Regional E-government Readiness in Saudi Arabia: Challenges and Opportunities (The Case of Hail Region)

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Abdulrahman Aldhabaan

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Abstract

In the last decades, there has been an increase in the adoption of information technologies around the world. In the developed countries as well as some developing countries, governments have adopted information and communication technologies (ICT) to enhance the access and delivery of government services to benefit citizens, businesses, industries, and employees. However, e-government represents a major alteration in the entire public sector structure, principles, culture and the means of carrying out business by making use of the potential of ICT as a device in the government organizations. Many governments around the world have presented electronic government as a way of reducing costs, advancing services for people and raising effectiveness and productivity in the public sector. Hence, e-government has been recognized as one of the main concerns for governments across the world. Though, the presentation of e-government is about a thorough modification within government and about the relationship between a government and its people. Therefore, the implementation of e-government raises significant technological, social, organizational and political issues which must be taken into consideration and treated cautiously by any government planning its implementation.

However, there have been very few studies conducted to investigate, for example, the reasons for the slow progress in regional e-government programs since the introduction of the national e-government program in Saudi Arabia in 2005. Moreover, there is very little published research that emphasizes the factors inhibiting e-government initiatives in Saudi regions. Thus, this study is an attempt to explore and investigate empirically how e-government project is progressing regionally in Saudi Arabia. In addition, it identifies the various challenges and opportunities that regions face.

The study used a qualitative case study by conducting 25 interviews with public sector employees in different positions from 5 government organizations in Hail city. Documents analysis was also utilized in this paper. The overall results indicated that e-government progress is still slow in Hail region, where most of the government agencies in this region are categorized to be progressing in the

second stage. However, the comparison of e-government readiness between Hail, Riyadh and Madinah shows that Hail region is still away behind in the implementation of e-government services, while Riyadh and Madinah are generally classified to be progressing in the third stage (two-way service delivery).

The study also indicated that there were some challenges that would hinder the implementation process of e-government adoption in Hail region. These challenges were categorized as technological, social, organizational and political. Technological challenges include (IT standards, security, privacy, accessibility, ICT infrastructure, and interoperability). However, social challenges include (awareness, transparency, e-literacy, trust, authentication, and culture). The results also showed some organizational challenges such as (strategy, change management, resistance to change, and records management). In addition to some political challenges comprising (leadership, legal and regulation issues, and funding issues).

Some opportunities were found to help the organizations in Hail region to advance its e-government services such as (improving management and decision making process, organizing government business process, increasing collaboration among public organizations, increasing productivity, reducing operation cost, enhancing ICT infrastructure, increasing the exchange of data between organizations, improving the efficiency, fastening the transaction process and response, and developing new skills for employees).

Generally, this paper could provide further research with knowledge about regional e-government readiness in Saudi Arabia. Furthermore, it provides a comprehensive sight on recognizing the challenges and opportunities of e-government adoption for the benefit of similar nations.

Key Words: E-government, E-readiness, Regional e-government, Saudi Arabia, Hail City, Case study.

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Table of Contents

List of Tables

List of Figures

List of Acronyms

APEC	Asia-Pacific Economic Cooperation
CDSI	The Central Department of Statistics and Information
CID	Centre for International Development
CAGR	Compound Annual Growth Rate
DOS	Department of Statistics
E-government	Electronic government
E-commerce	Electronic commerce
E-services	Electronic services
EIN	Environmental Information Network
EPA	Environmental Protection Agency
E-readiness	Electronic readiness
EIU	Economist Intelligence Unit
E-delivery	Electronic delivery
E-transformation	Electronic transformation
EBPP	Electronic Bill Presentment and Payment
E-forms	Electronic forms
E-Training	Electronic training
E-literacy	Electronic literacy
FORIG	Forestry Research Institute of Ghana
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
G2G	Government to Government
G2C	Government to Citizen
G2B	Government to Business
G2E	Government to Employees
IRS	Internal Revenue Service
ICT	Information and Communication Technology
IS	Information System
IT	Information Technology
ITU	International Telecommunication Union

IMS	Interactive Messaging System
KSA	The Kingdom of Saudi Arabia
MICT	Ministry of Information and Communication Technology
NIC	National Information Centre
OECD	Organization for Economic Cooperation and Development
PABMEC	Prince Abdulaziz Bin Mousaed Economic City
PKI	Public Key Infrastructure
PCs	Personal computers
Q3	Third quarter
SADAD	Saudi Electronic Payments Systems Project
SMS	Short Message Service
SaudiEDI	Saudi Electronic Data Interchange
SAMA	The Saudi Arabian Monetary Agency
SAGIA	The Saudi Arabian General Investment Authority
SPSS	Statistical Package for Social Science
UN	United Nations
US	United States
UK	The United Kingdom
UNDP	United Nations Development Programme
UAE	United Arab Emirates (UAE
UNESCO	United Nations Educational, Scientific and Cultural Organization
VIS	Voice Inquiry System
WWW	World Wide Web

Chapter One: Introduction

Over the years, the revolution of information and communication technologies (ICTs) has been witnessed globally. This revolution has increasingly encouraged changes within aspects of the daily life of people around the world. It has also changed the way in which governments around the world interact with their citizens, businesses, government agencies, and employees. These changes, in turn, are rapidly being referred to in general as electronic government or e-government. Generally, e-government is a new and emerging area of interest in the field of e-business that employs ICTs to enhance the access to and delivery of government information and services to its beneficiaries. Technology provides two main opportunities for government: increased operational effectiveness by reducing costs and growing productivity, and the better quality of services provided by government agencies (Pardo, 2000).

