort to ensure that its e-government initiatives are properly implemented, the South African government has created a regulatory framework managed by statutory bodies. These bodies are the State Information Systems Agency and Government Information Technology Officers Council. The SITA has responsibility for acquiring, installing, implementing and maintaining IT in public organisations, whilst the Council is charged with the consolidation and co-ordination of IT initiatives in government to ensure the smooth operation of service delivery. The Council is itself comprised of national provincial IT officers, and given its main objective; it bears the responsibility for facilitating e-government. As part of the overall regulatory apparatus, several White Papers have been produced by the government. These are entitled: Transforming Public Service Delivery, Promotion of Access to Information Act, Electronic Communication and Transaction Act, Electronic Government Policy Framework, Minimum Information

Security Standards, Minimum Interoperability Standards and Policy on Free and Open Software. In its entirety the national regulatory framework is intended to govern IT such that transparency, accountability, good governance, information security, and freedom in the acquisition and use of IT, are all fostered.

3.9.3 The case of Jordan

With the ascension of King Abdullah II to the throne of the Hashemite Kingdom of Jordan in February 1999, the stage was set for the development of a viable and successful vision for the social and economic growth of the country (Market Abu-Ghazaleh & Co. Consulting, 2005). Jordan has taken some major steps in the last few years towards creating a dynamic and practical approach to be a part of the international ICT industry through investing heavily in developing its ICT sectors at the regional and international level. In 1997 Jordan privatised its telecommunication sectors and started new era of licensing new private companies to provide better telecommunication services including radio paging, GSM network, pay phone services, full internet services and other data and telecommunication services (British Chambers of Commerce, http://www.britishchambers.org.uk/zones/export/publications). This has accordingly caused a significant change towards developing ICT sectors in the country through the creation of REACH initiative. This initiative was launched in response to a challenge from His Majesty King Abdullah II in July 1999 for the private sector to prioritise the development of Jordan_s ICT sector (Int@j, http://www.intaj.net/node/64). Thus, a core group of members of the ICT industry world-wide devised a dynamic strategy and workable action plan identified as the REACH initiative (Jordan_REACH Initiative, http://www.reach.com.jo). This initiative was primarily conducted through an intensive consultation and research process with Jordanian ICT industry leaders and international and domestic consultants as a national strategy for Jordan to develop a vibrant, export-oriented ICT services sector; paving the way for Jordan to become a regional leader and internationally recognised exporter of ICT products and services around the globe (Int@j, http://www.intaj.net/node/64). REACH is an acronym for the actions to be taken in the following areas: Regulatory Framework Strengthening; Enabling Environment (Infrastructure Development); Advancement Programs; Capital and Finance; and

Human Resource Development, with four main versions: REACH 1.0; REACH 2.0; REACH 3.0; and REACH 4.0. However, these versions were managed by the private sector, in partnership with the government, and the purpose was to raise Jordan internationally in the field of ICT, and to move positively towards knowledge-based economy in the future. The government of Jordan has accordingly begun to facilitate the required changes for the transformation through a range of initiatives launched during the last few years including e-government initiative. These initiatives were later selected as having the greatest potential for contributing positively to Jordan's future success (MoPIC, 2009). E-government program was launched by His Majesty King Abdullah II the king of Jordan in September 2001. This program mainly aimed at using new technologies to facilitate inter and intra-agency communication and cooperation, as well as provide information and services to its citizens more efficiently. The program relies on five building blocks: introduction of e-services, infrastructure development, education and training, legal change, and fostering establishment of management and institutional framework. It focuses on the following broad objectives: increasing the transparency of government by increasing availability of information; increasing the responsiveness and the participation of government agencies by providing more information and services to the public; creating a new mode of contact between governments and the public; bridging the digital divide through the promotion of ICT skills development in firms and individuals; and boosting e-commerce activities in the region (MoICT, 2003). E-Government vision is broadly dedicated to complement economic and social development by providing access to government e-services and information for everyone in Jordan irrespective of location, economic status, IT skills, and educational level. However, realising the new vision requires a big national effort of review some of the current best practices indicated by international agencies, from the World Bank to the UN, and the donors of various leading Western and Far East countries, combined with the commitments expressed by the King and the MoICT (Ciborra, 2003). From the above, e-government program in Jordan is not copied from other national programs, but on the contrary, it was a promising program based on best practices to provide better government services, raising the efficiency of human resources, bridging the digital divide, and finally creating a society where e-government contributes to the economic and social development.

3.10 Technology Adoption Theories and Models

Technology adoption can be simply defined as the use and acceptance of a new technology (Agarwal, 2000). However, there are many theories and models that have been developed to study the behaviour of individuals in respect of their adoption of new technologies, and there have also been many research studies conducted on the adoption of IT in the context of developed and developing countries. The following sections will describe some of these theories and models, especially those that are used widely in IS research in general, and especially e-government.

3.10.1 Diffusion of Innovation (DOI) Theory

Since its emergence in the 1950s, the Diffusion of Innovation theory has been considered the most prominent in describing the innovation-decision process. However, in the half decade since the 1950s, the innovation-decision process has in itself become more complex and longer, with increasing world development and the different interests and agendas of both individuals and organisations. Associated with Rogers (1995), the Diffusion of Innovation Theory (DOI) is based on Rogers'definition of diffusion, which is the process by which an innovation is communicated through certain channels over time among the members of a social system (1995:10).

The diffusion process typically begins with new ideas and inputs to the system. However, the key elements of the innovation diffusion process are: innovation, communication, time, and social systems. In practice, innovation is like any new idea or practice. While the technological, cultural and economic characteristics of innovation determine the extent of the rapid adoption of innovation throughout the social system, diffusion involves time through several different methods. Firstly, there is the innovation-decision process, which is a mental process involving five stages in the process of innovating as shown in Figure 3.1. Secondly, innovativeness refers to the amount of time taken by certain individuals in the social system to adopt the innovation as compared with others. Thirdly, the rate of adoption of innovation refers to the relative speed those individual in the social system need to adopt new ideas. However, Rogers believes that the social system is comprised of interdependent units working together in a bid to achieve goals, and that these units affect the diffusion of innovations, either positively or negatively.

According to Rogers, the innovation-decision process plays an important role in the diffusion of innovation. This is done through five stages experienced by the decision-makers or unit of decision-making, starting with awareness of the innovation to the stage of decision of innovation adoption or rejection as follows: (1) awareness of innovation, (2) interest in innovation, (3) evaluation of innovation, (4) trial of innovation, and (5) adoption decision of innovation. These stages may not all be reached because the individual may be forced to reject the innovation at any time during or after the decision-making process of innovation. However, they can be described in a little more detail as follows:

1. Knowledge stage: The individual is exposed to an innovation for the first time, but usually lacks information about it;

2. Persuasion stage: The individual shows (based on the information s/he had from the previous phase), either an interest in the innovation (and thus, searches for information and details about it), or reluctance to continue with the innovation;

3. Decision stage: The individual weighs the advantages and disadvantages of using the innovation and thus decides whether to approve or reject it;

4. Implementation stage: The individual works on the employment of the innovation to varying degrees depending on the situation; and

5. Confirmation stage: The individual seeks to reach a final decision either to preserve the innovation to the fullest potential or reject it definitively.

Additionally, Rogers (1995) argues that in order to persuade the individual to adopt an innovation, five key characteristics must be present within that innovation as follows:

1. Relative advantage: the degree to which an innovation is perceived by the decision-maker as being better than what it supersedes;

2. Compatibility: the degree to which an innovation is perceived by the decision-maker as being consistent with existing values, past experiences and needs;

3. Complexity: the degree to which an innovation is perceived by the decision-maker as being relatively difficult to understand and use;

4. Trialability: the degree to which an innovation is perceived by the decision-maker as being experimented with on a limited basis;

5. Observability: the degree to which an innovation is perceived by the decision-maker as being able to make its results visible to others.

There have been criticisms of the DOI theory, such as that it does not take into account the specificities of the diffusion of complex IT projects (Lyytinen and Damsgaard, 2001). Additionally, Kautz and Pries-Heje (1996), Elliot and Loebbecke (2000), Allen (2000), and Papazafeiropoulou et al. (2005), all point out that the theory does not have the power to understand how different groups interact to produce and provide the innovation, or to predict the consequences of innovation, or indeed to provide guidance on how to accelerate the adoption of innovation. Nor does it provide a vision of how the attitude evolves into acceptance or rejection of a certain decision, and how the characteristics of the innovation can be compatible with the innovation decision process (Karahanna et al., 1999; Chen et al., 2002). Considering that each innovation has different categories of adopters, it can be seen that there is no logic in presuming that one theory could explain how to shape the attitudes regarding the characteristics of an innovation, its stages of adoption, and categories of adopters.

Furthermore, there is doubt about the extent to which the theory leads to hypotheses that can be refuted easily. Most importantly, the theory is developed according to the features of Western culture, where it was first found, and hence, it does not take into account the cultural features of developing countries, such as in East Asia and Africa.

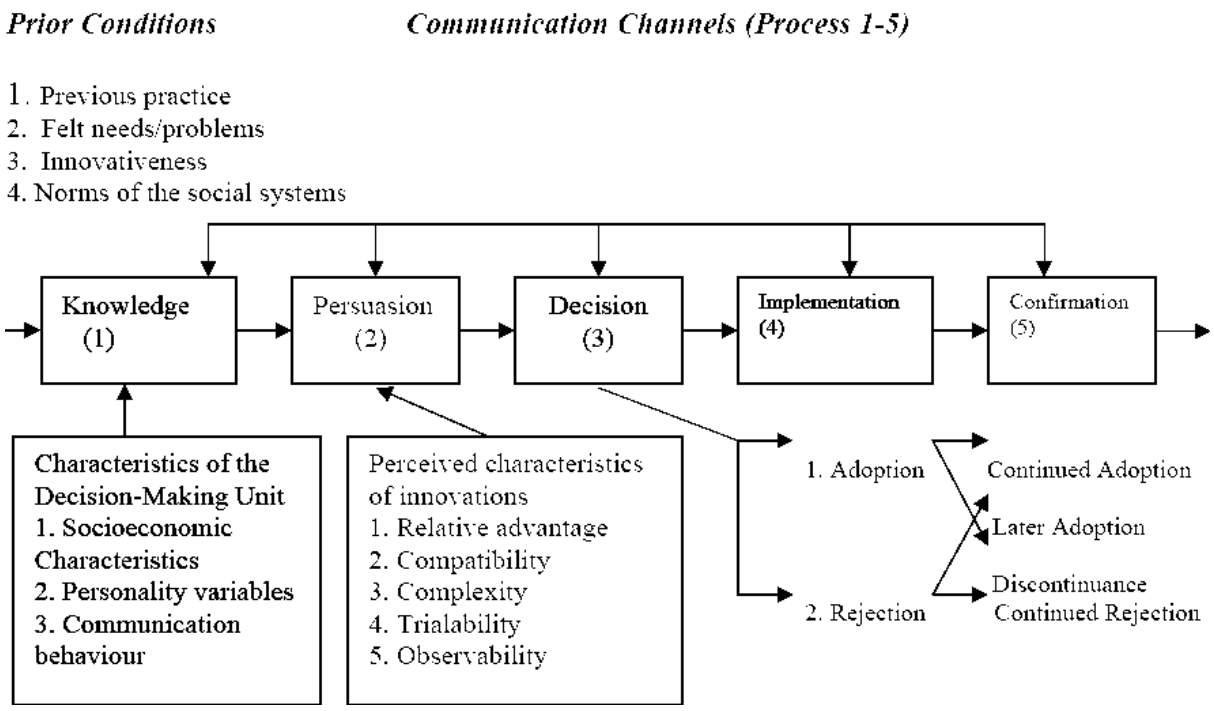

Figure 3.1: Five stages of the innovation-decision process (Rogers, 1995)

3.10.2 Theory of Reasoned Action (TRA)

In 1980, Ajzen and Fishbein developed the basics of behavioural theory under the so-called theory of Reasoned Action (TRA). The TRA later became the basis of the studies linking attitude and behaviour, and it has been used in various forms in many scientific and practical areas, and between practitioners and academics. Essentially, the TRA stipulates that beliefs affect attitudes and social norms and thus affect intention to steer behaviour or even dictate the behaviour of the individual. Intention is the cognitive representation of a person's willingness to perform certain behaviour, and is considered to occur immediately prior to the behaviour. However, behavioural intention is determined by two constructs: (1) attitude toward the specific behaviour (ATB), and (2) the subjective norm (SN) associated with that behaviour, as shown in Figure 3.2

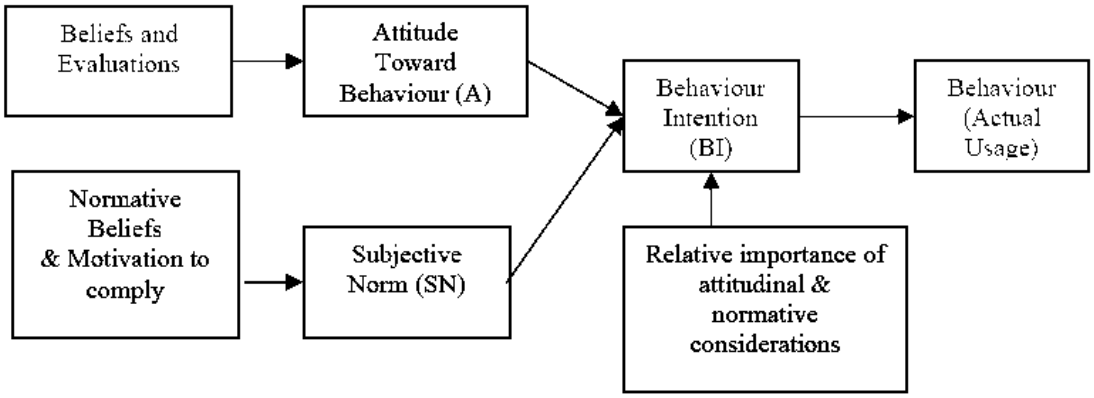

Figure 3.2: Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980)

The attitude toward a specific behaviour (ATB) is the attitude prior to a person performing that behaviour. This means that thoughts control people's decisions and that the possible consequences of their actions are considered before making a decision to participate or not in that behaviour. The TRA considers the intention of a person to engage or otherwise in a certain behaviour, as a key determinant of that person's subsequent actions. Attitude (that forms the intention) is coupled with the beliefs of the person and the evaluation of the behavioural results. Thus, the positive beliefs of a person towards certain behaviour lead to a positive attitude towards that same behaviour, while, the negative beliefs of a person towards certain behaviour lead to a negative attitude to the same behaviour.

The subjective norm (SN) is the societal pressure on individuals or decision-makers to behave in a certain way. It arises because of the importance attached to a particular behaviour by society at large (Leach et al., 2001). Thus, what is believed by society about certain behaviour plays a vital role in determining the behaviour of individuals even if that belief is in conflict with an individual's personal feeling. In practice, people have to consult among themselves before making any decisions.

The TRA is well established and has been applied widely to explain and predict behaviour intention or actual behaviour, across many areas (Ajzen and Fishbein, 1980). Indeed, it is often used to study the determinants of intention and behaviour associated with the adoption and use of IT innovation (Han, 2003), and despite the emergence of different models and Theories to explain and predict human behaviour

toward the innovation, many studies are still based on the TRA.

Nonetheless, the theory has the drawback that it assumes behaviour is always under volitional control, and consequently it cannot explain unconscious behaviour, or why irrational decisions are made.

3.10.3 Theory of Planned Behaviour (TPB)

The Theory of Planned Behavior (TPB) is an extension of the Theory of Reasoned Action (TRA) (voluntary behaviour), arising in an attempt to surmount the shortcomings of the Theory of Reasoned Action (TRA) in dealing with behaviours over which individuals have no control. Hence, a third new construct was added to explain and predict behaviour intention, which later became known as perceived behaviour control (PBC). Accordingly, Ajzen laid the foundation for the Theory of Planned Behaviour (TPB) in 1985 (Ajzen, 1985) to complement the theory of Reasoned Action (TRA), but with a new construct, namely perceived behaviour control (PBC), to better explain and predict behaviour intention. According to Ajzen (1991), the TPB aims to take account of situations where the individual lacks the element of control or the resources required to engage freely in certain behaviour. The TPB explains deliberate behaviour, and with the new PCB construct, is considered more general than the TRA (Chau and Hu, 2002). The intention is seen to be the best precursor in explaining and predicting certain behaviour in the TPB. This implies that the intention in the TPB is determined by three constructs: (1) attitude toward behaviour, (2) subjective norm (SN), and (3) perceived behavioural control (PCB) (Ajzen, 1991). PCB refers to people‘s perceptions of their ability to perform certain behaviour. In general, the more favourable the attitude and subjective norm, and the greater perceived behaviour control, the stronger the individual‘s intention to perform the behaviour. Also, the availability of a sufficient degree of actual control by the individuals over certain behaviour leads them to implement their intentions towards the same behaviour, as shown in Figure 3.3.

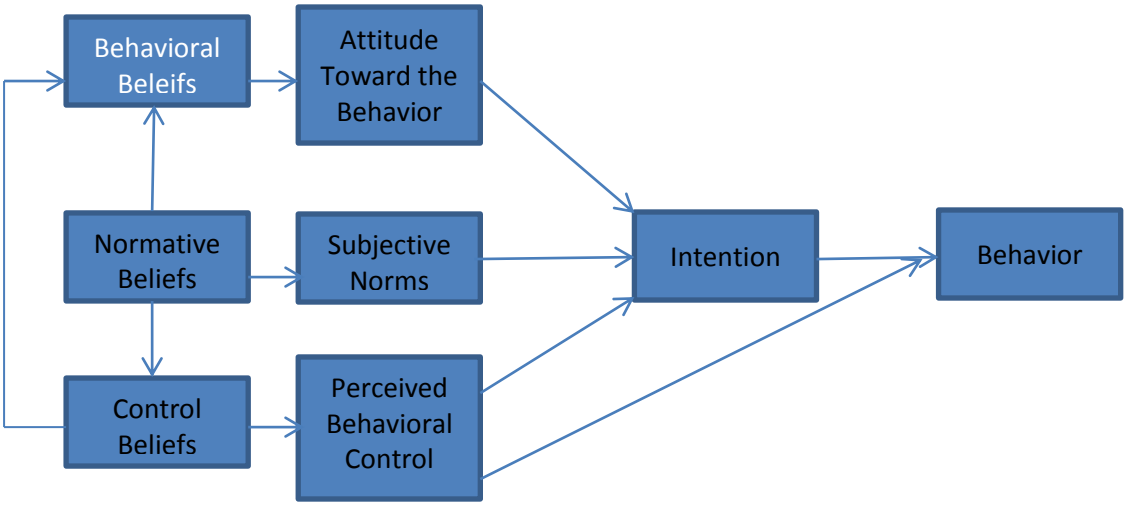

Figure 3.3: Theory of Planned Behaviour (Ajzen, 2002)

According to Ajzen (2002), human behaviour is determined by three different beliefs as follows:

- Behavioural beliefs: these are linked to the potential outcomes of performing certain behaviour and the evaluation of the outcomes.
- Normative beliefs: these are linked to the behavioural expectations of others with wisdom and experience to perform certain behaviour.
- Control beliefs: these are linked to the facilities that influence the performance of the behaviour and the perceived power of these facilities.

Through its three constructs, namely attitude, subject norm, and perceived behaviour control, the TPB predicts the likelihood of certain behaviour (Ajzen, 2002). However, the theory has the failing that it does not show the relationship between the planning mechanism and the performance of certain behaviour. Additionally, it assumes that behaviour is associated with motives, and this is a big problem when studying the behaviour of individuals towards the adoption and use of e-services. Furthermore, it assumes a structure of beliefs that are matched between individuals in respect of performing certain behaviour. Moreover, the theory has addressed the problem of unconscious decisions and actions performed when the individual is out of control (PBC), but this may not adequately reflect the complexities involved.

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

The Unified Theory of Acceptance and Use of Technology (UTAUT) introduced by Venkatesh et al. (2003), has four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) as direct determinants of

intention and usage behaviour. Gender, age, experience, and voluntariness of use are theorised to mediate the impact of the four key constructs on intention and usage behaviour, as shown in Figure 3.4.

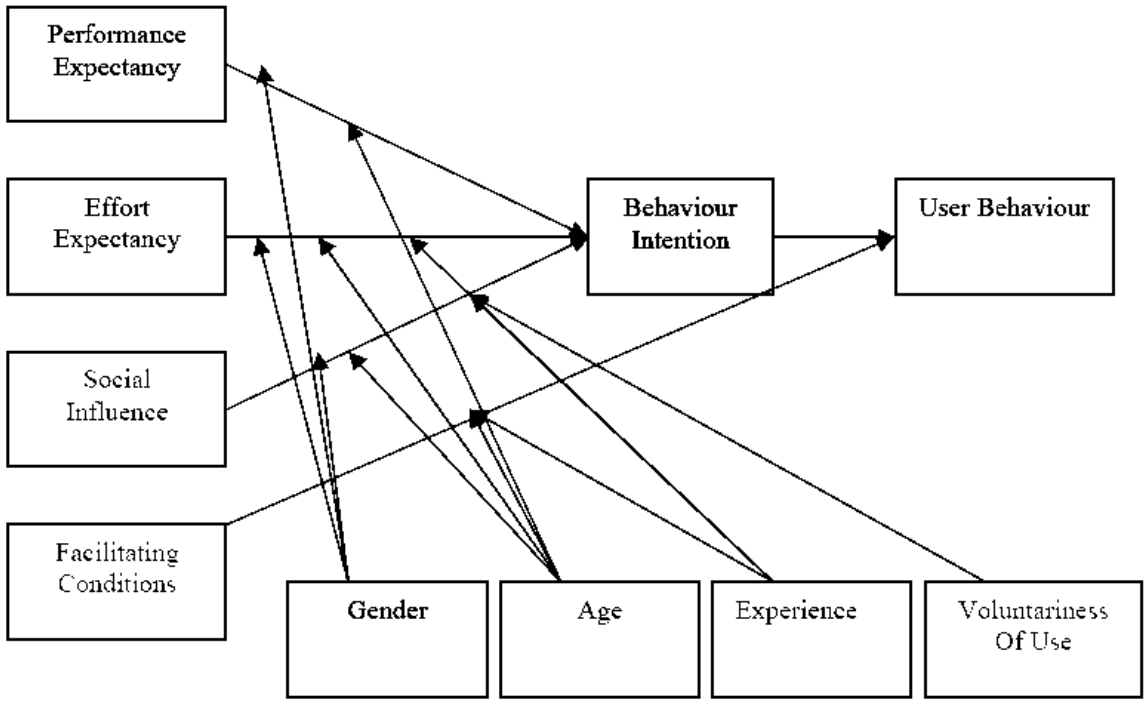

Figure 3.4: Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003)

The UTAUT was developed through the study and integration of a variety of constructs in previous models that explain and predict human behaviour towards the use of IT, including the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Theory of Planned Behaviour (TPB), the Augmented TAM or Combined TAM and TPB (C- TAMTPB), the Model of PC Utilisation (MPCU), the Diffusion of Innovation (DOI), and Social Cognitive Theory (SCM). Theoretically, the UTAUT provides a unified view of how the impact of the determinants of intention and behaviour changes over time. It emphasises the role of moderating factors on intention and behaviour towards the use of IT, such as age and gender, which had not been given sufficient attention in the IS literature until the UTAUT was developed, and results are consistent with those of other studies in sociology and psychology, such as that of Levy (1988). The UTAUT shows an explanatory power for IT usage

behaviour, as it accounts for about 70% of the variance in usage intention. This figure makes the UTAUT the best among its predecessors in the explanation and prediction of human behaviour towards the use of IT, and thus helps those involved in the introduction and implementation of IT to design proactive interventions that create an appeal amongst those who are least likely to adopt and use IT (Venkatesh et al., 2003). However, the UTAUT is not a new theory; rather it enhances what other IT adoption theories seek to do, by focusing on the relationship between the perceptions of a technology, on the one hand, and the intention to use that technology, on the other, and it has the drawback that it does not address the cultural factors that influence the perceptions of new technology, specifically in terms of perceived usefulness and perceived ease of use (Baaren et al., 2008). Additionally, the UTAUT lacks the explicit inclusion of relevant measures that match the user task needs and the available functionality of the IT system (Dishaw et al., 2002). IT is a tool by which users accomplish tasks, and the lack of focus on the characteristics of a task in the evaluation of an IT system, its acceptance, use and performance, contributes to the mixed results in the evaluation process of such systems (Goodhue and Thompson, 1995).

In light of the foregoing discussion, it can be noted that there are three types of model that purport to explain the behaviour of individuals towards the adoption and use of IT as follows:

1. Models, such as the DOI and its derivatives are based on the perception of the characteristics of the system (technology) to influence human behaviour towards the use of IT (Moore and Benbasat, 1991; Rogers, 1995; Plouffe et al., 2001).

2. Models, such as the TAM and its derivatives are based on the formation of intention (personal beliefs and attitudes) as a criterion of decision-making in influencing human behaviour towards the use of IT (Davis, 1989; Davis et al., 1989; Mathieson, 1991; Venkatesh and Davis, 2000; Taylor and Todd, 1995b; Venkatesh and Brown, 2001).

3. Models, such as the SCT, Intrinsic and Extrinsic Motivation (IEM), and Theory of Interpersonal Behaviour (TIB), are based on the integration of the goal achievement as a criterion of decision-making. Additionally, the automatic factor (past behaviour), and the social factors (norms and social identity) of goal-directed

behaviour influence human behaviour towards the use of IT. Furthermore, motivation-oriented perspectives enhance the understanding of the basic mechanism underlying both the intrinsic (IM) and extrinsic motivation (EM) process (Triandis, 1980; Compeau and Higgins, 1995; Compeau et al., 1999; Cheung et al., 2000).

3.10.5 Technology Acceptance Model

The Technology Acceptance Model (TAM) (Figure 3.5), that stems from the Theory of Reasoned Action (TRA), is considered to predict computer users' usage behaviour. Davis and his colleagues introduced the TAM in 1989. The goal of the model is -to provide an explanation of the determinants of computer acceptance which is capable of explaining user behaviour across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified (Davis et al., 1989). The TAM depends on the TRA as a theory for realising the relationship, using two main determinants (beliefs) - perceived usefulness (PU) and perceived ease of use (PEOU), as well as user attitude (ATT), intentions (BI), and actual computer acceptance and usage behaviour. The model considers whether there is a relationship between these constructs to be determined.

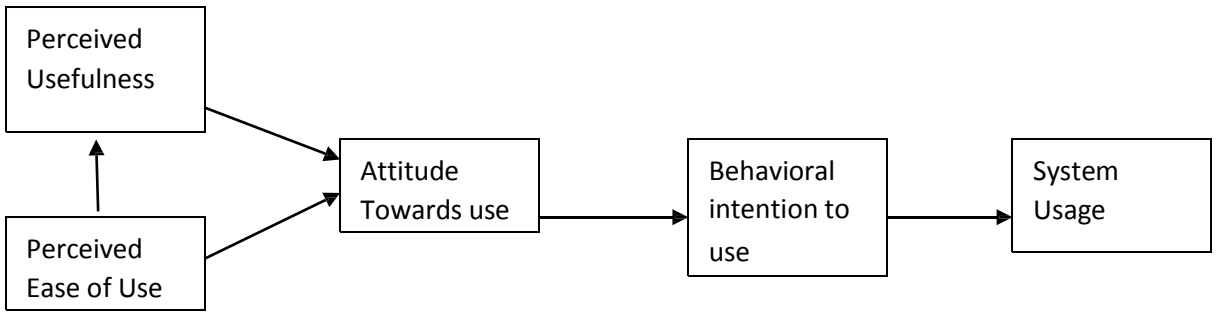

Figure 3.5: The Original Technology Acceptance Model (Davis et al., 1989)

In the TAM, Intention (BI) is considered a main usage behaviour factor relating to whether any new technology is accepted or not. It can predict the behaviour by measuring intention (BI) that can be identified by the attitude of each individual toward the technology usage. Perceived Usefulness, and Perceived Ease of Use, positively or negatively affect attitude (ATT). Perceived Ease of Use has less impact on attitude than Perceived Usefulness. Between Perceived Usefulness and Perceived Ease

of Use there is a correlation in respect of their prediction of whether the system will be used or not. Perceived Ease of Use would not result in acceptance if there is no Perceived Usefulness. Hence, an individual is only believed to accept and use a new technology when s/he has the perception that the new technology is essential. The TAM includes subjective norm (SN), despite this being derived from the TRA as a factor of behavioural intention. There is a disagreement that the scales of the subjective norm are weak and might not impact upon behavioural intention in certain cases such as when the technology or system use is voluntary rather than obligatory (Davis, 1989, Davis et al., 1989). For a better understanding of how the TAM can predict usage behaviour, the components of the model, Perceived Usefulness and Perceived Ease of Use are now reviewed.

3.10.5.1 Perceived Usefulness

Perceived Usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance (Davis et al., 1989:320). A significant number of studies have demonstrated that Perceived Usefulness (PU) has a strong relationship with user acceptance behaviour. These include: spreadsheet systems acceptance and word processing (Davis et al., 1989), predicting user intentions (Mathieson, 1991), telecommuting technology (Venkatesh and Johnson, 2002), and measuring the availability to use wireless and websites (Venkatesh and Ramesh, 2006). Another study argues that PU is a continual determinant for system use (Kim and Malhotra, 2005). And Bhattacherjee (2001) discovered that post-use of PU predicts actual system use, which is realised by pre-use. Clearly, according to the TAM, PU is a highly important usage determinant. If users can appreciate and be convinced that a new technology is important for work and improving their performance, they will definitely start to react positively towards it. As a primary determinant, PU has a positive impact on users'convictions and intentions towards the technology. The TAM highlighted how some external variables influence PU. Such variables are identified as computer training (Nelson and Cheney, 1987), organisational characteristics (Raymond, 1988), attitudes towards the system (Ives et al., 1983), user participation (Baroudi et al., 1986), and computer experience (Fuerst and Cheney, 1982). The skills of computer users and the perceived level of sophistication of a technology also have an effect on PU (Compeau and Higgins, 1995b). Discussing the extension of the original TAM, Venkatesh and Davis (2000)

gathered more constructs which embraced social influences (subjective norm, voluntariness, and image) and cognitive instruments (job relevance, output quality, result demonstrability, and PEOU) as PU constructs. The results showed the importance of social impact and cognitive instruments in raising users 'perceptions of the usefulness of a technology, explaining around 60% of the variance. It has been found that external variables, through PEOU, have an influence on PU either directly or indirectly. On the other hand, via user training, PEOU and end-user policy definitely have a direct impact on PU, explaining 48% of PU variance (Chau and Hu, 2001). Additionally, users who are involved in developing software, tend to be positive in perceiving the usefulness of a system (Delone and McLean, 1992). Most of the researchers using the TAM produced by Davis et al. (1989) have asked respondents to rank their feedback on a five-point Likert scale ranging from strongly disagree' to strongly agree'. The items provided by Davis et al. (1989) to measure PU are: 1) would improve the individual's job performance, 2) would increase the individual's productivity, 3) would enhance individual effectiveness on the job, 4) would enhance the individual's ability to accomplish tasks more quickly, 5) would make it easier to do the job, and 6) the individual would find the particular system useful on the job (Davis, 1989:324). Many researchers have adopted this scale, which was found to provide a significant explanation of user behaviour towards technology involvement. Studies have included: students' use of the internet (Fusilier and Durlabhji, 2005), communication projects (Kelleher and O'Malley, 2006), wireless internet (Lu et al., 2003), social influences (Malhotra and Galletta, 1999), and internet banking (Wang et al., 2003). The scale of Davis et al. (1989) has been demonstrated as reliable in measuring PU, it having valid content, defined as -the degree to which the score or scale being used represents the concept about which generalizations are to be made (Davis, 1989:323). Indeed, researchers have achieved statistical significance in respect of the reliability and validity of the PU scale, as for example in studies about: electronic commerce (Keat and Mohan, 2004), implementing digital libraries (Hong et al., 2002), data warehouse systems (Hong et al., 2006), internet banking (Wang et al., 2003), and determining the intention to use biometric devices (James et al., 2006).

3.10.5.2 Perceived Ease of Use

Perceived Ease of Use (PEOU) has been validated in many studies, as having an impact on intention, and in this respect, two perspectives are identified, these resulting from the PU construct which has either a direct or indirect effect on intention. The definition of Perceived Ease of Use is the degree to which the user expects the target system to be free of effort (Davis et al., 1989). Much feedback is available on PEOU. For example, Davis et al. (1989), Davis (1989), Adams et al. (1992a), and Sjazna (1996) discovered PEOU to have no significant impact on behavioural intention to use because PU arbitrates its influence. On the contrary, Igbaria et al. (1996) found PEOU to be a major determinant of use. Other scholars support the notion that PEOU has a significant impact on use, for example in predicting information technology usage (Adams et al., 1992), mobile internet acceptance (Cheong and Park, 2005), online shopping usage (Gefen et al., 2003), electronic commerce (Keat and Mohan, 2004), wireless internet (Lu et al., 2003), and online banking (Pikkarainen et al., 2004; Szajna, 1996).

The TAM's second determinant is, therefore, PEOU, which is seen as an antecedent variable of PU. Where users are convinced that a new system will be easy to use and cause them to use less effort and encounter fewer obstacles, they will be predisposed to adopt that system. PEOU was also discovered to have a considerable relationship with external variables. It has been debated whether PEOU has an effect on the user's perception of usefulness in the short term (Compeau et al., 1999). In this respect, external variables such as user training, end-user computing support, management support, organisational support, and system quality and computer experience have all been found to have direct impacts on PEOU (Chau and Hu, 2002). There is a clear link between technology, its characteristics, and experience (Davis, 1989, Lucas and Spitler, 2000). Furthermore, the link exists between individual computer self-efficacy (Davis, 1989; Igbaria and Livari, 1995; Lucas and Spitler, 2000) and motivation (May, 2001). PEOU has an important influence on behavioural intention, although this influence is less than that of PU, because PEOU does not directly affect users' behavioural intention. It is through PU, that the effect on intention emerges (McKechnie et al., 2006). Therefore, where users have no perceptions of the benefits related to the new technology, PEOU cannot be influenced. Davis' (1989) original five-point Likert scale (1989) has been used in many subsequent studies. This scale has six

items to estimate PEOU, -1) "I would find it easy to get the system to do what I want it to do"; 2) "My interaction with the system would be clear and understandable"; 3) "1 would find the system to be flexible to interact with"; 4) "It would be easy for me to become skilful at using the system"; 5) "I would find the system easy to use"; 6) "Learning how to use the system will be easy for me" (Davis, 1989:324). This PEOU scale was discovered to be valid and reliable in estimating PEOU.

3.11 Choosing TAM as a Research Model

TAM is a research model of individual level technology acceptance and use which focuses on the individual. This topic has been studied by applying theories coming from several different disciplines such as social theories like user participation, and psychological theories such as the theory of planned behaviour, TAM user satisfaction, and human-computer interaction. As this study is concerned with investigating user behaviour towards in connection with new technology, it is appropriate to employ a model which is capable of predicting users intentions towards new information systems, and this model should be expandable to include more constructs from different similar theories.

The rationale for using TAM rather than other models to predict users' behavioural intention towards e-government lies in its capability to understand the relationship between users' beliefs concerning the benefits of using such technology. Specifically, the model helps to appreciate the causal external constructs which are directly or indirectly influential in this precise context (Wang et al., 2003). Another reason for choosing TAM is the model's simplicity and parsimonyial nature, enabling it to be applied in different technologyical settings (Davis et al., 1989).

3.12 Validation of the TAM

Very Many IS researchers have found the TAM to successfully predict and investigate the usage behaviour of subjects involved with applying new technology. Theoretically, the model has been proven to be useful in predicting users intentions to use many computer applications, such as: word processing systems, WordPerfect and Lotus 1-2-3 (Adams et al., 1992), telemedicine technology (Chau and Hu, 2002), e-mail communication application (Davis, 1989), and recently, internet applications like e-

commerce systems (Liu et al., 2003). It has been tested by Davis and his colleagues (1989), in learning about user behaviour in computer applications in several universities, where they discovered the model to have good predictive power. Additionally, the TAM has been used in different organisations, such as manufacturing, financial, hospitals, and other teaching institutions. It is considered to provide a useful framework to study the effect of external variables on individuals' intentions in respect of accepting technology (Darsono and Mada, 2005). To address certain limitations of the TAM, researchers have extended TAM by adding "external" variables. Hence, the original TAM model has been developed as follows:

3.13 Model Extensions

Davis (1993) argues that individuals 'rejection of new technology deprives organisations of the ability to acquire competitive advantage, and that the TAM is capable of expansion to incorporate elements from other models that can shed more light on how individuals adopt new technological solutions. Hence, the original TAM model has been extended by the follows:

3.13.1 Extended Technology Acceptance Model (TAM2)

Venkatesh and Davis (2000) attempted to address the limitations of the original TAM by further elucidating the PU and practice purposes, using intellectual procedures and societal effects to examine an extended model (TAM2) with deliberate and compulsory conditions. The findings demonstrated a high appeal for the implementation of the TAM2, shown in Figure 3.6.

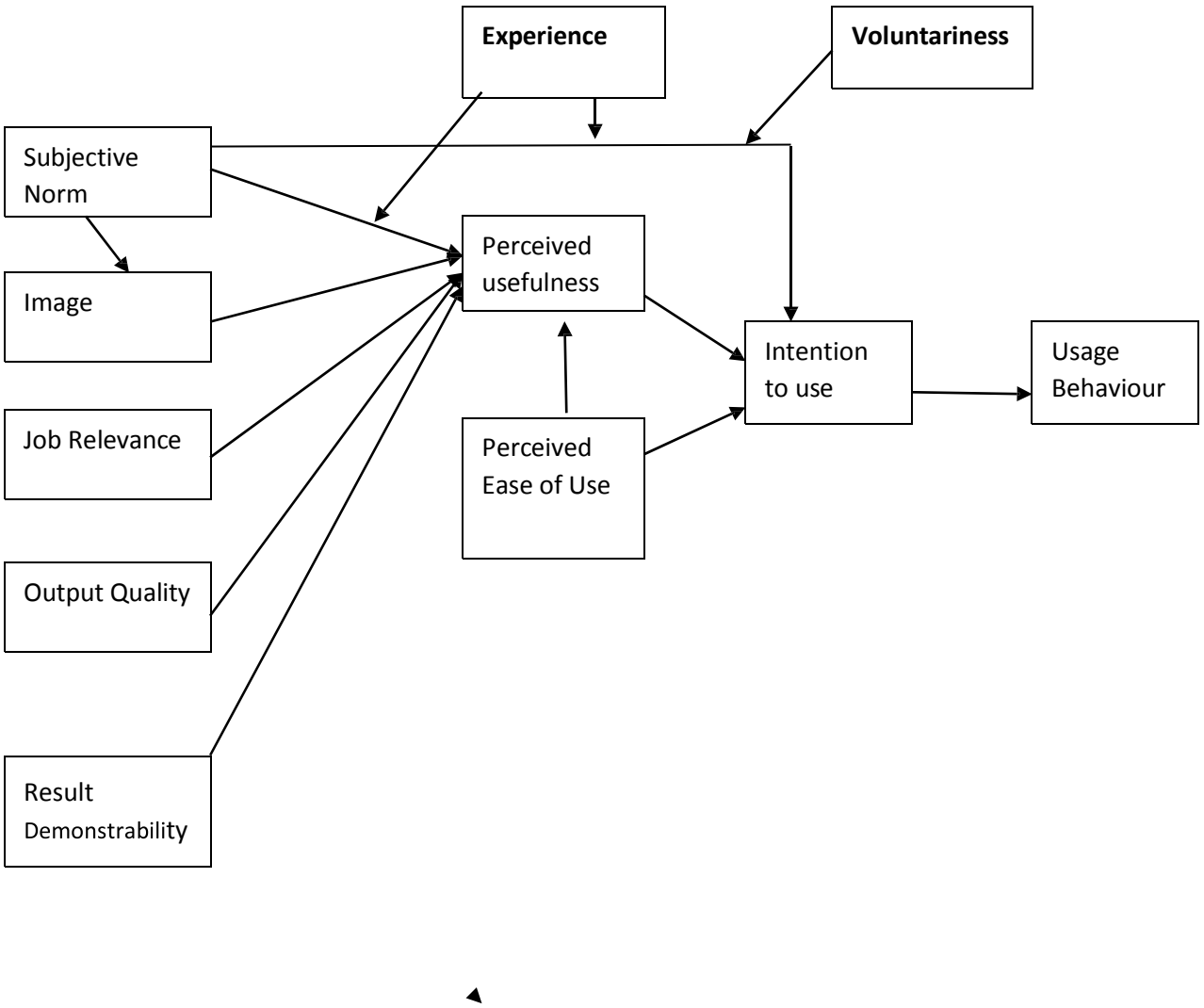

Figure 3.6: Extended Technology Acceptance Model (TAM2) (Venkatesh and Davis, 2000)

The assumptions of the TAM2 depend on four elements manipulating the perceived usefulness', which are: Job relevance (the level to which systems are pertinent to the individual's assignments); Quality of output (the level to which individuals agree that the quality of the system procedures and productions match the requirements and objectives of the job); Demonstrating results (the level to which the system produces the desired results for relevant users); and Perceived ease of use (the level to which users need to understand the capabilities of the system, its fashions, and how it can do better for them) (Venkatesh and Davis, 2000). Venkatesh and Davis (2000) assume that experience affects PU, which duly influences the users' intentions, and perceived simplicity of usage, which then motivates the attitude towards using the system unswervingly or circuitously, through PU, and subjective dogmas which impact upon the image and indirectly

upon the users‘ intentions. Venkatesh and Davis (cited in Moore and Benbasat, 1991) define the image as -the degree to which use of an innovation is perceived to enhance one‘s status in one‘s social systems while Venkatesh and Davis (2000) refer to job relevance as -an individual‘s perception regarding the degree to which the target system is applicable to his or her job.

The TAM2 imitates the influences of three integrated societal factors (voluntariness, image, and subjective dogmas norms) to which users involved in the process of accepting or rejecting a new technological system are exposed, and which stand as subjective norms that have an impact on the perceived simplicity of use, and the perceived usefulness (Venkatesh and Davis, 2000). The model introduces two hypothetical (but not distinct) mechanisms (identification and internalisation) through which subjective dogmas can circuitously influence intentions through perceived usefulness. Internalisation refers to the process in which a user sincerely believes in the value of something (Kelman, 1958; Warshaw, 1980). This is comparable to informational social influence‘(Deutsche and Gerard, 1995) which is defined by Venkatesh and Davis (2000) as influence to accept another‘s opinion as evidence about reality.

3.14 Comparison with Other Models

The TAM and the TPB are both derived from the TRA and consequently, there are similarities between the three models. I review these similarities and the differences in order to make an effective comparison of the models. According to Ajzen and Fishbein (1980) the TRA is a model that has been applied successfully in predicting virtually any human behaviour across many fields. The TRA hypothesises that beliefs influence attitude and social norms, and that in turn, these direct the behavioural intention leading to an individual‘s actual behaviour. As an attempt to address some of the limitations of the TRA, Ajzen (1980), introduced another independent determinant of intention, that being perceived behaviour control (PBU) which deals with behaviours over which people have incomplete control. This has an impact upon the perceived ease of performing the behaviour, and reflects the internal and external constraints on behaviour. In a study of usage of the word processing programme Write One‘; Davis and his colleagues (1989) compared the TAM with the TRA, finding results that supported both models. They found that social norms were

weak in determining behavioural intention. The difference between the TAM and the TRA is that the TAM does not have subjective norms as it claims that they do not explain behavioural intentions (Anandarajan et al., 2000).