Given that people all over the world have come to anticipate twenty-four hours a day, seven days a week availability in their commercial interactions, become more Internet savvy and experienced good electronic services, it is only natural that they would look forward to the same from their government. The enhancement in technology and communication has changed some of these stances on the part of governments (Evans & Yen, 2006; Al-Shafi & Weerakkody, 2010).

The benefits of e-government are not only presenting e-services for people; private sectors can also benefit from the various phases of emerging e-government. Assuming that the public sector is often categorized as bureaucratic, ineffective and less technology savvy (Irani et al., 2007, 2008), e-government can be regarded as a revolution that was waiting to occur, especially in an emerging nation context. Given this context, e-government has the potential to thoroughly change public sector organizations and provide several benefits that were before not predicted (Irani et al., 2007, 2008). The following section will present the purpose of this paper in more details.

1.1. The purpose of this research

Conversely, for e-government adoption to be extensive and effective, typical schemes and performs need to be pointed out as well as launching and prioritizing procedures to be e-enabled (Irani et al., 2007; Weerakkody et al., 2007). Moreover, all e-government programs necessitate having an obvious concept of the anticipated benefits to people, what challenges require to be overcome and the level of organizational change that requires taking place for it to be effective in a given context (Raffat, 2003; Silcocks, 2001). While several advanced nations have highlighted effective schemes and overcome complexities to pioneer the e-government notion (Jones et al, 2007), emerging countries such as Saudi Arabia have much to learn in this context.

However, there have been very few studies conducted to investigate, for example, the reasons for the slow progress in regional e-government programs since the introduction of the national e-government program in Saudi Arabia in 2005. What is more, there is very little published research that emphasizes the factors inhibiting e-government initiatives in Saudi regions. The following section will highlight the research objectives in details.

1.2. The objectives of this research

The objective of this exploratory study is to find out important challenges facing Saudi regions efforts in emerging and adopting their e-government services with a particular focus on Hail region. Other Saudi cities such as Riyadh and Madinah will be brought in incidentally as the situation requires. In addition, this study is an attempt to reveal some opportunities that regions have to improve their e-government services. Therefore, the outcomes of this study contribute to the theory by providing a full summary of the e-government challenges that impact the implementation process. Moreover, it provides a comprehensive sight on recognizing the challenges and opportunities of e-government adoption for the benefit of similar nations. However, the outcomes of this study to practice will inform organizations in Hail region to be prepared to address several challenges in relation to the adoption of e-government services. Furthermore, it encourages

close collaboration between government organizations adopting e-services and third-party consultants and ICT providers assisting these organizations to make fruitful implementation. The outcomes also motivate organizations to set clear regulations, strategies and standards to the technologies that are utilized to support e-government programs in the region. Besides, the outcomes of this study come as "a wakeup call" for Saudi government to concern about regional progress of implementing e-government services and try to fasten the adoption process. The next section will present the structure of this paper.

1.3. The structure of this research

This paper is structured as follows. The next section looks at different areas of e-government context. In addition, it identifies the challenges facing e-government and highlights some opportunities that could be exploited in the region. This is followed in chapter 3 by outlining the research gap and identifying the research questions. In addition, it will discuss the conceptual model of this research. The chapter 4, however, summarizes the approach and methods used to conduct the research discussed in this paper. Chapter 5 outlines the results of this study regarding regional e-government readiness in Hail region, e-government opportunities, and the challenges facing e-government implementation. A discussion follows in chapter 6 with linking the findings back to the literature. Chapter 7 outlines some implications that could help theory and practice. Moreover, it identifies some limitations of this research. Lastly, this study concludes by outlining the main research findings and some areas for future research.

Chapter Two: Literature review

This chapter provides important background knowledge to the research subject. Therefore, it firstly reviews the many definitions as well as objectives and strategies of e-government. It also describes the stages of e-government through discussing various models. Secondly, it outlines the challenges facing e-government adoption by dividing them to four themes. Thirdly, it presents a comprehensive comparison of e-government implementation between developed and developing countries. After that, it presents e-readiness including its definitions, measurements. Then, a comparison of e-readiness between developed and developing nations is discussed.