In a comparison of the TAM and the TPB conducted by Mathieson (1991), it was found that both these models predict behaviour from intention. Mathieson (1991) used three criteria for his comparison, the first criterion being the ability to predict intention to use a system, in which respect the results showed that both models explained intention properly, but that the TAM explained more variance than the TPB, although this was not large enough to conclude that one model was better than the other. Additionally, the TAM was found to provide more explanation of attitude towards using an information system much better than the TPB. The second criterion used to compare the two models was the value of the information provided by them, in which respect the TAM was shown to supply very general information about PEOU and PU, whereas the TPB derived more specific detail. Therefore, the information provided by the TPB was more useful during system development than the information the TAM provided. The third criterion was the time taken to deploy the two models, it being found that the TAM was easier to apply than the TPB, and that it provided a fast and cost effective way of collecting general information about users perceptions of a system.

Taylor and Todd (1995a) compared the Decomposed TPB with the TAM and the TPB, obtaining results to the effect that all three models were positive in understanding behavioural intention as the main determinant of behaviour. However, the Decomposed TPB provided additional insight into behavioural intention, because of its inclusion of subjective norms, perceived behavioural control, and the decomposition of beliefs as determinants of behaviour. In a comparison of the TAM, the TPB and the Decomposed TPB, performed by Chau and Hu (2001), in their study of understanding physicians'acceptance of telemedicine technology, the TAM was found to explain 40% of the variances, the TPB explained 32%, and the Decomposed TPB explained 42%. The results showed that PU was a strong determinant of attitude and behavioural intention in both the TAM and the Decomposed TPB. No effects of PEOU on PU or attitude were found in any of the models. Plouffe et al. (2001), in their study of merchant adoption of a smart card-based payment

system, compared the TAM with the Perception of the Characteristics of Innovation (PCI) which is a model proposed by Moore and Benbasat (1991) drawn on earlier conceptual work by Rogers in 1991. They found that the PCI belief constructs explained intention to use more than the TAM (Plouffe et al., 2001). The TAM explains intention in 32.7% of cases, while the PCI model explains it in 45%. However, Plouffe et al. (2001) stated that the comparison between the TAM and PCI was assessed empirically in only one adoption context, and hence, the generalisability of the results reported was not known beyond either their sample, or indeed, the smart card technology adoption context, unlike the TAM, which has been found to be successful in predicting intention in many studies, and in different technology settings. Another limitation in the comparison undertaken by Plouffe and his colleagues is that in their study they measured behavioural intention, and not the actual payment system adoption. The Perception of Characteristic of Innovation model (PCI) is designed to measure users'perceptions towards the adoption of an IT innovation. Moore and Benbasat (1995) listed the five characteristics of innovation which influence diffusion as:

- Relative Advantage: the perception that an innovation is better than its originator;
- Compatibility: the perception that an innovation is consistent with the existing values, needs and past experiences of potential adopters;
- Complexity: the perception that an innovation is difficult to use;
- Observability: the perception that the results of an innovation are observable to others;
- Trial ability: the perception that an innovation may be experimented with before real adoption.

It is obvious that Relative Advantage is similar to the TAM's first construct PU. Complexity is the same as the TAM's second construct PEOU. Compatibility in its definition is consistent with the system providing the needs of users. This is part of what perceived usefulness provides. Observability is similar to the TAM2's construct Result Demonstrability, and finally, Trial ability refers to users'ability to experiment with the new system before implementation. In the current research, Trial ability is included within the proposed construct training'. During training, potential users should be allowed to use the system before its implementation. This comparison between the TAM and the PCI indicates the TAM's greater suitability for technology

adoption. It is more simple, and indeed, popular.

It also shows that the TAM has more applicability than both the TPB and the TRA. Davis et al. (1989) found that the TAM predicted software usage intention better than the TRA, and Mathieson (1991) found that the TAM predicted intention to use a spread sheet package better than the TRA. Venkatesh and Davis (2000) highlighted the TAM as a robust and parsimonious model for predicting user acceptance of new technology.

3.15 Limitations of the TAM

It has been shown in this chapter that the TAM has emerged as the most useful of the several models developed, to predict user behaviour in respect of the adoption of new technology. However, the original model, with its core variables of Perceived Usefulness and Perceived Use that relate directly to the technology in question, was criticised, for not addressing the impact of social influence on the attitudes held by potential adopters (Fu et al., 2006; Mathieson, 1991). Clearly, when re-visiting the model, Venkatesh and Davis (2000) sought to remedy this failing by introducing social constructs such as subjective norms into their revised model (the TAM2). However, after testing the TAM2, it has emerged that subjective norms only appear to have an influence in settings where the adoption of technology is compulsory, and where potential users have the choice to use or not to use, these norms are not found to have an impact (Venkatesh and Davis, 2000). It is possible that such a finding results because of the difficulty in measuring the construct outside the organisational context. Consequently, there is a case for including additional constructs, emanating from the cultural and social environment, which may provide greater explanation of how individuals behave in the voluntary setting, such as for example, citizens'decisions to use e-government services. Furthermore, Davis (2007) has commented on existing studies using the TAM, as providing only limited insight, since the majority of these used TAM-type models with only small extensions, and having no overarching conceptual structure. The result of that particular criticism has been the recommendation from Davis (2007) that researchers concentrate on developing the model to incorporate social and cultural aspects.

It can also be appreciated from the literature discussed so far, that the overwhelming focus in existing studies has been on employees' acceptance of new technology in the

organisational context (Phang et al., 2005), where such acceptance and adoption is a requirement of the job, and hence, compulsory. Clearly, caution must be exercised when trying to generalise from such contexts, to the e-government scenario, in which there is a voluntary dimension to be considered. The imperative is, therefore, to explore the usefulness of the TAM with a different research sample where the voluntary dimension is paramount, such as citizens.

3.16 Summary

Having presented a detailed review of the literature relating to e-government, the chapter has analysed the concept and indicated the definitions which have been offered by scholars in the field, pointing out the purpose of e-government as being to provide services to citizens online with a view to enhancing those services and essentially achieving greater democracy. The chapter has then considered how e-government initiatives are developed, and the various processes that they go through before their implementation. In discussing the matter of E- government adoption, examples of experience around the world are given which demonstrate that not all initiatives are successful, and suggest reasons why this is the case. Particularly, it is noted that in developing countries, infrastructural and cultural conditions exist that often detract from the potential effectiveness of such initiatives. The examples of Morocco, South Africa and Jordan are offered as examples of countries that have implemented e-government recently. I have overviewed various models of technology acceptance, also showing how they have evolved. The following chapter presents the methodology used in this study.

CHAPTER FOUR

RESEARCH MODEL AND HYPOTHESES

4.1 Introduction

This chapter introduces the research model used in the study, and develops the hypotheses associated with the aim and objectives of the research. Given that the context relates to e-government service delivery from the citizen perspective, it is therefore necessary to identify the success factors in this respect. Consequently, the review of the literature in Chapter Three serves as the basis to develop a model to assess the effectiveness of e-government service delivery. The chapter sets out the components of that model.

4.2 The Technology Acceptance Model

The TAM has been discussed widely in the previous chapter in Sections 3.10.5 onwards, from which it is established that it is both suitable and popular as a model to predict the level of technology acceptance and use by individuals. In this particular study, it is chosen as the basis for the research model for two main reasons. Firstly, it has the capability to appreciate the link between users' perceptions of the advantages of technology adoption, and the actual difficulty or ease in becoming familiar with it (Wang et al., 2003); and secondly, it is relatively simple to use, and its parsimonious character means that it can be used with varying technology contexts (Davis et al., 1989).

Existing studies have indicated that the characteristics of the context (both the system and the organisation) will impact upon the usefulness of the model, and hence, as argued by Hu (2002), modifications are likely to be necessary to it to take account of contextual influences. Consequently, additional constructs identified within the literature are integrated within the TAM in order to extend its appropriateness for the particular situation of E-government, which involves individuals, members of the general public, rather than organisational members per se, and which may therefore, involve different types of relationship between user and provider than already explored. These differences may substantially influence the applicability of the model.

This approach of extending an already-existing model is not unique. Scholl (2006) notes how the model of De Lone and McLean (2004) has been extended to assess the relative performance of e-commerce/e-business and e-government, and given the argument by Csetenyi (2000) that e-commerce/e-business technologies have relevance in a government setting, it is logical to assume that existing evaluation frameworks might be used in the e- government case, with certain modifications.

4.3 Re-specification and Extension of the TAM

Consequently, the TAM is extended and parts of the existing model re-specified. In relation to the decision to re-specify particular aspects, attention was paid to the findings of Seddon and Kiew (1996) who took the model of IS Success proposed by DeLone and McLean (1992), and substituted Actual Use for Perceived Usefulness. It was found that actual use was more explanatory in the variation of user satisfaction. In particular, citizens using an e-tax application do so infrequently, and as a result, the system needs to be easy to use, such that they can immediately find information from the government website, and submit their returns without confusion. Moreover, the study found that citizens were persuaded to use the service because it would be more beneficial to them. As Seddon (1997) argued, in situations where people use IT because they believe it will be of use to them, it is sensible to determine whether they did find it to be of use to them after using it. Subsequently, Rai et al. (2002) expanded the model proposed by Seddon and Kiew (1996) to include an ease of use dimension, which proved to be helpful in their study.

Consequently, the TAM is extended, and in doing this, the decision was made to remove the constructs relating to use and net benefit in order to prevent any confusion arising in this respect. The TAM dimension of Perceived Usefulness was, therefore, substituted by Actual Usefulness, and Perceived Ease of Use was replaced by Actual Ease of Use.

4.4 General Measures of Website Success

Clearly, any e-government application must be housed within an overall website, and the overall quality of that website is a key dimension in attracting users. Indeed as noted by Lociacono et al. (2000), especially in respect of IS and Marketing research, the issue of measuring website quality is an important one. Several researchers have explored the critical success factors in respect of website success

(for example, Lie and Arnett, 2000; Aladwania, A.M., and Palvia, P.C., 2002; Hasan and Abuelrub, 2008). Specifically, Lociacono et al. (2000) devised the WEBQUAL scale as a measurement in this respect. The scale is comprised of 12 dimensions, these being: informational fit to task, interaction, trust, response time, design, intuitiveness, visual appeal, innovativeness, flow, integrated communication, business processes, and substitutability. At the same time, Lie and Arnett (2000) constructed a six-criterion measurement model of website success, using the IS and Marketing literature as its underpinnings, and administered this with 1,000 organisations. They included: system quality, learning capabilities, playfulness, system quality, system use, and service quality. From their survey, the four factors of information and service quality, system use, playfulness, and system design quality, emerged as being key for website effectiveness in e- commerce.

Hasan and Abuelrub (2008), Barnes and Vidgen (2004), Choudrie et al. (2004), and Tan et al. (2008) have all attempted to assess the effectiveness of government websites, using a model with several criteria. And Smith shortly afterwards (2001) arranged criteria into two categories, one of the them concerning information content, and the other relating to ease of use. Continuing with the trend of website quality research, Aladwania, A.M., and Palvia, P.C., (2002) formulated a user-driven instrument with four dimensions of website quality, these being: specific content, content quality, appearance, and technical adequacy.

And later, similar efforts were made by Kim and Stoel (2004) in the context of clothing retailers. Having surveyed 273 female online shoppers, using the Lociacono et al. (2000) WEBQUAL scale, they identified six indications of website quality, from the user viewpoint. These were: web appearance, entertainment, informational fit-to-task, transaction capability, response time, and trust. However, of these six quality indicators, only informational fit-to- task, transaction capability, and response time were found to be influential upon user satisfaction.

In 2005, Cao et al. (2005) investigated the qualities contributing to e-commerce websites, using the IS success factors already established. Taking a sample of students accustomed to internet shopping, they found four factors to be associated with website quality from the customer perspective, these being: functionality, content, service, and attractiveness. It emerged that customers prioritise the need for accurate, secure, and fast search facilities.

Likewise, Zviran et al. (2005) have undertaken research aimed at establishing the success factors for website user satisfaction, finding that the two criteria of usability and user-based design were the most important.

And in the context of tourism, Stockdale and Borovicka (2006) constructed an evaluation instrument in which they used system quality, information quality, and service quality criteria as the measurements of success of websites in tourism.

4.5 Satisfaction as a Success Factor

From the vast amount of research so far conducted, User Satisfaction is confirmed as the most popular variable in determining website success, and consequently, there have been many measures formulated to establish satisfaction levels (DeLone and McLean, 1992, 2004; Seddon and Kiew, 1996; Seddon, 1997; Rai et al., 2002; Crowston et al., 2006; Doll and Torkzadeh, 1988; Bailey and Pearson, 1983; Baroudi and Orlikowski, 1988).

That said, and despite a great amount of work in this field, satisfaction remains a concept which has no universally accepted definition (Giese and Cote, 2000). In an early definition by Hunt (1977:459-460), it is explained as -an evaluation of an emotion. Day (1984, cited in Tse and Wilton, 1988:204) later said this was represented by the discrepancy between a customer‘s prior expectation and the actual performance of a product; and a definition given by DeLone and McLean (1992), specifically in the IT context, suggests it to be the -Recipient Response to the Use of the Output of an Information System. Providing his definition, Fornell (1992:11) considers satisfaction to be -an overall post purchase evaluation.

Oliver (1997) suggests that it is -the consumer‘s fulfilment response. It is a judgment that a product or service feature, or the product or service itself, provided a pleasurable level of consumption-related fulfilment, including levels of under or over fulfilment. And again, in the context of IT, Hu (2002) observes that user satisfaction refers to the degree to which an individual is satisfied with his or her overall use of the system under evaluation.

Clearly, a number of definitions are used, and in such circumstances, researchers must refer to the particular context in which they are working before deciding upon the precise parameters to adopt. At the same time, the means for measuring the construct must also be defined since again, what is appropriate for one definition is not necessarily relevant for another.

For the purposes of this current study, satisfaction is determined as the positive evaluative judgment by the citizen in his/her overall use of the e-government service, and in terms of its measurement, three items from Oliver's (1997) scale are adopted - success attribution, need fulfilment, and overall satisfaction. These three items have been employed to assess satisfaction in service industries by Cronin et al. (2000).

As long ago as 1983, Bailey and Pearson formulated 39 items to evaluate computer user satisfaction, finding this to correlate with information system utilisation and system success. The other most important critical success factors emerged as: accuracy, reliability, timeliness, relevancy, and confidence in the system. This is one of the developed scales to measure user satisfaction. In the same year, Ives (1983) took the work of Bailey and Pearson (1983) and developed a short version of their long (39-item) scale which he used with production managers. The findings further substantiated the instrument, which contained the specific factors of product quality, systems personnel and services quality, and the knowledge and involvement of systems personnel in the business, as measures of overall satisfaction. Baroudi and Orlikowski (1988) then took the curtailed version of the Bailey and Pearson (1983) instrument, as developed by Ives (1983), and used that; and subsequently, Doll and Torkzadeh (1988) formulated a 12-item instrument with five components (content, format, accuracy, ease of use, and timeliness) to evaluate satisfaction by end users in the computing environment.

Specifically in the area of IS and e-commerce effectiveness, the antecedents of satisfaction have been explored by many researchers with the findings that system quality, information quality, service quality, perceived usefulness, perceived ease of use, and trust, are all relevant to a greater or lesser degree (see for example, DeLone and McLean, 1992, 2004; Molla and Licker, 2001; Seddon and Kiew, 1996; Seddon, 1997; McKinney et al., 2002).

Table 4.1: Measures of Satisfaction

Author	Description of Measures	Area of the Study
Doll and Torkzadeh (1988)	**Content: Relevance of output information is useful Does the information content meet users' needs, output information is relevant Completeness of output information Accuracy: output information is accurate, Accuracy of output information is satisfactory Format: Format of output information is useful, Format of output information is clear Ease of Use: System is user friendly System is easy to use Timeliness: Timely information Up-to-date information**	End users' computer satisfaction
Luarn and Lin (2003)	I am satisfied with this e-service The e-service is successful	Satisfaction in e-service context
Oliver (1980, 1997)	This product is exactly what I need My choice to buy this car was a wise one I am sure it was the right thing to buy this product	Success attribution and need fulfillment
Bailey and Pearson	Top management involvement, organisation competition	Measuring and
	with the EDP unit, priority determination, charge-back method for payment for services, relationship with EDP staff, communication with EDP staff, technical competence of the EDP staff, attitude of the EDP staff, schedule of products and services, time required for new development, processing of change requests, vendor support, response/turnaround time, means of input/output with EDP centre, convenience of access, accuracy, timeliness, precision, reliability, currency, completeness, format of output, language, volume of output, relevancy, error recovery, security of data, documentation, expectation, understanding of system, perceived utility, confidence in the system, feeling of participation, feeling of control, degree of training, job effects, organisation position of EDP function, flexibility of system, integration of system.	Computer User Satisfaction
DeLone andMcLean (2003)	Repeat purchases, repeat visits, user surveys.	Success of e-commerce
Roca et al. (2006)	I am satisfied with the performance of the e- learning	Satisfaction and continuance intention of e-learning

Behavioural intent in the service industries formed the topic investigated by Cronin et al. (2000), who employed two sets of measures to measure satisfaction. The first set was regarded as being emotion based', a response to the fact that satisfaction has been defined by some researchers as the evaluation of an emotion. The second set was considered to be evaluative', since some researchers have introduced the extent to which the use of the service generates positive feelings into the satisfaction construct.

In a subsequent study on customer satisfaction with e-services, Luran and Lin (2003) concentrated on finding an overall measure for the construct, which they conceptualised as the affective responses or feelings of customers according to their experiences with different aspects of e-services. And in the context of e-learning, Roca et al. (2006) found satisfaction to be the determinant of whether or not students intended to continue. Indeed, 65% of the variance in the decision to carry on was explained by the degree of satisfaction experienced by the user.

4.6: Citizen Trust as a Success Factor

Traditionally, governments are responsible for protecting their citizens and providing them with the services necessary for survival and advancement. However, levels of provision vary, and the extent to which citizens are satisfied with what their governments provide is determined by the quality of the services made available to them. E-government services are no different in this respect, and citizens expect their governments to deliver these with the same degree of professionalism as they do other services. Hence, governments are required to research citizens'needs, but this activity cannot be a one-way street, and citizens must participate in providing information to the e-government system, and in being prepared to be informed by their governments, and to receive directions. If these basic building blocks and understandings are in place, e-government can operate smoothly and successfully. But to lay down these foundations, citizens must have trust in the government machine, and hence, this has emerged as a key requirement if individuals are to willingly impart and accept information through a government portal (Lee and Rao, 2003).

This brings the discussion to the issue of trust per se, in which respect, it can be reported that different types of trust have been identified by scholars in the field. Essentially, it is possible to talk of cognition-based, institution-based, and knowledge-

based trust (McKnight et al., 1998; Gefen et al., 2003; McKnight et al., 2002). The first (cognition-based) type of trust usually arises from situational cues, reputation, and or stereotyping (McKnight et al., 1998; Morgan Hunt, 1994). Institutional trust is associated with the notion that impersonal structures can enable actions that can be performed to bring about some successful future endeavour (Shapiro, 1987). In this respect, two kinds of institution-based trust are identified by Shapiro (1987), these being, situational normality, and structural assurances. The former involves the belief that success is a likely outcome of normal situations, whilst the latter involves the belief that the chances of success are heightened by the existence of promises, contracts, regulations, possible legal recourse, or guarantees. Finally, knowledge-based trust is perceived as familiarity with the e-vendor, which enhances the appreciation of present actions (Gefen et al., 2003). This type of trust is considered to reduce the uncertainty and risk implicit in internet transactions and to decrease any confusion regarding usage procedures within a website.

4.7: Citizen Satisfaction and Citizen Trust in e-government

Citizen satisfaction can be enhanced by the proper use of ICT by governments, but such satisfaction is inextricably bound up with issues of trust. Hence, e-government services must appear to citizens as attractive in order to produce favourable perceptions among them, and this demands reliability of information provided by the government, and services which are convenient, and easy to access. Welch et al. (2004) observe that trust is the expected outcome of e-government service delivery. Any lack of trust in government may well cause poor performance of government systems, and therefore, there is a clear link between improved service quality, and the restoration of trust. However, the factors that generate trust among citizens are culture-specific and consequently are not the same in every country, or indeed at every time in history. Bouckaert and Walle (2003) argue that citizens invoke differing criteria to evaluate their governments, and hence to decide what level of trust to place in them. That said, whilst it is accepted by most scholars in the field that trust is a key variable in deciding citizen behaviour, the literature is relatively silent on how citizen trust in government is defined, and how it can be won or lost (Thomas, 1998). Moreover, in e- government the matter is complicated since the development of trust in cyberspace brings a host of new factors into play, such as: security, reliability, identity and authentication, confidentiality, and verification and jurisdiction (Nelson, 1997). It

is clear that the amount of individual trust is a product of government's actual performance as perceived by citizens. So, the difference between citizens' expectations of government, and the reality of the services provided marks the basis upon which satisfaction and trust, or conversely, dissatisfaction and distrust, are formed. Dissatisfied individuals will have low levels of trust in government providers whereas satisfied citizens find it easy to place trust in their governments (Welch et al., 2004). This issue is depicted in a model formulated by Welch et al. (2004) explaining website use, e-government satisfaction, and citizen trust in government, which is shown as Figure 4.1.

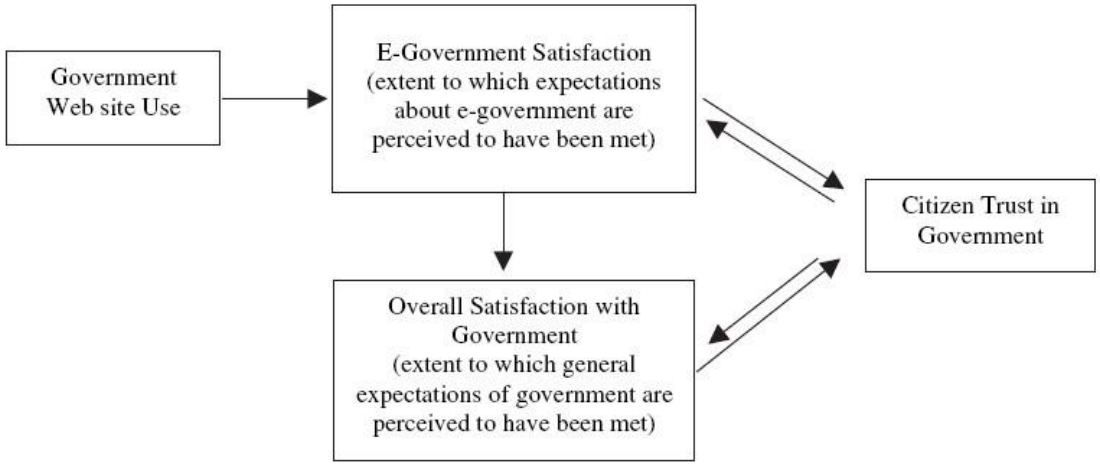

Figure 4.1: Model of Website Use, E-Government Satisfaction, and Citizen Trust in Government (Welch et al., 2004)

From the model it can be seen that website use is important in deciding how citizens perceive e-government, and that the website itself must fulfil citizens expectations. It can also be observed that two additional variables are included within the model, these being: perceived satisfaction with e-government, and perceived satisfaction with government in general. Indeed, both of these variables have an impact upon citizen trust in government. Trust is shown to lead to citizen satisfaction, which in turn influences trust. The use of government websites, overall e-government satisfaction, satisfaction with the government websites, and internet use are all components of the trust concept within the context of e-government, and hence, are measures of trust.

4.8 Hypothesis Development

4.8.1 The Research Model

As already indicated, the research model used is based on the TAM but is extended to include constructs from the TPB, and other theories concerning the implementation of information systems that require massive user participation such as in e-government. In Section 3.10.5 it was shown that the TAM proposes perceived usefulness (PU) and perceived ease of use (PEOU) as the key factors in whether a user will adopt new technology, and that PEOU is the only determinant of PU. User beliefs are thought to bring external influences to bear on the decision to adopt (Davis et al., 1989), and consequently it is recommended that external variables be explored. In addition, however, to these principal antecedents of adoption, the research model for the current study includes the constructs of awareness, user satisfaction, citizen trust, and web design, all of which have been seen to influence e-government take-up from the user perspective.

The use of the TAM as a fundamental framework is justified by reference to the literature which reveals the large number of IS research studies that have been founded upon it and demonstrated its applicability in that research field. Specifically, it has been used to explore the take-up of word processing systems, and other IS applications (Adams et al., 1992), e- mail communication applications (Gefen and Straub, 1997), spreadsheets (Adams et al., 1992), internet applications like e-commerce systems (Yu et al., 2005; Battacherjee, 2000), and on-line banking (Pikkarainen et al., 2004, Lassar et al., 2005). Additionally, it has been used by its originators (Davis et al., 1989) in a range of organisations in Canada, such as universities, and industrial sectors such as manufacturing, financial, and hospitals. The TAM has been validated in two ways. Firstly, there is the validation of its main variables, the PU and the PEOU through tests of scale reliability and validity, and secondly, there is the validation of its links with the other variables, for example, between actual behaviour and behavioural intention, attitude and behavioural intention, perceived usefulness and satisfaction, perceived ease of use and behavioural intention, perceived usefulness and perceived ease of use.

The TAM proposes that usage behaviour is a direct outcome of behavioural

intention, and that intention is the product of the potential user's attitude concerning how easy the technology is to use, and how much benefit it will bring if it is adopted. PU (the benefit) is directly affected by PEOU, both of which are the outcome of other variables, external to the situation. Much empirical evidence confirms a significant correlation between intention and behaviour. Work undertaken by Taylor and Todd (1995a), for instance, demonstrated that behavioural intention was a definite predictor of behaviour among users with previous computer system exposure than among users without that experience. Later, Venkatesh et al. (2003) observed that in the context of new technology, behavioural intention does not determine long-term use, but is rather a product of the influences on acceptance and usage at a given time and in specific circumstances. That said, they accepted that short-term use can in itself predict long-term use, but not actually the behavioural intention.

One of the advantages of the TAM, as mentioned at the start of this chapter, is its parsimony and its consequent application in a range of technology contexts. However, not all IS researchers have used the model in its original form, and have instead incorporated additional variables, such as for example: user experience and subjective norm. In keeping with Hartwick and Barki (1994), and Taylor and Todd (1995b), this study introduces awareness, user satisfaction, citizen trust, and interface design, as external variables in the effectiveness of e-government. Such an addition extends the model so that it takes on board the need to encourage usage through needs-based psychological components (McKeen et al., 1994).

4.8.2 Research Hypotheses

The constructs applicable to this particular research study are seen in the TAM2, since the acceptance of e-government by citizens is known to be conditioned by perceived usefulness (PU), perceived ease of use (PEOU), satisfaction, awareness, web design, and user trust. Such understanding comes from several earlier studies already reported, and from the literature regarding IS development and technology acceptance. The way in which these constructs are known to influence acceptance and adoption is subsequently discussed, and a series of hypotheses developed according to the need to provide answers to the research questions. These hypotheses are tested as now indicated.

4.8.2.1: Citizen Satisfaction as a Success Measure

User satisfaction is known to play an influential role in the success of new technology acceptance, and hence, it is common as a measurement of achievement in this respect (DeLone and McLean, 1992; 2004; Seddon and Kiew, 1996; Seddon, 1997; Rai et al., 2002; Crowston et al., 2006; Torkzadeh, 1994; McKinney et al., 2002). However, the issue of what should actually be measured is a challenge, as indeed is the mechanism by which such evaluation could be made. Clearly, in the current research, it is the satisfaction of the citizen that forms the focus of attention, and given this it has to be remembered that in terms of e- government services, such satisfaction is linked with the perceptions held by citizens concerning the convenience of the online service (transaction), the reliability of the information (transparency), and the expected engagement with electronic communication (interactivity) (Welch et al., 2004). For the purposes of this study, satisfaction is taken to mean the evaluative judgment of the citizen about the overall use of e-government services. Moreover, it is measured according to three items suggested by Oliver (1997), these being success attribution, need fulfilment, and hence, overall satisfaction. Additionally, they have been employed by Cronin et al. (2000) to measure satisfaction in the service sector. For the sake of clarity, the definition of satisfaction as used in this study is:

> *The degree to which a citizen is satisfied with his or her overall use and overall evaluation of the e-service provided by the government*

Ultimately, success is seen from the amount of use citizens make of the system, and the degree of satisfaction they derive from it. Undoubtedly, they will be discouraged from using a system either proactively, or in response to a direct request, if it is not perceived as being to their benefit to do so. In order to establish levels of satisfaction, DeLone and McLean (1992) separated information aspects from system features. They, and other scholars, observe that the quality of both the system and the information are influential upon user satisfaction (DeLone and McLean, 1992; 2004; McKinney et al., 2002; Seddon, 1997; Seddon and Kiew, 1996; Molla and Licker, 2001). It was found by Szymanski and Hise (2000) that website design issues and product information aspects both appear as important in determining user satisfaction. And in this respect, McKinney et al. (2002) observe that satisfaction with a website is influenced by the quality of the information contained within it, and the actual

performance of the website in providing the information required. Clearly, the better the quality of the system, and the quality of the information it contains, the more satisfaction is likely to be experienced by users (DeLone and McLean, 2004). In addition, it has emerged from a number of studies that e-service quality is also a strong determinant of satisfaction (DeLone and McLean, 2003; 2004; Cao et al., 2005, Yang and Fang, 2004).

These discussions lead to the following hypothesis:

Table 4.2: H1

Hypothesis	References
H1. User satisfaction has a positive effect on the adoption of an e-government service	DeLone and McLean (2004); Molla and Licker (2001); Caruana (2002); Cronin and Taylor (1992); Grönroos (1984); Johnston (1995); Kettinger and Lee (1994, 1997);

H1. User satisfaction has a positive effect on the adoption of an e-government service

4.8.2.2: Perceived Usefulness and Perceived Ease of Use as Success Measures

Perceived usefulness has long been accepted as a prime determinant of success in IS adoption (Davis et al. 1989), and with this in mind, the DeLone and McLean model was re-specified by Seddon (1997) to include this dimension. Perceived usefulness was determined to be an outcome of system quality and information quality, and a prime contributor towards user satisfaction. Perceived usefulness and satisfaction are important indicators in enterprise resource planning (ERP) systems, since as noted by Levin et al. (2005), in this particular context, there is a direct impact upon user satisfaction by perceived usefulness. This dimension of perceived usefulness is defined in the current study as:

> *The degree to which a citizen believes that using a particular e-service is useful for him or her and increases work performance.*

Table 4.3: H2, H3, and H4

Hypotheses	References
H2. Perceived ease of use of an e-government service has a positive influence on the perceived usefulness of an e-government service	Davis et al. (1989); Igbaria et al. (1996); Gefen and Keil (1998)
H3. Perceived ease of use while using an e-government service has a positive effect on satisfaction	Seddon (1997); Levin et al. (2005). Rai et al. (2002); Roca et al. (2006)
H4. Perceived usefulness while using an e-government service has a positive effect on satisfaction	Seddon (1997); Levin et al. (2005); Rai et al. (2002); Roca et al. (2006)

As already mentioned, the usefulness associated with a website is a function of that site‘s information quality, but this is not true in respect of perceived ease of use. Previous research (DeLone and McLean, 1992; Seddon, 1997) has indicated a close relationship between information quality and usefulness of a system, such that a perception by the user that a site provides information of high quality, will lead to a second perception that the site has greater usefulness to him/her. It is also argued by Lin and Liu (2000) that the beliefs of users in respect of perceived usefulness and perceived ease of use are determined to a large extent by response time factors. In this connection, users do not want to waste time by waiting for a site to respond, and actually, poor response time has a bigger negative impact on users‘ impressions of ease of use, than on their perceptions of the site‘s benefit to them. Eighmey (1997) has already reported that shorter response times produce more fluid interaction with the machines, and a consequently higher level of ease of use of the website. Lin and Liu (2002) also find system accessibility to have a direct and positive correlation with perceived ease of use, but not with perceived usefulness of a system. They define accessibility as the extent to which the system is available to the user when s/he wants to use it, and the level of obstruction that might be Present. Clearly, fewer obstacles give the impression that the system is easy to use. In the same vein, system quality has been found (Lucas and Spitler, 1999) to influence both perceived ease of

use and perceived usefulness. And perceived ease of use, and perceived usefulness are known to be antecedents of satisfaction (Rai et al., 2002) According to Davis et al. (1989:320), perceived ease of use refers to:

> *The degree to which a person believes that using a particular system would be free of effort.*

And, it also functions as an antecedent of perceived usefulness (Davis et al., 1989; Igbaria et al., 1996; Gefen and Keil, 1998; Chang et al., 2005). In the current study, perceived ease of use is defined as:

> *The degree to which a citizen believes that using a government e-service is free of effort.*

These discussions lead to the establishment of the following hypotheses:

H2. Perceived ease of use of an e-government service has a positive influence on the perceived usefulness of an e-government service

H3. Perceived ease of use while using an e-government service has a positive effect on satisfaction

H4. Perceived usefulness while using an e-government service has a positive effect on satisfaction

4.8.2.3 Citizen Trust as a Success Measure

Citizen trust is acknowledged as a critical success factor in the adoption of e-government, and this emerges as a result of satisfaction with the various e-government experiences a citizen encounters. Trust in government is crucial, since without this, there will be no take up of government e-service delivery, and as observed by certain researchers (Welch et al., 2004; Welch and Hinnant, 2002), enhanced satisfaction levels promote improved trust. The quality of e-government service delivery is a major factor in determining citizen satisfaction levels (Walle et al., 2002). Increased trust enhances the usefulness of a website in the eyes of the users, and in such circumstances, users are willing to commit themselves to the online relationship. To establish such trust, website designers must ensure that sites are easy to use and do not bring problems of understanding (Gefen et al., 2003; Holsapple and

Sasidharan, 2005). In the literature, four items are seen to measure knowledge-based trust, which stands out as one form of trust identified by previous researchers. Knowledge-based trust is the most appropriate type of trust in the context of this study.

Table 4.4: H5 and H6

Hypotheses	References
H5. High perceived trust in an e-government service leads to increased perceived usefulness	Gefen et al. (2003); Holsapple and Sasidharan. (2005).
H6. High perceived trust in an e-government service leads to increased e-government adoption	Welch et al. (2004); Welch and Hinnant (2002); Walle et al. (2002).

H5. High perceived trust in an e-government service leads to increased perceived usefulness

H6. High perceived trust of an e-government service leads to increased e-government adoption

4.8.2.4: Awareness as a Success Measure

Stakeholder awareness is acknowledged as a pre-requisite for the successful implementation and adoption of e-government, and in countries such as Libya, where the technology infrastructure is under-developed, this presents a great challenge. In addition to bringing about the conditions for such awareness, it is also important to provide stakeholders with reasons why it is sensible, and necessary to implement new technology, since such an approach will enhance the willingness of citizens to participate rather than withdraw from e- government initiatives. In the creation of awareness, it is essential that strong leadership is in evidence, and as noted by Abdulrazzaq et al. (2003), in Libya, trust in policy-makers is not strong, so wide-reaching projects of the e-government type, need to be sold 'to the general public by leaders who are believable, and who can convince citizens that the government can deliver services that are of importance to them. Hence, the following hypothesis is proposed.

H7. The existing awareness of e-government influences the adoption of e-government

4.8.2.5: Website Quality as a Success Measure

It is well understood that the quality of websites is important in persuading users to adopt, and consequently, information systems and marketing researchers are paying attention to this dimension in an effort to identify the components of website effectiveness (Lociacono et al., 2000; Liu and Arnett, 2000; Aladwania, A.M., and Palvia, P.C., 2002; Hasan and Abuelrub, 2008). In their work, Lociacono et al. (2000) formulated the WEBQUAL instrument, including 12 dimensions: informational fit to task, interaction, trust, response time, design, intuitiveness, visual appeal, innovativeness, flow, integrated communication, business processes, and substitutability. Liu and Arnett (2000), using the literature on IS design, and marketing, and surveying 1,000 companies, found that system quality, learning capabilities, playfulness, system quality, system use, and service quality represented the main requirements for website success. In particular, they found four factors to be crucial in the context of e-commerce websites, these being: information and service quality, system use, playfulness, and system design quality.

In their efforts to establish the components of website quality within the context of ladies' online clothes shopping, Kim and Stoel (2004) surveyed 273 female shoppers to determine their satisfaction levels. Using the WEBQUAL instrument previously mentioned they identified six features of website quality, these being: web appearance, entertainment, informational fit-to-task, transaction capability, response time, and trust. They found, however, that user satisfaction is only significantly influenced by informational fit-to-task, transaction capability, and response time.

In another user-driven instrument constructed by Aladwania, A.M., and Palvia, P.C., (2002), 25 items covering four dimensions of website quality were proposed. The four dimensions relate to: specific content, content quality, appearance, and technical adequacy. And, using the IS success model as their underpinnings, Cao et al. (2005) formulated a model for website quality in the e-commerce environment, using students with experience of internet shopping as their sample. From their study it emerged that customers perceive four factors to be important, which are: functionality, content, service, and attractiveness. Their sample indicated that the priorities with internet shopping were to find accurate information, have a secure way of paying, and to be

able to search rapidly. Hence, there is a need to design websites that comply with these requirements.

Specifically, in the context of government websites, Smith (2001) explored criteria relating to information content, and ease of use. And Zviran et al. (2005) were able to demonstrate through their empirical study that user satisfaction with a variety of types of website is conditioned by usability and user-based design. Stockdale and Borovicka (2006) took the IS and e-commerce success model as a basis for their website evaluation instrument, and applied this in the field of tourism. They formulated criteria relating to system quality, information quality, and service quality as a measure of success. The hypotheses relating to website systems are, therefore:

H8. The qualities of the web design of e-government positively influence adoption

H9. The qualities of the web design of e-government positively influence ease of use

4.9 Conceptual Framework

Based on the theoretical perspectives and the hypotheses discussed thus far, the following conceptual model is proposed, which incorporates concepts from earlier models to be applied to testing in the area of e-government. This model is conceptually based on the (TAM) DeLone and McLean IS success model (1992).

From the discussions concluded so far, it becomes evident that website quality, and trust affect user satisfaction (DeLone and McLean, 1992; 2003; Xiao et al., 2005; Molla and Licker, 2001; Seddon and Kiew, 1994; Seddon, 1997). Perceived usefulness and perceived ease of use have also been found by researchers to have an impact on user satisfaction (Rai et al., 2002; Seddon, 1997; Bhattacherjee, 2001; Roca et al., 2006). Website quality, and trust determine perceived usefulness (Seddon, 1997), and perceived ease of use relates to perceived usefulness (Igbaria et al., 1996; Gefen and Keil, 1998.). Perceived ease of use determines citizen trust, and citizen trust has an impact on perceived usefulness (Gefen et al., 2003; Holsapple and Sasidharan, 2005). Citizen trust also increases citizen satisfaction (Welch et al., 2004; Welch and Hinnant, 2002).

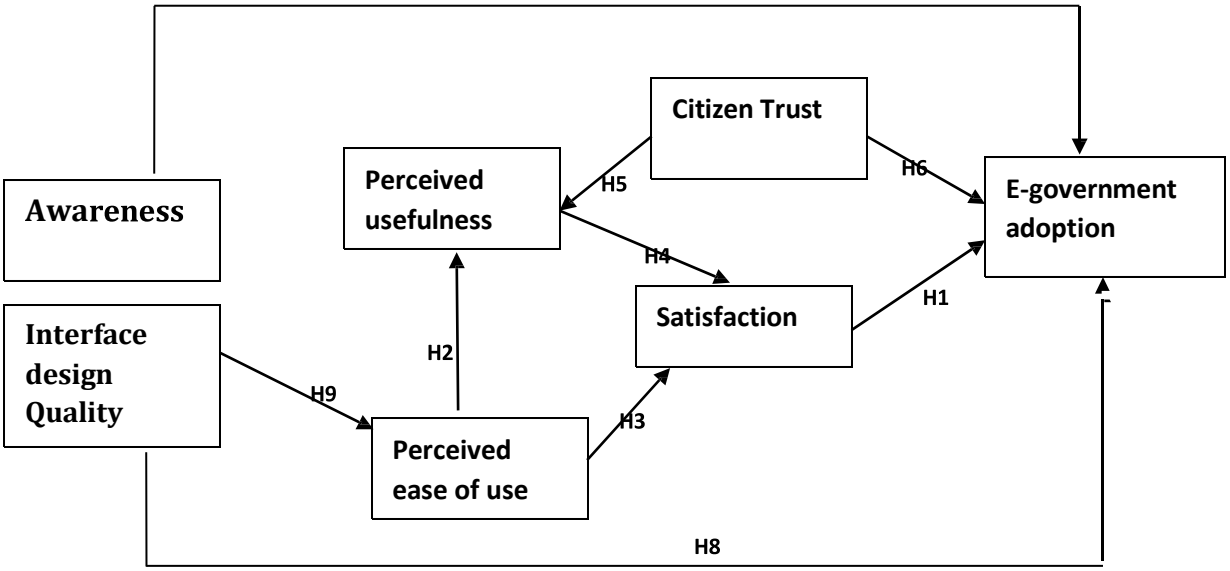

Figure 4.2: The Proposed Model and Hypotheses

In this study, e-government success is defined through citizen satisfaction. Citizen satisfaction is proposed to be determined by e-government website quality, citizen trust, perceived usefulness, and perceived ease of use of the system.

4.10 Summary

This chapter has introduced the research model and considered the various components of the overall construct, and the relationships between them as indicated by previous research. In the next chapter, the actual methodology employed to meet the aim and objectives of the study is presented.

CHAPTER FIVE

METHODOLOGY

5.1 Introduction

In this chapter, the research design and methods adopted within the study are presented together with a justification for the decisions made in these respects. The chapter begins with a general discussion of research paradigms. Essentially, this involves considering the philosophical assumptions underlying the research process as an entity. This is an important issue since these assumptions determine the general approach and the methods used to achieve the research objectives. Each of the three major research paradigms – positivist, interpretivist, and critical – is introduced and the eventual choice made, is properly justified. The chapter continues by introducing the methodology adopted and in particular the strategy for collecting and analysing the data. It considers qualitative and quantitative approaches to research, and provides a rationale for the choices made in the study.

In producing the chapter, it is borne in mind that Remenyi and Williams (1996) have indicated the important issues in social sciences research, and particularly in Information Systems (IS) research studies. These matters are associated with deciding where to start the research and producing an appropriate theoretical framework that can direct the researcher‘s work in gathering and analysing data. Hence, these issues are considered in detail within the chapter, and where comparisons of strategies are necessary in order to arrive at the most appropriate one for this particular study, these are made. A full justification is provided for all decisions made in the research design.

5.2 The Research Process

The research process, is defined as -studious inquiry or examination; especially: investigation or experimentation aimed at the discovery and interpretation of fact, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws (http://www.Merriam-Webster.com/dictionary/research).

Certain stages exist within this overall process, which can generally be identified as determining the research paradigm, choosing the approach, deciding on the methodology, and selecting the actual methods to gather the data and subsequently analyse it (Creswell, 2003; Denzin and Lincoln, 2005; Sarantakos, 2005). This study follows that process as indicated in Figure 5.1.

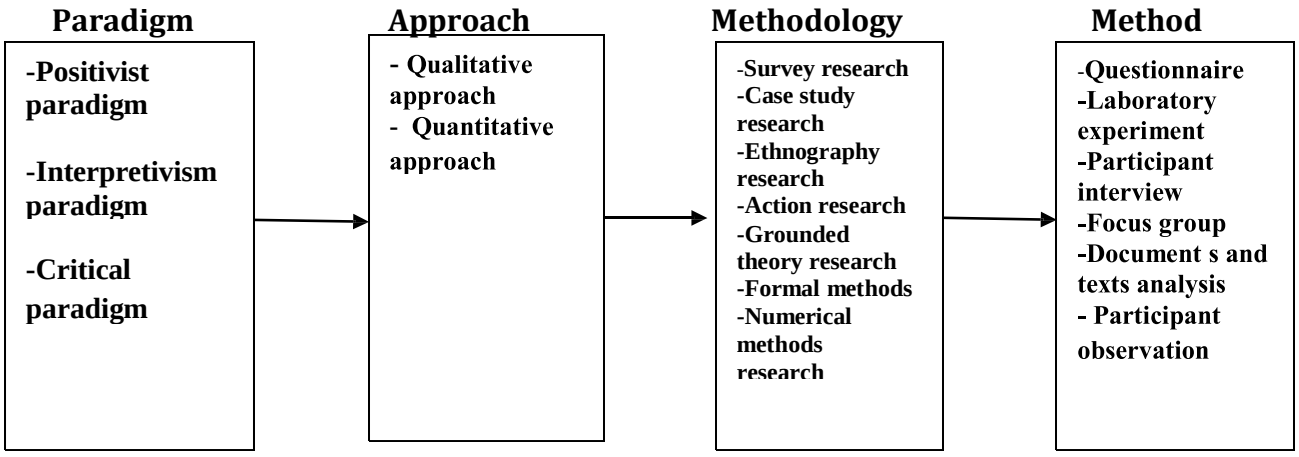

Figure 5.1: The Research Process

It is important to recognise that in the literature concerning research methodology, some terms are used synonymously. For example Creswell (2003) points out that the term methodology' is often used interchangeably with the terms method' or approach', and he himself uses strategy of enquiry' in this connection. However, in this study, the term methodology 'is used to denote something more than the method', being concerned with the skills, philosophical assumptions and practices directing the overall process, whilst the term method is used to refer to the actual procedures for gathering and analysing the data.

5.3 Research Paradigms

Denzin and Lincoln (2005) observe that a fundamental aspect of research design is the way in which the researcher perceives the world, what assumptions are made in this regard, and how these are supported by others in the research community. These perceptions and assumptions derive from the basic beliefs of the researchers concerned, which in turn condition the parameters of a particular study, and at the same time articulate the purpose of the research, and set it apart from previous efforts. It is noted by Livari et al. (1998) that in IS research, such underlying assumptions are crucial in directing the research process and in securing outputs. And as noted by Denzin and Lincoln (2005), these underpinning ideas fall into three broad areas: philosophical assumptions that reflect upon the real world, social assumptions that determine how research should be conducted, and technical assumptions that relate to the methods and techniques employed in securing the data and analysing it. Together, these sets of beliefs combine to form a research paradigm', a term introduced by Khun (1970), who refers

to these ideas as -the entire constellation of beliefs, values and techniques, and so on shared by the members of community.

Early work in this respect was undertaken by Burrell and Morgan (1979) who suggested a framework of the various underlying assumptions in social research. In this study, the framework is presented as a two-dimensional matrix in which the social sciences dimension is subjective/objective, encompassing four types of assumption, these being: ontological, epistemological, methodological, and assumptions about human nature.

Bryman (2001) describes the ontological assumptions as being involved with the character of the real world in its social context, and hence, it can be understood that there are many perspectives in this regard. One is the viewpoint expressed by positivist thinkers that the social context makes no difference to the nature of the world and the people within it, whereas another perspective is offered by thinkers who favour the interpretivist approach, and who believe that social phenomena change the way in which the world is perceived. These quite different approaches clearly bring very different outcomes in research studies of the same subject. And a third viewpoint is proposed by critical theorists who consider the world as requiring change, and who explore social phenomena and individuals from that fundamental premise (Rahmawati, 2008). Consequently, there are three paradigms, the positivist, the interpretivist, and the critical theorist.

In terms of epistemological assumptions, Bryman (2001) describes these as being about the ways of apprehending and acquiring knowledge. Positivists do this by using natural science to test hypotheses they have proposed, and they focus on objective methods of data collection and analysis. In the interpretive paradigm, hypotheses are not generated for statistical testing, however, since it is believed that the social context is too fluid to allow for any meaningful conclusions to be drawn in this way. And critical theorists consider the knowledge generated to be a consequence of practice. Rahmawati (2008) notes that such theorists aim through their criticism of political, societal, and practical issues, to bring about change, and that with such an agenda, their results are usually subjective.

In regard to methodological assumptions, Cohen et al. (2001) relate these to the techniques adopted for the collection and analysis of data. Positivists use a quantitative approach in which numbers feature strongly, and mathematical formulae are employed to test existing theory, produce statistics, and generalise results. On the other hand, interpretivists favour observation and interrogation of subjects as a means of empirical investigation, using

qualitative approaches to acquire knowledge. Consequently, the outcomes can be interpreted in different ways. Critical theorists accept that both quantitative and qualitative methods are valid as tools of investigation, since as Rahmawati (2008) notes; the social setting is controlled by quantitative approaches, whilst the changes occurring after such control are interpreted qualitatively.

Assumptions concerning human nature relate to whether individuals are responsive to their surroundings or whether they control them, and are hence referred to as deterministic or voluntarist (Putman, 1983:36). Either way, humans can only be understood by securing direct information about them (Denzin and Lincoln, 2005).

Whilst the three research paradigms identified above are supported in their differences by Orlikowski and Baroudi (1991), and Myers (1997), who accord them the terms positivist', interpretivist'and critical', not all researchers agree on this division, and others, such as Livari et al. (1998), differentiate between only the two (positivism and interpretivism) calling these positivist 'and anti-positivist' approaches. It is possible, however, for any of these paradigms to be used by itself, or together with another, and in the following sub-sections a little more detail is given about each of them.

5.3.1 The Positivist Paradigm

This paradigm makes the fundamental assumption that it is possible to objectively measure social phenomena through the use of traditional scientific methods by observers who are external to the phenomena concerned. Hence, the belief is that social reality is a given, and that outcomes of a research study grounded in this paradigm are able to be generalised to a wider population. In relation to the positivist paradigm, Orlikowski and Baroudi (1991:5) state: here is evidence of formal propositions, quantifiable measures of variables, hypothesis testing and the drawing of interfaces about a phenomenon from the sample to a stated population.

5.3.2 The Interpretive Paradigm

This paradigm makes the fundamental assumption that it is not possible to objectively measure social phenomena since it accepts that individuals accord different meanings to events in their surroundings (Myers, 1997; Klein and Myers, 1999), and that these meanings are given on the basis of language, consciousness, shared experiences, publications, tools and other artefacts (Walsham, 1995). The concentration in this approach is on the way human beings make sense of their surroundings as and when they change, and implicitly, there is no stated definition of

dependent and independent variables (Kaplan and Maxwell, 1994). Gibbons (1987:3) argues that this paradigm tries to understand the inter-subjective meanings embedded in social life and hence to explain why people act the way they do. Because the data obtained must be subjective, all conclusions are, therefore, qualitative, leading to an appreciation of the social contexts, underpinned by a holistic picture that emerges from dialogue with individuals in those contexts (Creswell, 2003). In IS research, there has been increasing popularity of this paradigm since the beginning of the 21st century (Rowlands, 2003; Walsham, 2006; Merali and McKelvey, 2006; Andrade, 2009; Jabar et al., 2009), since the focus in such research has shifted from technological to behavioural issues (Parker et al., 1994; McGrath, 1997; Rohde et al., 2009). Moreover, the majority of IS studies are concerned with matters of design, implementation, acceptance, use management, and evaluation in different organisational and social contexts (Avgerou, 2001; Mansour and Ghazawneh, 2009), thus emphasising the contextual nature of the research, and the need to examine the interaction between social and technical issues within what is undoubtedly a dynamic evolving environment. In respect of the way in which the interpretive paradigm is used in IS/IT adoption and usage behaviour research, Walsham (1993:4) suggests that the intention of this approach is to -[t]o produce an understanding of the context of the information systems, and the process whereby the information system influences and is influenced by the context.

5.3.3 The Critical Paradigm

The critical paradigm as already indicated, is intended to bring about changes, by highlighting inconsistencies and conflicts in social situations (Myers, 1997; Klein and Myers, 1999). Followers of this paradigm believe that history has shaped social reality, that alienation within societies exists, and that critical research is required in order to facilitate the removal of dominating forces. Hence, it is seen as emancipatory by its challenge to the social, cultural and political machinery that serve to reproduce historical inequities. By illuminating unjust conditions, this paradigm brings forward opportunities for change (Myers, 1997; Klein and Myers, 1999).

5.4 Selection and Justification of the Research Paradigm for the Study

It is clear that during the first phase of the current study, the interpretative paradigm is the most appropriate, since the aim of this phase is to identify the critical success factors in respect of the successful adoption and implementation of e-government services and applications from citizens‘ perspectives in Libya, and also to establish the relationships between those factors. An understanding of the reality in this matter can only be gained by exploring social

interactions (Klein and Myers, 1999), which can be seen through language, consciousness, shared meanings, and documentation.

However, in the second phase of the study, the aim is to examine the degree to which the factors and their inter-relationships influence the adoption and implementation of e- government services in Libya, and this requires testing on a large sample so that the results can be generalised to a wider population. The positivist paradigm is, therefore, more suited for these circumstances.

It has already been indicated earlier in the thesis that IS research is complex, and that a pluralistic approach to it is required. Indeed, the outcomes gained from the use of more than one paradigm are valuable and reliable (Mingers, 2001). However, in certain situations, there is no need for the inclusion of the critical paradigm since there is no intention to change a historically-shaped context, and in this study, the aims and objectives can be achieved by employing the positivist and interpretivist approaches as already discussed.

The use of these two approaches enables both inductive and deductive reasoning to feature within the study. Trochim (2006) describes inductive reasoning as a process that begins with observation of a phenomenon and ends with the generation of tentative theory, as illustrated in Figure 5.2.

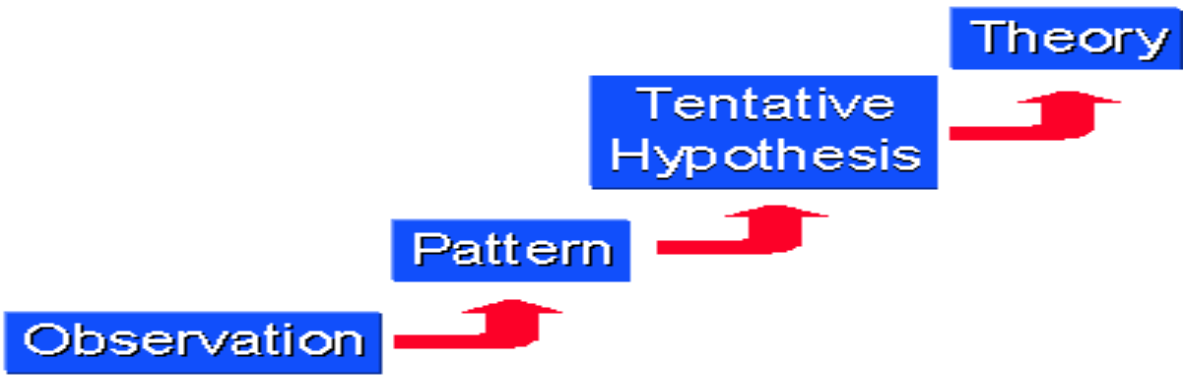

Figure 5.2: The Process of Inductive Reasoning (Trochim, 2006)

The first phase of the study followed this process. It included the inspection of various documentation concerning the planning and policy-making in respect of e-government implementation in developing countries generally, and specifically in Libya. Additionally, it included a small pilot exercise in which six interviews were held with expert users to establish how appropriate the proposed questionnaire, designed after reviewing the literature and models of IT implementation and adoption, was for the intended population. This approach was exploratory in nature, intended to gain insight into the

whole phenomenon in its real-life context, before subjecting the outcomes (emergent theories) to statistical testing. Hence, this phase followed the inductive reasoning pattern.

Deductive reasoning is described by Trochim (2006) as a process in which the scope of an enquiry is narrowed down so that specific hypotheses are constructed around particular aspects of theory, and then observations are made to confirm or reject the theory presented. Figure 5.3 depicts the process.

Figure 5.3: The Process of Deductive Reasoning (Trochim, 2006)

This type of reasoning lends itself to a positivist approach, which was indeed used in the second phase of the study which comprised a survey of 375 participants from public and private sector enterprises in Libya. The survey was constructed using the single theory, with the idea of testing several hypotheses and learning whether or not the theories stood up in the particular circumstances of the respondents involved.

5.5 Research Approaches – Quantitative and Qualitative

Already in this chapter it has been shown that approaches to the collection of data rest in one of two categories, these being quantitative and qualitative (Creswell, 2003; Neuman, 2003), and it has been discussed that the former is considered to be scientific in nature and the traditional empirical approach, whereas the latter is known as the naturalistic phenomenological approach. Clearly, it is the underlying philosophical position adopted by the researcher which directs the choice of the research paradigm, and hence the approach (Yauch and Steudel, 2003). Five types of assumption are held in respect of the quantitative and qualitative approaches, which Creswell (2003) reports as: the ontological, epistemological, axiological, methodological, and rhetorical, as shown in Table 5.1.

Table 5.1: Quantitative and Qualitative Approach Assumptions

With respect to	Ontological assumption	Epistemological assumption	Axiological assumption	Methodological assumption	Rhetorical assumption	
Research approac	Nature of reality	Relationship of	Role of values	Process of research	Language of	Purpose
Qualitative	-Reality is subjective and multiple as seen by participants in the study	-Researcher interacts with that being researched	-Value laden and biased, -Values are personally relative; need to be understood critique of ideologies will promote needed social change	Inductive process -Mutual - Simultaneously shaping factors - Emerging design – Context bound	Sometimes informal - Evolving decisions - Personal voice	-To understand and interpret -To critique and to identify potential
Quantitative	-Objective, apart from researcher	- Researcher is independent from what is being researched	- Value free and unbiased, - Values are emotive and therefore outside the scientific inquiry	-Deductive process -Cause an deffect -Context free	- Formal -Based on set definitions -Impersonal voice	-To explain and predict

Creswell (2003)

Crotty (1998), however, asserts that such differentiation of theoretical assumptions is not possible between the quantitative and qualitative approaches, but that rather, it is the methods used to obtain the data, and the character of that data that do so. By tradition, and as already explained, quantitative researchers gather data in the form of numbers, whereas qualitative researchers collect different types of data that may be in the form of observations, words, and texts, all of which are believed to embrace the beliefs and behaviour of participants (Yauch and Steudel, 2003; Borkan, 2004; Smka and Koeszegi, 2007).

Generally, it is accepted that the use of both quantitative and qualitative data is needed to comprehend real world phenomena (Nigls, 2004; Bazeley, 2004; Zawawi, 2007), and as IS research falls into this category, this mixed methods approach is considered to be the most suitable (Walsham, 2006; Lazaro and Marcos, 2006; Fidock and Carroll, 2009). Using such an approach, the researcher can establish the scope of the study (from the qualitative aspect), and proceed to test emergent theory through developing hypotheses and a suitable research tool to gain information from a representative sample (the quantitative aspect). Both approaches have their strengths and weaknesses, which are now considered in the following sub-sections, but when used together the respective weaknesses are cancelled out and the advantages of both can be gained.

5.5.1 The Qualitative Approach

As already indicated, in the qualitative approach, non-numerical data are gathered, which provide the strength that in-depth information can be secured (Lancaster, 2005) that will ultimately enable a deeper appreciation of the views, experiences, and perceptions of individuals (Denzin and Lincoln, 2005). Moreover, the approach involves research samples in their natural setting, and is consequently believed to encourage honest participation that yields valuable and reliable data. These proceed from the fact that the approach allows the researcher to interpret the data bearing in mind the personal circumstances of those providing it, and again this strengthens its accuracy.

Patton (2002:40) identifies a number of characteristics of qualitative research, which in summary are:

1) It is concerned with understanding phenomena in their natural contexts,

2) It assumes multiple realities,

3) It presents data in the form of rich verbal descriptions,

4) It allows the researcher to be immersed and in direct contact during the data collection,

5) It enables data collection interactively,

6) It enables flexible and evolving data collection methodology; a tentative and dynamic approach to the methodology,

7) It emphasises the holistic perspective and has a focus on the complexity and the dynamics of interrelationships in the world around the phenomenon,

8) It is context sensitive,

9) It reveals the invisibility in daily life and makes the familiar strange,

10) It constructs meaning from the participants‘ point of view, as they are informants rather than subjects,

11) It explores open questions rather than testing hypotheses, and

12) It employs purposive sampling.

Moreover, qualitative techniques can only be applied with a small number of research participants since they aim at reaching an in-depth and holistic understanding of the phenomenon in question rather than establishing trends and patterns that require large populations.

5.5.1.1: Qualitative Approach within IS Research

However, irrespective of the increasing encouragement for the qualitative approach in IS research, a need still remains for researchers in this area to become more proficient and rigorous in its use, since there has been a general lack of expertise among researchers in the IS area, thereby leaving the qualitative approach open to criticism from positivists (Lacity and Janson, 1994). This initial lack of experience and knowledge of qualitative strategies among IS researchers resulted in a consequent lack of published research undertaken with a qualitative direction in the major IS journals in the period leading up to 1990 (Trauth, 2001), with the majority of all IS studies being undertaken in a quantitative fashion, using surveys as their data collection methods (Newsted et al., 1998; Kraemer and Dutton, 1991). It has, however, been argued by Kramer and Dutton (1991), that descriptive detail which may not emerge from other approaches, can be provided by the survey method. Nonetheless, the criticism made by Kaplan and Duchon (1988:573) holds true. In this respect, they argue that:

> Most studies of computer systems are based on methods that measure quantitative outcomes. These outcomes can be grouped into technical, economic, and effectiveness and performance measures. Such studies treat organizational features, user features, technological features, and information needs as static, independent, and objective rather than as dynamic, interacting constructs, i.e. as concepts with attributes and meanings that may change over time and that may be defined differently according to how individual participants view and experience the relationships between them.

In fact, the purpose of much IS research is to extend the investigation of technological dimensions so that the relationships between individuals, teams, and organisations who work with the systems concerned are explored with a view to learning how these affect adoption and implementation (Avgerou, 2001). The necessity for such a direction is stressed by Lucey (2005), who highlights the technological and other behavioural sub-systems within any overall IS. In this respect, he asserts that the interaction occurring between these two sub- systems provides the foundation for IS phenomena, such as chemical elements, which subsequently form a particular compound through interaction with each other. Galliers and Land (1987:900) comment on this broader perspective, stating that it -brings with it added complexity, greater imprecision, the possibility of different interpretations of the same phenomena, and the need to take these issues into account when considering an appropriate research approach.

It is clear that survey approaches ignore several factors that are potentially influential in respect of both the results and constructs of a study (Lyytinen, 1987). Such factors include aspects of the cultural environment, social interaction, and negotiation, all of which are important and should be included in any examination of adoption and implementation. Hence, a flexible approach that acknowledges the dynamism involved in the social environment is required, and this must extend to include relationships between individuals, groups, organisations and technology in varying cultural contexts This is appreciated, and there has indeed been a greater call among researchers in the IS field for research that is directed away from the technological aspect of IS to the managerial, organisational, behavioural and cultural dimensions (Lamb and Kling, 2003; Johnstone and Tate, 2004; Chua and Yang, 2008; Rohde et al., 2009).

Responses to this encouragement have come from a number of IS researchers (for example, Orlikowski, 1993; Kaplan and Maxwell, 1994; Kelder and Turner 2007; Jabar et al., 2009). And in support of researchers who want to follow this route, a number of online facilities have emerged, one being the IS World Net website, which provides support for both new and experienced IS researchers (Myers, 1997). This approach has become a necessity for (IS) researchers, either as an approach to analyse to data independently or as a complementary approach to traditional quantitative approaches

(Lacity and Janson, 1994). Commenting on the main methodologies related to qualitative research, Myers (1997) highlights the following as possibilities.

5.5.1.1.1Ethnography

Ethnography has emerged from the discipline of social anthropology, which is concerned with the study of culture among particular populations (small and large), and its concentration on people allows researchers to grasp an in-depth appreciation of individuals'thoughts and actions in their natural environments (Ehigie and Ehigie, 2005). People are treated as Informants rather than as subjects (Wolcott, 1987), the intention being to create a detailed description of beliefs and behaviour, as opposed to testing a specific theory In order to secure the deep insight desired, ethnographers immerse themselves in the field, often for long periods of time, so that they can observe for themselves what people do, rather than simply relying on what people say they do in the interview situation since what they say may not accurately convey the precise meaning. It is through combining observation of individuals in their natural settings, doing this over time, and following up on their progress, that more realistic outcomes can be generated. And, it is possible that the total immersion of a researcher in a community's way of life might be less disruptive then traditional methods. However, the requirement for a researcher to devote his/her life to the field entirely, is a challenge, and the fact that the results of one small community might not be generalisable to another population, means that ethnography is not necessarily an efficient method.

Nonetheless, several researchers (see for example, Harvey and Myers, 1995; Mariampolski, 2005; Mendez, 2009) confirm the significant contribution of ethnography, and particularly in the marketing of new products and services. These researchers argue that the value of this approach increases when insufficient information exists about market forces and behaviour, or when new insights about markets and practices are needed. Specifically, Mariampolski (2005:17) argues that -ethnographic methods allow marketers to delve into the actual occasions and situations in which products are used, services are received, and benefits are conferred. In fact, ethnography has been employed by many IS scholars (see for example, Preston, 1991; Beynon-Davis, 1997; Tan et al., 2003). Preston (1991) for instance, adopted this strategy in IS development, and Beynon-Davis (1997) used it

as a vehicle for exploring IS from all perspectives in institutions, focusing specifically on the systems' use, development, evaluation, and training of personnel.

Ethnographers seek to uncover the manifest and latent meanings of the thoughts and behaviour of people within a particular context (Ehigie and Ehigie, 2005). Thus, ethnography seeks to build and develop an in-depth description and not to test the theory. Since this study focuses on the TAM from the field of Information Systems, it follows the positivist tradition and thus does not involve ethnography as its primary methodology.

5.5.1.1.2: Action Research

Kurt Lewin is believed to have originated the concept of action research in 1946, in response to his observation that social changes were bringing conflict and crisis in organisational settings. Writing in his paper entitled *–Action Research and Minority Problems*, Lewin (1948:38) describes action research as -a spiral of steps, each of which is composed of a circle of planning, action and fact-finding about the result of the action. Corey (1953) subsequently reported action research as being a disciplined process through which individuals or teams reflect on their practices as a means of appreciating their performance, and making improvements. And acknowledging the team aspect, Rappaport (1970) later described action research as being concerned with addressing the practical issues worrying people and the need to achieve organisational goals, by collaboration, within an ethical framework acceptable to both parties. The focus in action research is on each person being prepared to take responsibility for his/her actions, work and private life, with the aim of becoming as proficient as possible, and thereby contributing towards the shaping of a better society.

Whereas ethnography involves the researcher in observation only, action research expects the researcher to participate in existing activities, and to offer constructive comment in order to help solve problems. Baskerville and Wood-Harper (1998) summarise the essential characteristics of action research as being: 1) its multivariate social settings, 2) its highly interpretive assumptions about observation, 3) intervention by the researcher, 4) participatory observation, and 5) the study of change in the social setting. Essentially, the m e t h o d combines theory and practice, since it relies on a method of investigation that focuses on achieving the results of the action and research simultaneously, as noted by Avison et al. (1999). These scholars

note that in action research, the researcher's role is to inform practitioners of the theory applying to their particular situation, to help apply this as far as the situation allows, to make modifications where necessary, and to repeat the process until the identified problem is solved. They believe that intervention is an absolute necessity, since simply observing and asking questions does not bring about the behavioural change required. Action research has appealed to many IS researchers (see for example, Avison et al., 1999; Byrne, 2005; Smith et al., 2007; Phythian et al., 2009). Avison et al. (1999) perceive the approach as one in which a combination of theory and practice is used to solve problems, and Smith et al. (2007) employed the method to improve understanding and overall IT security in all parts of the New South Wales (Australia) government. And, specifically in respect of IS, Phythian et al. (2009) adopted action research as a means of establishing success measures in respect of the introduction of e-government services and applications to determine whether the aims of e-government were being met. That said, several scholars in the field of IS do not favour the approach (see for example, Orlikowski and Baroudi, 1991; McKay and Marshall, 2001; Williams, 2006), the reasons being summarised by Williams (2006) as: 1) lack of control over the environment to be studied, 2) lack of generalisation to a broader community, and 3) subjectivity of the interpretations.

5.5.1.1.3: Case Study Research

Case study research has found favour among many researchers, particularly when how' or Why 'questions are asked, when the researcher has an overall lack of control of the context (Yin, 1994), and where there is a need to concentrate on the dynamics of individual settings (Eisenhardt, 1989). All the information gathered in case study research, is contextual in character, the aim being to develop a deep insight into the social phenomena being investigated in their natural environments. And as Yin (1994) notes, data can come from a variety of sources in a case study approach, being both qualitative and/or quantitative. Moreover, single and multiple cases can be used, with the latter approach allowing for greater generalisability and credibility of the research (Yin, 1994). As observed by Yin (1994), whilst a study with several cases within it might appear to be several different studies, the idea is to see whether replication of results is possible, so a particular purpose is served by each case, that being to indicate whether similar or contrasting results are gained.

According to Ellram (1996), a single-case study is appropriate when the researcher wishes to verify a well-formulated theory, when s/he wishes to verify single and unique cases, and when the phenomena to be explored are difficult to access; on the other hand, a multiple case study approach is appropriate when there is a wish to construct a rich theoretical framework of the phenomenon under investigation.

As mentioned already, a variety of data types can be obtained in case study research, and hence it is possible to classify some cases that do not use a mixed methods approach, as positivist or interpretive (Darke et al., 1998). Walsham (2006) asserts that in the particular instance of IS research, interpretive case studies are more appropriate, since the aim is usually to construct an appreciation of the context and process of IS, rather than to establish and test hypotheses. Indeed, researchers such as Walsham (1995), and Klein and Myers (1999), considered the need for interpretative approaches in IS research, with Klein and Myers (1999:67) asserting that -interpretive research can help IS researchers to understand human thought and action in social and organisational contexts; it has the potential to produce deep insights into information systems phenomena including the management of information systems and information systems development. In fact, the case study technique has emerged as one of the most popular qualitative methodologies adopted by IS researchers (see for example, Kaplan and Duchon, 1988; Orlikowski and Baroudi, 1991; Walsham, 1995; Myers, 1997; Klein and Myers, 1999; Dube and Pare, 2003), although others (see Benbasat et al., 1987; Lee, 1989) have used a quantitative approach in preference to the interpretative paradigm. According to Benbasat et al. (1987), matters concerning IS development, implementation and usage, are best studied through case study methodology, since research interests have shifted from technical, to organisational and social issues. Additionally, they argue that case study is important in IS research because it allows for: 1) the study of phenomena in their natural settings, 2) the study of contemporary events, 3) the study of cases where the researcher has no control over subjects or events, and 4) the study of phenomena that have no theoretical base. That said, the case study approach is criticised for its tim e-consuming nature, the fact that there is no standard means of data analysis, and the difficulty in generalising the results (Darke et al., 1998), but such criticisms are refuted by Bassey (1981:85) who contends that the reliability of a case study is more important than its generalisability.

5.5.2 The Quantitative Approach

The quantitative approach is considered to be scientific in nature, collecting and analysing data in numerical form, and doing so within the overall positivist paradigm. When the research questions are of the ‗how many', ‗how many', ‗how often', and ‗to what extent' type, this is the approach which is used (Pinsonneault and Kraemer, 1993), since it allows for the identification of frequencies and percentages of responses. Often, the data is produced in the form of graphs, charts or tables, having been subjected to statistical testing. A point to be remembered, however, is that statistical testing has no meaning unless the samples are big enough, and clearly if the results are to be generalised or used in comparative terms, then the samples must be representative of the majority of the population (Black, 1999).

In studies that use this approach, the researcher is seeking to establish relationships between certain variables which are of interest. After proposing certain relationships on the basis of existing theory, the researcher then constructs hypotheses which are subsequently tested for agreement with, or rejection of, that theory. Hence, deductive reasoning, as explained earlier, is employed to produce specific observations. In the collection of quantitative data, a number of methods can be adopted, but the main one is the survey which is usually used with a stratified or random sample of the population concerned. Administration of surveys can vary, and the means include regular mailing, e-mail, and face-to-face (in the form of a structured interview). Laboratory experiments, formal methods, and other numerical methods are all employed in the quantitative approach (Myers, 1997). Many scholars reject the quantitative approach, arguing that it has a negative influence upon people's ability to think, present opinions, articulate their experiences, and to respond to the changes around them (Burns, 2000). They assert that it neglects opportunities to explore in detail, and specifically, Gable (1994:114) states that the survey approach provides only a snapshot of the situation at a certain time, yielding little information on the underlying meaning of the data. Moreover, some variables of interest to a researcher may not be measurable by this method. Additionally, he argues that the survey is only capable of validating theory and has no potential for discovering it, claiming it to be inflexible to discoveries made during data collection (Gable, 1994:114). Nonetheless, it is popular in the identification of trends and patterns, and hence is still considered to have a valuable role in social sciences research.

5.6: Selection and Justification of the Approach taken in the Study

The current study investigates a relatively new phenomenon, that being the adoption and implementation of e-government in its real context, and hence, research conducted in whatever way is required (Ciborra, 2005; Mofleh and Wanous, 2008; Alhujran and Chatfield, 2008; Al-Nagi and Hamdan, 2009; Alomari et al., 2010; Almahamid et al., 2010). However, the use of theories such as the TAM is proving helpful in this respect, since this model permits the generalisation of outcomes, and allows initiatives in similar contexts to be attempted with a greater chance of success. Hence, the TAM is accepted as a principal theoretical contribution to existing knowledge in the context of developing countries, and is used for this study which has Libya as its focus.

In designing the study, two main phases are identified that seek to achieve the objectives stated in Chapter One. The first phase, allowing for the exploration of various factors that are known to aid in the adoption and implementation of IT, provides a springboard for the second phase which focuses on validating those factors through a survey technique with a large sample of the Libyan population. A large sample is used, in response to Jick's (1979:604) observation that -quantitative research may contribute to greater confidence in the generalisability of results. The quantitative approach thus enables inferences and predictions to be made concerning the interrelationships between the various factors that impinge upon the adoption and implementation of e-government in the Libyan context, whilst the qualitative phase (e.g. documentary analysis and interviews) allows for the identification of theory which requires testing in the particular environment concerned.

In presenting the data obtained in the second phase, descriptive and inferential statistics are given as a means of validating the first phase outcomes. Descriptive statistics are used in respect of the fundamental features of the data obtained from the research sample, providing simple and reasonable summaries about the sample and measures. These are the basis for the quantitative analysis of the majority of the data obtained from the survey (Trochim, 2006). Measures of central tendency (mean, median, and mode), and dispersion (range, variance, and standard deviation) are used. Inferential statistics help to establish whether the evidence supports hypothesis (Trochim, 2006). In cases of low probability, the hypothesis must be rejected and an alternative one accepted, whereas where the probability is high, the hypothesis is

accepted. Probabilities are achieved by the use of parametric and non- parametric tests. The former assume that a normal distribution will be followed by the data, and that implies a graph which shows a classic bell-shaped curve. Non-parametric tests make no assumptions about the data distribution, and are more suitable for circumstances where the data are skewed (Trochim, 2006).

In this study, the data were normally distributed, based on the skewness and kurtosis measures, and consequently, they satisfied the requirements of path analysis, which is a multivariate analytical method for empirically examining sets of relationships represented in the form of linear causal models (Li, 1975). Path analysis is helpful in investigating the direct and indirect influences of each variable on the basis of knowledge and theoretical considerations (Kerlinger and Pedhazur, 1973).

5.7 Overall Justification of the Approaches, Methodologies and Methods

Having discussed research paradigms, methodologies, and approaches, the chapter now considers the choices made from a holistic perspective. It is important to acknowledge that the study, whilst focusing on ISs, is essentially concerned with social issues rather than technical ones. The aim is to establish why individuals decide to adopt or reject a particular IS, and in this respect, it is recognised that IS epistemology is heavily social and not technical (Hirschheim, 1992).

Babbie (2008:97) argues that in social science research, there are three shared goals, these being to explore, describe, and explain. Within these goals, social scientists attempt to obtain a better appreciation of the phenomena under scrutiny, to test that appreciation, and to develop methods for future studies, particularly when the phenomena concerned are complicated. Additionally, they try to present detailed descriptions of social situations and the various happenings within them.

The absence of rigorous research on e-government adoption and implementation in developing contexts generally, and specifically in Libya, means that the citizen perspective on this extremely important aspect of life is lacking (Mofleh and Wanous, 2008; Alhujran and Chatfield, 2008; Alomari et al., 2010; Almahamid et al., 2010). Hence, the TAM is applied in this study to explore, describe, and explain the situation concerning the adoption and implementation of e-government services and applications in Libya. Using this model, it is possible to scrutinise the factors known to

influence the interrelationships among the variables that determine whether Libyan citizens are prepared to accept e-government services and applications. In so doing, the full range of motives for adoption, and obstacles to it, will be disclosed.

The literature confirms that a range of methods exists in respect of gathering and analysing empirical data. Each of these methods has benefits and pitfalls, and in order to capitalise upon the respective advantages and eliminate the disadvantages, a mixed methods approach is used. This also brings the benefit as previously mentioned (Gable, 1994; Kaplan and Duchon, 1998; Hughes, 2006), that data can be triangulated, integrated and validated. It is also noted by Reichardt and Cook (1997) that a mixed methods approach can help to achieve multiple research objectives, can offer insights that are excluded by the use of one approach only, and minimise bias that may arise from using only one approach.

Interest in using the quantitative and qualitative approaches in combination, has been shown by many researchers (Gable, 1994; Kaplan and Duchon, 1998; Mingers; 2001; Petter and Gallivan, 2004; Hughes, 2006; Lazzro and Marcos, 2006). Petter and Gallivan (2004) argue that in IS research, a mixed methods strategy produces a better appreciation of the phenomena concerned with adoption and implementation in varying organisational and social contexts, pointing to studies by Kaplan and Duchon (1998) on the implementation of a hospital laboratory system, and Trauth and Jessup (2000) on the use of group support systems (GSSs). In both of these studies, it was concluded that the use of mixed methods brings the capability to yield a rich and incisive analysis that is denied by one approach on its own, and that this held true in particular for complex phenomena.

Hence, it was decided to adopt the strategy of gathering both quantitative and qualitative data for the current study, since the situation regarding citizen participation in e-government is un- researched, and therefore, a complicated one to explore. Furthermore, as indicated throughout this chapter, a number of different data collection methods are available, and considering the suggestion by Hamilton and Ives (1982), that IS phenomena are best understood by consulting primary rather than secondary data, it was decided to include empirical fieldwork as well as a desk-based literature review. In this respect, it is noted by Bebasat and Zemund (1999) that research

designed in this way allows for the results to bring insights for both theory and practice. Potential ways of combining the quantitative and qualitative approaches have been considered by many scholars. For instance, Steckler et al. (1992) identified four strategies, these being: 1) the use of a qualitative approach to assist in the development of quantitative measures and instruments, 2) the use of a qualitative approach to assist in the interpretation of quantitative research results, 3) the use of a quantitative approach to assist in the support of qualitative research results, and 4) the use of qualitative and quantitative approaches equally with results being combined.

Similarly, Creswell (2003) identified six strategies, as follows: sequential explanatory strategy, sequential exploratory strategy, sequential transformative strategy, concurrent triangulation strategy, concurrent nested strategy, and concurrent transformative strategy. In his commentary, Creswell (2003) argues that a qualitative approach helps to scrutinise results obtained via quantitative methods, and particularly those which are unexpected. He refers to this as the sequential explanatory strategy, in which a certain theoretical perspective is required to direct the research effort. He then considers the quantitative approach as one that assists in the testing and generalisation of the results obtained via the qualitative approach, calling this a sequential exploratory strategy. In this situation a theoretical perspective is not required to guide the researcher.

Having considered the contributions by Creswell (2003) and Steckler et al. (1992), the researcher adopted the sequential exploratory strategy suggested by Creswell (2003), and the first and third strategies proposed by Steckler et al. (1992). This resulted in the design of a study with two main phases, the first using a qualitative strategy involving documents analysis, and a small pilot of the survey undertaken via interviews with expert users, and the second following a quantitative strategy using a survey, but also supported with an additional qualitative element, that being interviews with expert users to validate the survey outcomes. The first phase was underpinned by the researcher‘s appreciation of the dearth of information regarding citizen perspectives on e-government adoption and implementation in Libya, and then validating these with expert users through a series of interviews. It was believed that the qualitative element would produce a rich understanding of the influential factors in this regard, and assist the researcher in his development of measures and instruments that could be

employed to evaluate the success of e-government from the citizen perspective in other countries with shared circumstances. The second phase involved the use of a questionnaire to test the emergent theory and to attempt to generalise the results to a wider population. It is reported (Green et al., 1989) that the combination of both qualitative and quantitative approaches, which is seen as a mutually supportive activity, achieves a number of objectives, such as triangulation, complementarities, development, initiation and expansion. Green et al. (1989) also indicate that the researcher is able to elaborate, enhance, illustrate and clarify the results of one method with the results of the other.

5.8 Sampling

As it is not usually possible to gather data from an entire population, unless that population is very small, it is necessary to use a sample of the population which will be representative of all those within it. This point is confirmed by Hair et al. (2007) who note that a sample can only be appropriate if it does properly represent the wider population.

The logic of taking a representative sample is noted by Neuman (2003) who points to the advantage that this would allow the researcher to make inferences and generalise from the results of the sample. In the case of Libya population, this is known to be extremely youthful (information Department of the Great Jamahiriya, 2010), and consequently a representative sample should include more individuals from the younger age groupings than from the older ones**.** In this respect it is noted that well over half (65%) of all people in Libya fall in the 15-30 years old age range, and that if that age range is extended by just 5 years, almost three quarters (72.7%) of the entire population is accounted from (information Department of Great Jamahiriya,2010), As a result, the researcher targeted students in Libyan universities, believing this context to provide the most representative individuals. Additionally, the fact that this age group is IT-educated whereas older people may not be, suggests that the earliest users of e-government might well be the university undergraduate and postgraduate population. And another consideration is the researcher's own long experience of working in the Libyan HE sector, which was believed to provide easy access to the research population, and facilitate a good response rate. Additionally, because of the practical constraints in collecting data, and the resources available, it was decided to adopt a convenience sampling method. Hair et al.

(2007) define convenience sampling as a method that involves selecting sample elements based on their ready availability, but who can also provide the information required. A convenience is, thus, a non-probabilistic sample that is chosen based on personal experience, convenience, and expert judgment. The motivation behind such choice is that it allows for completion of a survey or interview within a short amount of time and at reduced cost, and these were two major considerations in undertaking this research.

5.9 Phase 1 (Qualitative): Documentary Analysis and Piloting of Questionnaire

As already discussed, the theoretical base explaining IS adoption and implementation has originated in developed countries, and hence there has been no recognition of the variations as observed by Chen et al. (2006) that exist in the developing country context. Recently, however, in most developing countries (including Libya) there have been attempts to introduce e-government services and existing theory but these are insufficient to illuminate the factors that influence their adoption and implementation. It is recognised (Pinsonneault and Kraemer, 1993) that empirical fieldwork is, therefore, required in order to establish why existing theory is not directly transferable to these new contexts. Given all the previous discussions, it can be understood that this initially demands a qualitative approach to explore the situation, and hence, Phase 1 consists of such a study.

Accordingly, the first phase of the study uses the interpretive approach to research since this is appropriate for enabling a comprehensive understanding of the problem to be gained. And this requires contact with individuals in and outside of government, who are involved in the planning, implementation, and management of e-government services and applications, and with citizens who are involved in the adoption and use of these services. The aim is to formulate a conceptual model to understand the phenomenon in its real context, and consequently highlight opportunities for further research in the region that can investigate e-government issues from citizens' perspectives. Implicitly, the outcomes of Phase 1 will provide intelligence on the level of Libya's readiness to embark upon its e-government initiative.

The qualitative data is obtained through the use of an exploratory and interpretive approach. In this respect, Healy and Perry (2000) observe that such a technique enables

a better appreciation of the phenomena, provides fruitful insights regarding best practice and experience, detail about incentives and constraints that influence the decision-making process, and examines people's attitudes and feelings that support or undermine the adoption and implementation of IT. Essentially, therefore, Phase 1 establishes the scope of research, develops the hypotheses, and constructs the measurement instruments. The analysis of certain documentation is undertaken to provide details of what should comprise the survey instrument, and a piloting exercise consisting of two rounds of email discussion is undertaken to gain feedback from expert users on the appropriateness of the proposed questionnaire. In effect, an inductive approach is followed in order to develop a theoretical base (Charmaz, 2000) to be tested in Phase 2.

5.9.1 Operationalising the Pilot

Having reviewed the literature and other appropriate documentation, the researcher identified six variables and 56 items that were suitable for the proposed survey, and on the basis of this, a success model was then constructed and embodied in a questionnaire. However, in keeping with good practice, a small pilot was undertaken since it was necessary to ensure that no important questions had been omitted, no important variables had been excluded, and the items chosen for inclusion were comprehensible and appropriate to the Libyan context. Additionally, it was felt valuable to obtain general feedback regarding the overall suitability of the model and the time taken to respond to the survey. For this part of the study, six expert users of e-government (two in the UK and four in Libya) were sent the proposed questionnaire with a request for feedback on the appropriateness of the instrument. After obtaining the opinions of these expert users, the researcher removed ten items on the grounds that some were repetitive, and others were unsuitable for the context of the study. In addition, some changes were made to the wording of certain item scales that had been imported from previous studies, so that they matched the context of the current study.

Having amended the survey instrument according to this initial feedback, the researcher conducted a second round of piloting with the instrument. Again, there were six people involved (not the original six), each of whom was an expert user in Libya with an active role in the planning and designing of e-government services and application. Specifically, these individuals were strategic managers of government

units, who had information about the e- government programme in Libya (e-government units), and who were also directly involved in the implementation of plans and policies for that programme; and managers and employees from the operational level, who had information about the awareness of e-government, and were also directly association with the implementation of policies and plans for the initiative at all levels. On the basis of this second pilot, further changes were made to the instrument, with items being added, amended or eliminated. The overarching purpose of both these pilots was to ensure that:

1- The scales for the various survey items were comprehensible within the specific context of Libyan e-government

2- The items did actually refer to the specific context of Libyan e-government

3- The entire questionnaire was presented logically and in a way that made its completion straightforward.

This second round of piloting was conducted, as the first, through the use of email.

5.10 Phase Two: Questionnaire Survey

In Phase 2 a questionnaire survey was used, since as noted by Yogesh et al. (2008) the questionnaire is still the most used instrument in studies of the adoption and implementation of IS/IT initiatives. Obviously, the disadvantage that a low response rate may be obtained is a real one, but it was believed that the topical nature of the issue may prompt individuals to respond. Certainly, Yogesh et al. (2008) These researchers undertook a literature review, finding that 345 studies, published in 19 peer-reviewed IS/IT journals between 1995 and 2007, used the questionnaire survey to produce the data required on this phenomenon.