This chapter also focuses on the Kingdom of Saudi Arabia including its characteristics and e-government initiatives. Then, a deep review on the case of this study which is Hail region is made with general comparison of e-government initiatives between, Hail region, Riyadh and Madinah.

2.1. E-Government

In the area of e-government, researchers have come up with several definitions of electronic government. These definitions vary according to the viewpoints of experts towards this concept. According to Peristeras and Tarabanis (2004), the concept of e-government has relatively short history: around less than a decade. This term was conceived according to the more general practice of using the "e" prefix to stress the electronic technique of making and distributing services. Conversely, for one to understand the notion of E-government, must first understand government in general.

Pardo (2000) defined government as "Government is actually a dynamic mixture of goals, structures and functions. The means by which society pursues crucial objectives:

- Maintaining collective security.
- Administering justice.
- Providing the institutional infrastructure of the economy.

- Ensuring that vital social capital is enhanced through improvements in health and education and through strong families and communities" (p. 2).

Consequently, government is a complex idea which comprises many characteristics that should be considered such as organization, related agency; authority and organization's cultures (Alshehry, 2008). Since the first appearance of the technology, governments in worldwide have tried to implement and enhance their performance to meet their users' needs. It is said that the fast movement of ICT raises concerns amongst government agencies as to how to get advantage of technology in order to enrich the agencies' services to the public and to develop the internal progress of the organization (Atallah, 2001). Therefore, electronic government is deemed to be one of the great services provided by governments. However, e-government is not about placing computers or building a Web site for information access; it is about transforming the vital relationship between government and the public. It is also about transforming government service delivery through the utilization of the technology. The notion has the potential to be embedded deeply into every entity of government to aid to reach out the citizen, better realize needs, offer services, and help the user achieve tangible outcomes timely and consistently (Chalhoub, 2010).

However, local government as one of the key points of this study is better to be defined and understood. Local government as stated by Shah (2006, p. 1) that *"local government refers to specific institutions or entities created by national constitutions (Brazil, Denmark, France, India, Italy, Japan, Sweden), by state constitutions (Australia, the United States), by ordinary legislation of a higher level of central government (New Zealand, the United Kingdom, most countries), by provincial or state legislation (Canada, Pakistan), or by executive order (China) to deliver a range of specified services to a relatively small geographically delineated area."* Local government can therefore be deemed as including governments that are not central, national, or federal. The term includes state, provincial, regional, municipal, and city governments.

Globally, electronic government is known as e-gov, digital government and online government. E-government is more than a website, email or processing transactions via the Internet. The next part will state some broad and narrow definitions of e-government quoted from e-government researchers. It also touches on the actual beneficiaries of e-government services as agreed by the researchers and practitioners in the area of e-government.

2.1.1. Definitions of E-government

A broad description of e-government stated by The World Bank (2010) " "E-Government" refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government". Whilst OECD noted that electronic government refers to the use of information and communication technologies, and particularly the Internet, as a tool to achieve better government services (OECD, 2003). Alshehry (2008) argued that these definitions stated above are quite general and have focused on the desired results rather than describing the tool utilized. On the other hand, Fenwick, *et al* (2009) described the definition stated by The World Bank as a comprehensive definition of e-government.

However, it is obvious that researchers define e-government based on different perspectives such as technological, political, consumer, and administration. For example, The United Nation (2003) and Deloitte Research (2000) defined e-government as the use of the Internet and World-Wide Web (WWW) to increase the access to, and delivery of, government information and services to citizens. This definition clearly emphasizes on a technological viewpoint with respect to the political result, without giving a clear image of this notion (Alshehry, 2008). However, Dunleavy (2002) and Caldow (1999) defined e-government from a political perspective as e-government offers an opportunity for governments to re-organize themselves, get closer to the citizen and cooperate with a variety of societies. In this concept, the public administration primarily sees e-government as the basis for new forms of communication and as a tool for reforming (Alshehry, 2008). Another definition was stated by Layne and Lee (2001) from a

beneficiary-based perspective that e-government refers to the use of technology such as the Internet, to help the delivery of information and services to citizens, employees, business, partners, and other government entities.

The World Bank (2003) defines e-government narrowly from an administration viewpoint to be "the use of information and communication technologies to improve the efficiency, effectiveness, transparency and accountability of government".

It is noted by the World Bank (2010) that *"these technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with businesses and industries, citizen empowerment through access to information, or more efficient government management"*.

In fact, although that there are many definitions of e-government owing to the different perspectives of experts, there is no one definition has broad acceptance (Peristeras, et al, 2003).

To shed light on the beneficiaries of e-government services, Yesser (2006) described the types of services offered by governments as "the services offered by the government can be divided – according to the user served –into four categories:

1) **Government-to-Citizen or G2C services:** Provide the impetus to put public services online, in particular through the electronic service delivery for offering information and communications (including expatriates). e.g., employment service, university admission and residency permit and business transactions.