Moreover, several contemporary researchers in this field have used the method (Al-Shafi et al., 2009; Vencatachellum and Pudaruth; 2010; Rokhman, 2010). Often questionnaires are mailed to the research sample concerned, but the Libyan postal system suffers from substantial weaknesses and the prospect of a reasonable return rate is severely diminished. Hence, it was decided to administer the survey on a face-to-face basis to be sure of a response, and also to be able to answer any queries raised by participants. The use of a questionnaire offers a number of benefits to a researcher. Primarily, the questionnaire survey allows for the clarification of complex or sensitive

issues through its ability to probe and verify particular matters (Donsbach and Traugott, 2007). Furthermore, respondents who are widely distributed can be included, and the anonymity of a mailed questionnaire encourages people who would not be prepared to divulge information face-to-face. Moreover, where face-to-face questionnaires are used, the researcher can be sure that the instrument is being completed by the intended respondent, and provided the questionnaire is properly designed and piloted, there is a good opportunity for it to yield good quality and detailed data.

Nonetheless, there are shortcomings to the use of a questionnaire survey, these being:
1) their cost, 2) the time involved, 3) researcher bias 4) unwillingness of the respondent to speak the truth for fear his would be not want the researcher wants to hear, and 5)it may not be possible to get precise information about sensitive topics. The Libyan population is a youthful one, with well over half (65%) of all people falling in the 15-30 years old age range. Furthermore, simply by extending that range by 5 years and considering the under 35 year olds, it can be seen that almost three quarters (72.7%) of the entire population is accounted for (Information Department of the Great Jamahiriya, 2010). The university student population in Libya can, therefore, be understood as very representative of the population in general. Additionally, because of the practical constraints in collecting data, and the resources available, it was decided to adopt a convenience sampling method. Hair et al. (2007) define convenience sampling as a method that involves selecting sample elements based on their ready availability, but who can also provide the information required. A convenience is, thus, a non- probabilistic sample that is chosen based on personal experience, convenience, and expert judgement. The motivation behind such choice is that it allows for completion of a survey or interview within a short amount of time and at reduced cost, and these were two major considerations in undertaking this research.

However, a questionnaire is completely dependent on the respondents' responses (Ghauri and Gronhaug, 2002). Also answers may not provide suitable responses that reflect the research focus. The reason could be that it is a set of specific questions, mostly with limited answers. In other words if the questions are likely to be understood differently by different respondents it could be argued that a questionnaire has failed to collect primary data required for the research.

Clearly, given the Libyan circumstances, the face-to-face questionnaire survey was the most appropriate, and this strategy was, therefore, used with all attempts being made to minimise the potential for researcher bias. None of the participants involved was known to the researcher in advance. It should be noted, however, that the method did involve the researcher in considerable travelling costs. Nonetheless, the aim of this phase was to confirm the value of the measurement instruments established in Phase 1, to test the hypotheses derived in Phase 1, and to reach a stage where it was possible to generalise the results to similar contexts in the Arab region. At the same time, the data obtained allowed for the production of descriptive demographic information concerning Libyan citizens I T experiences.

5.11 Phase 3 (Qualitative): survey reviewers

After the completion of this quantitative phase, interviews with six decision makers were conducted to validate the outcome of the survey. All the interviewees were involved in e-government implementation and were specifically as follows:

1- Director of the Media and Websites Department in the Libyan government
2- Director of the Libyan Internet Association and the Information System Centre in the e-government unit
3- Director of the Computer and Internet Usage and Learning Centre
4- A business information system development manager, and
5- A project manager in an e-government project
6- A member of the ICT department.

These six individuals were invited to participate in the study by an initial telephone contact made to them by the researcher in which they were given the background to the research. In this connection, it is important to fully appreciate the nature of life in Libya which has been unstable since before 2011. Consequently, people are reluctant to talk about certain issues, fearing repercussions and preferring to keep their thoughts to themselves. Given these circumstances, the researcher made a purposeful decision not to ask the interviewees to give permission to record their responses. It was believed that had this condition been imposed, there would have been a refusal to take part, and that the disadvantages of not obtaining a recording of their answers were outweighed by the benefits of being granted an interview.

Having secured the agreement from these people to be interviewed, the researcher arranged an appointment at the interviewees' convenience. Moreover, all interviews

were held in the offices of the individuals concerned, they were completely private, lasted between 45-60 minutes each, and notes of the answers given by the interviewees were taken in hand-written form by the researcher. The interviewees were assured that the information they gave would be kept securely and used only for the purposes of the academic research. Interviews were conducted in Arabic, and immediately after each one, the researcher wrote up his notes to ensure as accurate a picture of the discussion as possible.

The purpose of the interviews was to provide additional light of the findings from the survey. The approach was of a semi-structured type as interviewees were asked to comment on the outcomes of the survey, and offered their own responses at the same time. In particular, they were asked about:

1- The general awareness among the population of e-government services in Libya
2- The extent to which e-government services were developing in Libya
3- The general preparedness of the population for e-government, through for example their access to computers and the internet, and whether other barriers existed to reduce their e-readiness
4- Libya's technological infrastructure
5- Requirements for the effective implementation of e-government
6- The benefits of e-government to Libya

During their responses, the interviewees naturally referred to their own experience, meaning that whilst the exercise was intended to validate the questionnaire survey results, it also offered insights into the beliefs and expertise of people in positions with some responsibility for the development and implementation of e-government. The responses from the interview exercise are provided in the following chapter which details all the results from the study. However, it is worth mentioning at this point, that among the interviewees, there was complete agreement that the opinions given by the questionnaire respondents were true reflections of what they themselves as experts in the area believed to be the case, specifically about low citizens' awareness concerning Libya's e-government initiatives, and the negative influence of this on their adoption. Indeed, several interviewees indicated that marketing and offering incentives and promotions should be undertaken in tandem with the launch of online services to improve user acceptance.

5.12 Chapter Summary

This chapter has addressed the full range of issues concerning research methodology, and provided the reasons for the choices made in all respects. The alternative research paradigms have been explored, inductive and deductive reasoning has been discussed, and a full debate on the underlying philosophical assumptions of the different research paradigms has been included. The opportunities provided by the positivist and interpretative stances have also been raised, quantitative and qualitative methodologies have been discussed in detail, and the strengths and weaknesses of each of them, especially in respect of IS research, have been highlighted. It has been shown how a mixed methods strategy is appropriate to the exploration of IS studies in developing country contexts, and the precise details of the research design employed for this study are given. These show that the study comprises three phases, the first using a qualitative methodology, the second a quantitative, and the third phase a qualitative This combination is intended to produce in-depth information about the phenomenon of E-government adoption and implementation from the citizen perspective in Libya. In the following chapter the findings from the data are presented.

CHAPTER SIX

RESULTS

6.1 Introduction

This chapter presents the results gained from the empirical work detailed in Chapter Five. Therefore, it contains the findings from the questionnaire survey which was conducted in order to gain an appreciation of Libyan awareness of and attitudes towards e-government website services, and the findings from the interviewee exercise which was undertaken to validate the outcomes of the questionnaire. Specifically, the dimensions of satisfaction with the service, website quality, trust, perceived usefulness of e-government, and perceived ease of use of e-government services were explored within the questionnaire, and additionally, respondents to that were asked to rate potential barriers that might hinder the use of e- government in Libya. Before presenting the analysis, the statistics used in the study, which are both descriptive and inferential, are briefly discussed in order to generate a full understanding of the data.

6.2 Parametric Assumptions

Before deciding on the type of statistics used, it was essential to determine whether the data satisfied the parametric assumptions relating to the suitability of the tests to be used. For the data to be parametric it had to have an interval scale of measurement as well as be normally distributed.

6.2.1 Interval

The study uses a 5-point Agreement/Satisfaction Likert Scale (1=strongly agree, 2=agree, 3=neutral, 4=disagree, and 5=strongly disagree). This type of scale is considered as an interval scale. In the study the average scores of multiple items (based on the category) were also calculated, meaning the scores range from 1 to a maximum of 5, including decimals. Hence, for the purpose of the current research it is assumed that the data satisfies the interval condition of parametric assumptions.

The Likert scale often tests behaviour on a number of points (e.g. 5 points), and although many would refer to this scale as rank/ordinal scales, others prefer to label it as an interval scale depending on the theoretical and the researcher‘s assumptions.

The main distinction of an interval scale is that the difference between any two consecutive points on an interval

Scale is of similar value. However on an ordinal/rank scale the difference between the first rank and the second rank might not be the same difference between the second and the third rank. The researcher in this study is not seeking to rank answers. Rather it is assumed that the difference between any two points refers to similar behavioural outcomes. A number of studies have shown that the 5-point Likert scale can be analysed effectively as an interval scale (e.g. Baggaley and Hull, 1983; Maurer and Pierce, 1998). Indeed, Allen and Seaman (2007) argued for this viewpoint, on the grounds that the scale reflects properties of the data at intervals and does not refer to labels.

6.2.2 Normal Distribution

The second, and the most important assumption of parametric data, is that all dependent variables satisfy the rules of normal distribution such that the majority of the data is based around the mean in a Bell Shaped Histogram (Figures 6.1-6.5). A number of tests are specified for testing the normality of data but the current study uses personal judgement since the data follows a bell-shaped distribution in the histogram and the Skewness and the Kurtosis values of the data fall between -1 and +1 (rule of thumb). This study is mainly concerned with five variables, these being: the overall Satisfaction with e-government, Website quality, e-government Trust, Usefulness, and e-government Ease of Use. From Table

6.1 it can be seen that the values of the Skewness and the Kurtosis (1990) tests are within the range of -1 and +1, clearly indicating that the data relating to all the dependent variables is considered to be normally distributed. Furthermore the histograms also show that the data follows a Bell-shapes distribution (Figures 6.1-6-5).

Table 6.1: Descriptive Statistics of the Main Variables and the Normality through Skewness and Kurtosis

	N	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Erro	Statistic	Statistic	Std. Erro	Statistic	Std. Erro
Satisfaction with e-Government	141	1.00	5.00	2.8700	.07372	.87539	.237	.204	-.313	.406
Website Quality	141	1.00	5.00	3.0520	.07353	.87313	-.257	.204	.410	.406
Trust of e-Government	141	1.00	4.50	2.9397	.07490	.88937	-.016	.204	-.622	.406
Usefulness of e-Government	141	1.00	5.00	2.8605	.08206	.97440	.321	.204	-.124	.406
Ease of Use	141	1.00	5.00	2.9468	.08691	1.03199	.358	.204	-.469	.406
Valid N (listwise)	141									

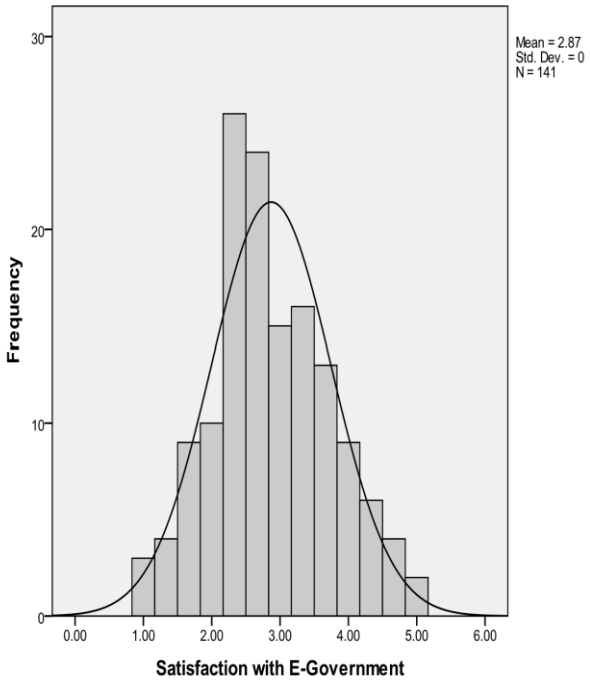

Figure 6.1: Satisfaction with e-Government

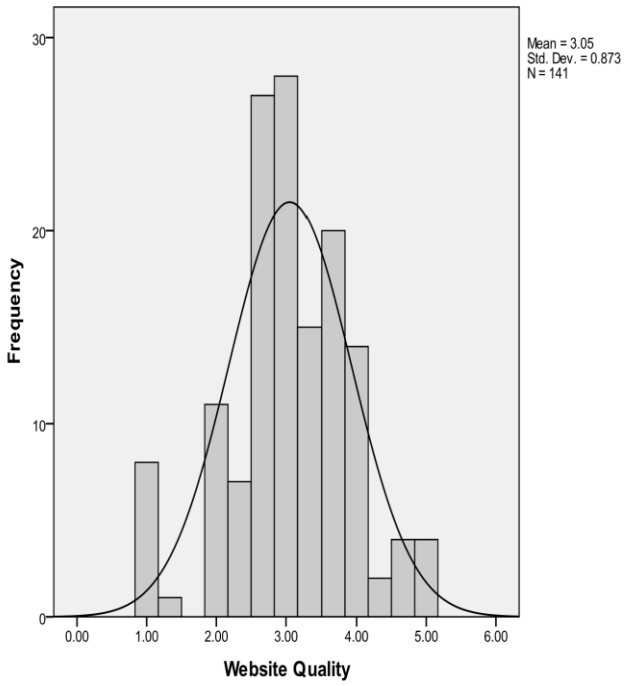

Figure 6.2: Website

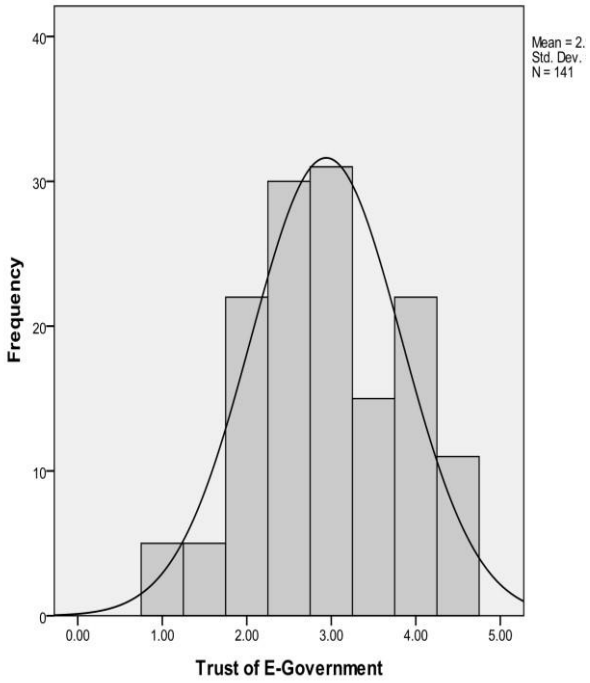

Figure 6.3: Trust

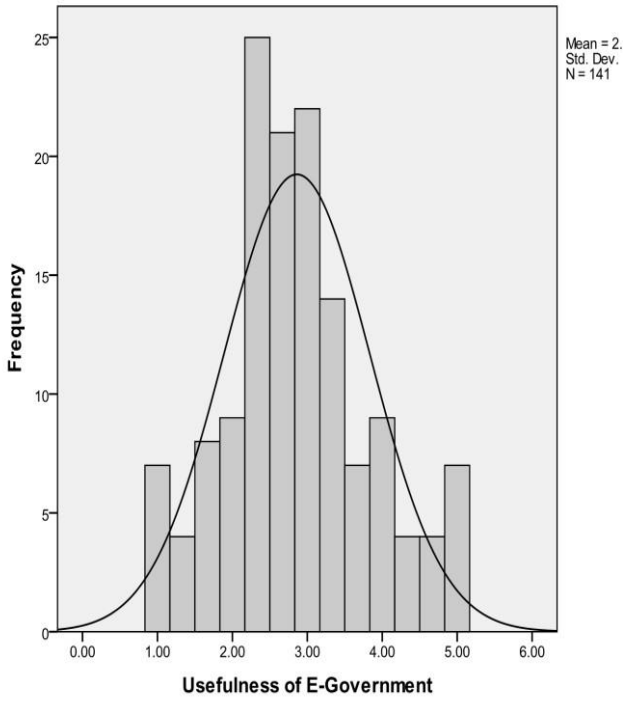

Figure 6.4: Usefulness of e-Government

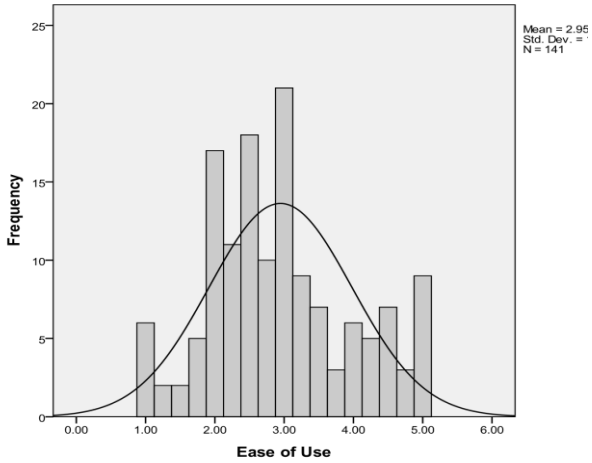

Figure 6.5: Ease of Use of e-Government

6.2.3 Descriptive Statistics

These are often used to quantitatively describe the core features of a given data set and the sample used. They allow the researcher to understand the distribution of the scores within a variable for a particular sample. In short, descriptive statistics are useful tools to summarise the data. There are a number of descriptive tests that are associated with this category of statistics, but for the purpose of this research it is essential to understand the following terms: Percentage (%), Mean (average), Standard Deviation (SD):

Percentage: this reflects the proportion in percentages regarding a specific aspect in the variables tested (%)

Mean: the mean score reflects the average of all the results; it is a measure of central tendency.

Standard Deviation: this is considered as a measure for the diversity or variability within a variable.

6.2.4 Inferential Statistics

Inferential statistics allow the researcher to use the data obtained from the sample to make inferences about the larger population. The tests used are often based and developed on the probability theory. However, it should be noted that inferential statistics also involve descriptive statistics.

6.2.4.1 Types of Inferential Statistic

Alpha level (probability): Most inferential statistics are based on the probability test which is often associated with the Alpha level (or Significance level). Inferential statistics are usually conducted to provide evidence to prove or disprove pre-determined hypotheses, and in this case the significance level or the alpha level reflects the probability that the result has happened purely by chance. The alpha level is established at a maximum $p=0.05$ so any value above this correlates to the rejection of the hypothesis, whilst values below that lead to significant results (accepting the hypothesis).

Independent samples t-test: This is a parametric test that measures whether an independent variable, with two independent levels, has an effect on a dependent variable. Significant ($p<0.05$) results lead to the understanding that two independent samples are significantly different from each other.

One Way Analysis of Variance: This is a parametric test that measures the effect of an independent variable, with three levels or more, on a dependent variable of interest. This test measures whether three groups or more significantly ($p<0.05$) differ from each other. Significant results lead to the conclusion that the independent (and its levels) variable has different effects on the dependent variable.

Pearson's r Correlation Coefficient: This is another parametric test that measures the

relationship between two variables. The tests result in a correlation coefficient that ranges in its value from (-1,1), -1 reflects 100% negative association between the variables, 1 on the other hand reflects 100% positive correlation between two variables, while 0 reflects no relationship at all. The value of the correlation coefficient should be significant ($p<0.05$) in order to assume significant relationship.

6.2.5 Age, Gender, Education

Hence, the Libyan universities were selected as the population source for data collection in this phase of the study. Specifically, the reasons for this choice are: 1) since Libyan society is relatively young, the best representative sample of may be collected from Libyan universities since this age group is the largest in that society, 2) expansion in the use of the internet and information technology in society is part of the national goal to achieve an online society and students in universities are capable in this respect and might be thought to be the first among the population to use e-government, and 3) the researcher's experience of working in Libyan universities for several years was believed to facilitate access to data and increase the response rate of individuals to the study. Additionally, because of the practical constraints in collecting data, and the resources available, it was decided to adopt a convenience sampling method. Hair et al. (2007) define convenience sampling as a method that involves selecting sample elements based on their ready availability, but who can also provide the information required. A convenience is, thus, a non-probabilistic sample that is chosen based on personal experience, convenience, and expert judgement. The motivation behind such choice is that it allows for completion of a survey or interview within a short amount of time and at reduced cost, and these were two major considerations in undertaking this research. It is concluded that certain population demographics have positive correlation with all the variables specifically: with satisfaction, website quality, e-government trust, perceived e-government usefulness, and perceived e-government ease of use. It has been noticed that, the relatively young profile of the population suggests a balance in favour of greater openness to the idea of engagement with government via new methods. Moreover, the provision of free education for the entire citizenry, and the high take-up of university education both in Libya and abroad indicate the existence of a population that is familiar and comfortable with ICT, even though the availability of ICT outside of the academic environment may have been curtailed through considerations of price. Libya

has building blocks in place for a population that is both computer literature, and prepared to communicate with government electronically, particularly given the long physical distances at which certain sections of the population find themselves from government administrative offices.

The following explanation "It was decided not to conduct a further; more a detailed investigation of the roles of the demographic variables (hypothesis testing) primarily because previous studies using TAM did not include these variables. Furthermore, in this particular study, the research sample is extremely homogenous, consisting of students with similar educational and cultural background, and similar exposure to ICT. Hence, the participants in both the questionnaire and the interview exercises were unlikely to generate statistically significant e differences in opinion as a result of their age, education, and gender."

Table 6.2 shows the age profile of Libyan population

Age	Males	Females	Total	%
0-18	1131596	1087263	2218859	41.89
19-25	580231	283624	573287	10.82
26-35	535976	523310	1059286	19.99
36-45	336200	336449	672649	12.7
46-55	165330	166431	321419	6.26
56-65	112734	104670	217404	4.11
66 +	116014	108892	224906	4.24
Total	2687513	2610639	5298152	100%

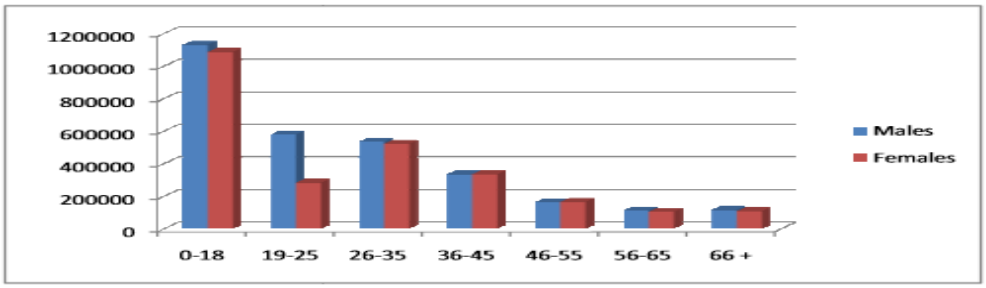

Figure 6.6 Libyan Age Profile

This section (6.2.5) describes the demographic variables that were provided 400 participants. In total 375 people completed the questionnaire (a response rate of 78%), of whom 27.2% were female and 72.8% male. Respondents were classified into six different age groups: 28.5% were between 36-45 years old, 21.9% were between 26-35 years old (Figure 6.7), 18.7% were between 19-25 years old, 17.9% were

between 46-55 years old, 6.9% were between 56-65 years old, and 6.1% were aged 18 years old or below. In terms of the educational background of the participants, the majority (43.5%) had at least a university degree while 32.5% had only completed high school education (Figure 6.8).

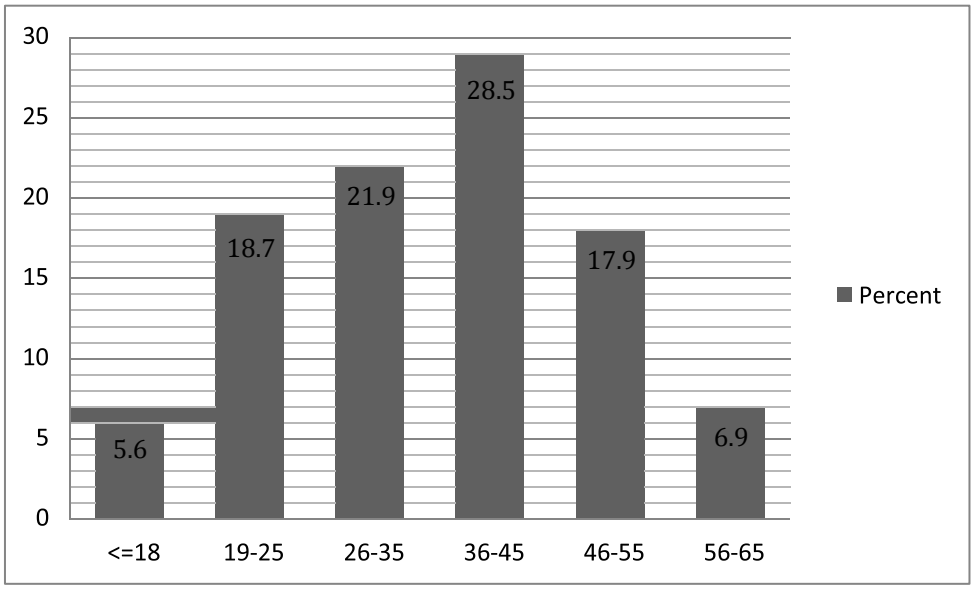

Figure 6.7: Distribution of Respondents According to Age

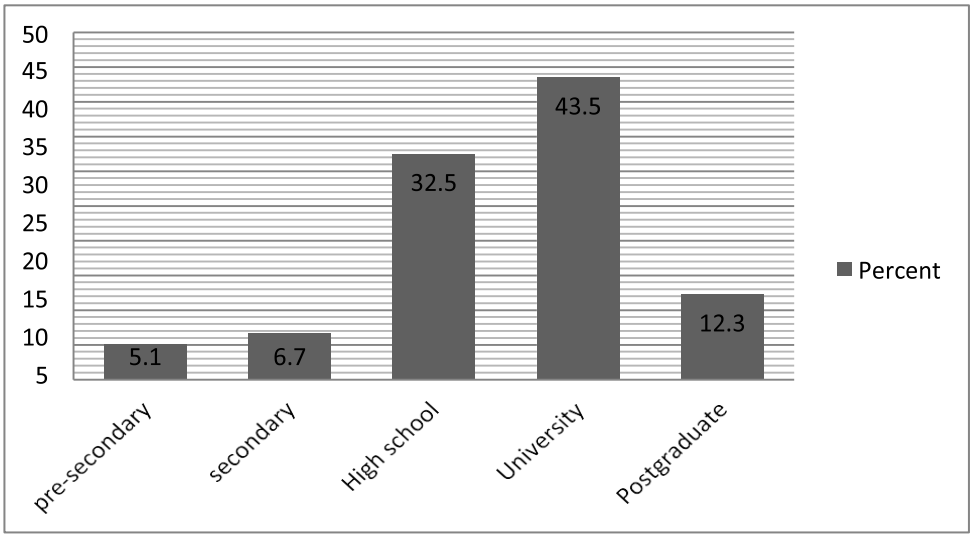

Figure 6.8: Distribution of Respondents According to Educational Level

6.3 Internal Reliability

The internal reliability of a study is concerned with the consistency between items that are supposed to be measuring the same thing. This consistency or reliability is measured through Cronbach's alpha where a high value shows high reliability/consistency, in which respect the reliability value ranges between 0% and 100%. This test was carried out using SPSS for each of the following categories of variables: Satisfaction with e-government website (3 items), Trust in e-government (2 items), Quality of e-government website (3 items), Perceived usefulness of e-government (3 items), and Perceived ease of use of e-government (4 items). The reliability values differed between these categories, with the following values being found: Satisfaction with e-government showed almost 49% consistency between its two items, trust in e-government showed a consistency of 81%, the quality of e-government websites showed almost 47% consistency between its three items, perceived usefulness of e- government showed a reliability of 60% for three items, and finally the perceived ease of use of e-government showed the highest consistency of 87% between its 4 items. Table 6.8 presents these reliability statistics.

Table 6.3: Reliability Tables of Cronbach's Alpha

Satisfaction with e-government website

Reliability Statistics

Cronbach's Alpha	Number of Items
.487	3

E-government website

Reliability Statistics

Cronbach's Alpha	Number of Items
.808	3

Trust in e-government (2 items)

Reliability Statistics

Cronbach's Alpha	Number of Items
.469	2

Perceived usefulness of e-government

Reliability Statistics

Cronbach's Alpha	Number of Items
.597	3

Perceived ease of use of e-government

Reliability Statistics

Cronbach's Alpha	Number of Items
.868	4

6.4 Computer Experience

Several questions were asked of respondents in order to establish the level of their computer experience. Specifically, these related to their use of computers and the Internet in their daily activities. It was found that all participants had experience of using computers. The responses to the associated questions are as follows:

1. **How much do you use a computer per day?**

Respondents had four categories in which they could register an answer. In this respect, 44% indicated they used a computer between 1 and 3 hours per day, 27.2% said their usage was less than 1 hour per day, 20% used a computer between 4 and 10 hours, while a small minority (8.8%) reported using a computer more than 10 hours daily (Figure 6.9).

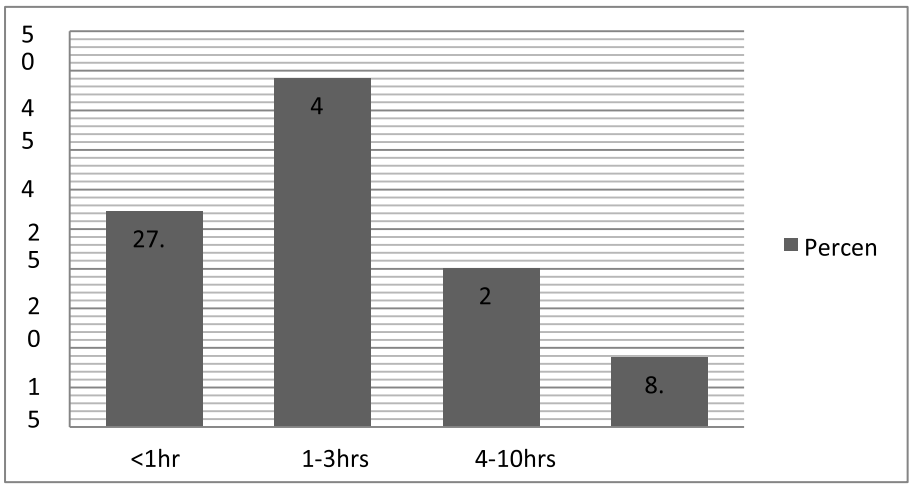

Figure 6.9: Distribution of Daily Computer Usage

2. **Where do you usually use a computer?**

In order to determine what level of home ownership/usage existed, respondents were asked to specify where they used a computer, and again four categories were provided. It was found that the majority of respondents (33.6%) use a computer at home, 28.3% use one in a cyber café, and 19.2% reported using a computer at school or university, while 18.9% explained that they use a computer at work (Figure 6.10).

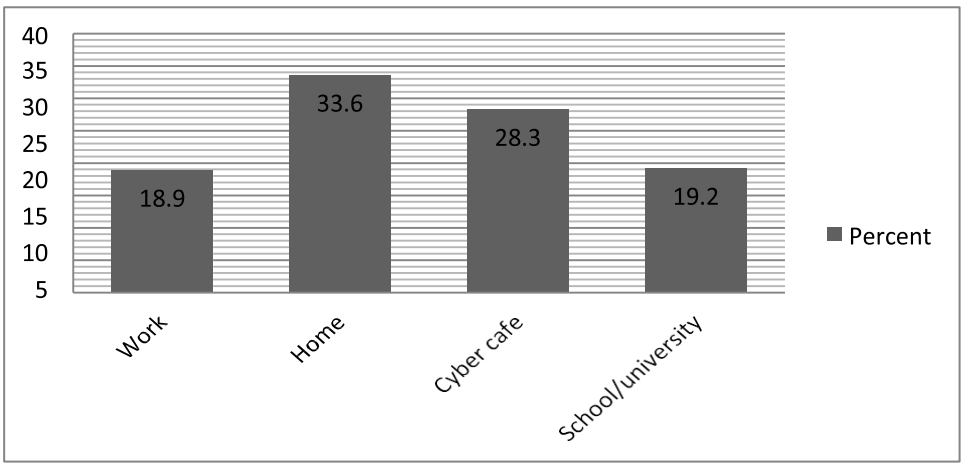

Figure 6.10: Distribution of Location of Computer Usage

3. Have you ever used the internet?

In response to the question regarding internet use, the great majority of participants (94.9%) reported that they had used the internet, and only 5.1% had not done so as indicated , which shows the variation according to age group.

4. What is your daily average use of the internet?

Despite the very large percentage of the sample that was familiar with the internet, on a daily basis, respondents access or use of it varied substantially, with almost half (47.5%) stating that they used it for less than 1 hour per day, and a further 32% indicating their usage to be in the next category (between 1 and 3 hours per day). A much smaller proportion (17.1%) used the internet between 3 and 6 hours daily, and a very small percentage (3.5%) used it for more than 6 hours a day. The reason why the majority of people only use the internet for few hours per day is because of the high cost of internet access. This distribution is shown in Figure 6.11.

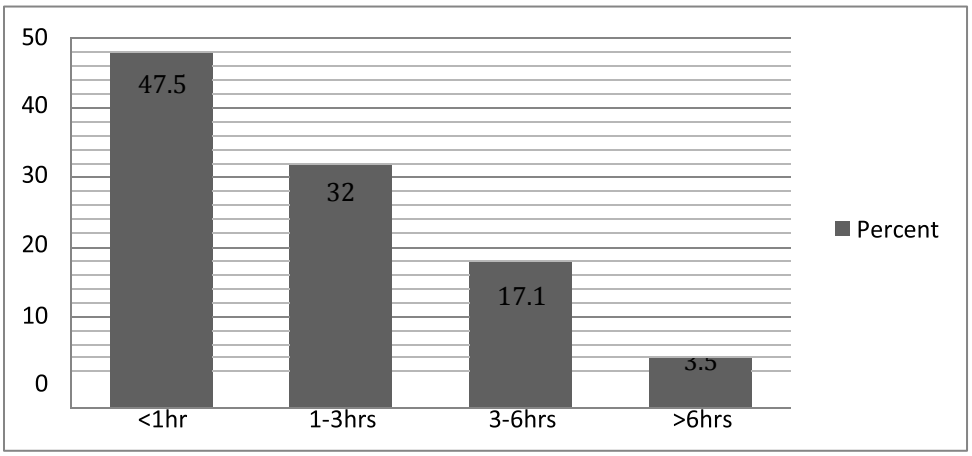

Figure 6.11: Distribution of Daily Use of the Internet

5. **Where do you usually use the internet?**

For further details about their use of the internet, respondents were asked to state the location where they used the facility, and in this respect, the results showed that 32% used it at home, 27.7% used it in a cyber café, 22.4% used it at work, and 17.9% used it at school or university, as indicated in Figure 6.12.

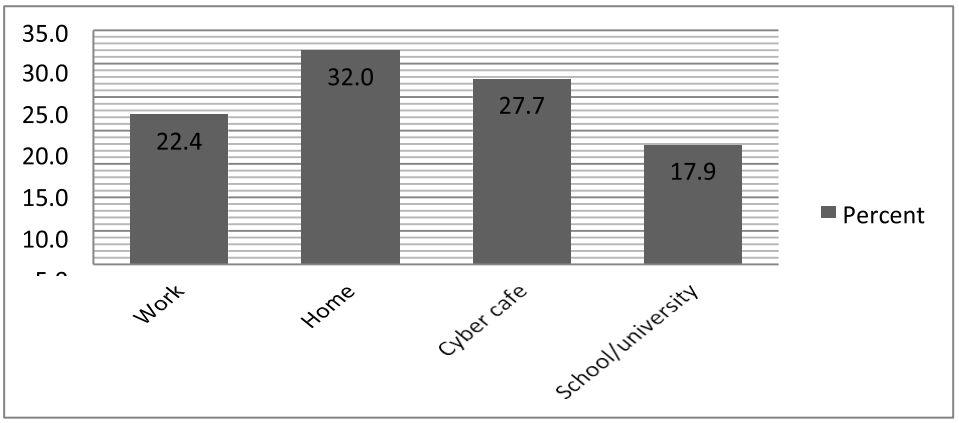

Figure 6.12: Distribution of Location of Internet Use

6. **What do you use the internet for?** *(More than one answer is applicable).*

Respondents were given seven categories of internet usage and allowed to indicate more than one. From the responses it was found that 94.7% of the sample population used it for checking emails (hence, for communication), 82.1% stated that they used it

for searching for information, and 58% indicated that they used it for social networking. Figure 6.13 shows the full detail obtained in response to this question.

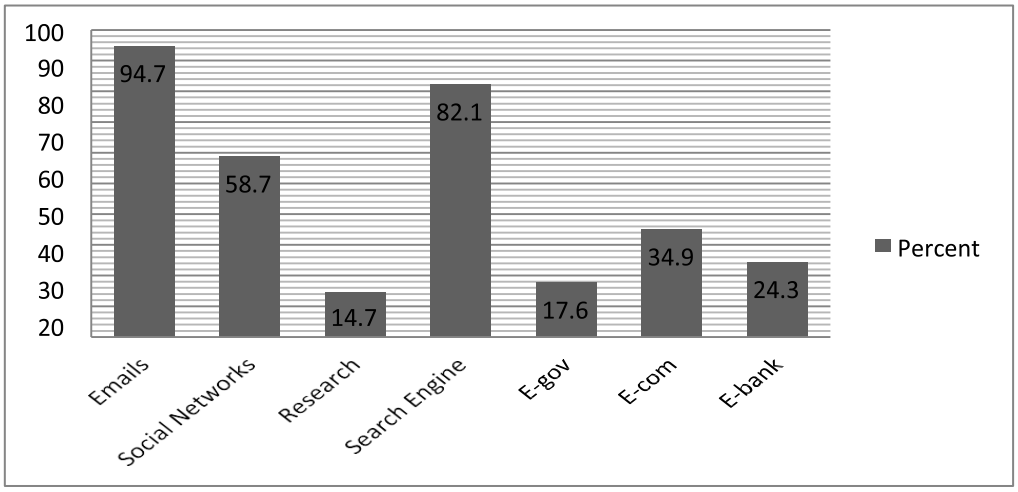

Figure 6.13: Purposes of Internet Use

6.5 Awareness of e-government

1. **Are you aware about the existence of e-government services in Libya?**

The question regarding awareness was intended purely to establish what percentage of the respondents knew about e-government, rather than what volume had actually used it, and in this respect, 70.4% indicated that they were indeed aware of the existence of e-government compared, whereas the remaining 29.6% were ignorant of its presence as shown in Figure 6.14.

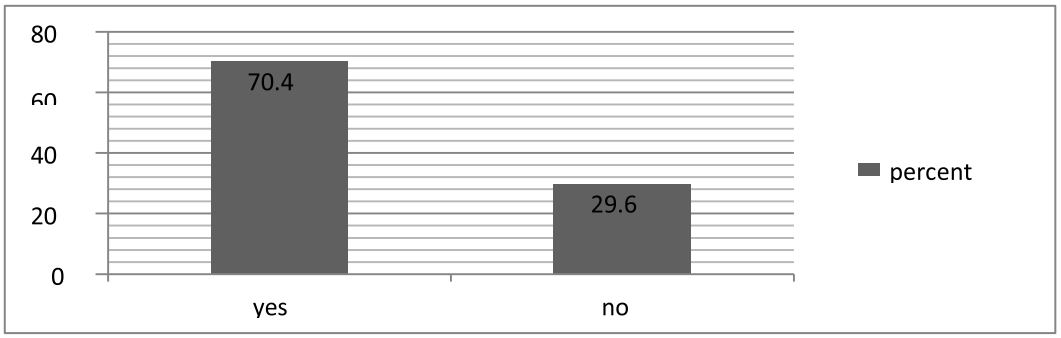

Figure 6.14: levels of e-government Awareness

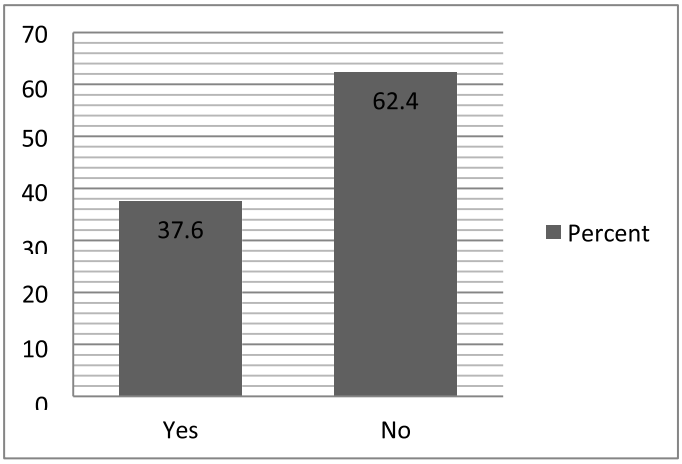

Figure 6.15: Respondents Use of e-government.

2. **Which of the following e-government services do you know about?**
3. **What e-government services have you used?**

These two questions required participants to state, out of six given services, which they were aware of and which they had used. It is clear from Figure 6.15 that awareness of the various services is much higher than actual use of them. Respondents' highest level of awareness was in relation to Applying for employment (87.9%), the National Number (84.4%), and the National Examination Results service (77.3%).

Their highest level of actual use was shown to be for Customs clearance (53.2%), the National Number (41.1%), and Company or business registration (38.3%). Figure 6.15 depicts the awareness and usage percentage

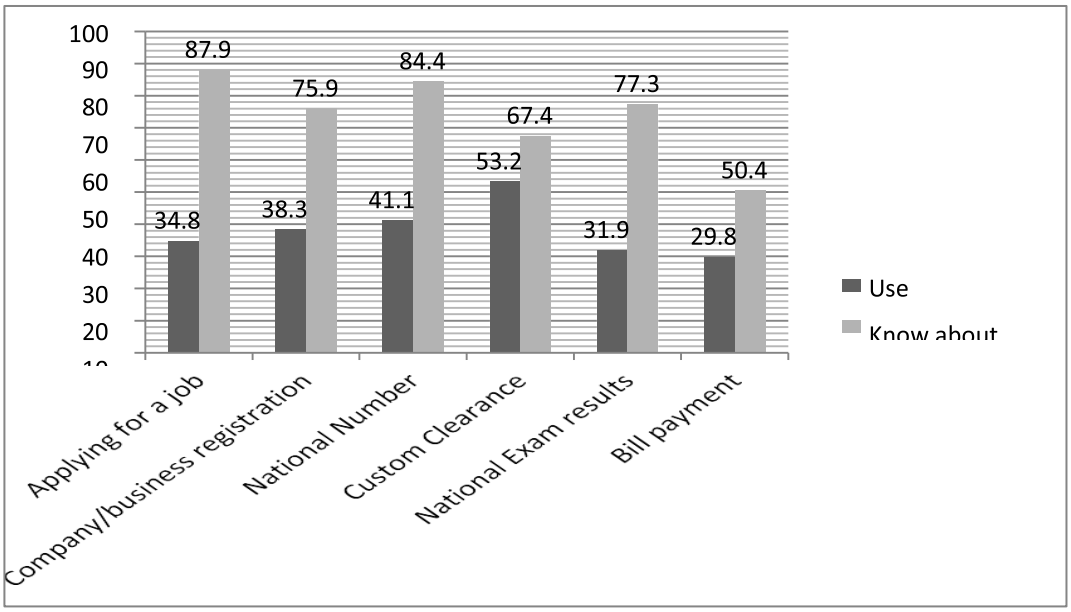

Figure 6.16: Awareness and Usage of e-government Services

4. **Do you think that e-government will be more helpful than the traditional government in serving citizens?**

In answering this question, the great majority (70.2%) of respondents believed that e-government services were better than traditional ways of communicating with government (29.8%).