2) **Government-to-Business or G2B services:** The e-transactions initiatives are dynamically driven such as e-procurement and the improvement of an electronic marketplace for government purchases; and carried out to show the government procurement tenders through electronic means for exchange of information and

commodities. e.g., commercial registration, work permits and restaurant license.

3) **Government-to-Government or G2G services:** Make online base available for the government's departments or agencies cooperation and communication on immense database of government to have an influence on efficacy and effectiveness. It also embraces internal exchange of information and commodities. Here are some examples of G2G services: payment orders and government employee promotion service. These services differ from the previous two as they are not for end users, but to make the government function better overall.

4) **Government-to-Employee or G2E services:** Embark on initiatives that will help the administration of the civil service and internal communication with the government employees in order to make e-career applications and processing system paperless in e-offices. For instance, training, payroll, travel and reimbursement are forms of G2E services (Siau & Long, 2009; Yesser, 2006; Fang, 2002).

For any of these four kinds of services, the goal of providing better government services to the user is achieved by putting the user at the center of all services and thinking of government as a service provider for a customer (Yesser, 2006). Even though there are many definitions of e-government, the real e-government goals are certain. In the following section, e-government objectives are presented.

2.1.2. E-Government Objectives and Strategies

Every government has set objectives for adopting e-government services. The objectives are similarly stated in most countries. Fenwick, et al (2009); Fahnbulleh (2005); Awamleh (2011) and Ndou (2004) stated some objectives and opportunities of e-government. The main opportunities of e-government are:

1- To modify government infrastructure to reduce excessive costs and glacial reaction times. Putting services on-line considerably decreases the

processing costs of many activities compared with the physical way of handling operations. For instance, processing a paper tax form costs the US Inland Revenue Service $1.60, however, only $0.40 to process an electronic form (Al-Kibsi et al., 2001). The suitable application of ICT may probably diminish the number of inefficiencies in processes by permitting file and data sharing across government entities, by this means contributing to the elimination of errors from physical procedures, decreasing the required time for transactions.

2- To increase direct contact between citizens and businesses on the one hand and government on the other. These interactions between parties are constituted in a seamless and user friendly way at highest standards of security.

3- To minimize or eliminate delays and intermediaries between citizens or businesses and the government that increase the costs and slow down the delivery of government services.

4- To provide more efficient and transparent government operations by individually or collectively involve a citizen, an employee, a business or another government agency. That would reduce time and the risk of clerical errors. It also allows government agencies to focus on providing better service for the customer. If web sites are designed cautiously and openly, they can be valuable means for transparency as citizens, businesses and other beneficiaries should be able to see political and governmental information, rules and policies. Beforehand it was sometimes essential to go directly to governmental agencies to attain information, but now this information should be offered on the web.

5- To allow greater access to decision-making and improve the quality of it by developing a more participatory and transparent government model, increasing the levels of trust, satisfaction and interaction of consumers with the government; and ensuring a public sector that fosters overall development of society. However, advances in the speed and quality of

decision making relay significantly on the willingness of governments to be authorized with new information, the ability of employees to process the great amount of information, the prevailing cultural values as well as the motivation of governments to change from a hierarchical public management model to a flexible, less centralized model.

6- To diminish the level of venality and therefore reducing the costs of government transactions and the costs of doing business both between the public and private sector and on the intra-government level.

Table 2.1 below summarizes the objectives of e-government services.

Table 2.1 The objectives of e-government.

No	Objective
1	Reducing excessive costs and glacial reaction times.
2	Increasing the uninterrupted communication between all parties (e.g. governments, businesses and citizens).
3	Diminishing or eliminating delays and intermediaries between citizens or businesses and the government.
4	Providing more efficient and transparent government operations.
5	Allowing greater access to decision-making.
6	Reducing the level of corruption.

To accomplish these objectives, governments have planned strategies to adopt e-government services. They apply different techniques in designing strategies to meet their e-government goals. The majority of e-government strategies and adoption plans in developing countries have been based on models and experiences of industrialized countries (Huang, *et al*, 2002). Putting governments in developing world under stress and demand from citizens to offer e-government services electronically, many developing countries have no option but to earnestly initiate the e-government implementation by following e-

government development strategies recommended and executed by advanced countries (Chen, *et al*, 2006).

2.1.3. E-Government Stages

The implementation of e-government has gone through many stages. Governments around the world have moved gradually from using the internet until providing full e-services to their beneficiaries. That is suggested by researchers and practitioners to take several years for a government to achieve a high and satisfactory level of e-services. In so doing, high achievements require a government to make a lot of efforts in providing that level of services. According to Al-Shehry, et al (2006), some researchers have attempted to recognize the phenomenon from an evolutionary perspective by dividing the e-government improvement process into many phases such as (Al-Dosary & King, 2004; Deloitte Research, 2000; Layne & Lee, 2001; Moon, 2002; UN, 2003).