6.6 Satisfaction

Respondents were asked to rate their satisfaction with e-government using three statements, each of which was measured on a 5-point Likert scale.

The first statement related to access to e-government services, and this revealed that 5.7% believed they had very high access, and 31.9% high access. However, the mean of the scores showed the scores to be leaning more towards low access amongst the respondents (M=2.68).

The second statement was concerned with satisfaction with the accuracy of the content on e- government websites, and in this respect, 14.2% said they were very satisfied, while 22.7% reported being satisfied. When considered with the other scores, the mean (M=2.98) revealed that there was more dissatisfaction than satisfaction with the accuracy of the content.

The third statement concerned satisfaction with e-government services in general. In this matter, only 14.2% were very satisfied out of 141 participants who use e-government and 22.7% were satisfied, and when taken with the other scores, it emerged (M=2.94) that the majority of respondents were actually dissatisfied with the content of the e-government.

6.7 E-government Website

The e-government website was assessed through three items:

Firstly, participants had to show their agreement on the e-government interface displays and the speed they are accessed, and in doing so 7.8% showed strong agreement, while 7.1% showed agreement. However, the majority showed neutral responses (51.8%), the overall mean score shows that there is more disagreement with this item (M=3.16).

The second item referred to the speed associated with locating the desired information, and in this respect only a small percentage of respondents (7.1%) strongly agreed that it only takes a few clicks to find information required, and a further 8.5% showed agreement. However, the mean indicates more disagreement (M=3.21) on this issue.

And thirdly, respondents were asked about the ease of navigation through the e-government website, in answer to which 14.2% strongly agreed that the site was easy to navigate, and 29.8% showed agreement. However, 31.8% had no opinion and the rest disagreed, generating an overall mean score of (M=2.78) showing that overall the level of agreement was weak, coming from less than half of the sample.

6.8 Trust

Trust was measured through two items:

The first item asked participants to state how much they agreed with the statement that they trusted the information provided by the e-government website and in response, 12% showed strong agreement, and 27% showed agreement. The mean score, however, (M=2.83) indicated more disagreement with this statement overall.

The second item concerned whether e-government meets the requirements of citizens. The results revealed that only 6.4% agreed strongly with the statement that it does in fact do that, and a further 27.7% agreed. Another 33.3% had no opinion,

meaning that the remainder were In disagreement with the statement, and the overall mean score (M=3.04) therefore indicated that more disagreement than agreement was present in this respect.

The third statement referred to respondents‘ beliefs concerning whether e-government is to the benefit of citizens, and this produced a straightforward response in that 59.6% stated that it did, whilst 40.4% believed it did not, compared to the earlier result from those that believed e-government is better way communicating with government where 70.2% believed it.

6.9 E-government Usefulness

The usefulness of e-government was assessed via three items.

The first statement was that the e-government website provides a valuable service, and the responses indicated 20.6% of participants strongly agreeing, and 24.8% showing agreement. Given that 22.7% had no opinion, the mean score (M=2.83) suggests a reasonable (but less than half) level of agreement that this is the case.

The second statement was that the e-government website is useful for accomplishing tasks quicker than the traditional methods. In response, 20.6% of participants showed strong agreement and 19.1% showed agreement. A further 29.1% had no opinion, indicating that once again, there was a reasonable level of agreement but that the mean (M=2.83) is clear that less than half of the sample were of this opinion.

The third statement was that the e-government service improves service quality. This item received much less agreement than the other two statements, only 18.4% of respondents reporting strong agreement and a further 12.8% reporting agreement. A further 41.8% had no opinion, and again the mean score (M=2.9) indicated that the overall opinion was one of disagreement.

6.10 E-government Ease of Use

Ease of use in respect of the e-government website was assessed through four items:
The first statement was that the e-government website was easy to interact with. In response, there was strong agreement from 14.2% of the sample, and 31.2% agreement. A further 27.7% had no opinion, and the mean score (M=2.83) confirms

that there is a reasonable level of agreement. The second statement concerned e-government's ability to enhance effectiveness in searching for information and using the service. Only 9.2% of respondents reported strong agreement, and 22.7% agreement. A further 36.2% had no opinion, therefore showing the mean score (M=3.01) to indicate overall disagreement. The third statement was that interaction with the e-government website was easy, and in this respect, 17% of respondents strongly agreed, and a further 24.8% agreed. Another 29.8% had no opinion, indicating (via the mean score of M=2.81), that there was more overall disagreement. The fourth statement was that by interacting with the e-government website, users could obtain feedback online when needed. In response, 11.3% of the sample was in strong agreement, and 18.4% showed agreement. The mean score indicated more disagreement than agreement (M=3.12).

Table 6.4: Percentages, Means, and Standard Deviations

	1	**2**	**3**	**4**	**5**	**Mean**	**SD**
Satisfaction							
Rate your access level to E-government services:	5.7	31.9	41.1	5	16.3	2.68	1.374
Are you satisfied with the accuracy of the content for e-government websites?	14.2	22.7	24.1	28.4	10.6	2.98	1.23
Rate your level of satisfaction with e-government services:	5.7	31.9	41.1	5	16.3	2.94	1.11
e-government website							
The e-government interface displays all text and graphics quickly.	7.8	7.1	51.8	27.7	5.7	3.16	.93
It only takes a few clicks to locate information of the e- government website.	7.1	8.5	45.4	34	5	3.21	.93
It is easy to navigate within the e-government website.	14.2	29.8	31.8	12.1	12.1	2.78	1.19
Trust							
I trust the information provided by any e-government website.	12.1	27	31.9	23.4	5.7	2.83	1.09
Do you think e-government services meet the public/citizens requirements?	6.4	27.7	33.3	20.6	12.1	3.04	1.10
e-government useful							
The e-government service website provides me with valuable service.	20.6	24.8	22.7	14.2	17.7	2.83	1.38
I find the e-government website service useful for accomplishing tasks more quickly than the traditional government.	20.6	19.1	29.1	18.4	12.8	2.83	1.30
Using the e-government service enhance the quality of my work.	18.4	12.8	41.8	13.5	13.5	2.90	1.24
e-government easy to use							
I find the e-government service website easy to interact with.	14.2	31.2	27.7	10.6	16.3	2.83	1.27
The e-government service website will enhance my effectiveness in searching for and using the service.	9.2	22.7	36.2	21.3	10.6	3.01	1.11
Find interacting with e-government web site is easy to use.	17	24.3	29.8	16.3	12.1	2.81	1.24
Interacting with e-government website enables online feedback to the government when needed.	11.3	18.4	35.5	16.3	18.4	3.12	1.23

6.11: Correlations

Having provided a descriptive analysis of items within the categories of Satisfaction, e- government website, Trust, e-government Usefulness, and e-government ease of use, this section considers the relationships between all the categories. Firstly, the items within each category were all recoded into one variable (mean of the items within the category), a process which resulted in Six new variables representing the categories. This was done in preference to having multiple items for each category. A Pearson's correlation coefficient was conducted to test the relationship between these categories, and the following results were generated.

1. **Satisfaction**

Satisfaction -e-government Website:

A significant correlation was found between the overall e-government satisfaction variable and the e-government website, $r(141) = 0.425$, $p<0.001$. The results were positive and of medium strength, indicating that the better the e-government website the more satisfaction there is.

Satisfaction - Trust: Again, a significant correlation was found between the overall e-government satisfaction variable and trust of the e-government website, $r(141)=0.383$, $p<0.001$. The results were positive and of medium strength, indicating that higher satisfaction with e-government is associated with greater trust in e-government among citizens.

Satisfaction - e-government usefulness:

The perceived usefulness of e-government will positively influence satisfaction with e-government services

A medium relationship was found between satisfaction and the usefulness of e-government, $r(141)=0.503$, $p<0.001$, an outcome which explains that low agreement on the usefulness of e-government is associated with low satisfaction (the opposite is true).

Satisfaction - e-government ease of use:

Perceived ease of use of e-government will positively influence satisfaction with e-government services

Satisfaction also showed a significant and positive relationship with the ease of use of the e- government website, $r(141)=0.399$, $p<0.001$, again indicating that the easier it is to

use the website, the more satisfied the users.

1. E-Government Website

E-government Website - Trust:

A significant and positive relationship was found between the quality of the e-government website and Trust, $r(141)=0.311$, $p<0.001$, showing that the better the website, the greater the trust accorded by its users.

E-government Website - e-government usefulness:

Both these variables were positively and significantly correlated with each other, $r(141)=0.284$, $p<0.001$. This clearly indicates that the better the quality of the e-government website the greater its usefulness in the eyes of the participants.

E-government Website - e-government ease of use:

The results of the relationship indicate that the quality of the e-government website and its ease of use are positively correlated, $r(141)=0.265$, $p<0.01$, showing therefore, that the easier the website is to use, the greater quality it is perceived to have by users.

2. E-Government Trust

Trust - e-government usefulness:

The level of trust in e-government will positively influence its perceived usefulness

It is shown through the relationship test that the more useful the website is the more trusted it is, $r(141)=0.364$, $p<0.001$. The statistics indicate a significant and a medium correlation coefficient in this respect.

Trust - e-government ease of use:

It was shown that the easier the e-government service is to use, the more trust citizens place in it. The result of the correlation coefficient was significant but small, $r(141)=0.204$, $p<0.05$.

3. E-Government Usefulness

E-government usefulness - e-government ease of use:

The perceived ease of use of e-government will positively influence its perceived usefulness

It is understood from the correlation that usefulness of the e-government website service and its ease of use are significantly and positively correlated, r(141)=0.600, p<0.001, thereby clearly indicating that the easier the e-government website is for citizens to use, the more useful it appears to be to them.

4. E-government adoption & Awareness

A signficant and positive relationship was found between the awareness of the e-government and adoption of e-government r (141) =0.322, p<0.01, showing that the more awareness of e-government it will more adoption of e-government.

5. E-government adoption & website Design quality

A significant and positive relationship was found between the quality of the e-government website and e-government adoption r(141)=0.319, p<0.001, showing that the better the website, the greater the adoption accorded by its users

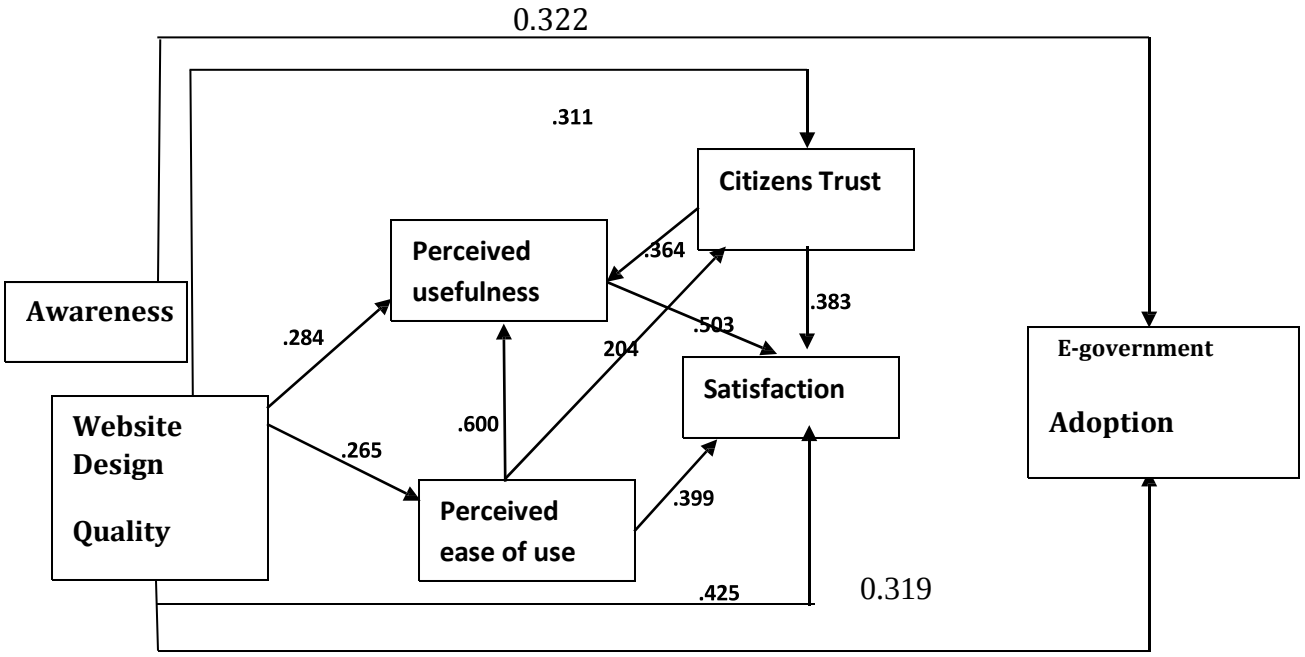

Figure 6.17: Empirically Confirmed relationships between Variables

6.12: Impact of Demographic Variables with adoption and implementation of e- government.

6.12.1 Gender

Hence, the Libyan universities were selected as the population source for data collection in this phase of the study. Specifically, the reasons for this choice are: 1) since Libyan society is relatively young, the best representative sample of Libyan society may be collected from Libyan universities since this age group is the largest in that society, 2) expansion in the use of the internet and information technology in society is part of the national goal to achieve an online society and students in universities are capable in this respect and might be thought to be the first among the population to use e-government, and 3) the researcher's experience of working in Libyan universities for several years was believed to facilitate access to data and increase the response rate of individuals to the study. Additionally, because of the practical constraints in collecting data, and the resources available, it was decided to adopt a sampling method. Hair et al. (2007) define convenience sampling as a method that involves selecting sample elements based on their ready availability, but who can also provide the information required. A convenience is, thus, a non-probabilistic sample that is chosen based on personal experience, convenience, and expert judgment. The motivation behind such choice is that it allows for completion of a survey or interview within a short amount of time and at reduced cost, and these were two major considerations in undertaking this research.

Table 6.2: shows the age profile of Libyan population

Age	Males	Females	Total	%
0-18	1131596	1087263	2218859	41.89
19-25	580231	283624	573287	10.82
26-35	535976	523310	1059286	19.99
36-45	336200	336449	672649	12.7
46-55	165330	166431	321419	6.26
56-65	112734	104670	217404	4.11
66 +	116014	108892	224906	4.24
Total	2687513	2610639	5298152	100%

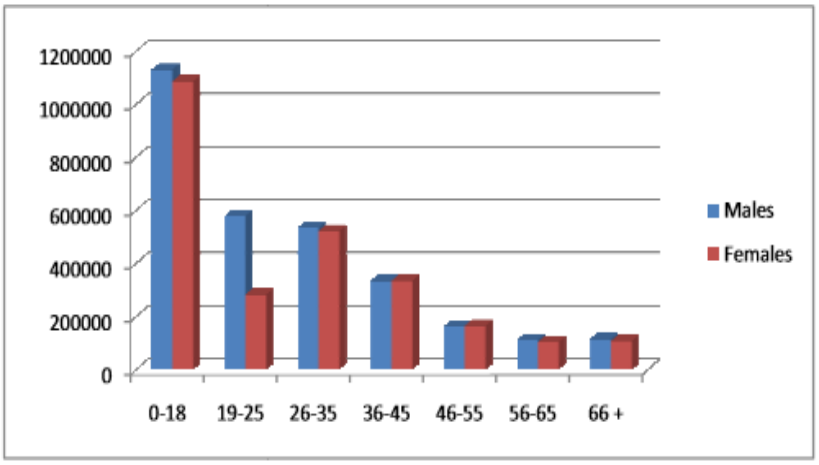

Figure 6.6: Libyan Age profile

This section describes the demographic variables. In total 375 people completed the questionnaire (a response rate of 78%), of whom 27.2% were female and 72.8% male (Figure 6.6). The effect of gender was examined using independent samples t-tests. It was found that gender had no significant effect on the scores for: satisfaction, $t(139)=1.52$, $p>0.05$; website quality $t(139)=2.07$, $p>0.05$; trust $t(139)=0.45$, $p>0.05$; perceived usefulness $t(139)=1.06$, $p>0.05$; or perceived ease of use $t(139)=0.13$, $p>0.05$. Hence, it can be assumed that both male and female respondents showed similar results across all variables.

Age

In order to determine whether age was correlated with the dependent variables Pearson's correlation coefficient was calculated. The results showed that age has a positive correlation with all the variables as follows: satisfaction $r(141)=0.368$, $p<0.001$; website quality $r(141)=0.236$, $p<0.01$; e-government trust $r(141)=0.216$; $p<0.05$,

perceived-government usefulness $r(141)=0.224$, $p<0.01$; and perceived e-government ease of use $r(141)=0.234$, $p<0.01$. Keeping in mind that the higher the score the more disagreement or dissatisfaction (1=strongly agree/very satisfied, 5=strongly disagree/not satisfied at all), and age

being from young to old as classified in five age bands, this indicates that the younger respondents are more satisfied with e-government, that they have more positive views about website quality, they have more trust in e-government, they have a greater belief that e-government services are useful, and they think that e-government is easier to use than the older age groups.

Table 6.5: The Relationship between Age and the Dependent Variables and Levels of Significance

Correlations

		Age
Satisfaction	Pearson Correlation	.368**
	Sig. (2-tailed)	.000
	N	141
Website	Pearson Correlation	.236**
	Sig. (2-tailed)	.005
	N	141
Trust	Pearson Correlation	.216*
	Sig. (2-tailed)	.010
	N	141
Usefulness	Pearson Correlation	.224**
	Sig. (2-tailed)	.008
	N	141
Ease of use	Pearson Correlation	.234**
	Sig. (2-tailed)	.005

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05nlevel (2-tailed).

6.12.2 Education

It was found that education (pre-secondary, secondary, high school, university and postgraduate education) had a significant effect on satisfaction with e-government. The significant effect was found by using a One Way Analysis of Variance (ANOVA), which resulted in $F(4,136) = 4.57$, $p<0.01$, thereby indicating that those respondents with postgraduate education (M=3.33) and those with university education (M=3.09) showed higher scores (more dissatisfaction) than those with pre-school education (M=2.71), secondary education (M=2.35), and high school education (2.63).

Additionally, a significant effect was found in respect of the relationship between education level and the perceived usefulness of e-government services, $F(4,136)=2.56$, $p<0.05$. Using ANOVA it was shown that respondents with secondary education (M=3.33) and postgraduate education (M=3.29) showed the highest levels of disagreement with regard to the usefulness of e-government services compared to those with pre-secondary education (M=2.47), high school (M=2.65), and university (M=2.85).

However, further analysis revealed no significant effect of education on perceptions of website quality, $F(4,136)=1.39$, $p>0.05$, trust in e-government, $F(4,136)=1.08$, $p>0.05$, or perceived ease of use, $F(4,136)=1.11$, $p>0.05$. Respondents from different educational backgrounds seemed to have similar views on these aspects.

Table 6.6: The Relationship between Education and the Dependent Variables

	N	Satisfaction		Website		Trust		Usefulness		Ease of Use	
Education		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
pre-secondar	7	2.71	0.73	3.14	0.46	2.28	1.21	2.47	0.74	2.85	0.81
Secondary	13	2.35	0.49	2.71	0.70	2.96	1.03	3.33	1.13	3.25	1.30
high school	51	2.63	0.83	2.91	0.94	2.92	0.88	2.65	0.99	2.73	0.98
University	53	3.09	0.91	3.18	0.82	3.00	0.82	2.85	0.89	3.08	1.03
Postgraduate	17	3.33	0.78	3.27	0.95	3.02	0.81	3.29	0.94	2.95	0.98

6.12.3 Amount of Time Using the Internet

The amount of time spent by respondents in using the internet was tested for its potential effect on satisfaction, website, trust, perceived usefulness, and perceived ease of use of e- government services. Using a one way ANOVA, it was found that the amount of time spent using the internet per day had a significant impact on: satisfaction $F(3,137)=24.69$, $p<0.001$; website $F(3,137)=3.15$, $p<0.05$; trust $F(3,137)=4.16$, $p<0.01$; and on perceived usefulness $F(3,137)=7.89$, $p<0.001$; it did not, however, have such an effect upon perceived ease of use $F(3,137)=0.31$, $p>0.05$.

From Table 6.5, it can be seen that those respondents who used the internet for less than one hour a day showed the highest score (more dissatisfaction), and that this category was followed by that including respondents using the internet between 1-3 hours a day. However, those respondents using the internet more frequently (between 3-6 hours daily) showed greater satisfaction, and those using the internet for more than 6 hours daily reported even more satisfaction (the lowest score). The same can be said about the scores for website quality, trust, and perceived usefulness, all of which seem to be heightened with increasing familiarity by users, as shown by higher levels of usage. However, in respect of perceived ease of use, the responses from all the categories were similar and no significant differences were found when using ANOVA.

Table 6.7: The Relationship between the Amount of Time Using the Internet and the Dependent Variables

	N	**Satisfaction**		**Website**		**Trust**		**Usefulness**		**Ease of Use**	
Internet use		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<1hr	48	3.39	0.70	3.29	0.95	3.19	0.74	3.25	0.83	2.98	0.98
1-3hrs	48	2.94	0.79	3.09	0.61	2.92	0.89	2.77	0.85	3.02	0.99
3-6hrs	34	2.43	0.67	2.78	0.95	2.82	0.89	2.74	1.09	2.84	1.21
>6hrs	11	1.60	0.41	2.66	0.96	2.22	1.03	1.84	0.82	2.77	0.82

6.13 Interview Findings

Table 6.8 Backgrounds of interviewees

N	Role	Reference (KP) Key Player
1	Director for media and Website department at Libyan government	KP1
2	Director of the Libyan internet association & information system centre at e-government unit	KP2
3	Director of computer and Internet Usage and Learning Centre	KP3
4	A business information system development manager	KP4
5	A project manager in an e-government project	KP5
6	A member of the ICT department	KP6

As shown in Chapter Five, interviews were held with six individuals involved with the overall effort to implement e-government in Libya. The purpose of this qualitative exercise was to validate the questionnaire, and hence, the interviewees were asked questions concerning the themes explored in the questionnaire. The subsection presents the details offered by the interviewees.

On the issue of awareness of e-government services in Libya, all the interviewees mentioned the issue of awareness in one way, that education was the key to creating and enhancing the existing low levels of awareness, since they felt that with education, the necessary knowledge, skills and technology transfer could occur and thus increase awareness of e-government services.

Specifically in relation to matters of participation, and barriers that might prevent the use of new technologies by the population, KP1 said "Education enables people to be aware of e-government services and develop skills on usage of new technologies". He noted that the lack of computer literacy and access to internet resources constituted a significant challenge.

In respect of the extent to which e-government services are developed in Libya (see Appendix 3), all interviewees referred to the lack of progress in technological infrastructure which essentially meant that the effective implementation of e-government was prevented. Consequently, they all believed that the current picture of implementation was one that showed e-government provision to be at a very low level,

In which only basic information was exchanged. Speaking of the failings in the technological infrastructure, KP1 stated that "as at 2007, dial-up internet connections are used in most cities and this costs about 50 Libyan Dinar monthly and ADSL is limited in use". It was also support by KP2 who also referred to the costs associated with the using the internet, i.e. dial-up, as expensive, and mentioned that ADSL penetration was limited. The point was made by both these interviewees that whilst Libya was a large country, there were relatively few computer and internet users in it, and that postal services were poor, thus discouraging the mass of the population from using the various e-channels available for e-government business.

KP1 continued to say "we are doing our best to make these infrastructures available everywhere and at any time. For instance, currently all government agencies have webpages delivering information and some services on the daily activities to the people. We also have monthly meetings for evaluation of progress on e-services". And KP1 confirmed that "people are interested to use the government webpage and in the first year (2005), more than 500,000 people visited that". However, he did also agree that there remained an enormous amount of work to be done to respond to the feedback placed on the webpages by users. He expressed the view that professional people were required at the various levels of implementation to guarantee success, but did make the point that some employees had speculated that their jobs would be at risk if e-government were to be successful. Nonetheless, there was no doubt that KP1 believed the effort to press forward with the e-government initiative was urgent, since such services would "reduce the distance between us and our internal and external customers as well as cutting the time and effort spent by government and business staff". And he concluded by mentioning very important benefit of improving government accountability, transparency and commitment that e-government would bring.

Like KP1, KP2 also emphasis on the need and importance of the e-government (because of an IT background) however, he believes other people are not much aware about e-government importance as he stated "people are not aware of the concept and provision of e-government. Of the concept and provisions of e- government and "that people in Libya are more familiar with TVs and mobile phones rather than internet and

computers". He also mentioned the need for a professional outlook in designing e-government services, referring to the need to understand the needs of the many stakeholders as well as the need to enhance the technology associated with the initiative. Consequently, KP2 was keen to see more experts in the area of ICT in the country, more effort devoted to the planning and design of e- government services, greater co-operation across government agencies, civil organisations, business and citizens, and finally a suitable budget allocation. Like KP1, KP2 also believed that people were interested in e-government because in the absence of any postal network, there were no appropriate communication tools, and new technologies would be accepted by the populace, and particularly the younger generation, as such tools would "enable them to carry out their daily transactions effectively". He emphasised the need to support e-government implementation by ensuring the availability of "internet and computers everywhere – at school, at work, and at home – any time" and by mounting "intensive training courses particularly for staff in both public and private organisations, and students" in order to improve computer literacy levels. Like KP1, KP2 believed in the need to fully develop e- government services and did not see progression in this respect as a threat to any individual or organisation.

KP3 expressed similar opinions. He had a BSc in Computer Science gained from a British university, and was keen to point out that effective e-government required the planners to properly define the aim and objectives of the initiative, to evaluate the resources required and available, to ensure the infrastructure was in place to support it, and to assess the strengths and weaknesses of each partner. He believed it was necessary to "empower the management team and to develop a work plan, build on other countries' experience, define resistance to change, and find out from where you have to start". KP3 used ICT for more than eight hours daily and had been computer literate for over 14 years, and he consequently considered himself as an 'advanced user' who experienced no difficulties in dealing with English webpages. However, he drew attention to the differences between using the internet at work, which cost him nothing, and using the internet at home which was very expensive for him at 50 Libyan pence an hour, and provided only a very slow service. Regarding the efficacy of the government website, KP3 indicated that this provided information rather than services, and expressed the hope that as he preferred to communicate and transact electronically, the

time would come when the government website would be able to offer a full range of services. He did refer to the fact that there were some business services provided by the Almadar and Libyana mobile phone companies as well as the commercial banks, but that these were limited. Clearly, KP3 saw the value of e-government, citing the positive impact upon the lives of citizens and the Libyan economy.

And this reference to the advantages to citizens was stressed by KP4, who said that as a lawyer he was happy to use e-government as long as it improved human rights. In his position, he had ready access to the internet, and appreciated its role, saying that he spent almost four hours daily using it. In fact, KP4 lived in Cairo where it cost him 95 Egyptian pounds monthly to have the internet. He believed that the "internet should be free for all" since "e-government services support human rights and liberties, and transparency in government business". That said, he did not believe that e-government was properly implemented in Libya, or indeed in any Arab country and that efforts were urgently needed to develop services that could be "delivered electronically to the people from 'cradle to grave' [since] there are many important advantages such as reducing the use of transport that hurts the environment, citizen empowerment, respect for human rights, and reduced cost, time and effort for all". In his position as Director of the Arab Association for Internet Cyberspace, KP4 indicated that he preferred to use the computer/internet to contact others, and believed that traditional methods of communication were beset with "many problems, such as bureaucracy, corruption and nepotism". He felt that government should demonstrate its commitment to the e-government initiative, as also should those with higher education who knew the benefits. Nonetheless, like the other interviewees he noted the very low levels of computer literacy in Libya, the lack of availability of the internet, and the generally "slow progress in providing such important technology".

KP5 was the director of a Computer and Internet Usage and Learning Centre, which trained people interested in new technology, to use computers and the internet. As the owner of the centre, KP5 said that his own education had enabled him to open the centre and provide courses to people. He was aware of e-government services, and the lack of technological infrastructure in Libya that precluded many people from taking advantage of the information online. As with other interviewees, KP5 referred to the

current availability being largely dial-up connection, which was slow and costing around 50 Libyan Dinar monthly. He also mentioned the limited availability of ADSL which seemed to be present only in certain parts of Tripoli. Specifically in terms of the current e-government developments, KP5 confirmed what had been said by other interviewees, that the government agencies' webpages only provided information on government activities rather than allowing for transactions to take place, and he believed this did not compare favourably with the provision in other countries. He said "people are interested and in my centre they are asking about Libyan government webpages but there is still lots of work to be done on delivering e-government services to people and to make them efficient". His opinion was that the Libyan government needed more qualified people to produce its webpages, but that this effort would be repaid because it would reduce the time and effort wasted by people in trying to transact with government in the traditional way.

KP6 was an internet agent who sold internet connections to the general public, and like KP5, he referred to his own background (having a good education, money, and personal relationships) as helping him to become such an agent and provide dial-up facilities. He was clear that there was a definite demand from Libyans for internet access, but that the dial-up connection was slow and caused people to become frustrated with the service. The unavailability of a suitable technical infrastructure in Libya was also mentioned, as was the hope that the General Telecommunication Company would improve and provide high speed services in the future, since this would increase both demand and usage among the population. Currently, the situation was that the internet was mainly used by "younger people, businesses, some university staff, journalists and poets". He felt that the government should bring the cost of computers and internet access down to encourage other people. Nonetheless, he did believe that in his job he was helping to educate people and to further develop himself as he was often presented with questions that he had to find answers for, and he also sold computers which helped to increase computer density, and to eventually prepare people for jobs. Indeed, he said "already I am part of the e-government services implementation project", which he was keen to see developments in as the outcomes were in keeping with his own lifestyle. In particular, he said that whilst the current provision only gave information online, it was nevertheless a good starting point that would make people familiar with using new

technologies, but like other interviewees, he believed there was a lot to be done to reach the same level of provision of other countries.

6.14 Summary

This chapter has presented the analysis of the questionnaire findings as made possible by the use of a variety of tests and the use of descriptive and inferential statistics. All the steps in the analysis have been detailed and the results clearly outlined, Multiple regressions was not employed on the grounds that neither the literature on e-government, nor that on the TAM used this in the analysis of any data relating to these areas. Certainly most studies on the acceptance of technology (TAM) were qualitative in essence, with smaller samples, and thus lending themselves to better analysis without the use of regression modelling. In this study, SPSS was seen as a more suitable method of analysis that would produce the same results". Additionally, the chapter has presented the results of the interviews, which essentially have validated the questionnaire outcomes. The following chapter discusses these sets of findings in the light of the literature reviewed earlier in the thesis.

CHAPTER SEVEN

DISCUSSION

7.1 Introduction

Given the results reported in Chapter Six, a discussion is now provided in which a comparison is made between the findings of the empirical study and the literature reviewed in Chapter Two. This chapter begins by reviewing the three research questions formulated to help in finding the information necessary to achieve the aims and objectives of the study. It then proceeds to discuss the findings of the survey designed to obtain the citizen perspective, and the interview exercise in the order of the themes covered, presenting areas of agreement and disagreement between them, and between what already exists in the literature.

7.2 The Research Questions and the Model

As indicated in Chapter One, the study is concerned with identifying the critical success factors relating to e-government adoption and implementation in Libya, from the citizens' perspective. Additionally, it is interesting to establish the inter-relationships among these factors in the precise context of Libyan society. In order to pursue that investigation, three research questions were formulated as following:

Q1. What factors influence the successful adoption, acceptance and usage of e-government (G2C) services by citizens in Libya?

Q2. What are the inter-relationships among these factors that affect the successful adoption and implementation of e-government services and application in Libya?

Q3. How can the findings of this research study be used to benefit the public sector entities in other developing countries with similar circumstances to Libya?

The review of the literature identified discipline areas of relevance to these questions as the following: information systems (IS), marketing, and e-commerce. Having considered the likely factors to have an impact on e-government adoption by Libyan citizens, the researcher developed a theoretical model to assess the current situation in Libya. When developing this model, the existing TAM (Technology Acceptance Model), was taken as a basis, since according to research, this is both useful and

appropriate for this purpose. The model also took into account certain additional variables applicable to the Libyan context.

7.3 Discussion of the Findings from the Citizen Perspective

Six key factors were investigated from prior research (DeLone and McLean, 1992; Al-Ghaith et al., 2010; Axelsson et al., 2010, Kumar et al., 2007; Lai and Pires, 2010; Alsaghier et al., 2009): Citizen Satisfaction, Citizen Awareness, Perceived Usefulness, Perceived Ease of Use, Citizen Trust, and Website Design. Each of these is now discussed.

7.3.1 Citizen Satisfaction

It is widely acknowledged that the success of IT/IS services is highly dependent upon the level of user satisfaction that those services generate (DeLone and McLean, 1992; Seddon and Kiew, 1996; Wang, 2003; Xuan et al., 2007; Al-Ghaith et al., 2010), and by extension this argument relates also to e-government applications. Indeed, several scholars (Wangpipatwong et al., 2005; Lai and Pires, 2010) have made this specific point. In exploring citizen satisfaction in this study, three items requiring a response on a 5-point Likert scale were used.

Firstly, participants were asked to rate their access level to e-government services and in response 5.7% showed very high access, and 31.9% showed high access. Secondly, participants were asked to state how satisfied they were with the accuracy of the e- government websites‘ content, in which connection, 14.2% were very satisfied, and 22.7% were satisfied; hence, suggesting that more than half of the sample were either dissatisfied or had insufficient access/experience to arrive at that opinion. And thirdly, participants were asked to indicate their satisfaction with e-government services in general, and in this respect, the percentages were exactly the same, with 14.2% being very satisfied and 22.7% satisfied.

Previous studies (Cox and Dale, 2001; Wang, 2003; Barnes and Vidgen 2004; Kaisara and Pather, 2009; Alanezi et al., 2010) that have used these particular items to evaluate citizen satisfaction, in different contexts, have shown that there is little chance of e-government services and applications being adopted unless the responses of the populations involved is about 70.4% which is very high. In the case of Libya, these responses are below those required for the successful adoption of e-government services at this time.

7.3.2 Citizen Awareness

The literature is clear on the importance of user awareness to the take up of IT/IS services and applications (McGill and Klobas, 2004; Harris and Weistroffer, 2009), and specifically e- government (Oostveen and Besselaar, 2005; Axelsson et al., 2010), and to establish the level of awareness among Libyan respondents, five items were used. As shown in Chapter Six, the majority of respondents (70.4%) were aware of the existence of e-government compared to a total of 111 participants (29.6%) who were not aware of the services provided electronically. However, despite this high level of awareness, the majority of the sample (62.4%) had not actually used any of the services, in comparison to 37.6% of respondents who stated that they had. Clearly, therefore, being aware of what is available is no guarantee that what is provided will be used. In respect of such awareness, the highest level emerged as being in relation to applying for employment (87.9%), the second highest level related to the use of e-government services for National Identity Number (84.4%), and the third level of awareness was in connection with the National Examination Results service (77.3%).

The highest actual use of e-government amongst the sample was in respect of Customs Clearance (53.2%), followed by the National Identity Number (41.1%), and Company or Business Registration (38.3%). When responding to a question concerning their preferred method (e-government or traditional administration), the vast majority (70.2%) of respondents indicated their opinion that e-government services were superior to the traditional government services (29.8%). Overall, these results suggest that citizens‘ awareness of e-government is likely to be important to the successful adoption and implementation of e-government in Libya, since whilst the sample did not indicate that all those who were aware actually used e-government services, a large majority of those who did were definite in their belief that these services represented an improvement on traditional services. This suggests that the more people who are aware, the more people will try the services, and that there is a strong chance these users will become convinced of their benefit, and consequently adopt them. Therefore, it would seem important to develop and enhance citizen awareness by promotional campaigns, SMS-based e-government marketing, effectively involving citizens in the design and implementation of e-government, and offering incentives to use e-government services (Reddick, 2005; Choudrie and Dwivedi, 2005; Susanto and Goodwin, 2010; Robinson et al., 2009).

7.3.3 Website Design

It is recognised within the literature that website design is influential in persuading users to adopt IT/IS services and applications (Song and Zahedi, 2001), including those associated with e-government (Kumar et al., 2007; Lai and Pires, 2010). In this study, three items were used to assess citizen opinion in this respect. The results indicate that website design issues are indeed important to them in their decisions to adopt or reject e-government services.

The first item related to respondents' agreement or otherwise with the appropriateness of e- government interface displays and the speed with which they are accessed. Interestingly, only 7.8% showed strong agreement, and a further 7.1% indicated agreement, while the majority (51.8%) gave neutral responses, perhaps reflecting a lack of thought about issues such as design and speed, or indeed their lack of contact with the system. Speed also featured in the second item which specifically addressed the speed with which information could be located on the e-government website. In this respect, 7.1% strongly agreed that it only takes a few clicks to locate the information, 8.5% showed agreement, but 45.4% ticked the neutral box, demonstrating that they had no opinion either way, again potentially indicating unfamiliarity with the system. This percentage of respondents who remained neutral is interesting since it reveals that 54.6% of the sample did have an opinion on the issue of speed, and that this opinion could only have been made on the basis of using the system. However, in response to an earlier question, only 37.6% stated they used e-government services. Hence, it may be that after forming negative opinions on the basis of speed many people had ceased to use the services. And finally, the third item asked for opinion on the ease of navigation through the website. In this respect 14.2% strongly agreed that the site was easy to navigate, 29.8% showed agreement, while 31.8% had no opinion either way. Again, this neutral percentage of 31.8% means that overall, 68.2% of the sample seemed to have an opinion that could only have come from their usage of e-government services, and again this suggests that some people had stopped using these after experiencing disappointment.

This conclusion somewhat contradicts previous studies that considered the content of information, ease of remembering, and appearance of information as dimensions to assess the good design of websites in different contexts (Hasan and Abuelrub, 2008), including e- government (Barnes and Vidgen, 2004; Choudrie et al.,

2004; Tan et al., 2008).

7.3.4 Citizen Trust

It is acknowledged within the literature that user trust represents a critical success factor in the adoption of IT/IS services and applications (Verhagen et al., 2004), and in the context of e-government (Horst et al., 2007; Belanger and Carter, 2008; Alsaghier et al., 2009), this refers to citizen trust, which in itself relates both to the expectation that the software will meet the administrative needs, and that the government will actually deliver the services involved. In this study, three items were considered as measures for citizen trust in e- government. The first concerned the extent to which the information provided was considered trustworthy, in which respect 12% of the sample agreed strongly this was so, and 27% showed agreement. However, the majority remained neutral in offering an opinion in this respect. The second item referred to whether e-government satisfies citizen requirements, and in this matter 6.4% indicated that they strongly agreed with this statement, 27.7% agreed, but 33.3% gave no opinion, showing that only 34.1% of the entire sample could be said to believe citizen requirements were met by the e-government initiative. And the final item sought to determine whether the respondents believed the government made decisions that were for the benefit of citizens, in which respect, 59.6% stated that they believed it did, whereas 40.4% believed it did not. Clearly, this is a question which requires the respondents to make a value judgement and a clear split can be seen in the responses, possibly a reflection of political affiliations, especially in the aftermath of the 2011 revolution.

Previous studies have shown that without doubt, citizens must have trust in a country‘s institutions, its organisations and the technology involved if they are to engage with IT generally (Pavlou and Gefen, 2004, Warkentin, 2001; Carter and Belanger, 2005; Avgerou et al., 2006).

7.3.5 E-government Usefulness

The usefulness of any IT application is a major determinant in whether it is subsequently accepted and used by those for whom it is intended (Hung et al., 2006; Yang et al., 2009), and e-government is included in that phenomenon (Horst et al., 2007; Wangpipatwong et al., 2008; Al-Shafi and Weerakkody, 2009). For the purposes of this study, the concept of e- government usefulness embodies citizens‘ perceptions of the value to them of the various services and applications provided, and to evaluate

these, three statements were used.

The first statement was to the effect that a valuable service is offered by the e-government website, and in this matter, there was strong agreement from 20.6%. However, 22.7% remained neutral, thereby showing that over half the sample had a negative attitude since t h e figures indicate that they did not believe that the service provided was of value. The second item related to whether the e-government website was useful for achieving tasks quicker than traditional methods, in which respect 20.6% strongly believed this to be the case, 19.1% agreed, but 29.1% remained neutral. The third item concerned whether e-government was useful in improving quality but only 18.4% of respondents were in strong agreement, and 12.8% agreed. A further 41.8% ticked the neutral option, again showing that less than one third of the sample considered e-government to excel over traditional approaches to public services.

Given that the literature considers these aspects as important for the adoption of IT in general (Poelmans et al., 2009), and e-government services and applications in particular (Bwalya and Healy, 2010; Susanto and Goodwin, 2010), this situation presents a challenge for Libyan e-government designers.

7.3.6 E-government Ease of Use

It is acknowledged that IT must be easy to use if it is to be adopted (Hung et al., 2006; Yang et al., 2009), and specifically in the case of e-government (Horst et al., 2007; Wangpipatwong et al., 2008; Al-Shafi and Weerakkody, 2009), this requirement is reported, which is not surprising since many citizens, and particularly those who are not in paid employment and not exposed to IT, have no IT experience and may feel it is beyond their capability. In this study, four items were used to evaluate the perceptions of citizens regarding the ease of use of e-government in Libya. The first item referred to whether respondents considered the e- government website to be easy to interact with, and on this matter, 14.2% of the sample showed strong agreement, and 31.2% showed agreement, thereby revealing that 45.4% believed interaction to be easy. Moreover, a further 27.7% remained neutral meaning that potentially, only 26.09% (less than half) were of the opinion that the e-government website was difficult to work with. The second item related to respondents attitudes towards e- government‘s potential to improve effectiveness in searching for and using the service. In this respect, 9.2% showed strong agreement, and 22.7%

agreement. A further 36.2% declined to give an opinion, meaning that a total of 31.9% did not believe there was any potential to increase the service to the public by the use of e-government. And thirdly, respondents rated their levels of interaction with the e-government portal, indicating that 17% of the participants strongly agree that interacting with the e-government website was easy, 24.8% only showed agreement, while 29.8% refused to offer an opinion.

Respondents were then asked to give consideration to the idea that feedback on any question presented by a citizen could be received quickly online through the e-government website. In response, strong agreement came from 11.3% of the sample, and a further 18.4% indicated their agreement. However, the majority did not commit themselves to an answer, meaning that a total of 70.3% of all respondents either did not agree or did not wish to give an opinion. Previous studies that have considered these items as key aspects for the successful usage of IT in general (Poelmans et al., 2009) and e-government services and applications in particular (Bwalya and Healy, 2010; Susanto and Goodwin, 2010; Vathanophas et al., 2008), all state the need for high scores on these items.

7.4 The Inter-relationships among the Factors Affecting the Successful Adoption and Implementation of e-Government Services and Applications in Libya

As has already been said, the prevailing models of IT adoption and implementation have all emerged in Western environments where the circumstances are in general, much less challenging than in developing countries, and especially those just emerging from internal conflict, such as Libya. The existing frameworks usually adopt the organisational, technological, or individual perspective as a way of explaining and predicting the behaviour which is likely to be demonstrated by people in respect of IT adoption and usage. In doing this, they fail to acknowledge the variations in environment brought about by differences in the developmental stage of a country, and as just indicated, in a country where civil war has recently occurred, it is even more important to recognise the potential for Western models to be ineffective. This gap in the literature has recently begun to attract the attention of researchers from non-Western countries (e.g. Mofleh and Wanous, 2008; Alhujran and Chatfield, 2008; Alomari et al., 2010; Almahamid et al., 2010). They are providing the building

blocks for a body of knowledge that can illuminate the factors that are influential in such environments when IT initiatives are to be introduced, and this study contributes by developing an integrated model of factors and inter-relationships that have an impact in this matter. Specifically, the model is derived from citizen perspectives, concentrating on citizen satisfaction, trust, perceptions of usefulness, ease of use, awareness, and website design. These are all known to influence the success of e-government initiatives.

7.5 The Impact of Certain Factors on the Successful Adoption and Implementation of e-government Services and Applications in Libya

H1. The existing awareness of e-government influences the adoption of e-government

The data demonstrates a significant positive relationship between citizen awareness and e- government adoption, a result which is in line with previous studies (Oostveen and Besselaar, 2005; Mahadeo, 2009; Axelsson et al., 2010). Weerakkody et al. (2011) have recently indicated the important role to be played by campaigns aimed at enhancing citizens awareness of the desirability of their participation in e-government initiatives. In the case of Libya, it can be seen that despite Arab culture being traditionally associated with autocracy and the non-participation of the masses in decision-making (Al-adawi et al., 2005; Al-Shafi and Weerakkody, 2009), there is in fact much political participation. One instance is the establishment of the Youth Parliament to raise awareness among Libya's young people who form the largest single age group in the country; and responsibility is given to this Parliament for bringing forward recommendations concerning the lives of Libyan youth for discussion before they are offered for approval to higher authorities. This type of involvement will enhance the relationship between citizens and government, and especially given the findings that those in the younger age bands were more predisposed to e-government in general, it holds the potential for a robust acceptance by the younger generation (and citizens of today and tomorrow) of e-government.

H2. User satisfaction has a positive effect on the adoption of e-government services

The data shows a significant relationship between citizen satisfaction and e-government adoption, meaning that citizen satisfaction has a direct influence upon the success of its adoption and implementation. This result contradicts that obtained in

some other studies (e.g. Cox and Dale, 2001; Wang, 2003; Barnes and Vidgen 2004; Kaisara and Pather, 2009; Alanezi et al., 2010), who found citizen satisfaction not to have a direct influence in this respect. However, Doll and Torkzadeh (1988) did find from their empirical work that citizen satisfaction does have an effect upon the extent of adoption and implementation of e- government adoption and implementation. Furthermore, progressing the work of Doll and Torkzadeh (1988), and DeLone and McLean (1992, 2004), Seddon and Kiew (1994) pursued this relationship, finding that an improvement in citizen satisfaction resulted in improved adoption and implementation of e-services; and this link has also been confirmed by more recent researchers (McGill et al., 2003; Bharatia and Chaudhury, 2004; Negash et al., 2003, Roca et al., 2006), who have found strong support for it. Moreover, taking the issue in differing environmental surroundings, a number of other scholars (Wangpipatwong et al., 2005; Altameem et al., 2006; Susanto and Goodwin, 2010; Al-Ghaith et al., 2010; Almahamid et al., 2010) have achieved the same results, demonstrating that if citizens are satisfied with e-government services, they will be prepared to become frequent users, irrespective of the context in which they live/operate. Clearly, this knowledge is important for initiatives in Libya, as it suggests the importance of the citizen dimension.

H3. Perceived ease of use of an e-government service has a positive influence on the perceived usefulness of an e-government service

Perceived ease of use and perceived usefulness were found to be positively related from the analysis, demonstrating agreement with the outcomes of other studies (Davis 1989; Devaraj et al., 2002; Lucas and Spitlar, 1999; Gefen et al., 2003; Chang et al., 2005) that showed the influence of individuals‘ perception of how easy the service was to use, upon the degree to which those individuals believed that service to be of value to them. This attitude was found to be consistent across a range of e-services, with Davis (1989) finding it in terms of the use of e-mail, and Gefen et al. (2001) taking online bookshops as their context. Poelmans et al. (2009) obtained the same result in respect of IT in general, and Bwalya and Healy (2010), and Susanto and Goodwin (2010) found this to be the case in terms of e-government particularly. Hence, in the Libyan context, it is essential to ensure that the e-government initiative is considered as easier to use by citizens since this will produce a belief that it will have value for them.

H4. Perceived ease of use while using an of e-government service has a positive effect on satisfaction

The results reveal another positive relationship in respect of perceived ease of use and citizen satisfaction, again in line with the findings of other studies (see Roca et al., 2006; Rai et al., 2002; Devaraj et al., 2002, Carter and Belanger, 2005; Wangpipatwong et al., 2008; Pudjianto and Hangjung, 2010; Almahamid et al., 2010). Hence, not only does the impression of how easy a site is to use have an important impact upon how valuable the user perceives it to be (as indicated in the previous hypothesis), but it also influences the degree of satisfaction the user experiences, and clearly it is an important consideration.

H5. Perceived usefulness while using an e-government service has a positive effect on satisfaction

Not surprisingly, given the results reported with respect to the previous two hypotheses, a positive relationship emerged from the data in respect of perceived usefulness and citizen satisfaction, confirming that if citizens believe an e-government service to be helpful to them, they will automatically experience a degree of satisfaction. Such help can be in the form of allowing citizens to save time, money, and energy by completing government transactions speedily online and removing the need for physical attendance at a government department, or the need to rely on the postal service. Previous researchers have found the same outcome within various IT adoption and implementation contexts (Seddon and Kiew, 1996; Seddon, 1997; Rai et al., 2002; Roca et al., 2006). Specifically, Roca et al. (2006) considered this in respect of e-learning systems, where a strong and significant relationship was found between these variables, Seddon and Kiew (1996) obtained the same result in respect of a university‘s accounting system, Poelmans et al. (2009) examined IT in general, and Bwalya and Healy (2010), Susanto and Goodwin (2010), and Vathanophas et al. (2008) found this in relation to e-government services in particular.

H6. High perceived trust of an e-government service leads to increased perceived usefulness

The link between citizen trust and perceived usefulness also showed itself to be significant, confirming outcomes of other studies (Gefen et al., 2003, Belanger and

Carter, 2008; Alomari et al., 2010), that have considered the relationship between trust and perceived usefulness in the context of e-commerce. In the present study, the results demonstrated citizen trust in e- government to be increased according to the amount of behavioural consistency, honesty, and the extent to which the website delivers its promises. If the image created by the government through its e-government initiative is a positive one that can be sustained by its delivery of such promises, then citizens develop a trusting attitude which in turn enhances their perception of the usefulness of e-government services.

H7. High perceived trust of an e-government service leads to increased e-government adoption

Not surprisingly, such a positive attitude precipitates a greater chance of adoption as was shown from the analysis of the data. Various studies reported in the literature (Srivastava and Teo, 2005; Al-adawi et al., 2005; Belanger and Carter, 2008; Alomari et al., 2010) have confirmed this relationship in respect of citizens' intention to adopt e-government services, and these have been conducted in different contexts, thereby showing the universality of the phenomenon. Specifically in relation to e-government, a typology for appreciating trust has been developed by Papadopoulou et al. (2010), who suggest that trust relating to the service, the information, the stored data, the system, the institution, the transaction, and the government organisation are all components of the construct. In Arab culture, secrecy is an accepted part of life (Al-Adawi et al., 2005; Al-Shafi and Weerakkody, 2009), and if e- government is to be accepted, then there must be confidence among citizens that their personal information is protected. Clearly, it is crucial that citizens have trust and faith in e-government for there to be any hope of them using it.

H8. The qualities of the website design of e-government positively influence adoption

Adoption was shown to be positively affected by the interface design, confirming findings reported by previous researchers (Maheshwari et al., 2007), highlighting the strong influence of front-end design (technical and social aspects) and back-end design (political aspects) of e- government portals. In respect of the front-end design, it is important for attention to be paid to service delivery, customer orientation, usability and trustworthiness, whereas in relation to the back-end design, consideration must be

given to the approach to implementation, governance and leadership, IT architecture and content management.

H9. The qualities of the website design of e-government positively influence ease of use

Another positive relationship was found between the interface design and perceived ease of use by citizens, again showing consistency with the findings obtained by other scholars (Lin and Lu, 2000; Lucas and Spitler, 1999; Bwalya and Healy, 2010). In their research, Maheshwari et al. (2007) found a significant relationship between the accessibility of a system and its response time, and the overall impression of quality. This is important in respect of e-government since as already mentioned in the context of trust, citizen satisfaction depends upon delivery of the promise/service and that in itself is a function of the quality of the website, and its ability to provide the appropriate information to achieve the citizen's objective. In fact, interface issues are not only important to citizens, but also to all users, and in back office activities they have implications for the ability of staff to upload information in a timely manner. In its overall design, a website must consider functional presentation and navigation, since together with speed and the absence of technical hitches, these features will help to create the impression among citizens that a site is easy to use, and hence, reduce fears that a service may be too complicated for ordinary people (non-IT experts) to use.

7.6 Implications of the Findings for Libyan e-government Services

The analysis has allowed for the identification of the important factors in e-government adoption and implementation within the context of Libya, a developing country, still in some state of administrative and political turmoil. In fact, it can be seen that the majority of the relationships found in research studies to date hold true in the Libyan context, and consequently, much of the Western-generated literature is helpful in promoting implementation strategies for e-government, although with differing degrees of emphasis. Specifically, in respect of the hypotheses tested in the study, significant relationships were found as follows:

H1 - between citizen awareness and e-government adoption

H2 - between citizen satisfaction and e-government adoption

H3 - between perceived ease of use and perceived usefulness of e-government H4 - between perceived ease of use and citizen satisfaction
H5 - between perceived usefulness and citizen satisfaction H6 - between citizen trust and perceived usefulness
H7 - between citizen trust and e-government adoption
H8 - between qualities of the interface design and e-government adoption H9 - between qualities of the interface design and perceived ease of use

From these results which are consistent to a greater or lesser degree with those obtained from many other studies, it can be seen that the factors most influencing citizens to adopt e- government are very largely psychological in nature. Technical factors are clearly important in as much as the hardware and software must be available and of a standard that supports delivery of the overall service, but in respect of successful adoption, other forces are in evidence and these are mainly concerned with citizens' attitudes.

Clearly, this study has shown that the most important consideration for implementation is the extent to which citizens perceive the e-government system to be of use to them, and this requires the benefits of the system to be obvious, and the opportunities to use the system to experience those benefits, and to be assured that they are genuine, to be widely available. The analysis also indicates that a positive perception of the benefits of e-government leads in itself to citizen satisfaction in as much as the benefits are associated with time, energy, and cost-saving. However, for all these outcomes to be achieved, citizens must be aware of the existence of the e-government initiative in the first place. Certainly, for an enhancement of the success of e-government in Libya, several initiatives are required.

The first initiative that should be taken is to raise citizen awareness of e-government services through promotional campaigns which emphasise the benefits to be gained. Such campaigns in themselves should be designed to reach citizens, and the fact that there is a high penetration of mobile telephones in Libya suggests SMS-based e-government marketing. Indeed, this is a strategy proposed by Deloitte (2011) as one that is likely to be successful in the medium term at least.

The second initiative required is the need for government to ensure that once awareness is raised to an appropriate level among the population, the usefulness of switching from traditional methods to electronic ones is enhanced in the minds of citizens, and to achieve this goal, the designers need to concentrate on the quality of the information contained in the e- government website. This has to be suitable for citizens, it must be timely, and completely adequate to satisfy all their requirements, such that goals and objectives can be achieved with ease, and indeed easier than by using the methods of communicating with government that have previously been used.

In this respect, there is a third important strategy required, and that relates to how to persuade citizens that they can trust the new methods to protect their personal information. Such sensitivity must be recognised by government and efforts made to encourage trust amongst the public in terms of how the new electronic systems will ensure that personal details are not put in jeopardy. This type of trust can be secured by the system administrators ensuring that no errors are made in data handling, and that all promised services are delivered on time. Such efforts will generate trust and in turn, satisfaction among users.

Another important strategy relates to the interface design which must be simplified to appeal to the widest possible audience. Again, this is one mechanism for increasing user trust in the Service, and the relationships identified in the hypotheses testing confirm that the consequence of perceived usefulness will occur, again reinforcing satisfaction levels. Moreover, all the information available for access on the website should be downloadable quickly and with simplicity since this also enhances confidence within citizens, and their likelihood of adoption.

7.7 Summary

Within this chapter, a discussion of the results obtained from the analysis in the previous chapters has been presented, and where appropriate this discussion has been compared with various reports in the literature, in order to establish if any differences exist in the Libyan environment with regard to citizens‘ readiness to adopt e-government. It has been shown, by considering each of the hypotheses, that the responses of Libyan citizens generally bear out the behaviour reported of other populations around the world in relation to the introduction by governments of

electronic means of communication and delivery of public services. It has also been shown what strategies are required by the Libyan government to promote the adoption of e-government services by Libyan citizens.

CHAPTER EIGHT

CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

This chapter closes the thesis by presenting a conclusion to the research, and offering recommendations to the new Libyan Government to improve the adoption of e-government by the country‘s citizens.

After presenting these recommendations, an indication of the contribution made by the study to the literature is given. Additionally, the limitations of the study are considered, and opportunities that these present for further research are proposed. The chapter finishes with a final word on the research process and the researcher‘s hopes for the future in respect of Libya‘s use of advanced information technology.

8.2. Aims and Objectives of the Study

The study aims to identify the critical success factors in respect of e-government adoption and implementation in Libya, from the citizens perspective, and to determine the inter- relationships among these factors in the Libyan context. In order to achieve these aims, three main research questions, and four research objectives were highlighted in Chapter One, and these are now repeated for ease of reading:

8.2.1 Research Questions

- What factors influence the successful adoption, acceptance and usage of e-government (G2C) services by citizens in Libya?
- What are the inter-relationships among these factors that affect the successful adoption and implementation of e-government services and applications in Libya?
- How can the findings of this research study be used to benefit the public sector entities in other developing countries with similar circumstances to Libya?

8.2.2 Research Objectives

1- To increase knowledge and understanding of the government-to-citizens (G2C) e- government services in Libya.

2- To develop and examine the Technology Acceptance Model depicting the main factors influencing citizen adoption of government services in Libya.
3- To explore the inter-relationships among each of the factors that influence citizen adoption of e-government services.
4- To generate insights into the e-government phenomenon by providing some explanations for the findings, suggesting recommendations, and pointing to future directions.

8.3 Conclusions

Having reviewed the literature, and used this as the basis for the empirical work conducted with a various sample of the Libyan population, it is concluded that as age has a positive correlation with all the variables as follows: satisfaction, website quality, e-government trust, perceived-government usefulness, and perceived e-government ease of use moreover, it was also found that education had a significant effect on satisfaction with e-government.

In respect of the likelihood of adoption of e-government services, strong relationships exist between the following:

- citizen awareness and e-government adoption
- citizen satisfaction and e-government adoption
- perceived ease of use and perceived usefulness of e-government
- perceived ease of use and citizen satisfaction
- perceived usefulness and citizen satisfaction
- citizen trust and perceived usefulness
- citizen trust and e-government adoption
- qualities of the interface design and e-government adoption
- qualities of the interface design and perceived ease of use

This confirmation leads to the suggestion of several recommendations for the Libyan government as detailed in the following section.

8.4 Recommendations

- Citizen awareness should be created, enhanced and maintained by promotional campaigns.

- Citizen satisfaction should be encouraged by a range of actions relating to the design of the interface and the delivery of services that are considered to be valuable by citizens.
- Regarding the design of the interface, this should be of high quality. This implies that it is simple to use (navigate), considers the levels of IT literacy and competence possessed by all sections of the population, contains up-to-date and appropriate information, and delivers the services it promises. Adherence to these goals will precipitate perceived ease of use among citizens
- Perceived usefulness among citizens should be encouraged by ensuring effective delivery of the services, which in themselves should be considered by citizens to be of value to them. In discovering what citizen's value, government should aim for as much citizen involvement in portal design and continuous feedback.
- Citizen trust should be encouraged by ensuring that the portal does not suffer technical hitches which cause frustration to users, and that the various e-government services offered materialise as expected, and that personal information is protected appropriately.
- The government should subsidise the internet cost so that the majority of people will get access to the internet.

8.5 Contributions to Knowledge

Through applying and developing the TAM framework for use in the Libyan environment, this study has made a contribution to the existing literature, since this particular exercise has not been done before. Additionally, within that development, an effort has been made to determine the most important factors in the Libyan context for e-government adoption and implementation, and the relationships between those factors. This effort has included the use of a variety of resources (interviews and analysis of documents) to investigate the matter in its real context, so as to gather insights that may not have been available in other studies that have used the TAM as the basis for exploring the success factors connected with the adoption and implementation of e-government services and applications in developing environments. The results obtained represent an addition to the literature.

A second contribution is the confirmation that information system (IS), e-commerce, and marketing theory are all applicable in the government to citizen (G2C)

initiative in Libya.

The literature and studies regarding performance measurements and success of e-commerce and e-government are still at relatively early stages of development. Some scholars (Scholl, 2006) have proposed the extension of the (TAM) frameworks proposed by DeLone and McLean (2004) for measuring performance. Others (Csetenyi, 2000) have proposed the application of e-commerce and e-business technologies as a means to increase efficiency in the provision of services to citizens and businesses.

The third contribution is that the citizen survey was conducted to determine expectations and satisfaction levels. According to Connolly and Bannister (2008), among the different online services provided by governments, e-government adoption and implementation is one of the most developed and widely used. E-government authorities have also tended to be the leaders in IT application implementation in the public sector. It is imperative that citizens' perceptions and expectations are carefully considered to increase the efficiency and effectiveness of this service. Earlier studies have mentioned that the needs of citizens and businesses have so far been neglected (Burgelman et al., 2005). These findings have led this research to stress the need to focus on the factors that work behind the scenes in the satisfactory provisioning of this service to citizens as well as the need and means for measuring such satisfaction.

The fourth contribution of the study is that most of the proposed relationships in the model, developed in turn by analysing the results from previous research efforts, were confirmed in this study, which demonstrated that the perceived usefulness of e-government adoption and implementation is the most important determinant of citizen satisfaction. This means that when citizens think they are gaining benefit from using the e-government service, their satisfaction level increases. Hence, citizens' belief in usefulness is an antecedent of their satisfaction. If citizens consider that using the e-government website is useful for them, their levels of satisfaction will rise, and if the perceived benefit does in fact materialise, then there will be further escalation in their satisfaction.

Fourthly, the study contributes to the existing body of knowledge through the results of the empirical testing it reports, since these pinpoint relationships among the various factors as they apply in the Libyan setting. Specifically, perceived usefulness is the most important factor for Libyan citizens since the satisfaction this brings influences

other perceptions. Within the Arab World, it is a cultural phenomenon for people to display low levels of trust and high levels of secrecy, both of which can work against the notion of e-government. If citizens come to e-government favourably pre-disposed because it holds the promise of bringing them value, then the characteristic reluctance to engage in electronic communication can be dissipated. Moreover, the findings of this study that the younger generations are predisposed to e-government also contribute towards the existing knowledge, since such predisposition heralds the possibilities for substantial culture change in secretive societies as the new generations recognise the usefulness of all forms of computerised communication. It is true to say that social networking sites of the kind developed in the West have caught the imagination of young people worldwide, and sown the seeds within developing countries that make their citizens want to catch up with the progress elsewhere. Most previous studies have pointed to the negative impact of Arab awareness on the adoption and use of e-government, but in this study, it has been revealed that in Libya, there is a will among young people particularly, to take advantage of e-government services and applications. The characteristics of the Libyan environment that underpin this will are identified as: the fact that the younger generations are in tune with ICT and have already internalised its values to them, the fact that education is free in Libya and that it has been shown through the inter-relationship between the variables that levels of education have an impact on attitudes towards e-government, and the efforts of the Libyan government to actively involve young people in democracy.

The results also showed positive and significant relationships between factors in the model that can be used in future studies in the same context or in other contexts with similar circumstances. Among these, there are significant correlations between citizen awareness and e-government adoption (**H1**), citizen satisfaction and e-government adoption (**H2**), perceived ease of use and perceived usefulness in the e-government service context (**H3**), perceived ease of use and citizen satisfaction (**H4**), perceived usefulness and citizen satisfaction (**H5**), citizen trust and perceived usefulness (**H6**), citizen trust and e-government adoption (**H7**), qualities of the interface design and adoption of e-government (**H8**), and qualities of the interface design and perceived ease of use (**H9**). Some of these findings do not mirror those obtained by other researchers, and specifically, those concerned with the use of e-

government services and applications reveal differences, but the contextual variation may well account for this lack of consistency.

8.6 Contributions to Practice

In practical terms, the study is valuable to a range of stakeholders in the area of e-government in developing country contexts. Clearly, there are very obvious implications for Libya and the country's decision-makers, government officials and practitioners, since they are provided with a strategic tool which is helpful in establishing the likelihood of success in their efforts to secure adoption of e-government services. However, the lessons learnt may well be of value to other such stakeholders elsewhere in the Arab World, and in developing countries generally. At the same time, it must not be forgotten that the citizen has been the focus of this study, and that requires that in different countries, research on the citizen psyche to determine whether this differs from that of the Libyan psyche is required. Ultimately, an understanding of the citizen predisposition to be satisfied with e-government offerings, is invaluable since if those predispositions could be increased, the practice of e-government would become more widespread.

The results showed that whilst the literature does point to problems with the technical infrastructure in developing countries, in Libya, such technical factors have no undue effect upon citizen predispositions towards e-government. Indeed, approximately a third of the sample (the biggest single category) had their own computers and internet access as shown in the responses to questions concerning where they gained their computer experience and where they accessed the internet. Hence, despite Libya's developmental status and the high costs associated with internet usage, ICT is readily available. Rather, it would appear that other, psychological factors form the barriers to the take up of e-government. Practitioners should take this knowledge on board in their design of services and in creating an appeal to citizens.

Consequently, a practical contribution is offered to decision-makers through the framework developed to identify measures relating to those factors that can influence citizens' thinking and decisions to adopt or reject change, via e-government initiatives. Particularly, in the Arab region where personal contact is valued, steps can be taken to compensate for the abandonment of traditional practices by ensuring real benefit for users that outweighs the natural reluctance to sacrifice old ways of working. In this

respect, the great strides forward made with mobile technology which has become very much accepted can be capitalised upon by practitioners in the knowledge that citizens are already becoming reliant on such technology and perceiving the benefits. Thus, to increase the chances of success of e-government initiatives, the Libyan government should raise citizen awareness of the benefits of e-government services and applications by providing incentives and rewards, intensifying promotional campaigns through various communication media, and particularly SMS-based e-government marketing due to high mobile penetration in Libya.

Perceived usefulness should be enhanced by continually updating the e-government website and improving all its dimensions such that it brings added value through excellence. All information should be appropriate to citizens needs, and it should be timely and sufficient. Moreover, citizen sensitivity concerning the disclosure of personal information should be a priority. At the same time, ease of use must also be ensured since a system which is easy to manipulate is likely to be trusted to a greater extent than a complicated one. All these considerations lie in the hands of e-government practitioners, the decision-makers.

8.7 Limitations of the Study

The limitations of the study can be summarised as follows:

- The study is based on a cross-sectional data design, meaning that the impact of the factors and their inter-relationships may not be consistent over time.
- This study identifies the behaviour of Libyan citizens towards the adoption and implementation of e-government services and applications in general. It does not focus on specific services which may have more value to them than others, and hence influence their decision to adopt them.
- Results of this research can be used in most of the public sector institutions in the context of this this research, although it is not known whether they can be generalised to other contexts due to lack of awareness, people eagerness, and privacy issues, etc.
- The results achieved in this research are validated by using random samples especially in the qualitative phase in order to validate the quantitative data. The results are purely based on Libyan citizens' readiness for e-government

adoption in Libya. Random samples are based on both the Libyan public and private sector. As this research mainly focused on the public sector, the outcomes can reasonably be extended to other public sector organisations, e.g. to university employees, hospital employees, and this can be the part of future work and may lead to suggestions for the development of additional e-government services in Libya.

- The research was undertaken during that period of time when there had been radical regime change in Libya. This regime change was not smooth, the fieldwork was of necessity, conducted in a relatively unstable environment, and the sheer amount of political and institutional turmoil in existence, and still prevalent, meant that the timeframe involved, and the people prepared to participate, were all less than desirable to produce robust outcomes. Additionally, it was not possible to penetrate the general population because of the civil unrest, which still prevails.

8.8 Future Research Directions

Several suggestions are offered for continuing research in an effort to address some of these unavoidable shortcomings, as follows:

- A longitudinal approach could be taken to determine whether the inter-relationships between the variables identified in this study are time-dependent.

- The study methodology could be replicated in other service environments to establish whether there is scope for greater generalisation of the outcomes.

- The study itself could be replicated in other developing country contexts to determine: a) whether the framework is applicable, and b) whether those contexts are at an appropriate stage of e-government readiness for an e-government launch.

- The study could be replicated in Libya to establish the behaviour of Libyan citizens to particular e-government services, and to determine which services hold the most value for Libyan citizens.

References

Abu-Shanab, E., Abu Al-Rub, S., and Nor, K. (2010), Obstacles Facing the Adoption of E- Government Services in Jordan, Journal of e-governance, 33(1), 35-47.

Agarwal, R. (2000), Individual acceptance of information technologies, in Zmud R.W. (edited by) —Framing the domains of IT management, Ohio, Pinnaflex.

Aita, S. (2004), Analyzing ICT Policies and Strategies in the ESCWA. Online Workshop on E-Government: Policies and Strategies, Working Paper, Retrieved June 26, 2011, from www.sharedpdf.net/Analyzing-ICT-Policies-and-Strategies-in-the-ESCWA-region--DOC.html

Ajzen, I. Fishbein. M. (1980), Understanding attitudes and predicting social behaviour, Englewood Cliffs, NJ: Prentice-Hall

Ajzen, I. (1985), From intentions to actions: A theory of planned behavior, in Kuhl, J. & Beckman, J. (Eds.), Action-control: From cognition to behavior, pp.11–39. Heidelberg, Germany: Springer

Ajzen, I. (1991), The theory of planned behavior, *Organizational Behavior and Human Decision Processes, 50,* 179–211

Ajzen, I. (2002), Perceived behavioural control, self-efficacy, locus of control, and the theory of planned behavior, *Journal of Applied Social Psychology*, 32 (4), 665-683

Aladwania, A. M., and Palvia, P. C., 2002. Developing and validating an instrument for measuring user-perceived web quality. Information & Management 39, 467–476

Alanezi, M. A. Kamil, A. & Basri, S. (2010), A proposed instrument dimensions for measuring e-government service quality, International Journal of u- and e- Service, Science and Technology, 3(4), 1-18

AlAwadhi, S., & Morris, A. (2008), The Use of the UTAUT Model in the Adoption of E-government Services in Kuwait, Proceedings of the 41st Hawaii International Conference on System Sciences

AlAwadhi, S., & Morris, A. (2009), Factors influencing the adoption of e-government services, Journal of Software, 4(6), 584-590.

Al-Dosari, R. & King, M. (2007) —Measuring the progress of e-government implementation at a national level: an interpretive case study, Scientific Journal. of Administrative Development, I.A.D, Vol (5), 178-215.

Al-Ghaith, W. Sanzogni, L. & Sandhu, K. (2010), Factors Influencing the Adoption and Usage of Online Services in Saudi Arabia. The Electronic Journal of Information System in Developing Countries, 40(1), 1-32

Alhujran, O, Chatfield, A 2008 Toward a Model for E-Government Services Adoption: The Case of Jordan. Proceedings of the 8th European Conference on E-Government, Ecole Polytechnique, Lausanne, Switzerland, 10-11 July 2008, pp 13-22.

Al-Kaabi, R. (2010), Secure and Failure Factors of e-Government Projects Implementation in Developing Country: A study on the Implementation of Kingdom of Bahrain, Proceedings of World Academy of Science, Engineering and Technology, July, issue 66, page 530

Almahamid, S., Mcadams, A., Al Kalaldeh, T. & Al-Sa_eed, M. (2010), The Relationship between Perceived Usefulness, Perceived Ease of Use, Perceived Information Quality, and Intention to Use E-Government, Journal of Theoretical and Applied Information Technology, 11(1), 30-44

Al Nagi, E. & Hamdan, M. (2009) Computerization and e- Government implementation in Jordan: Challenges, obstacles and successes, Government Information Quarterly, No.26, 577- 583

Alomari, M., Sandhu, K., & Woods, P. (2010), Measuring Social Factors in E-government Adoption in the Hashemite Kingdom of Jordan. International Journal of Digital Society (IJDS), 1(2), 163-172

Alsaghier, H. Ford, M. Nguyen, A. & Hexel, R. (2009), Conceptualising Citizen_s Trust in e- Government: Application of Q Methodology, Electronic Journal of e-Government, 7(4), 2009, 295-310

Al-Shafi, S. & Weerakkody, V. (2009), Understanding Citizens' Behavioural Intention in the Adoption of E-Government Services in the State of Qatar, European Conference on Information Systems (ECIS), Verona, Italy

Al-Shafi, S. Weerakkody, V. & Janssen, M. (2009), Investigating the Adoption of eGovernment Services in Qatar Using the UTAUT Model, AMCIS 2009 Proceedings, Paper 260

Alshawi, S. Alahmary, A. & Alalwany, H. (2007), E-Government Evaluation Factors: Citizen_s Perspective, Proceedings European and Mediterranean Conference on Information Systems (EMCIS 2007)

AL-Shehry, A. Rogerson, S. & Fairweather, N. B. (2006), The motivations for change towards e-Government adoption: Case studies from Saudi Arabia, E-Government Workshop
"06 (eGOV06), Brunel University

AlShihi, H. & McGrath, G.M. (2004), The Oman E-Government Project: Technology Adoption and Diffusion, Proceedings of the 18th Annual Conference of the Australian and New Zealand Academy of Management. (Eds.) Graham Elkin, University of Otago, Dunedin, New Zealand, pp. 1-16

Altameem, T. Zairi, M. & Alshawi, S. (2006), Critical success factors of e-government: A proposed model for e-government implementation, Proceedings Conference on Innovations in Information Technology, IEEE, 1–5

Andrade, A. (2009), Interpretive Research Aiming at Theory Building: Adopting and Adapting the Case Study Design. The Qualitative Report, 14(10), 42-60

Asgarkhani, M. (2005), The effectiveness of e-service in local government: A case study, Electronic Government, an International Journal, 3 (4) 157-166

Avgerou, C. (2001), The Significance of Context in Information Systems and Organizational Change, Information Systems Journal, 11(1), 43-63

Avgerou, C., Ciborra, C., Cordella, A., Kallinikos, J., Longshire, & Smith, M. (2006), E-government and trust in the state: Lessons from electronic tax systems in Chile and

Brazil, Working Paper No. 146, Series London School of Economics and Political Science

Avison, D. Lau, F. Myers, M. & Nielsen, P. A. (1999), Action research. Comm. of the ACM (January), 42(1): 94-97

Axelsson, K. Melin, U. & Lindgren, I. (2010), Exploring the importance of citizen participation and involvement in e-government projects: Practice, incentives, and organization, Transforming Government: People, Process and Policy, 4(4), 299-321

Baaren, E. Wijngaert, L. & Huizer, E. (2008), I Want My HDTV_? Underlying Factors of Perceived Usefulness for High Definition Television in M. Tscheligi, M. Obrist, and A. Lugmayr (Eds.): EuroITV, LNCS 5066, 283 – 292, Springer-Verlag Berlin Heidelberg

Babbie, E. (2008), The Basics of Social Research (4th eds.), Belmont, CA: Wadsworth

Backus, M. (2001), E-governance in Developing Countries, *IICD Research Brief*, No1, March

Bailey, J. E., and Pearson, S. W., 1983. Development of a Tool for Measuring and Analyzing Computer User Satisfaction.*Management Science*, Vol. 29 (5), pp. 530-545.

Baroudi, J. J., and Orlikowski, W. J., 1988. A Short-Form Measure of User Information Satisfaction: A Psychometric Evaluation and Notes on Use. *Journal of Management Information Systems*, lSpritxg 1988, Vol. 4

Baroudi, J. J., and Orlikowski, W. J., 1988. A Short-Form Measure of User Information Satisfaction: A Psychometric Evaluation and Notes on Use. *Journal of Management Information Systems*, lSpritxg 1988, Vol. 4

Bharatia, P., Chaudhury, A., 2004. An empirical investigation of decisionmaking satisfaction in web-based decision support systems, *Decision Support Systems* 37 (2), 187–197.

Bhattacherjee, A. 2001, Acceptance of E-Commerce Services: The Case of Electronic

Brokerages.*IEEE transactions on systems, man, and cybernetics—part a: systems and humans*, vol. 30, no. 4, july 2000

Baskerville, R. & Wood-Harper, A. T. (1998), Diversity in Information Systems Action Research Methods, European Journal of Information Systems, (7) 2, pp. 90-107

Bassanini, F. (2002), Delivering Services and Public - Private Partnership in E-Government; with a Final Warning about Digital Divide, Digital Opportunity and the Danger of a New Colonialism, The 3rd high level forum on city Information in the Asian - Pacific Region (CIAPR 111)1, 3 -14 June, Shanghai

Bassey, M. (1981), Pedagogic research: On the relative merits of search for generalisation and study of single events, Oxford Review of Education, 7(1), 73-93

Basu, S. (2004) E-government and developing countries: An overview, International Review of Law Computers & Technology, 18 (1), 109-132

BATTACHERJEE, A. (2000) Acceptance of e-commerce services: the case of electronic brokerages. IEEE Transactions on System, Man, and Cybermetics - Part A: Systems and Human, 30,411-420.

Bazeley, P. (2004), Issues in Mixing Qualitative and Quantitative Approaches to Research, in Applying Qualitative Methods to Marketing Management Research. R.

Buber, J. Gadner, eds. pages. 141–156, Hampshire, United Kingdom: Palgrave Macmillan

Belanger, F. & Carter, L. (2008), Trust and risk in e-government adoption, Journal of Strategic Information Systems, 17 (2), 165-176

Benbasat I, Goldstein D and Mead M (1987), The Case Research Strategy in Studies of Information Systems, MIS Quarterly, Vol. 11, 369-386

Benbasat, I. & R. W. Zmud (1999), Empirical Research in Information Systems: The Practice of Relevance, MIS Quarterly, 23(1), 3-16

Beynon-Davies, P. (1997), Ethnography and information systems development: Ethnography of, for and within IS development Information and Software Technology, 39, 531-540.

Beynon-Davies, P. & Williams M. D. (2003), Evaluating electronic local government in the UK, Journal of Information Technology, (18), 137-149

Black, T. R. (1999), Doing quantitative research in the social sciences: An integrated approach to research design, measurement, and statistics. Thousand Oaks, CA: SAGE

Publications, Inc

Borkan, J. (2004), Mixed Method Studies: A Foundation for Primary Care Research, Annals of Family Medicine, 2(1), 4-6

Bouckaert, G. & Walle, S. V., 2003. Comparing measures of citizen trust and user satisfaction as indicators of ‗good governance': difficulties in linking trust and satisfaction indicators, *International Review of Administrative Sciences*, Vol. 69 , 329–343

Bryman, A. (2001), Social Research Methods, Oxford, Oxford University Press

Bukachi, F. & Pakenham-Walsh, N. (2007), Information technology for health in developing countries, Chest 2007, 132, 1624-1630

Burns, R. B. (2000), Introduction to research methods (4th Eds.), Frenchs Forest: Longman

Burrell, G. & Morgan, G. (1979), Sociological Paradigms and Organisational Analysis, London: Heinemann

Bwalya K. J. and Healy, M. (2010), Harnessing e-Government Adoption in the SADC Region: a Conceptual Underpinning, Electronic Journal of e-Government, 8 (1), 23-32

Byrne, E. (2005), Using action research in information systems design to address change: a South African health information systems case study, Proceedings of the South African Institute of Computer Scientists and Information Technologists on IT research in Developing Countries, 20-22, Sept, South Africa, pp.131-141

Caldow, J. (1999), The Quest for Electronic Government: Defining a Vision. Institute for Electronic Government, IBM Corporation

Cao, M., Zhang, Q. & Seydel, J., 2005, B2C e-commerce web site quality: an empirical examination, *Industrial Management & Data Systems*, Vol. 105 No. 5, 2005 pp. 645- 661
Cape Gateway. (2009) Dedicated to All those who made democracy a reality in South Africa, from http://www.capegateway.gov.za/eng/about
Carter, L. & Belanger, F. (2004), The Influence of Perceived Characteristics of Innovating on E-Government Adoption, Electronic Journal of E-Government, 2(1), 11-20

Carter, L. & Belanger, F. (2005), The utilization of e-government services: Citizen

trust, innovation and acceptance factors, Information Systems Journal, 15(1), 5-25

Catterall, M. (1998), Academics, practitioners and qualitative market research, Qualitative Market Research, 1(2), 69-76

Chandler, S. & Emanuels, S. (2002), Transformation Not Automation. Proceedings of 2nd European Conference on E-government, St Catherine's College Oxford 2002, United Kingdom, pp. 91-102

Chang, I-Chiu; Li, Yi-Chang; Hung, Won-Fu & Hwang, Hisn-Ginn, 2005. An empirical study on the impact of quality antecedents on tax payers acceptance of internet tax-filing systems. *Government Information Quarterly*, vol.22, pp. 389-410

Charmaz, K. (2000). Grounded theory: Objectivist and constructivist methods. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research (2nd ed., pp. 509–535). Thousand Oaks. CA: Sage.

Chatfield, A. & Alhujran, O. (2007), E-Government Service Delivery Capabilities: An Analysis of the Arab Countries in Africa and the Middle East, Proceedings of the DCCA 2007 1st International Conference on Digital Communications and Computer Applications, Irbid, Jordan, 19-22 March, 2007, pp. 615-624

Chau, P.Y.K. & Hu, P.J.H. (2002), Examining a model of information technology acceptance by individual professionals: An exploratory study. Journal of Management Information Systems, 18 (4), 191-229

Chen, L. D. Gillenson, M. L. & Sherrell, D. L. (2002), Enticing online consumers: an extended technology acceptance perspective, Information & Management, 39(8), 705-19

Chen, Y. N., Chen, H. M., Huang, W. & Ching, R. K. H. (2006) E-government strategies in developed and developing countries: an implementation framework and case study. Journal of Global Information Management, 14, 23-46.

Cheung, A. B. L. (2005) Governance: An International Journal of Policy, Administration, and Institutions, 18 (2), 257–282).

Cheung, W. Chang, M. & Lai, V. (2000) Prediction of Internet and World Wide Web usage at work: a test of an extended Triandis model, Decision Support Systems 30 (1), 83–100.

Choudrie, J. & Dwivedi, Y. (2004), Investigating the Socio-economic Characteristics of Residential Consumers of Broadband in the UK, Proceedings of AMCIS 2004, New York, USA, August 6-8, 1558-1567

Choudrie, J. & Dwivedi, Y. (2005), Citizens' awareness and adoption of e-Government initiatives in the UK, eGovernment Workshop '05 (eGOV05), Brunel University, West London, UK

Choudrie, J. Ghinea, G. & Weerakkody, V. (2004), Evaluating global e-government sites: a view using web diagnostic tools, Electronic Journal of E-Government, 2 (2): 105-114

Chua, A. Y. K., & Yang, C. C. (2008), The shift towards multi-disciplinarily in information science Journal of the American Society for Information Science and Technology, 59(13), 2156-2170

Ciborra, C. (2005), Interpreting e-government and development: Efficiency, transparency or governance at a distance? Information Technology & People, 18(3), 260 – 279

Ciborra, C. & Navarra, D. (2005), Good Governance, Development Theory, and Aid Policy: Risks and Challenges of E-Government in Jordan, Information Technology for Development, 11(2), 141-159

CIM (2012). About the Initiative E-Libya Initiative. Available at: www.cim.gov.ly/page53.html .

Clift, S. L. (2004), E-government and democracy: representation and citizen engagement in the information age, Retrieved June 26, 2011, from www.publicus.net

Clifton, K. & Handy, S. (2001), Qualitative methods in travel behaviour research, Proceedings of the International Conference on Transport Survey Quality and Innovation, August 5–11, South Africa

Cohen, L. Manion, L. and Morrison, K. (2001), Research Methods in Education, 5th (Eds.), London: Routledge

Compeau, D. R. & Higgins, C. A. (1991), A Social Cognitive Theory perspective on Individual reactions to computing technology, Proceedings of the 12th International

Conference on Information Systems, New York, NY

Compeau, D. R. Higgins, C. A. & Huff, S. (1999), Social cognitive theory and individual reactions to computing technology: a longitudinal study, MIS Quarterly, 23 (2), pp. 145-158

Conklin, W. A. (2007), Barriers to Adoption of e-Government, *40th Annual Hawaii International Conference on system sciences (HICSS 2007), IEEE,* pp. 98-105

Corey, S. (1953), *Action research to improve school practice*, New York: Teachers College, Columbia University

Cox, J. & Dale, B.G. (2001), Service quality and ecommerce: An exploratory analysis. Managing Service Quality, 11(2), 121-131

Creswell, J.W. (2003), Research Design: Qualitative and Quantitative approaches (2nd Eds.), CA: Sage

Cronin, J. J., Brady, M. K. & Hult, T. M., 2000, Assessing the Effects of Quality, Value, and Customer Satisfaction on Consumer Behavioral Intentions in Service Environments, *Journal of Retailing, Volume* 76(2) pp. 193–218, ISSN: 0022-4359

Cronin, J. J., Taylor, S. A., 1992. Measuring service quality: a re-examination and extension,
Journal of Marketing, 56 (3), 55-69.

Crowston, K., Howison, J., and Annabi, H. (in press). Information systems success in free andopen source software development: Theory and measures. *Software Process: Improvement and Practice* (Special Issue on Free/Open Source Software Processes.)

Csetenyi, A. 2000. Electronic government: Perspective from e-commerce, *In proceedings of the 11th International Workshop on Database and Expert Systems Applications,*
Greenwich, London, U.K., Sep 6-8.

Darke, P. Shanks, G. & Broadbent, M (1998), Successfully completing case study research: combining rigor, relevance and pragmatism, Information Systems Journal, 8, pp. 273-289

Davis, F. D. (1989), Perceived usefulness, perceived ease of use and user

acceptance of information technology, MIS Quarterly, vol. 13, no. 3, pp. 319-40,

Davis, F. D. Bagozzi, R. P. & Warshaw, P. R. (1989), User acceptance of computer technology: a comparison of two theoretical models, Management Science, 35(8), pp. 982- 1003

DeBenedictis, A., Howell, W., Figueroa, R. & Boggs, R. A. (2002), E-government defined: An overview of the next big information technology challenge, Issues in Information Systems, 3 (1), 130-136

Deloitte Consulting and Deloitte & Touche (2000), at the dawn of e-government: The citizen as customer, Deloitte Research Report, in (Silcock, R. (2001). What is e-Government? Parliamentary Affairs, 54, 88-101

Deloitte Research. (2011), Technology, Media and Telecommunications Predictions (Global Public Study by Deloitte Consulting and Deloitte & Touche), Retrieved June 26, 2011, from http://www.deloitte.com/view/en_GX/global/industries/technology-media telecommunications/tmt-predictions-2011/index.htm

DeLone, W. H. & McLean, E. R. (1992), Information systems success: the quest for the dependent variable, Information Systems Research, 3(1), 60–95

DeLone, W. H. and McLean, E. R. (2004) Measuring e-Commerce Success: Applying theDeLone & McLean Information Systems Success Model, *International Journal ofElectronic Commerce*, 9 (1), 31–47.