Overall, the scholars mentioned above have agreed that the development of e-government should include vital stages such as publishing, transaction and integration (Al-Shehry, et al, 2006) regardless the different names that have been given to these models such as e-government maturity model (Kachwamba & Hussein, 2009) or e-government adoption model (Ebrahim, et al, 2004). The models of e-government adoption differ based on the viewpoint towards e-government. Therefore, phases represent the level of e-government growth built on the substance and services delivery offered via official websites (Kachwamba & Hussein, 2009). Similarly, the increase of technological and organizational intricacy based on e-government growth from lower stages to higher stages (Layne & Lee, 2001; Gartner, 2002). This puts forward the fact that though higher phases of e-government may be desirable, they are difficult to be reached. Hence, there is no agreement thus far in the previous studies regarding the number of stages in which e-government should go through from its infancy to advance stage (Irani, et al., 2006).

The following table shows different models of e-government implementation stages that have been suggested by some researchers in the e-government field.

This table has been adopted from (Al-Shehry, et al, 2006) and modified by the researcher for the purpose of this study.

Table 2.2 The models of e-government adoption stages (adopted from Al-Shehry, et al, 2006).

Model and Author	Viewpoint	Stages
Deloitte Research (2000)	Importance of web-based application and portal technology	(1) Information publishing (2) Official, two way transactions (3) Multi-Purpose portals (4) Portal personalization (5) Clustering of common services (6) Full integration and enterprise transformation.
Lyne and Lee (2001)	The degree of organizational and technological complexity and the degree of integration in terms of data and service delivery.	(1) Cataloguing (2) Transactions (3)Vertical integration (4) Horizontal integration
Moon (2002)	Technological characteristics	(1) Simple information dissemination (one-way communication) (2) Request and response (Two-way communication) (3)Service and financial transaction (4)Integration (horizontal and vertical integration) (5) Political participation
Al-Dosary and King (2004)	The degree of organizational and technological complexity.	(1) Initial stage (2) Developing stage (3)Advanced stage (4) Optimal stage
UN (2003)	Technological characteristics	(1)Emerging (2) Enhanced (3) Interactive (4) Transactional (5) and Seamless or fully integrated.

It is conceivable, on the basis of the above, that e-government stages models vary based on different perspectives. Nonetheless, the overall e-government stages model which this study suggests is that the one that is developed by Ebrahim, et al, (2004). These authors suggested four stages model as it is discussed below:

The first stage: Government Information Delivery: Posting static information through government website. Importance of this phase is a key for e-government initiative, which refers to primary services and transactions provided by government entities. In addition, instructions and procedures of government operations are declared. In this stage there are many steps should be taken into account to be done. These steps are:

- Building government website which makes government general information and services available online.
- Introducing Internet and intranet to organization.
- Providing information about government organizations, such as organization outline, hours of operation, mailing address, proposed legislation and phone numbers.
- Maintaining web pages to update policies and procedures
- Reducing cost of government expenditure such as stationery and communication.
- Reducing workload on front-office employees.
- Requires no advanced technology tools and additional management support.

The second stage: One-Way Service Delivery: Providing higher level of information that links public sector organizations to citizens through providing dynamic information, online application forms, and establishing channels with government officials. It provides primary preparation in term of technical for organization and psychological for citizens. In this stage, there are some steps should be considered to go through this stage successfully. These steps are:

- Providing service passively, not exchanging information between government and public.
- Facilitating information retrieval from organization databases.
- Increasing use of intranet to facilitates file transfers.
- Incorporating ICT tools such as e-mail systems, electronic records' management and data-transfer technologies into its websites.
- Introducing search engine to allow key word searching.

- Providing citizen interactive conversations through e-mail systems or online forums with constituents or government officials.
- Downloading application forms from government server.
- Viewed as grounding stage for two-way service delivery.

The third stage: Tow-Way Service Delivery: Vehicle of comprehensive electronic services from and to citizens, which can deliver entire government transaction electronically while sitting in front of their computer. For example, citizens can fill tax returns, pay fines, and apply for vehicle registration. In this stage, governments should follow some steps to attain a good progress. These steps are:

- Facilitating high-level of two-way communication between citizens and government, from initial processes till the payment for service fee.
- Connecting internal government systems to online interfaces.
- Allowing citizens access to organization back-office to complete transaction processing.
- Embedding with advanced ICT tools to extend organization intranet to extranet.
- Reprogramming databases to be linked online into website.
- Maintaining security and confidentiality mechanisms to provide secure transactions.
- Playing strategic role in achieving e-government objectives.

The fourth stage: Government Integration: About transformation of government organizations' processes and reengineering internal business processes, as well as integrating public information and services across organizations and departments. That implies public services accessible through single window, even if provided by different public sector organizations and departments. The suggested steps to be gone through in this stage are as follow:

- Providing one-stop government portal.
- Connecting organizations across different levels of departments.
- Interchanging results of transactions from one organization system with another system.