Denzin, N. K. & Lincoln, N. S. (2005), Paradigms and perspectives in contention, In the Sage Handbook of Qualitative Research (3rd Eds.), Thousand Oaks, CA: Sage

Dishaw, M. T. Strong, D. M. & Bandy, D. B. (2002), Extending the task-technology fit model with self-efficacy constructs, Proceedings of 8th Americas Conference on Information Systems, Dallas, US, 1021–1027

Dode, R. O. (2007), Prospects of e-government implementation in Nigeria, Proceedings of the 1st international conference on Theory and practice of electronic governance, December 10-13, 2007, Macao, China

Donsbach, W. & Traugott, M. W. (2007), The SAGE handbook of public opinion

Doll, W.J. W. J., Xia, W. & Torkzadeh, G. (1994), A Confirmatory Factor Analysis of the End-User Computing Satisfaction Instrument, *MIS Quarterly*, Vol. 18, No. 4, pp. 453-461.

Dow, N., Teicher, J., & Hughes, O. (2002), E-government: a new route to public sector quality, Managing Service Quality, Vol. 12, pp. 384-393

Ebrahim, Z. & Irani, Z. (2005), E-Government adoption: architecture and barriers, Business Process Management Journal, 11(5), 589-611

Eighmey, J. (1997). Proling user responses to commercial web sites.*Journal of Advertising* Research, 37(3), 59}66.

Ehigie, B. O. & Ehigie, R. I. (2005), Applying qualitative methods in organizations: a note for industrial/organizational psychologists. The Qualitative Report, Vol. 10 No. 3, September, pp. 621-38, Retrieved June 1 June, 2011, from http://www.nova.edu/ssss/QR/QR10- 3/ehigie.pdf

Eisenhardt, K. M. (1989), Building theories from case study research, Academy of Management Review, 14(4), 532-550

Elliot, S. & Loebbecke, C. (2000), Theoretical implications of adopting interactive, interorganizational innovations in electronic commerce, Journal of Information Technology
& People [Special issue on adoption and diffusion of IT], 13(1), 46-66

Ellram, L. (1996), The Use of the Case Study Method in Logistics Research, Journal of Business Logistics, 17 (8), 93-138

Evoh, J. C. (2007) -Collaborative Partnerships and the Transformation of Secondary Education through ICTs in South Africa, Educational Media International, Vol 44, No.2, pp 81-98

Eyob, E. (2004), E-government: breaking the frontiers of inefficiencies in the public sector, Electronic Government, 1(1), 107-114

Fang, Z. (2002), E-government in digital era: Concept, practice and development. International Journal of the Computer, the Internet and Management, 10 (2), 1-22

Fidock, J. & Carroll, J. (2009), Combining Variance and Process Research Approaches to Understand System Use, Proceedings of the 20th Australasian Conference on Information Systems, 2-4 Dec, Melbourne

Fong, B. & Fong, A. C. M. (2009), Effective strategic planning for successful e-commerce project completion and deployment, Proceedings of the 16th IEEE International Conference on Industrial Engineering and Engineering Management, 341-344

Fornell, C. (1992) A National Customer Satisfaction Barometer: The Swedish Experience, *Journal of Marketing* Vol. 56, pp 6-21 ftp.echo.lu/pub/info2000/publicsector/gppublicen.doc, 1999.

Fu, J. R. Farn, C. K. & Chao, W. P. (2006), Acceptance of Electronic Tax Filing: A Study of Taxpayer Intentions, Information & Management, vol. 43, pp. 109-126

Gable, G. G. (1994), Integrating case study and survey research methods: An example in information systems, European Journal of Information Systems, 3, 2, 112-116

Gallant, L. Culnan, M. & McLoughlin, P. (2007), Why People e-File (or Don_t e-File) Their Income Taxes, Proceedings of the 40th Hawaii International Conference on System Sciences, Big Island, Hawaii, USA, 3-6 January 2007, pp 107-112

Galliers, R.D., & Land, F.F. (1987), Choosing Appropriate Information Systems Research Methodologies, Communication of the ACM, 30(30), 900-902

Gartner Group (2000), Gartner's Four Phases of E-Government Model, Retrieved June 28, 2011, from http://www.gartner.com

Gefen, D. and Keil, M. (1998). The Impact of Developer Responsiveness on Perceptions of Usefulness and Ease of Use: An Extension of the Technology Acceptance Model, *The DATA BASE for Advances in Information Systems,* Vol. 29, No. 2, pp. 35-49.

Gefen, D., Karahanna, E. & Straub, D. W. (2003), Trust and tam in online shopping: an integrated model, *MIS Quarterly* Vol. 27 No. 1, pp. 51-90

Gefen, D., Warkentin, M., Pavlou, P.A., and Rose, G.M., E-Government Adoption, *Proceedings of the 8th Americas Conference on Information Systems,* 569-76. Dallas, Texas, U.S.A., August 9-11, 2002.

Giese, J., & Cote, J.A., (2000) Defining Consumer Satisfaction, *Academy of Marketing Science Review*

Gibbons, M. T. (1987), Introduction: the Politics of Interpretation in M. T. Gibbons (Eds.), Interpreting Politics, New York University Press, New York, pp. 1-31

Gichoya, D. (2005), Factors Affecting the Successful Implementation of ICT Projects in Government, The Electronic Journal of e-Government Volume 3(4), 175-184

Gilbert, D. Balestrini, P. & Littleboy, D. (2004), Barriers and benefits in the adoption of e- government, International Journal of Public Sector Management, 17(4), 286-301

Goodhue, DL. & Thompson, RL. (1995), Task–technology fit and individual performance, MIS Quarterly 19 (2), pp. 213–236

Goulding, C. (1999), Consumer research, interpretive paradigms and methodological ambiguities, European Journal of Marketing, 33 (9/10), 859-873

Grant, G. & Chao, D. (2005), Developing a generic framework for e-government, Journal of Global Information Management, 13(1), 1–30

Greene, J. C. Caracelli, V. J. & Graham, W. F. (1989), Toward a conceptual framework for mixed-method evaluation designs, Educational Evaluation and Policy Analysis, 11, 255-274

Griffin, D. Foster, A. & Halpin, E. (2004), Joined-up E-Government: An Exploratory Study of UK Local Government Progress, Journal of Information Science and Technology, 1(2), 57-83

Gronlund, A. (2005), State of the Art in E-Gov Research: Surveying Conference Publications. International Journal of Electronic Government Research, 1(4), 1-25

Gupta, B. Dasgupta, S. & Gupta, A. (2008), Adoption of ICT in a government organization in a developing country: An empirical study, Journal of Strategic Information Systems, 17(2), 140-154

Halachmi, A. (2004), E-government theory and practice: The evidence from Tennessee (USA), in Holzer, M., Zhang, M. & Dong, K. (Eds.), Proceedings of the Second Sino-US International Conference: "Public Administration in the Changing World, Beijing, China, 24-
36. Retrieved June 28, 2011, from
http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN019248.pdf

Hamilton, S. & Ives, B. (1982), MIS Research Strategies, Information & Management,

5(6), 339-347

Han, S. (2003), Individual Adoption of Information Systems in Organisations: A literature review of the Intention- Based Theories, Turku Centre for Computer Science

Harris, M. A. & Weistroffer, H. R. (2009), A New Look at the Relationship between User Involvement in Systems Development and System Success, Communications of the Association for Information Systems, Vol. 24, Article 42

Hartwick, J.H., and Barki, H. Explaining the Role of User Participation in Information System Use, *Management Science* (40) 1994, pp 440-465.

Harvey, L & Myers, M. D. (1995), Scholarship and practice: the contribution of ethnographic research methods to bridging the gap, Information Technology & People, 8(3)

Hasan, L. & Abuelrub, E. (2008), Assessing the Quality of Web Sites, Journal of Computer

Science, 7, 11-20

Hasan, S. (2003), Introducing E-government in Bangladesh: Problems and Prospects, International Social Science Review, 79(1), 111-126

Healy, M., Perry, C. (2000), Comprehensive Criteria to Judge Validity and Reliability of Qualitative Research within the Realism Paradigm, Qualitative Market Research: An International Journal, 3(3), 118-126

Heath, W. (2000), Europe's readiness for e-government, Retrieved June 24, 2011, from

http://www.dad.be/library/pdf/kable.pdf

Heeks, R. (1999), Reinventing Government in the Information Age: International Practice in IT-enabled Public Sector Reform, Routledge, London

Heeks, R. (2002), Failure, Success and Improvisation of Information Systems Projects in Developing Countries, Development Informatics Working Paper Series, No.11/2002, Manchester: Institute for Development Policy and Management.

Heeks, R. & Bailur, S. (2007), Analyzing e-government research: perspectives, philosophies, theories, methods, and practice, Government Information Quarterly, 24(2), 243-65

Helling, L. Serano, L. & Warren, D. (2005), Linking community empowerment, decentralised governance and public service provision through local development framework. New York: World Bank

Hirschheim, R. (1992), Information Systems Epistemology: An Historical Perspective, in Information Systems Research: Issues, Methods and Practical Guidelines, R. Galliers (ed.), Blackwell Scientific Publications, Oxford, 1992, pp. 28-60

Ho, T. (2002), Reinventing local governments and the e-government initiative, Public Administration Review, 62(4), 434-444

Holden, S. H. Norris, D. F. & Fletcher, P. D. (2003), Electronic Government at the local level, Public Performance and Management Review, (26)4, 325-344

Horan, T. A. Abhichandani, T. & Rayalu, R. (2006), Assessing user satisfaction of e-government services: Development and testing of quality-in-use satisfaction with Advanced Traveller Information Systems (ATIS), Proceedings of the 39th Hawaii International Conference on System Sciences, IEEE Computer Society

Horst, M. Kuttschreuter, M. & Gutteling, J. (2007), Perceived usefulness, personal experiences, risk perception and trust as determinants of adoption of e-government services in The Netherlands, Computers in Human Behaviour, 23 (4), 1838-1852

Holsapple, C. W. & Sasidharan, S. (2005)The dynamics of trust in B2C commerce:
a research model and agenda, *ISeB (2005) 3: 377–403, Published online: 8*

November 2005, Springer-Verlag

Howard, M. (2001), E-government across the globe: how will change e-government? Government Finance Review, 17 (4), 6-9

Huang, Z. (2006), E-Government Practices at Local Levels: An Analysis of U.S. Counties Websites, Issues in Information System, 7(2), 2006, 165-170

Hughes, C. (2006), Qualitative and Quantitative Approaches to Social Research. Retrieved June 28, 2011, from http://www2.warwick.ac.uk/fac/soc/sociology/staff/academicstaff/chughes/hughesc_index/tea chingresearchprocess/quantitativequalitative/quantitativequalitative/

Hung, S. Y., Chang, C. M. & Yu, T. J. (2006), Determinants of User Acceptance of the e-Government Services: The Case of Online Tax Filing and Payment System, Government Information Quarterly, 23(1), 97-122

Hunt, H. Keith. 1977. CS/D--Overview and Future Research Direction. in Conceptualizationand Measurement of Consumer Satisfaction and Dissatisfaction. *H. Keith Hunt, ed.Cambridge, MA: Marketing Science Institute.*

Igbaria, M., Guimaraes, T., and Davis, G.B., 1995. Testing the Determinants ofMicrocomputer Usage via a Structural Equation Model, *Journal of ManagementInformation Systems* 11(4)

Igbaria, M., Parsuraman, S., and Baroudi, J., 1996. A Motivational Model of MicrocomputerUsage, *Journal of Management Information Systems* 13(1) pp 127-143.

Irani, Z. Al-Sebie, M. & Elliman, T. (2006), Transaction Stage of e-Government Systems: Identification of its Location & Importance, Proceedings of the 39th Hawaii International Conference on System Science, Hawaii

ITU (2012). ICT Adoption and Prospects in the Arab Region. Background report prepared for the Connect Arab Summit: Connecting the Unconnected by 2015. Available at: www.itu.int/pub/D-IND-AR-2012 .

Ives, B., Olson, M. H. & Baroudi, J. J. (1983), The Measurement of User InformationSatisfaction, *Communications of the ACM*, Volume 26 Number 10

Jabar, A. Sidi, F. Selamat, M. Abd Ghani, A. & Ibrahim, H. (2009), An Investigation into Methods and Concepts of Qualitative Research in Information System Research, Computer and Information Science, 2(4), 47-54

Jaeger, P. (2003), The Endless Wire: E-government as a Global Phenomenon, GovernmentInformation Quarterly, 20, 323-331

Jansen, A. (2006), High level strategies for user involvement in e-Government projects: What role has Scandinavian IS tradition in e-Government implementations, Retrieved

July 1, 2011, from www.jus.uio.no/ifp/om/organisasjon/afin/forskning/.../Nordichi-2006.pdf

Janssen, M. Charalibis, Y. Kuk, G. Cresswell, T. (2011), E-government interoperability, infrastructure and architecture: state-of-the-art and challenges, Journal of Theoretical and Applied Electronic Commerce Research, 6 (1), 1-15

Janssen, M. & Cresswell, A. M. (2005) An enterprise application integration methodology for e-government. Journal of Enterprise Information Management, 18 (5), 531-547

Janssens, W. Wijnen, K. Pelsmacker, P. D. & Kenhove, P. V. (2008), Marketing Research with SPSS, Prentice Hall

Jick, T. D. (1979), Mixing qualitative and quantitative methods: Triangulation in action, Administrative Science Quarterly, 24, 602-611

Johnstone, D. Bonner, M. & Tate, M. (2004), Bringing human information behaviour into information systems research: an application of systems modelling, Information Research, 9(4), Paper 191

Kaaya, J. (2004), Implementing e-government services in East Africa: Assessing status through content analysis of government websites, Electronic Journal of E-Government, 2 (1), 39-54

Kaisara, G. & Pather, S. (2009), e-Government in South Africa: e-service quality access and adoption factors, Informatics and Design Papers and Reports, Paper 26. Retrieved

June 29, 2011, from http://dk.cput.ac.za/inf_papers/26

Kaplan, B. & Duchon, D. (1988), Combining Qualitative and Quantitative Methods in Information Systems Research: A Case Study, MIS Quarterly, 12(4), 571-586

Kaplan, B., & Maxwell, J. A. (1994), Qualitative Research Methods for Evaluating Computer Information Systems, in J. G. Anderson, C. E. Aydin & S. J. Jay (Eds.), Evaluating Health Care Information Systems: Methods and Applications, pp. 45-68. Sage, Thousand Oaks, CA: Sage

Karahanna, E.,Straub, D. W. & Chervany, N. L. (1999), Information Technology Adoption Across Time: A Cross-sectional Comparison of pre-adoption and post-adoption Beliefs, MIS Quarterly, 23(2), 183-21

Karim, M. R.A. (2003), Technology and improved service delivery: Learning points from theMalaysian experience, International Review of Administrative Sciences, 69(2), 191-204

Kautz, K. & Pries-Heje, J. (Eds.) (1996), Diffusion and adoption of information technology, Chapman and Hall, London

Kettani, D. and El Mahdi, A. (2009) —eFez: Initiative Transforming Scientific Research to Value for Promoting Good Governance in Morocco Proceedings of the Governing Good and Governing Well: The First Global Dialogue on Ethical and Effective Governance/ Workshop4: Ethics and Effectiveness in Performance Measurement; Co-Chairs: Prof. Geert Bouckaert and Prof. Jeroen Maesschalck, Amsterdam, the Netherlands, 28-30 May 2009.

Kelder, J. A. & Turner, P. (2007), Qualitative Research and Information Systems Design - Critical reflections from an e-Health Case study, Proceedings of the 11th Pacific Asia Conference on Information Systems, July 3-6, Auckland, NZ

Kerlinger, F. N. & Pedhazur, E. J. (1973), Multiple regression in behavioural research, New York: Holt, Rinheart and Winston

Kettinger, W.J., Lee, C.C., 1994. Perceived service quality and user satisfaction with theinformation services function. *Decision Sciences* 25 (5/6), 737–766.

Kettinger, W.J., Lee, C.C., 1997. Pragmatic perspectives on the measurement of informationsystems service quality. *MIS Quarterly* 21 (2), 223–239.

Khun, T. (1970), The Structure of Scientific Revolutions, (2nd Eds.), Chicago University, Chicago

Kim, H. Pan, G. Pan, S. (2007), Managing IT-enabled transformation in the public sector: case study on e-government in South Korea, Government Information Quarterly, 24, 338-352

Kim, T. H., Im, K. H. & Park, S. C (2005), Intelligent measuring and improving model forcustomer satisfaction level in e-government, *M.A. Wimmer et al. (Eds.): EGOV 2005,LNCS* 3591, pp. 38.48, @ Springer-Verlag Berlin Heidelberg 2005.

Klein, H. K. & Myers, M. D. (1999) A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems, MIS Quarterly, 23(1), 67—94

Klein, R. (2007), An empirical of patient-physician portal acceptance, European Journal of Information Systems 16, 751–760

Klievink, B. & Janssen, M. (2009), Realizing Joined-Up Government — Dynamic Capabilities and Stage Models for Transformation, Government Information Quarterly, 26 (April), 275-284

Kraemer, K. L. & Dutton, W. H. (1991), Survey Research in the Study of Management Information Systems, in The Information Systems Research Challenge: Survey Research Methods, Volume 3, K. L. Kraemer (Eds.), Harvard Business School, Boston, Massachusetts, pp. 3-58

Kraemer, K. L., & King, J. L. (2003), Information Technology and Administrative Reform: Will the Time After E-Government Be Different? Proceedings of the Heinrich Reinermann Schrift fest, Post Graduate School of Administration, Speyer, Germany

Kumar, R. (2007), Making E-Government Projects in Developing Countries More Successful and Sustainable: Some Case Studies from India, *proceedings of CPRsouth 2007: Research for Improving ICT governance in the Asia-Pacific*, January 19-21, at the

Asian Institute of Management, Manila, Philippines, pages 1-15

Kumar, V. Mukerji B, Butt I & Persaud, A. (2007), Factors for Successful e-Government Adoption: a Conceptual Framework, *Electronic Journal of e-Government,* 5(1), 63 – 76

Lacity, M. & Janson, M. A. (1994), Understanding Qualitative Data: A Framework of Text Analysis Methods, *Journal of Mangement Information Systems,* 11(2), 137-156

Lai, C. S. A. & Pires, G. (2010), Testing of a Model Evaluating e-Government Portal Acceptance and Satisfaction, *Electronic Journal Information Systems Evaluation,* 13(1), 35 – 46

Lamb, R., and Kling, R. (2003), Reconceptualising Users as Social Actors in Information Systems Research, MIS Quarterly, (27:2), 197-235

Lancaster, G. (2005), Research methods in management. A concise introduction to research in management and business consultancy, Burlington, MA: Elsevier Butterworth-Heinemann

LASSAR, W., MANOLIS, C. & LASSAR, S. (2005) The relationship betweenconsumer innovativeness, personal characteristics, and online bankingadoption. International Journal of Bank Marketing, 23,176-199.

Layne, K. & Lee, J. 2001, Developing fully functional E-government: A four stage model,

Government Information Quarterly, 18(2), pp. 122(15)

Lázaro, M. & Marcos, E. (2006), An approach to the integration of qualitative and quantitative research methods in software engineering research, Proceedings of the 2nd International Workshop on Philosophical Foundations of Information Systems Engineering (PHISE‟06), LNCS. Springer-Verlag, Berlin, D

Leach, M., Hennessy, M., & Fishbein, M. (2001), Perception of easy-difficult: Attitude or self-efficacy? Journal of Applied Social Psychology, 31, 1-20

Lee, J.K., and Rao, H.R., (2003), Risk of Terrorism, Trust in Government, and e-GovernmentServices: An Exploratory Study of Citizens‘ Intention to use e-Government Services ina Turbulent Environment, *International conference of information system*

(ICIS) 2003

Lee, A. (1989), A Scientific Methodology for MIS Case Studies, MIS Quarterly Vol. 13(1), pp. 33-50.

Lee D, Rhee Y, Dunham RB (2009), The Role of Organizational and Individual Characteristics in Technology Acceptance, Int. J. Hum. Comp. Interaction, 25(7), 623-646

Lee-Kelley, L. & Kolsaker, A. (2004) 'E-government: the 'fit' between supply assumptions and usage drivers', Electronic Government, an International Journal, 1(2), 130-140

Levy, J. A. (1988) Intersections of Gender and Aging, Sociological Quarterly (29) 4, pp. 479- 486

Lewin, G. W. (1948), Resolving Social Conflict, (Eds.), London: Harper & Row

Lewin, K. (1946), Action research and minority problems, in Lewin, G. W. (Eds.), Resolving Social Conflict, London: Harper & Row

Li, C.C. (1975), Path analysis: a primer, The Boxwood Press

Lieber, A. (2000), E-Government initiatives meeting, Retrieved June 28, 2011, from ostiwebmaster@osti.gov

Light, D. (2009), The Role of ICT in Enhancing Education in Developing Countries: Findings from an Evaluation of The Intel Teach Essentials Course in India, Turkey, and Chile, Journal of Education for International Development, 4(2), Retrieved June 29, 2011, from http://www.equip123.net/JEID/articles/4_2/Light.pdf

Lin, J. C. & Lu, H, Towards an understanding of the behavioural intention to use a web site*International Journal of Information Management* 20 (2000) 197}208

Liu, C. & Arnett, K.P. (2000), Exploring the Factors Associated with Website Success in theContext of Electronic Commerce, *Information & Management*, 38 (2000),23-33.

Lociacono, E. and Watson, R.T., & Goodhue, D. (2000). WebQual Tm: A Web Site Quality Instrument, *Working Paper. Worcester Polytechnic Institute*.

Lucas, H.C., and Spitler, V.K., (1999) Technology Use and Performance: A Field Study of Broker Workstations *Decision Sciences,* 30(2)

Lucey, T. (2005), Management Information Systems, (9th Eds.), Thompson, Lyytinen, K, Different Perspectives on Information Systems: Problems and Solutions, ACM Computing Surveys 19(1), March 1987, pp, 5-46

Luarn, P & Lin, H. (2003), A customer loyalty model for e-service context, *Journal of Electronic Commerce Research*, VOL. 4, NO. 4

Luarn, P. & Lin; H. H, (2003), A Customer Loyalty Model for E-Service Context*, Journal of Electronic Commerce Research*, Vol. 4, No. 4, 2003

Lyytinen, K. and Damsgaard J. (2001), What s Wrong with the Diffusion of Innovation Theory – The Case of a Complex and Networked Technology, in Ardis, M. A. and Marcoling
B. L. (Eds.) Diffusing software product and process innovations, London: Kluwer Academic Publishers, 173-190

Mahadeo, J. D. (2009), Towards an Understanding of the Factors Influencing the Acceptance and Diffusion of e- Government Services, Electronic Journal of e-Government, 7(4), 391 - 402

Maheshwari, B. Kumar, V. Kumar, U. & Sharan, V. (2007), E-Government Portal Effectiveness: Managerial Considerations for Design and Development, Proceedings of International Congress of e-Governance, Hyderabad, pp. 258-269

Mansour, O. & Ghazawneh, A. (2009), Research in Information Systems: Implications of the constant changing nature of IT capabilities in the social computing era, in Molka-Danielsen,
J. (Eds.): Proceedings of the 32nd Information Systems Research Seminar in Scandinavia (IRIS32), Inclusive Design, Molde University College, Molde, Norway, August 9 - 12.

Margetts, H. (2006), e-Government in Britain: A Decade on, Parliamentary Affairs, 59(2), 250-265

Margetts, H. & Dunleavy, P. (2002), Cultural Barriers to e-Government, London: NAO

Mariampolski, H. (2005), *Ethnography for Marketers: A Guide to Consumer Immersion*, Newbury Park, CA: Sage Publications

Mathieson, K. (1991), Predicting user intentions: comparing Technology Acceptance Model with the Theory of Planned Behaviour, Information Systems Research, 2(3), 173-91

McDonagh, M. (2002), E-Government in Australia: the Challenge to Privacy of Personal Information, International Journal of Law and Information Technology, 10(3): 327-343

McGill, T. and Klobas, J. (2004), An Investigation of the Role of Involvement in User Developed Application Success, Proceedings (Australasian) ACIS 2004, page 24

McGrath, G. M. (1997), Behavioural Issues in Information Systems Design, Development anti Implementation: A Process Modelling Framework, Proceedings of the 3rd Pacific Asia Conference on Information Systems, Brisbane, Australia, 1-5 April, pp. 793-804

MCKEEN, J. D., GUIMARAES, T. & WETHERBE, J. C. (1994) The relationshipbetween user participation and user satisfaction: An investigation of fourcontingency factors. MIS Quarterly, 427-451.

McKay, J. & Marshall, P. (2001), Action Research: a guide to process and procedure. Submitted to ECIS 2001 Bled Slovenia, June 27-29

McKinney, V., Yoon, K., Zahedi, F.M., (2002) The Measurement of Web-CustomerSatisfaction: An expectation and Disconfirmation Approach, *Information SystemResearch*, Vol. 13, No. 3, September, pp.296-315.

McKnight, D.H., Choudhury, V., Kacmar, C., (2002), Developing and Validating TrustMeasures for e-Commerce: An Integrative Typology, *Information Systems Research*,v.13 n.3, p.334-359.

McKnight, D.H., Choudhury, V., Kacmar, C., The impact of initial consumer trust on Intentions to transact with a web site: a trust building model, *Journal of Strategic Information Systems* 11 (3/4), 2002, pp. 297-323.

McKnight, D.H., Cummings, L.L., Chervany, N.L., Initial trust formation in new organizational relationships, *The academy of Management Review*, (23:3), 1998, pp. 473- 490

Mclaughlin, K. Osborne, P. & Ferile, E. (2002), New Public Management; Current Trends and Future Prospects, London, Routledge

Meijer, A. Burger, N. & Ebbers, W. (2009), Citizens4Citizens: Mapping Participatory Practices on the Internet, Electronic Journal of e-Government, 7(1), pp. 99 – 112

Mendez, C. (2009), Anthropology and ethnography: contributions to integrated marketing communications, Marketing Intelligence & Planning, 27(5), 633–648

Merali, Y. & McKelvey, B. (2006), Using Complexity Science to effect a paradigm shift in Information Systems for the 21st century. Journal of Information Technology, 21, 211-215

Mingers, J. (2001), Combining Research Methods: Towards a Pluralistic Methodology, Information Systems Research, 12(3), 240-259

Misra, D. C. (2006), Defining e-government: A citizen- centric criteria based approach, 10th National Conference on e-Governance, Bhopal, Madhya Pradesh, India

Mofleh, S. I. & Wanous, M. (2008), Understanding factors influencing citizens_ adoption of e-government services in the developing world: Jordan as a case study, INFOCOM-Journal of Computer Science, 7(2), 1-11

Molla, A., & Licker P. S., (2001), E-Commerce system success: An attempt to extend and respecify the DeLone & McLean model of IS success*, Journal of Electronic CommerceResearch*, 2 (4).

Montagna J. M. (2005), A framework for the assessment and analysis of electronic government proposals, Electronic Commerce Research and Applications, 4(3), pp. 204-219

Montealegre, R. (1999), A case for more case study research in the implementation of information technology in less-developed countries, Information Technology for Development, 8(4), 199-207

Moodley, S. (2005) -The Promise of E-Development? A Critical Assessment of the State ICT for Poverty Reduction Disclosure in South Africa, Perspectives on Global Development and Technology, Vol 4, No.1, pp 1-25.

Moon, M. J. (2002), The Evolution of E-Government among Municipalities: Rhetoric or Reality, Public Administration Review, 62(4): 424–33

Moon, J. W. & Kim, Y. G. (2002), Extending the TAM for a World-Wide-Web context, Information & Management, Vol. 38, 217-230

Moore, G. C. & Benbasat, I. (1991), Development of an instrument to measure the perceptions of adopting an information technology innovation, Information Systems Research, 2(3), 192-222

Morgan, R.M., and Hunt, S.D.,1994 The commitment–trust theory of relationship marketing,*Journal of Marketing*, 20(38).

Morocco: Ministry of Economic and General Affairs (2006), "Note de Synthèse: Composants Majeurs de la Stratégie Nationale e-Maroc 2010 », available:http://www.septi.gov.ma/Strategies/Docs/Note-deSynthèse_e-Maroc_2010.

Morocco: Ministry of Economic and General Affairs, Department of Post, Telecommunication and Information Technologies (2007) "Stratégie e-Maroc 2010: Réalisations, orientations and plans d'action. Réussir notre société de l'Information," available: http://www.septi.gov.ma/Livre_R%C3%A9f%C3%A9rence_Strat%C3%A9gie_eMaroc.

Morris, R. (2002), Electronic Service Delivery: More Than Just Technology, Proceedings of 2nd European Conference on E-government, St Catherine's College Oxford, United Kingdom, 299-311

Mulgan, G. & Albury, D. (2003), Innovation in the Public Sector. Prime Minister_s Strategy Unit/Cabinet Office, London, Retrieved June 26, 2011, from http://michaellittle.org/documents/Mulgan%20on%20Innovation.pdf

Myers, M. D. (1997), Qualitative Research in Information Systems, MIS Quarterly 21(2), June 1997, pp. 241-242, MISQ Discovery, archival version, June 1997, http://www.misq.org/discovery/MISQD_isworld/ . MISQ Discovery, updated version,

last modified: February 17, 2011 www.qual.auckland.ac.nz

Myers, M. D. & Tan, F. (2002), Beyond Models of National Culture in Information Systems Research, Journal of Global Information Management, 10(1), 24-32

Myers, M. D. (2007), Bureaucracy: How IT Kills Your Stakeholders and Ultimately your Organisation. Management Today, April, pp 1-8. Retrieved June 29, 2011, from http://www.lemar.co.za/images/resources/Bureaucracy.pdf

Negash, S., Ryan, T., Igbaria, M., 2003. Quality and effectiveness in Webbased customer support systems. *Information & Management* 40 (8), 757–768.

Nelson, M. 1997. Building trust in cyberspace.*International Information and Library Review*29:153–57.

Ndou, V.D. (2004), E-Government for Developing Countries: Opportunities and Challenges, Electronic Journal of Information Systems in Developing Countries, 18(1), pp. 1-24

Nelson, M. L. & Shaw, M. J. (2003), The adoption and diffusion of interorganizational system standards and process innovations, Proceedings of the ICIS, MISQ Special Issue Workshop, Seattle 258-301

Neuman, W. L. (2003), Social Research Methods: Qualitative and Quantitative approaches (5th Eds.), Boston: Allyn and Bacon

Newsted, P. R. Huff, S. L. & Munro, M. C. (1998), Survey Instruments in Information Systems, *MIS Quarterly*, 22 (4), 553-554

Niglas, K. (2004), *The combined use of qualitative and quantitative methods in educational research*, Tallinn, Estonia: Tallinn Pedagogical University

Nordfors, L. Ericson, B. & Lindell, H. (2006), *The Future of eGovernment - Scenarios 2016*, VINNOVA – Swedish Governmental Agency for Innovation Systems

Norris D. F. & Moon, M. J. (2005), Advancing e-government at the grassroots: Tortoise or Hare? *Public Administration Review*, 65(1), 64-75

Nour, M. A. Abdel Rahman, A. A. & Fadialla, A. (2008), A context-based integrative framework for e-government initiatives, *Government Information Quarterly*, 25 (3), 448-461

NTC (2011). -A Vision of a Democratic Libya. Available at: www.ntclibya.org/english/libya/

OECD (2003), The E-Government Imperative: Main Findings. Retrieved June 26, 2011, from http://www.oecd.org/dataoecd/60/60/2502539.pdf

Ochara, N. M. (2008) -Emergence of the eGovernment artifact in an environment of social exclusion in Kenya, The African Journal of Information Systems, Vol 1, No.1, pp 18-43

Oliver, Richard L. 1997. *Satisfaction: A Behavioral Perspective on the Consumer.* New York:McGraw-Hill.

Oostveen, A. Marie. Besselaar, Van. P. (2005), User Involvement in Large-Scale E-government Projects: Finding an Effective Combination of Strategies and Methods (2005), User Involvement in E-Government Development Projects, Folstad, A. Krogstie, J. Oppermann, R. & Svanaes, D (Eds.), Tenth IFIP TC13 International Conference on Human Computer Interaction, pp. 11-18

Orlikowski W. J. (1993), CASE Tools as Organizational Change: Investigating Incremental and Radical Changes in Systems Development, MIS Quarterly, 17(3)

Orlikowski, W. J. & Baroudi, J. J. (1991), Studying Information Technology in Organizations: Research Approaches and Assumptions, Information Systems Research, 2(1), 1-28

Pagano, C. & Cook, M. (2004), The New York State-Local Internet Gateway Prototype Project: Current Practice Research, Centre for Technology in Government, University at Albany, SUNY. Retrieved June 26, 2011, from http://www.ctg.albany.edu/publications/reports/current_practice?chapter=3&section=2

Palvia, S. C. J. & Sharma, S. S. (2007), E-Government and E-Governance: Definitions/Domain Framework and Status around the World, Foundation of e-government, ICEG, 2007, pp.1-12

Papadopoulou, P. Nikolaidou, M. & Martakos, D. (2010), What Is Trust in EGovernment? A Proposed Typology, Proceedings of the 43rdHawaii International Conference on System Sciences, pp. 1-10

Papazafeiropoulou, A. Gandecha, R. & Stergioulas, L. (2005), Interpretive flexibility along the innovation decision process of the UK NHS care records service (NCRS): Insights from a local implementation case study, Proceedings of the Thirteenth European Conference on Information Systems Regensburg, Germany

Pardo, T. (2000), Realizing the Promise of Digital Government: It s More than building a Web Site, Centre of Technology in Government, University of Albany

Parker, C. Wafula, E. Swatman, P. & Swatman, P. (1994), Information systems research methods: The technology transfer problem, Proceedings of the 5th Australian Conference on Information System, Caulfield, Victoria, Monash University, Department of Information Systems, 197-208

Patton, M. Q. (2002), Qualitative Research and Evaluation Methods, Thousand Oaks, CA: Sage

Pavlou, P. & Gefen, D. (2004), Building Effective Online Marketplaces with Institution- based Trust, Information Systems Research 15(1), 37-59

Peristeras, V. & Tarabanis, K. (2004), Governance enterprise architecture (GEA): Domain models for e-governance, Proceedings of the 6th International Conference on Electronic Commerce, Delft. The Netherlands

Petter, S. S. & Gallivan M. J. (2004) Toward a Framework for Classifying and Guiding Mixed Method Research in Information Systems, Proceedings of the 37th International Conference on System Sciences, Hawaii

Phang, Chee Wei. Li, Y. Sutanto, J. & Kankanhalli, A. (2005), Senior Citizens' Adoption of E-Government: In Quest of the Antecedents of Perceived Usefulness, Proceedings of the 38th Annual Hawaii International Conference on System Sciences (HICSS'05),

Track 5, vol. 5, pp.130a

Phythian, M., Fairweather, N.B. and Howley, R. (2009), Developing measures of e-Government progress using action research. 9th European Conference on e-Government, pp. 522-528

PIKKARAINEN, T., PIKKARAINEN, K., KARJALUOTO, H. & PAHNILA, S. (2004) Consumer acceptance of online banking: an extension of the technologyacceptance model Internet Research 14,224-235.

Pinsonneault, A. & Kraemer, K. L. (1993), The impact of information technology on middle managers, MIS Quarterly Executive, 17(3), 271-292

Poelmans S. Wessa, P. Milis, K. & Van Stee, Ed. (2009), Modeling educational technology acceptance and satisfaction, Proceedings of EDULEARN09 Conference, 6th-8th July, Barcelona, Spain

Plouffe, C. R. Hulland, J. S. & Vandenbosch, M. (2001), Research report: richness versus parsimony in modelling technology adoption decisions-understanding merchant adoption of a smart card-based payment system, Information Systems Research, 12(2), 208-22

Preston, A. M. (1991), The Problem in and of Management Information Systems. Accounting, Management and Information Technologies, 1(1), 43-69

Pudjianto, Boni Wahyu & Hangjung, Zo (2009), Factors Affecting E-Government Assimilation in Developing Countries (December 08, 2009), 4th Communication Policy Research, South Conference, Negombo, Sri Lanka

Putnam, L. (1983), The interpretative perspective: An alternative to functionalism, in L. Putnam, and M. Pacanowsky (Eds.), Communication and organizations, Beverly Hills, CA: Sage

Rai, A., Lang, S.S., and Welker, R.B., 2002. Assessing the Validity of IS Success Models: An

Empirical Test and Theoretical Analysis, *Information Systems Research,* 13(1), pp 50-69.

Rahmawati, Y. (2008), The Nature and Characteristics of Educational Research.

Retrieved 29 June, 2011, from http://pendidikansains.wordpress.com/2008/04/12/epistemological- ontological-and-methodological/

Rapoport, R.N. (1970), Three Dilemmas in Action Research, Human Relations 23(6), 499- 513

Raymond, L. (1985), Organizational Characteristics and MIS Success in the Context of SmallBusiness, *MIS Quarterly*, 9(1), pp. 37-52.

Reddick, C.G. (2005), Citizen interaction with e-government: From streets to servers? Government Information Quarterly, 22(1), 38-57

Reddick, C. G. (2011), Customer Relationship Management (CRM) technology and organizational change: Evidence for the bureaucratic and e-Government paradigms, Government Information Quarterly, 28(3), 346-353

Reichardt, C. S. & Cook, T. D. (1979), Beyond qualitative versus quantitative methods, in T.

D. Cook & C. S. Reichardt (Eds.), Qualitative and quantitative methods in evaluation research, (pp. 7–32). Newbury Park, CA: Sage

Remenyi, D. & Williams, B. (1996), The nature of research: qualitative or quantitative, narrative or paradigmatic? Information Systems Journal, 6, 131-146

Riley, B. T. (2001) Electronic Governance and Electronic Democracy: Living and Working in the Connected World, Vol. 2, Commonwealth Centre for Electronic Governance, Brisbane, Australia

Riordon, S. (2009) SchoolNet South Africa: Accessing a world of Learning, Retrieved June 10, 2009 from http://www.scienceinafrica.co.za

Robinson, J. C. Casalino, L. P. Gillies, R.R. Rittenhouse, D. R. Shortell S. S. & Fernandes-Taylor, S. Financial incentives, quality improvement programs, and the adoption of clinical information technology, Med Care, 47(4), 411–7.

Roca, C. J., Chao-Min Chiu & Martinez, F. J. (2006), Understanding e-learning continuance intention: An extension of the Technology Acceptance Model, *International Journal of Human-Computer Studies* 64 (2006) 683–696

Rochelean, B & Wu, L. (2005) E-Government and Financial Transactions: Potential versus Reality. Electronic journal of E-Government. 3 (4), 219 -230

Rogers, EM. (1995) Diffusion of Innovations, (4th Eds.), Free Press, New York, NY

Rogerson, S. & Fairweather, B. (2003), The Information Society and ICES. Journal of Information Communication and Ethics in Society, (1)1, 3-6

Rohde, M. Stevens, G. Broedner, P. & Wulf, V. (2009), Towards a paradigmatic shift in IS: designing for social practice, Proceedings of the DESRIST'09, Malvern, PA, USA

Rokhman, A. (2011), E-Government Adoption in Developing Countries; the Case of Indonesia, Journal of Emerging Trends in Computing and Information Sciences, 2(5), 228- 236

Rowlands, B. (2003), Employing Interpretive Research to Build Theory of Information Systems Practice, Australian Journal of Information Systems, 10(2), 3-22

Roy, J. (2006), E-Government in Canada: Transformation for a Digital Age. Ottawa: University of Ottawa Press

Ruyter, K. D., & Scholl, N. (1998), Positioning qualitative market research: reflections from theory and practice. Qualitative Market Research, 1(1), 7-14.

Sagheb-Tehrani, M. (2007), Some steps towards implementing e-government, SIGCAS Computers and Society, 37 (1), 22-29

Sarantakos, S. (2005), Social Research, Hampshire, Palgrave Macmillan

Seddon, P. B. & Kiew, M. Y. (1996), A partial test and development of delone and mclean's model of is success, *Australian Journal of Information system* (AJIS) Vol. 4 No. 2, may.

Seddon, P. B. (1997), A Respecification and Extension of the DeLone and Mclean Model of IS Success. Information System Research, Vol.8, No.3.

Schaupp, L. C. & Carter, L. (2005), E-voting: from apathy to adoption, The Journal of Enterprise Information Management, 18(5), pp. 586-601

Schedler, K. & Scharf, M. C. (2002), Exploring the Interrelations between Electronic

Government and the New Public Management, Developing a basic research program for digital government workshop, Harvard University

Schuppan, T. (2009), E-Government in developing countries: Experiences from sub-Saharan Africa, Government Information Quarterly, 26, 118–127

Scott, J. K. (2006), the People: Do U.S. Municipal Government Web Sites Support Public Involvement, Public Administration Review, 66, 341-353

Seifert, J. & Chung, J. (2009), Using E-Government to Reinforce Government–Citizen Relationships Comparing Government Reform in the United States and China, Social Science Computer Review, 27(1), 3-23

Seifert, J. & Peterson, R. (2002), The Promise of All Things E? Expectations and Challenges of Emergent Electronic Government, Perspectives on Global Development and Technology 1(2): 193 – 212

Shapiro, S. P. The Social Control of Impersonal Trust', *American Journal of Sociology* 93(3):623–58. 1987

Sharma, S. K. (2004), Assessing e-Government implementation, Electronic Government, 1 (2), 198–212

Sharma, S. K. & Gupta, J. N. D. (2002), Transforming To E-Government: A Framework, *Proceedings of 2nd European Conference on E-government*, St Catherine's College Oxford 2002, United Kingdom, pp. 383-390

Shin, S. Song, H. & Kang, M. (2008), Implementing E-Government in Developing Countries: Its Unique and Common Success Factors, *Annual meeting of the APSA 2008 Annual Meeting*, Hynes Convention Centre, Boston, Massachusetts Online. Retrieved June 3, 2011, from http://www.allacademic.com/meta/p280176_index.html

Siddiquee, N.A., (2006), Innovations in governance and service delivery: e-government experiments in Malaysia. The role of public administration in building a harmonious society, 366-384

Smith, A.G. (2001), Applying evaluation criteria to New Zealand government websites,*International Journal of Information Management* 21 (2001) 137}149, Spring 1995, pp87-114.

Smith, S. Jamieson, R. & Winchester, D (2007), An action research program to improve Information Systems security compliance across government agencies, Proceedings of the 40th Hawaii International Conference on System Sciences, IEEE

Song, J., & Zahedi, F. M. (2001), Web design in e-commerce: a theory and empirical analysis, Proceeding of 22nd International Conference on Information Systems, pp. 219

Srivastava, S. C. & Teo, T. S. H. (2009), Citizen Trust Development for E-Government Adoption and Usage: Insights from Young Adults in Singapore, Communications of the Association for Information Systems: Vol. 25, Article 31

Srnka, K. J. and Koeszegi S. T. (2007) From Words to Numbers - How to Transform Rich Qualitative Data into Meaningful Quantitative Results: Guidelines and Exemplary Study, Schmalenbach's Business Review, Vol. 59 of January, pp. 29 – 57

Steckler, A., McLeroy, K.R., Goodman, R.M., Bird, S.T., McCormich, L. (1992), Toward integrating Qualitative and Quantitative Methods: An Introduction, Health Education Quarterly, 19, 1, pp.1-8

Stockdale, R. & Borovicka, M. (2006), Using Quality Dimensions in the Evaluation of Web Sites, *Proceedings of the International Conference in Information and CommunicationTechnologies in Tourism 2006* in Lausanne, Switzerland.