- Using full capabilities of ICT applications to transform how government functions are organized and executed.

- Integrating shortened gap between front and back office.

- Implementing applications' integration of heterogeneous databases located in different sites.

- Integrating external supply and distribution chains with government.

- Viewed as critical long-term success plan of e-government implementation.

Based on Table 2.2, it is obvious that the proposed stage of development models can be described as the rational growth of e-government encompassing development of different stages, each later phase being more complex in some sense than the preceding phase because of demand of sophisticated information and communication technology (ICT) tools, cost, top administration support, and high IT skills. Hereafter, develop efficiently the functionalities and services provided to citizens along with the advancement of phases. Figure 2.1 sums up and clarifies the improvement degree of performance in relation with functionality that associate with each single phase.
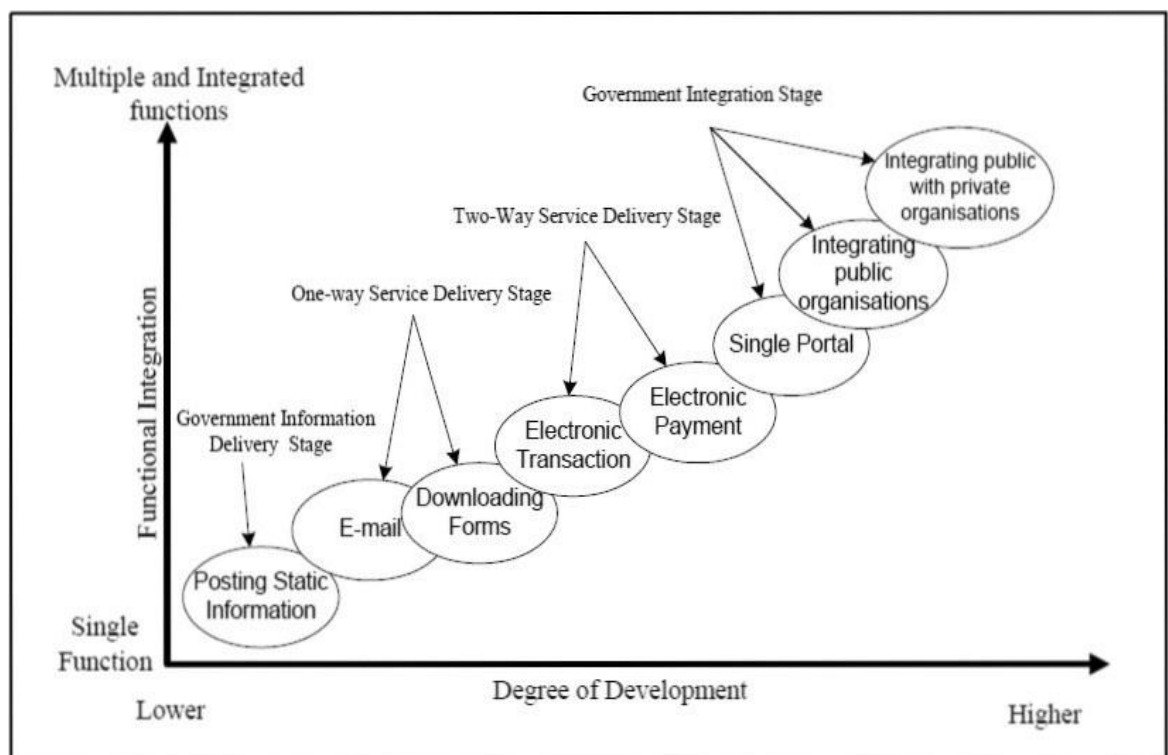
Figure 2.1 E-government performance on stages (adopted from Ebrahim, et al, 2004).

However, these stages have not been reached by all countries, there are still some countries progressing in the developing countries such as Oman, Qatar, Saudi Arabia, Lebanon and Jordan. Although these countries are progressing slowly, they just realized that the adoption of e-government is important to save cost and time and reduce corruption as well.

The importance of e-government is unquestionable. For example, in the US the Internal Revenue Service (IRS) saves millions of dollars yearly by decreasing spending on printing, sorting, and mailing tax materials through offering taxpayers web access to tax return forms and publications (Warkentin, et al, 2002). Online services are cheaper, faster and more readily available (24/7). They also reduce travel and waiting time (from in-line to on-line), introduce more efficient payment methods, and reduce systemic corruption (Prattipati, 2003; Reynolds & Regio, 2001). However, the governments face some challenges to adopt and develop their e-government services.

2.1.4. E-government Challenges

E-government program implementation progress differs from a country to another relaying on the context within which they are developed and executed. Similar to any other innovative technology or organizational theory, the initiation of e-government has led to a number of challenges for both governments and citizens in many countries (Weerakkody, et al, 2011). Those challenges might vary in precedence and importance for execution, some of them appear to be very basic, however, others are more advanced and complicated irrespective to the nature of the idea and the prominence for execution (Elsheikh, et al, 2008). It is said that success is generally determined by the ability of e-government designers to identify challenges or contingencies and respond to them by accommodating response mechanisms in the e- government solutions provided (Sahraoui, et al, 2006).

Challenges of e-government implementation are stated by many researchers. For instance, IT standards have been emphasized by many researchers as a major factor influencing e-government implementation (Weerakkody, et al, 2011; Alshehry, 2008; Nyrhinen, 2006). Similarly, security has been identified by some

authors to be as a significant challenge faced by several government entities around the world (Weerakkody, et al, 2011; Alshehry, 2008; Signore, et al, 2005; Seifert, 2003; Almarabeh & AbuAli, 2010; Reffat, 2006; Al-Sobhi, et al, 2010; Al-Fakhri, et al, 2008; Mutula and Mostert, 2010; Al-Khouri and Bal, 2006; Sahraoui, et al, 2006; Elsheikh, et al, 2008; Al-Busaidy & Weerakkody, 2009). Moreover, research has highlighted many challenges facing e-government adoption such as privacy (Weerakkody ,et al, 2010; Signore, et al, 2005; Seifert, 2003; Almarabeh & AbuAli, 2010; Reffat, 2006; Al-Sobhi, et al, 2010; Alshehry, 2008; Al-Khouri and Bal, 2006; Sahraoui, et al, 2006; Elsheikh, et al, 2008; Al-Ghaith, et al, 2010; Al-Busaidy & Weerakkody, 2009), accessibility (Weerakkody, et al, 2011; Almarabeh & AbuAli, 2010; Sarikas and Weerakkody, 2007; Signore, et al, 2005; Seifert, 2003; Sahraoui, et al, 2006; Abanumy, et al, 2005; Al-Busaidy & Weerakkody, 2009), ICT infrastructure (Nduo, 2004; Al-Sobhi, et al, 2010; Alshehry, 2008; Al-Khouri and Bal, 2006; Almarabeh & AbuAli, 2010; Reffat, 2006), interoperability (Signore, et al, 2005; Almarabeh & AbuAli, 2010; Reffat, 2006), awareness (Weerakkody, et al, 2011; AlAwadhi and Morris, 2009; Nduo, 2004; Almarabeh & AbuAli, 2010; Reffat, 2006; Mutula and Mostert, 2009; Elsheikh, et al, 2008), the digital divide (Weerakkody, et al, 2011; Almarabeh & AbuAli, 2010; Reffat, 2006; Elsheikh, et al, 2008; Silcock, 2001), transparency (Almarabeh & AbuAli, 2010; Reffat, 2006; Karunasena, et al, 2011), e-literacy (Almarabeh & AbuAli, 2010; Reffat, 2006; Chen, et al, 2006), trust (Almarabeh & AbuAli, 2010; Alshehry, 2008; AlAwadhi and Morris, 2009; Al-Fakhri, et al, 2008), authentication (Al-Shehry, 2008; AlSobhi, et al, 2009), strategy (Weerakkody ,et al, 2011; Ndou, 2004; Al-Shehry, 2008), change management (Ndou, 2004; Al-Shehry, 2008),resistance to change (Ndou, 2004; Schwester, 2009) records management (Almarabeh & AbuAli, 2010; Reffat, 2006), leadership and top management support (Weerakkody ,et al, 2011; Ndou, 2004), legal and regulation issue (Weerakkody ,et al, 2011; Almarabeh & AbuAli, 2010; Reffat, 2006; Ndou, 2004; Al-Fakhri, et al, 2008; Elsheikh, et al, 2008), funding (Gottipati, 2002; Almarabeh & AbuAli, 2010; AlSobhi, et al, 2009; Elsheikh, et al, 2008).

There are some researchers classify challenges of e-government under four common themes such as (Weerakkody, et al, 2011; Signore, et al, 2005). These themes are:

(1) Technological

(2) Social

(3) Organizational

(4) Political

In respect of better understanding the content and impact of these four broad themes on e-government adoption, it is worthy to examine the existing e-government literature in detail to recognize what challenges and difficulties can be categorized under each of the themes.

2.1.4.1. Technological theme impacting e-government implementation

❖ **IT standards:** They are considered to be important if information and knowledge are shared between government agencies. Furthermore, they are necessary if government entities are to work together and participate positively in offering e-government services to stakeholders (Alshehry, 2008). Initially, all government organizations are required to implement standards based on Internet and World Wide Web Technology. However, it is common for different government organizations to have different hardware and software that may not work, accommodate and interoperate together; this may cause e-government execution complexities. Based on Layne and Lee (2001), e-government adoption is estimated to offer access to people and other users from one single integrated gateway. It also requires participating government entities to share their information to serve and accomplish citizens' or e-government system users' needs. Hence, information technology standards are necessary to avoid any hardware and system obstacles that would impede the execution of e-government systems.