Stokes, R. (2005), Measuring event sponsorship effects in a government-to business (G2B) relationship domain, Proceedings of ANZMAC 2005: Business Interaction, Relationships and Networks, Fremantle, Western Australia, 168-173

Stratford, J. S., Stratford, J. (2000), Computerized and Networked Government Information, Journal of Government Information, 27 (3), 385–389

Susanto, T, D and Goodwin, R. (2010) Factors Influencing Citizen Adoption of SMS-Based e-Government Services, Electronic Journal of e-Government, 8(1), (55 - 71)

Szymanski, David M., & Hise, Richard T. (2000) e-Satisfaction: An initial examination.*Journal of Retailing*, 76(3), 309–322.

Tan, M. K., Wang, X., & Zhu, L. (2003), Symbolic interactionist ethnography: Implications for information systems (IS) research and practice. Proceedings of the 11th European

Conference on Information Systems, ECIS 2003, Naples, Italy, June 16-21, 2003

TAYLOR, S. & TODD, P. (1995) Understanding information technology usage: atest of competing models. Information Systems Research, 6,144-176.

Thanh N. H. T. (2008), Strengthening ICT Leadership in Developing Countries, The Electronic Journal of Information Systems in Developing Countries, 34(4), 1-13

Thomas, C. W. (1998), Maintaining and restoring public trust in government agencies andtheir employees. *Administration and Society* 30 (2): 166–93.

Trauth, E. M., (2001), Qualitative Research in IS: Issues and Trends, Idea Publishing

Triandis, H. C. (1980), Values, attitudes, and interpersonal behavior, in M. M. Page (Eds.), 1979 Nebraska symposium on motivation: Beliefs, attitudes, and values, pp.195-259, Lincoln, NE: University of Nebraska Press

Trochim, W. (2006), Research Methods Knowledge Base, Retrieved June 26, 2011, from http://www.socialresearchmethods.net/kb/

Tung, L.L. and Rieck, O. (2005), Adoption of Electronic Government Services among Business Organizations in Singapore, Journal of Strategic Information Systems, 14(4): 417- 440

UNDP (2010) Libya Arab Jamahiriya, available. Online at http:www.undp-Libya.org/accessed on 5th March 2012

United Nations (2003) UN Global E-Government Survey, Retrieved June 28, 2011, from http://unpan1.un.org/intradoc/groups/public/documents/un/unpan016066.pdf

United Nations (2009), Foreign Direct Investment Report, Economic and Social Commission for Western Asia (ESCWA) UN, New York

United Nations (2010), E-Government Survey, Leveraging e-government at a time of financial and economic crisis, Department of Economic and Social Affairs, Division for Public Administration and Development Management, UN, New York

Vathanophas, V. Krittayaphongphun, N. & Klomsiri, C. (2008), Technology acceptance toward e-government initiative in Royal Thai Navy, Transforming Government: People, Process and Policy, 2(4), 256-282

Vencatachellum, I. & Pudaruth, S. (2010), Investigating e-government services uptake in Mauritius: A user_s perspective, International Research Symposium in Service Management, Le Meridien Hotel, Mauritius, 24-27 August, http://www.uom.ac.mu/sites/irssm/papers/Vencatachellum%20&%20Pudaruth%20~%2073.p df

Venkatesh, V. & Davis, F. D. (2000), A theoretical extension of the Technology Acceptance Model: four longitudinal field studies, Management Science, 46 (2), 186-204

Venkatesh, V. & Brown, S. A. (2001), A longitudinal investigation of personal computers in homes: adoption determinants and emerging challenges, MIS Quarterly, 25 (1), pp. 71-102

Venkatesh, V. Morris, M. G. Davis, G. B. & Davis, FD. (2003), User acceptance of Information Technology: toward a unified view, MIS Quarterly, 27(3), pp. 425-78

Verhagen, T. & Y. H. Tan, (2004), Perceived Risk and Trust Associated with Purchasing at Electronic Marketplaces, Proceedings of the 12th European Conference on Information Systems (ECIS), Turku, Finland, 2004

Walsham, G. (1993) Interpreting Information Systems in Organizations, John Wiley & Sons, Chichester, UK

Walsham, G. (1995), Interpretive case studies in IS research: nature and method, European Journal on Information Systems, Vol. 4, 74-81

Walsham, G. (2006) Doing Interpretive Research, European Journal of Information Systems, Vol. 15, 320-330

Wang, Y.-S., Tang, T.-I., 2003.Assessing customer perceptions of website service quality indigital marketing environments.*Journal of End User Computing* 15 (3), 14–28.

Wang, Y. S. (2003), The adoption of electronic tax filing systems: An empirical study, Government Information Quarterly, 20(4), 333–352

Wangpipatwong, S. Chutimaskul, W. & Papasratorn, B. (2005), A Pilot Study of Factors Affecting the Adoption of Thai e-Government Websites, Proceedings of the

International Workshop on Applied Information Technology (IAIT‟05), pp. 15–21

Wangpipatwong, S. Chutimaskul, W. & Papasraton, B. (2008), Understanding citizen_s continuance intention to use e-government website: a composite view of technology acceptance model and computer self-efficacy, The Electronic Journal of E-Government, 6(1), 55-64.

Warkentin, M., Gefen, D., Pavlou, P. A., & Rose, G. M. (2002), Encouraging Citizen Adoption of e-Government by Building Trust, Electronic Markets, 12(3), 157-162

Weerakkody, V. Dwivedi, Y. K. Brooks, L. & Williams, M.D. (2007), E-government implementation in Zambia: contributing factors, *Electronic Government: An International Journal*, Vol. 4, 484-508

Weerakkody, V. El-Haddadeh, R. & Al-Shafi, S. (2011), Exploring the complexities of e- government implementation and diffusion in a developing country: Some lessons from the State of Qatar, *Journal of Enterprise Information Management*, 24(2), 172 – 196

Welch, E. & Hinnant, C. C. (2002), Internet Use, Transparency, and Interactivity Effects onTrust in Government, *Proceedings of the 36th Hawaii International Conference onSystem Sciences* (HICSS‟03) IEEE

Welch, E.W., Hinnant, C.C. & Moon, J. M. (2004), Linking Citizen Satisfaction with E-Governmentand Trust in Government, *Journal of Public Administration Research and Theory*, 15(3)

Welch, E. W. & Pandey, S. K. (2007). E-Government and Bureaucracy: Toward a Better Understanding of Intranet Implementation and Its Effect on Red Tape, *Journal of Public Administration Research and Theory, 17*(3), 379-404

West, D. M. (2004), E-government and the transformation of service delivery and citizen attitudes, Public Administration Review, 64(1):15-27

West, D. M. (2005), Digital Government: Technology and Public Sector Performance, Princeton University Press: Princeton, NJ

West, D. M. (2008), Improving Technology Utilization in Electronic Government around

the World (Governance Studies at Brookings). Centre for Public Policy, Brown University, RI, USA. Retrieved June 27, 2011, from http://www.brookings.edu/~/media/Files/rc/reports/2008/0817_egovernment_west/0817_egovernment_west.pdf

Williams, P. (2006) Making Research Real: Is Action Research a Suitable Methodology for Medical Information Security Investigations? Proceedings of 4th Australian Information Security Management Conference, Edith Cowan University, Perth, Western Australia, 5th of December

Wolcott, H. F. (1987), On ethnographic intent, In George & Louise Spindler (Eds.), interpretive ethnography of education: At home and abroad (pp. 37-57), Hillsdale, NJ: Lawrence Erlbaum

World Bank (2004), Retrieved June 3, 2011, from www.wordbank.org

Xuan, Weibing. Xu, Jun. & Quaddus, M. (2007), Exploring Chinese Consumers_ Perceptions of Website Quality and Their Relationships with Adoption of Online Shopping: A Preliminary Study in China_s Retail Market, *Proceedings of the 13th Asia Pacific Management Conference*, Melbourne, Australia, 185-191

Yang, Z., & Fang X.,(2004), Online service quality dimensions and their relationships withsatisfaction; A content analysis of customer reviews of securities brokerage services,*International Journal of Service Industry Management*, 15(3).

Yang, H. Moon, Y. & Rowley, C. (2009), Social influence on knowledge worker_s adoption of innovative information technology, *Journal of Computer Information Systems*, 50, 25-36

Yauch, C. & Steudel, H. (2003), Complementary Use of Qualitative and Quantitative Cultural Assessment Methods, Organizational Research Methods, 6(4), 465-481

Yin, R. (1994), Case study research: Design and methods (2nd Eds.), Beverly Hills, CA: Sage Publishing

Yonazi, J., Sol, H.G., and Boonstra, A. (2008), Developing a Framework for

Assessing Adaptability of Citizen-Focused eGovernment Initiatives in developing Countries: the Case of Tanzania; Exploratory Phase Results, 8th European Conference on e-Government, Lausanne

Yong, J. S. L. & Koon, L. H . (2003), E-government: Enabling Public Sector Reform in Yong, J.S.L. (Ed) E-Government in Asia: Enabling Public Service Innovation in the 21st Century. Singapore: Times Editions, Chapter 1

Zaltman, G. (1997) Market Research: Putting People Back, Journal of Marketing Research, 34(4), 424-437

Zawawi, D. (2007) Integration & dissemination: Quantitative versus qualitative methods in social sciences: Bridging the gap, Vol. 1, p. 3-4,

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Appendix 1

Frequency Table

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<18	21	5.6	5.6	5.6
	19-25	67	17.9	17.9	23.5
	26-35	84	22.4	22.4	45.9
	36-45	114	30.4	30.4	76.3
	46-55	67	17.9	17.9	94.1
	56-65	22	5.9	5.9	100.0
	Total	375	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	273	72.8	72.8	72.8
	female	102	27.2	27.2	100.0
	Total	375	100.0	100.0	

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	pre-secondary	19	5.1	5.1	5.1
	Secondary	25	6.7	6.7	11.7
	high school	122	32.5	32.5	44.3
	University	163	43.5	43.5	87.7
	postgraduate	46	12.3	12.3	100.0
	Total	375	100.0	100.0	

Occupation

		Frequency	Percent
Missing	System	375	100.0

Have you ever used a computer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	375	100.0	100.0	100.0

How much do you use a computer per day?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<1hr	102	27.2	27.2	27.2
	1-3hrs	165	44.0	44.0	71.2
	4-10hrs	75	20.0	20.0	91.2
	>10hrs	33	8.8	8.8	100.0

How much do you use a computer per day?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<1hr	102	27.2	27.2	27.2
	1-3hrs	165	44.0	44.0	71.2
	4-10hrs	75	20.0	20.0	91.2
	>10hrs	33	8.8	8.8	100.0
	Total	375	100.0	100.0	

Where do you usually use a computer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Work	71	18.9	18.9	18.9
	Home	126	33.6	33.6	52.5
	cyber café	106	28.3	28.3	80.8
	school/university	72	19.2	19.2	100.0
	Total	375	100.0	100.0	

Have you ever used the internet?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	356	94.9	94.9	94.9
	No	19	5.1	5.1	100.0
	Total	375	100.0	100.0	

What is your daily average use of the internet?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<1hr	178	47.5	47.5	47.5
	1-3hrs	120	32.0	32.0	79.5
	3-6hrs	64	17.1	17.1	96.5
	>6hrs	13	3.5	3.5	100.0
	Total	375	100.0	100.0	

Where do you usually use the internet?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Work	84	22.4	22.4	22.4
	Home	120	32.0	32.0	54.4
	cyber café	104	27.7	27.7	82.1
	school/university	67	17.9	17.9	100.0
	Total	375	100.0	100.0	

What do you use the internet for? (more than one answer is applicable)

		Frequency	Percent
Missing	System	375	100.0

Emails

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	355	94.7	94.7	94.7
	2.00	20	5.3	5.3	100.0
	Total	375	100.0	100.0	

social.net

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	220	58.7	58.7	58.7
	2.00	155	41.3	41.3	100.0
	Total	375	100.0	100.0	

Research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	55	14.7	14.7	14.7
	2.00	320	85.3	85.3	100.0
	Total	375	100.0	100.0	

search.eng

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	308	82.1	82.1	82.1
	2.00	67	17.9	17.9	100.0
	Total	375	100.0	100.0	

e.gov

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	66	17.6	17.6	17.6
	2.00	309	82.4	82.4	100.0
	Total	375	100.0	100.0	

e.com

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	131	34.9	34.9	34.9
	2.00	244	65.1	65.1	100.0
	Total	375	100.0	100.0	

e.bank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	91	24.3	24.3	24.3
	2.00	284	75.7	75.7	100.0
	Total	375	100.0	100.0	

Other

		Frequency	Percent
Missing	System	375	100.0

Are you aware about the existence of e-gov services in Libya?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	264	70.4	70.4	70.4
	No	111	29.6	29.6	100.0
	Total	375	100.0	100.0	

Do you use any E-Government services?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	141	37.6	37.6	37.6
	No	234	62.4	62.4	100.0
	Total	375	100.0	100.0	

what e-gov services have you used

		Frequency	Percent
Missing	System	375	100.0

Which of the following E-government services you know about?

		Frequency	Percent
Missing	System	375	100.0

applying for a emploment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	49	13.1	34.8	34.8
	2.00	92	24.5	65.2	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

company/business registration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	54	14.4	38.3	38.3
	2.00	87	23.2	61.7	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

identity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	58	15.5	41.1	41.1
	2.00	83	22.1	58.9	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

car registration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	75	20.0	53.2	53.2
	2.00	66	17.6	46.8	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

birth certificate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	45	12.0	31.9	31.9
	2.00	96	25.6	68.1	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

bill payement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	42	11.2	29.8	29.8
	2.00	99	26.4	70.2	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Which of the following E-government services you know about?

		Frequency	Percent
Missing	System	375	100.0

applying for a employment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	124	33.1	87.9	87.9
	2.00	17	4.5	12.1	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

company/business registration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	107	28.5	75.9	75.9
	2.00	34	9.1	24.1	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Identity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	119	31.7	84.4	84.4
	2.00	22	5.9	15.6	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

car registration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	95	25.3	67.4	67.4
	2.00	46	12.3	32.6	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

birth certificate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	109	29.1	77.3	77.3
	2.00	32	8.5	22.7	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

bill payement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	71	18.9	50.4	50.4
	2.00	70	18.7	49.6	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

15. Do you think that E-government will be more helpful than the traditional government in serving citizens?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	99	26.4	70.2	70.2
	no	42	11.2	29.8	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Rate your access level to E-government services:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very high	34	9.1	24.1	24.1
	High	41	10.9	29.1	53.2
	medium	21	5.6	14.9	68.1
	Low	26	6.9	18.4	86.5
	very low	19	5.1	13.5	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Are you satisfied with the accuracy of the content for e-government websites?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very satisfied	20	5.3	14.2	14.2
	satisfied	32	8.5	22.7	36.9
	medium	34	9.1	24.1	61.0
	not satisfied	40	10.7	28.4	89.4
	not satisfied at all	15	4.0	10.6	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Rate your level of satisfaction with e-government services:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not satisfied at all	8	2.1	5.7	5.7
	not satisfied	45	12.0	31.9	37.6
	medium	58	15.5	41.1	78.7
	satisfied	7	1.9	5.0	83.7
	very satisfied	23	6.1	16.3	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

The e-government interface displays all text and graphics quickly.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not satisfied at all	11	2.9	7.8	7.8
	not satisfied	10	2.7	7.1	14.9
	medium	73	19.5	51.8	66.7
	satisfied	39	10.4	27.7	94.3
	very satisfied	8	2.1	5.7	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

It only takes a few clicks to locate information of the E-government website.

		Frequency	Percent	Valid Percent	Cumulative Percent

I trust the information provided by any e-government website.

Valid	strongly agree	10	2.7	7.1	7.1
	sagree	12	3.2	8.5	15.6
	neutral	64	17.1	45.4	61.0
	disagree	48	12.8	34.0	95.0
	strongly disagree	7	1.9	5.0	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

It is easy to navigate within the e-government website.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	20	5.3	14.2	14.2
	sagree	42	11.2	29.8	44.0
	neutral	45	12.0	31.9	75.9
	disagree	17	4.5	12.1	87.9
	strongly disagree	17	4.5	12.1	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	17	4.5	12.1	12.1
	sagree	38	10.1	27.0	39.0
	neutral	45	12.0	31.9	70.9
	disagree	33	8.8	23.4	94.3
	strongly disagree	8	2.1	5.7	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Do you think e-government services meet the public/citizens requirements?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	9	2.4	6.4	6.4
	sagree	39	10.4	27.7	34.0
	neutral	47	12.5	33.3	67.4
	disagree	29	7.7	20.6	87.9
	strongly disagree	17	4.5	12.1	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Do you think that the government makes the right decisions for the benefit of citizens?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	84	22.4	59.6	59.6
	no	57	15.2	40.4	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

The e-government service website provides me with valuable service.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	29	7.7	20.6	20.6
	sagree	35	9.3	24.8	45.4
	neutral	32	8.5	22.7	68.1
	disagree	20	5.3	14.2	82.3
	strongly disagree	25	6.7	17.7	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

I find the e-government website service useful for accomplishing tasks more quickly than the traditional government.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	29	7.7	20.6	20.6
	sagree	27	7.2	19.1	39.7
	neutral	41	10.9	29.1	68.8
	disagree	26	6.9	18.4	87.2
	strongly disagree	18	4.8	12.8	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Using the e-government service enhance the quality of my work.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	26	6.9	18.4	18.4
	sagree	18	4.8	12.8	31.2
	neutral	59	15.7	41.8	73.0
	disagree	19	5.1	13.5	86.5
	strongly disagree	19	5.1	13.5	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

I find the e-government service website easy to interact with.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	20	5.3	14.2	14.2
	sagree	44	11.7	31.2	45.4
	neutral	39	10.4	27.7	73.0
	disagree	15	4.0	10.6	83.7
	strongly disagree	23	6.1	16.3	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

The e-government service website will enhance my effectiveness in searching for and using the service.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	13	3.5	9.2	9.2
	sagree	32	8.5	22.7	31.9
	neutral	51	13.6	36.2	68.1
	disagree	30	8.0	21.3	89.4
	strongly disagree	15	4.0	10.6	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

I find interacting with e-government website is easy to use.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	24	6.4	17.0	17.0
	sagree	35	9.3	24.8	41.8
	neutral	42	11.2	29.8	71.6
	disagree	23	6.1	16.3	87.9
	strongly disagree	17	4.5	12.1	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Interacting with e-government website enables online feedback to the government when needed.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	16	4.3	11.3	11.3
	sagree	26	6.9	18.4	29.8
	neutral	50	13.3	35.5	65.2
	disagree	23	6.1	16.3	81.6
	strongly disagree	26	6.9	18.4	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

High internet and computer cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	7	1.9	5.0	5.0
	sagree	12	3.2	8.5	13.5
	neutral	67	17.9	47.5	61.0
	disagree	28	7.5	19.9	80.9
	strongly disagree	27	7.2	19.1	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

The users lack sufficient knowledge and motivation to use e-gov

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	35	9.3	24.8	24.8
	sagree	29	7.7	20.6	45.4
	neutral	57	15.2	40.4	85.8
	disagree	17	4.5	12.1	97.9
	strongly disagree	3	.8	2.1	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

No trust and confidence in e-gov

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	26	6.9	18.4	18.4
	sagree	52	13.9	36.9	55.3
	neutral	51	13.6	36.2	91.5
	disagree	11	2.9	7.8	99.3
	strongly disagree	1	.3	.7	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

There is a lack of professional IT staff

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	5	1.3	3.5	3.5
	sagree	44	11.7	31.2	34.8
	neutral	77	20.5	54.6	89.4
	disagree	11	2.9	7.8	97.2
	strongly disagree	4	1.1	2.8	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Poor security

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	22	5.9	15.6	15.6
	sagree	33	8.8	23.4	39.0
	neutral	73	19.5	51.8	90.8
	disagree	12	3.2	8.5	99.3
	strongly disagree	1	.3	.7	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

There is a lack of funding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	33	8.8	23.4	23.4
	sagree	31	8.3	22.0	45.4
	neutral	69	18.4	48.9	94.3
	disagree	8	2.1	5.7	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

No clear laws and legislation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	17	4.5	12.1	12.1
	sagree	53	14.1	37.6	49.6
	neutral	60	16.0	42.6	92.2
	disagree	9	2.4	6.4	98.6
	strongly disagree	2	.5	1.4	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Cultural and language problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	11	2.9	7.8	7.8
	Sagree	46	12.3	32.6	40.4
	Neutral	68	18.1	48.2	88.7
	Disagree	16	4.3	11.3	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

Technology and infrastructure used is poor

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	29	7.7	20.6	20.6
	Sagree	59	15.7	41.8	62.4
	Neutral	48	12.8	34.0	96.5
	Disagree	5	1.3	3.5	100.0
	Total	141	37.6	100.0	
Missing	System	234	62.4		
Total		375	100.0		

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CORRELATIONS
  /VARIABLES=Satisfaction Website Trust Usefulness Easy
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
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Correlations

Notes

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[DataSet1] H:\Ali-hossain- Glasgow\SPSS-12-12-11-exp.sav

Correlations

		Satisfaction	Website	Trust	Usefulness	Easy
Satisfaction	Pearson Correlation	1	.425**	.383**	.503**	.399**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	141	141	141	141	141
Website	Pearson Correlation	.425**	1	.311**	.284**	.265**
	Sig. (2-tailed)	.000		.000	.001	.002
	N	141	141	141	141	141
Trust	Pearson Correlation	.383**	.311**	1	.364**	.204*
	Sig. (2-tailed)	.000	.000		.000	.015
	N	141	141	141	141	141
Usefulness	Pearson Correlation	.503**	.284**	.364**	1	.600**
	Sig. (2-tailed)	.000	.001	.000		.000
	N	141	141	141	141	141
Easy	Pearson Correlation	.399**	.265**	.204*	.600**	1
	Sig. (2-tailed)	.000	.002	.015	.000	
	N	141	141	141	141	141

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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  /FORMAT=NOTABLE
  /HISTOGRAM NORMAL
  /ORDER=ANALYSIS.
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Frequencies

Notes

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	Cases Used	Statistics are based on all cases with valid data.
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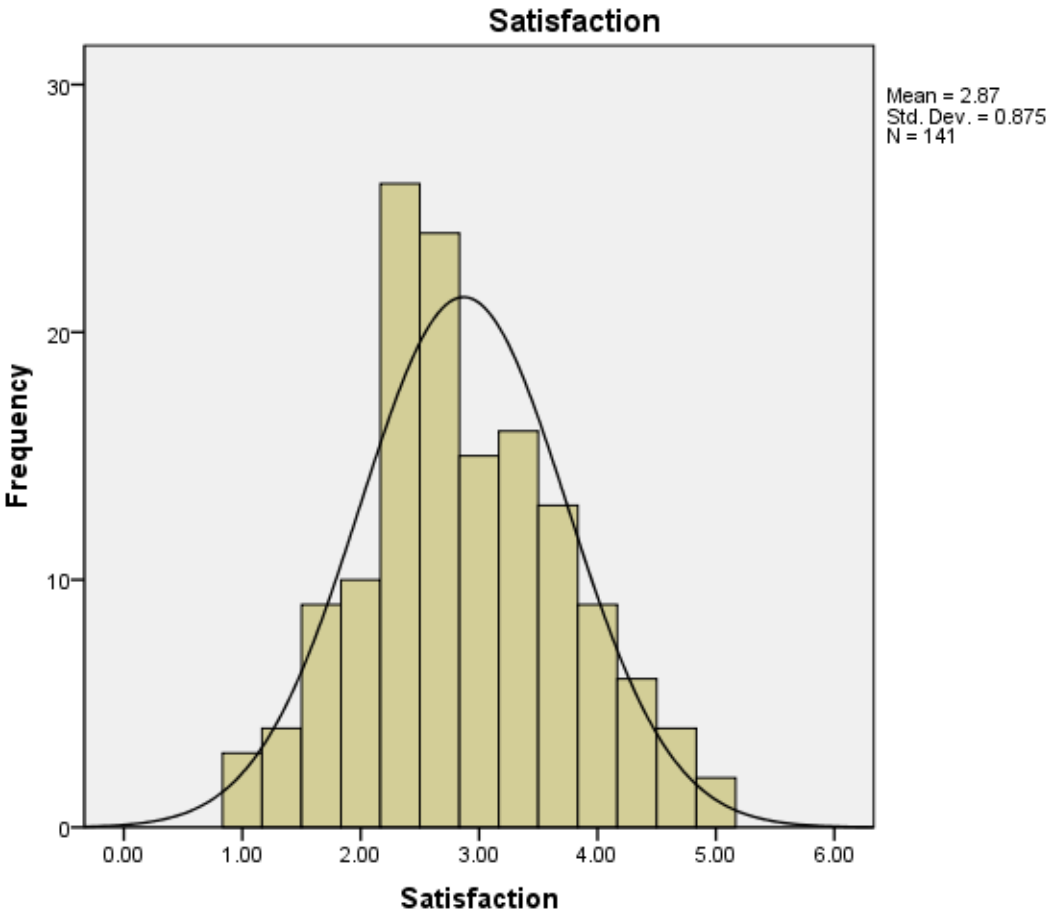
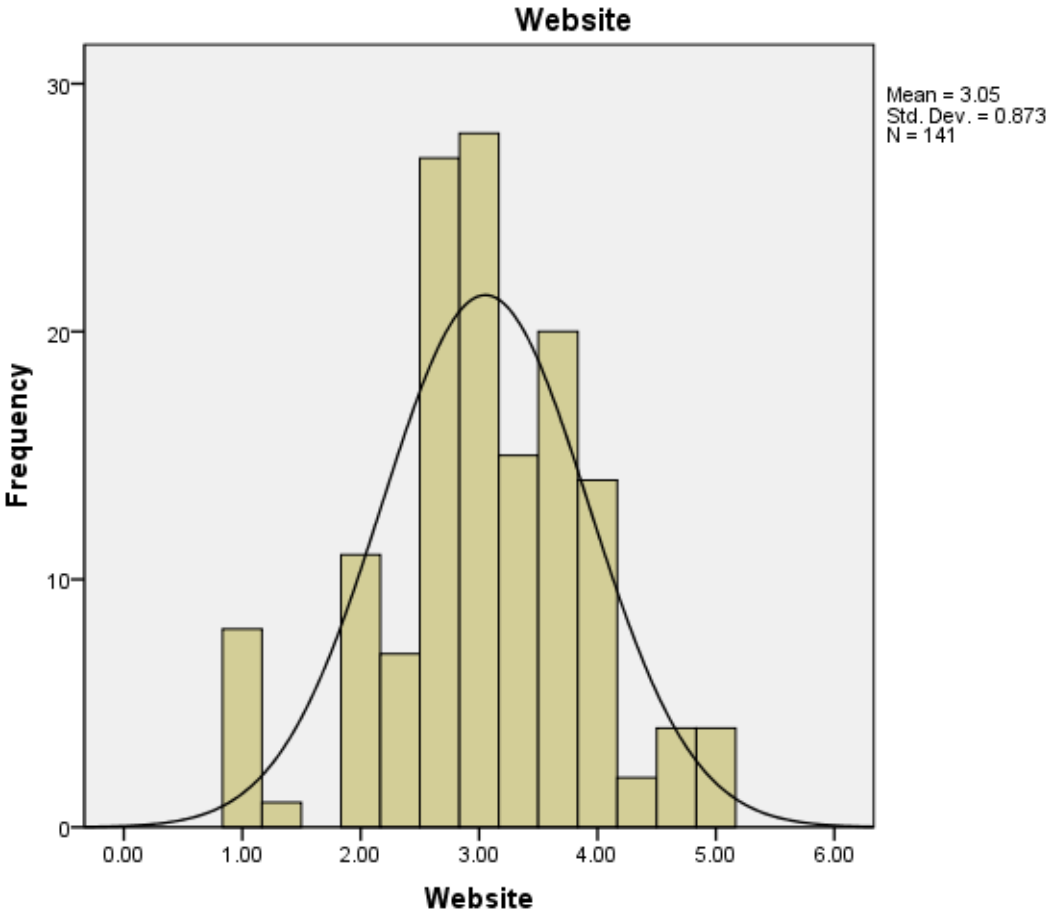
Statistics

		Satisfaction	Website	Trust	Usefulness	Easy
N	Valid	141	141	141	141	141
	Missing	234	234	234	234	234

Histogram

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Mean = 3.05
Std. Dev. = 0.873
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Frequency
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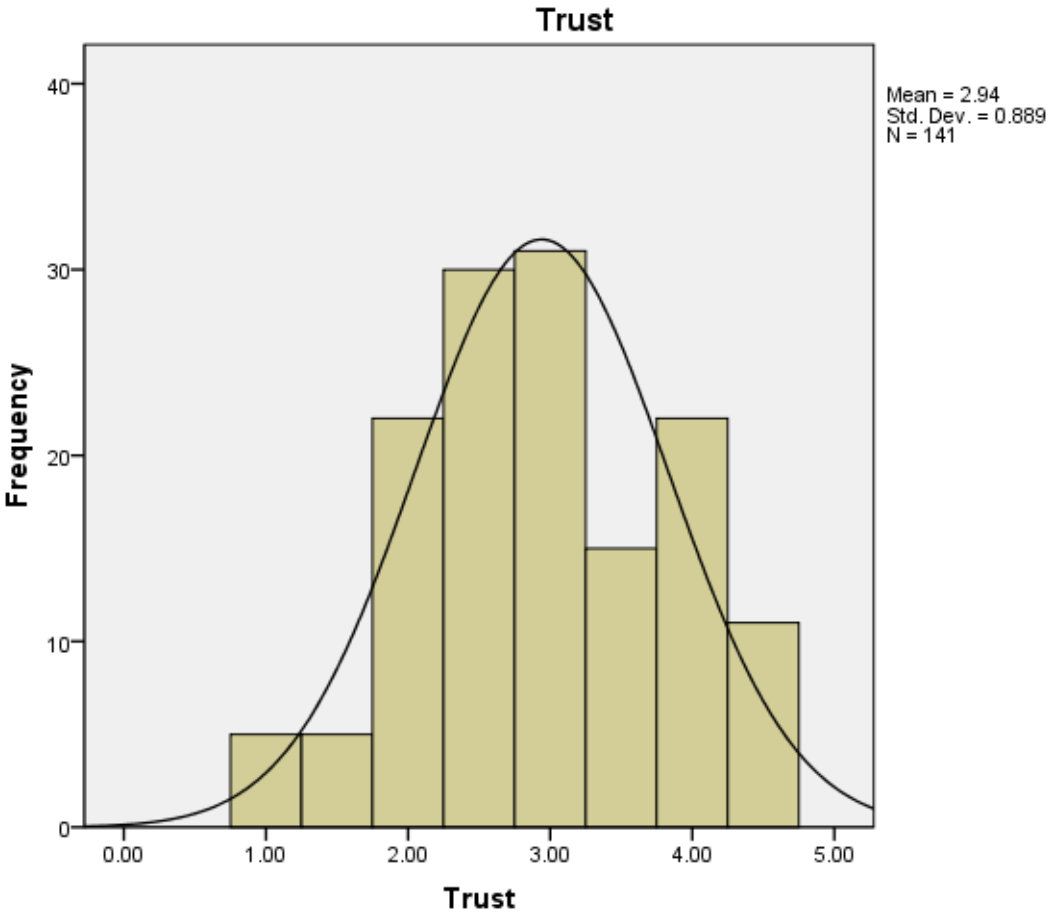
20
10
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
Website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Std. Dev. = 0.889
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30
20
10
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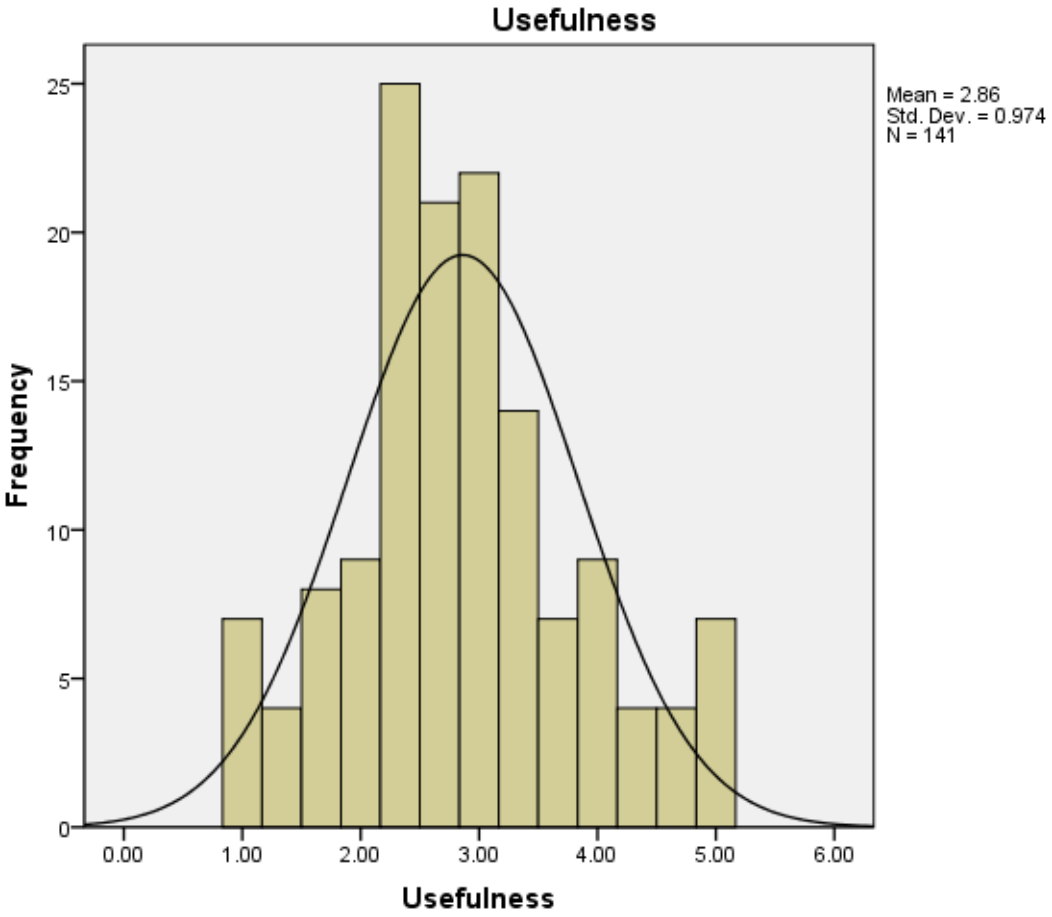
0.00
1.00
2.00
3.00
4.00
5.00
Trust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Std. Dev. = 0.974
N = 141
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20
15
10
5
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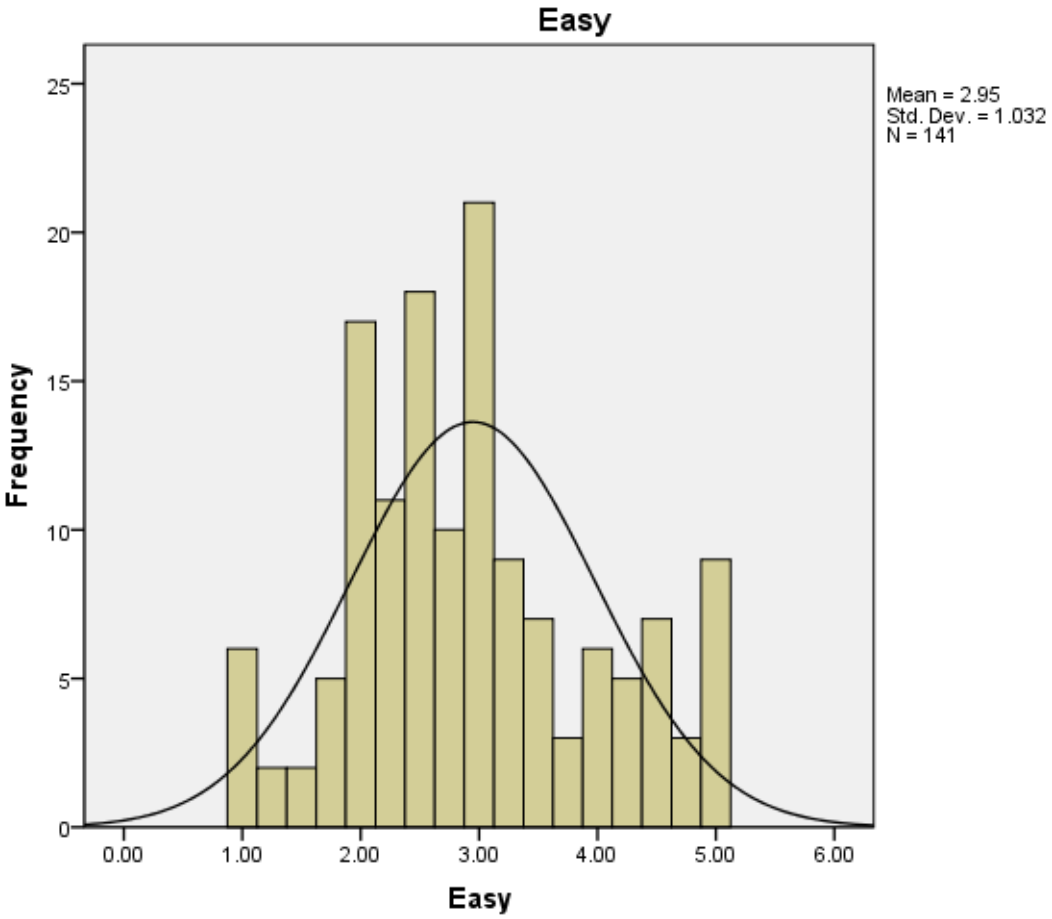
1.00
2.00
3.00
4.00
5.00
6.00
Usefulness


Easy
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Std. Dev. = 1.032
N = 141
Frequency
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20
15
10
5
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
Easy

Appendix 2

Questionnaire Factors Influencing Adoption and Diffusion <u>Personal Information</u>

9 Your age is:

- ☐ Less than 18,
- ☐ 19 to 25,
- ☐ 26 to 35,
- ☐ 36 to 45,
- ☐ 46 to 55,
- ☐ 56 to 65.

10 Your gender is:

- ☐ Male
- ☐ Female

11 Your education is:

- ☐ Pre-secondary
- ☐ Secondary
- ☐ University
- ☐ Postgraduate
- ☐ Other? (Please specify)
- ☐

12 Your occupation is

Computer Experience

13 Have you ever used a computer?

- ☐ Yes
- ☐ No

14 How much do you use a computer per day?

☐ Less than 1hour

☐ Between 1 & 3 hours

☐ Between 4 & 10 hours

☐ More than 10 hours

☐ Other? (Please specify) ☐

15 Where do you usually use a computer?

☐ At work

☐ At home

☐ In a Cyber Café

☐ At School/University

☐ Using a mobile device (Phone, Tablet PC etc)

☐ Other? (Please specify) ☐

Internet Experience

16 Have you ever used the internet?

☐ Yes

☐ No

17 What is your daily average use of the internet?

☐ Less than 1 hour

☐ Between 1 & 3 hours

☐ Between 3 & 6 hours

☐ More than 6 hours

18 Where do you usually use the internet?

☐ At work
☐ At home
☐ In a Cyber Café
☐ At School/University
☐ Using a mobile device (Phone, Tablet PC etc)
☐ Other? (Please specify) ☐

19 What do you use the internet for? (more than one answer is applicable)

☐ Emails
☐ Social network
☐ Research
☐ Search engines
☐ E-Government
☐ E-commerce
☐ E-banking
☐ Others? (Please specify) ☐

"E-government is defined as the use of (ICT) to facilitate government transactions with citizens, businesses, government employees and other government agencies". Based on this definition, please answer the following:

Awareness of E-Government

7. Have you ever used any E-Government services?

☐ Yes

☐ No

If yes, what E-government services have you used?

☐ (Please specify) ☐

☐ Applying for employment

☐ Company/business registration
☐ E-identification
☐ Car registration
☐ Birth certification
☐ Bill payment
☐ Not aware

8. Which of the following E-government services do you know about?

☐ Appling for a job
☐ Company/business registration
☐ E-identification
☐ Car registration
☐ Birth certification
☐ Bill payment
☐ Not aware

9. Do you think that E-government will be more helpful than the traditional government in serving citizens?

☐ Yes

☐ No

E-government satisfaction

10. Rate your access level to E-government services:

	1	2	3	4	5	
high level access	☐	☐	☐	☐	☐	Low level access

11. Are you satisfied with the accuracy of the content for e-government websites?

	1	2	3	4	5	
Very satisfied	☐	☐	☐	☐	☐	Not satisfied at all

12. Rate your level of satisfaction with e-government services:

	1	2	3	4	5	
Very satisfied	☐	☐	☐	☐	☐	Not satisfied at all

E-government website:

23. The e-government interface displays all text and graphics quickly.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

24. It only takes a few clicks to locate information on the E-government website.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

25. It is easy to navigate within the e-government website.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

E-government Trust

22. I trust the information provided by any e-government website.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

23. Do you think e-government services meet the public/citizens requirements?

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

24. Do you think that the government makes the right decisions for the benefit of citizens?

☐ Yes

☐ No

E-government useful

For the following questions please select your most appropriate answer

25. The e-government service website provides me with valuable service.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

26. I find the e-government website service useful for accomplishing tasks more quickly than the traditional government.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

27. Using the e-government service enhances the quality of my work.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

E-government ease of use.

28. I find the e-government service website easy to interact with.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

29. The e-government service website will enhance my effectiveness in searching for and using the service.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

30. I find **interacting** with e-government web site is easy to **use.**

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

31. Interacting with e-government website enables online feedback to the government when needed.

	1	2	3	4	5	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

32. Many barriers may be faced in the development and diffusion of any E-government project worldwide. The following is the list of possible barriers encountered by many nations. Please circle the degree to which you see these barriers are relevant to Libya's situation.

	Most relevant	1	2	3	4	5	Least relevant
Lack of users' IT knowledge, awareness and motivation		☐	☐	☐	☐	☐	
Lack of skilled IT staff		☐	☐	☐	☐	☐	
Internet and computer cost		☐	☐	☐	☐	☐	
Lack of users' trust and confidence		☐	☐	☐	☐	☐	
Lack of security		☐	☐	☐	☐	☐	
Culture and language conflict		☐	☐	☐	☐	☐	
Poor Infrastructure and technologies		☐	☐	☐	☐	☐	
Lack of Funding		☐	☐	☐	☐	☐	
Lack of proper legislation and laws		☐	☐	☐	☐	☐	
Any others (Please specify): _____		☐	☐	☐	☐	☐	

33. If you feel there are other barriers, which were not listed in the above table and are pertinent to Libya's case, please feel free to list them and indicate why you see them as relevant.

Thank you so much for your time and assistance

Appendix 3: Questions for Interviews Questionnaire

Interviewees Questions:

1. Do you have skills in English language and dealing with English web pages?

2. What is your education qualification?

3. Is there any problem that barriers you to use internet and computer?

4. How long have you been using internet?

5. Do you think accesses to internet/computer are available everywhere in Libya?

6. How much money access to internet costing Libyan people?

7. What do you think of e-government services project implementation in Libya with current infrastructure of technologies?

8. What do you think that Libya needed to achieve the success of e-government services project?

9. Do you think the current cost is barrier Libyan people of using internet and computer?

10. Are you ready to do support to the e-government services project?

11. Do you think e-government services will provide advantage or disadvantage to Libyan organizations and its people?

12. Do you think that Libyan people and government staff are ready to use and implement e-government services?

13. Do you feel that usage of computer and the internet becoming part of your familiarity live?

14. What kind of resources and/or factors that do you think Libya needed for e-government services project?