Standards can be defined according to Keen's (1991) definition that standards are agreements on designs, procedures, and interfaces that

help designers of hardware, software, databases, and telecommunications facilities to improve products and systems autonomous of one another with the assurance that they will be well-matched with any other product or system that adheres to the same standards. The application of these standards is deemed by scholars and IT experts to be one of the internet most valuable contributions. They are used to improve data collection and access, and to overcome the difficulty of utilizing different kinds of information systems by presenting a single interface (Alshehry, 2008). Nyrhinen (2006) disputes that IT standards dictate how IT resources are to be attained, managed, and used within the organization. Standards perform as the adhesive that links the use of physical and intellectual IT assets. Thus, to conclude to a fruitful adoption of e-government, the IT standards should be deemed as a key and an effective element from an e-government adoption viewpoint.

Weerakkody, et al, (2011) found that IT standards are a problem in the implementation process of e-government in Qatar. Similarly, Alshehry (2008) in his study indicated that IT standards would affect the implementation process of e-government as well.

❖ **Security:** One of the most major challenges for adopting e-government in most countries is computer security (Seifert, 2003; Al-Khouri and Bal, 2006). That is for the reason that e-government deals with extremely sensitive information, which must be conserved from hackers and Internet crooks (Alshehry, 2008, Al-Fakhri, et al, 2008; Signore, et al, 2005). Security notions are broadly recognized as the aptitude to protect against possible risks. Conversely, in online environments, security is defined as the aptitude of the online organization website to protect user information and their financial transactions data from being pinched during transmission (Al-Ghaith, et al, 2010). Another definition of security is stated by Al-Busaidy and Weerakkody (2009) that *"security refers to the degree of protection that e-government offer against various online*

threats. The situation/condition that prevents the data used or network resources from damage, destruction, non-protection, fraud, mismanagement, and abuse" (p. 380).

Alshehry (2008) suggested that e-government implementers are encouraged to realize that the developed infrastructure must be uninterruptedly upheld as security is a constant challenge and no one can guarantee electronic security, particularly in the use of e-government services via the internet. Additionally, security is an ongoing threat associated with most IT projects and, with respect to e-government, the degree of threat is growing as the use of public networks increase, together with databases that contain citizens' profiles and government information. Hence, security is protection against such threats (Belanger, et al, 2002).

Conklin and White (2006) justify that information that is stored in databases and systems remain very valuable. In this case, security and privacy issues should be monitored and reviewed continuously. Underestimating the importance of this factor can result in unauthorized access to sensitive information and loss of citizens' trust, which might lead to e-government failure (Weerakkody, et al, 2011).

There are some studies found that security issues would affect the adoption process of e-government services (Weerakkody, et al, 2011; Alshehry, 2008; Signore, et al, 2005; Seifert, 2003; Almarabeh & AbuAli, 2010; Reffat, 2006; Al-Sobhi, et al, 2010; Sahraoui, et al, 2006; Al-Busaidy & Weerakkody, 2009; Elsheikh, et al, 2008).

A study conducted by Al-Fakhri, et al (2008) on e-government in Saudi Arabia between promise and reality found that almost 64% of the participants agreed that the lack of security and safety of information is considered one of the challenges facing implementing e-government programs in Saudi government, while only 16% disagreed. In the same line, another study carried out by Al-Khouri and Bal (2006) on the e-

government maturity in the GCC countries, found that the majority of participants (60%) considered security issues to be the primary obstacle to their e-government projects.

Alshehry (2008) found that the security issue is a crucial factor for developing e-government systems. Moreover, his study findings emphasized the importance of the Public Key Infrastructure (PKI) as a component of security issue in the implementation process of e-government services.

❖ **Privacy:** It presents a challenge to the adoption and acceptance of e-government initiatives (Al-Sobhi, et al, 2010; Seifert, 2003; Elsheikh, et al, 2008; Al-Khouri and Bal, 2006). According to Seifert (2003), fears about the use of "cookies," sharing information between agencies and the expose or misusing of private information are frequent subjects of debate. However, using online services is determent by some factors such as the offers, convenience and time saving that consumers obtain.

Privacy can be understood as a legal concept and as a right to be left alone (Warren & Brandeis, 1890). Al-Busaidy and Weerakkody (2009) defined privacy as "citizens' confidence in sending and reviving their personal information through e-government portals. Protecting the data of the users throughout any interactions with the online public administration services and gives the users general access and empowers them to use e-government services in a healthy environment". It also can mean: The claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others' information (Westin, 1967, p.83. cited in Kautonen & Karjaluoto, 2008). There are four basic types of privacy: information privacy, bodily privacy, communications privacy, and territorial privacy (Davies, 1996 cited in Pennanen, et al, 2006). Internet privacy is mostly information privacy. Information privacy means that individual can control information about themselves (Kautonen & Karjaluoto, 2008).

While governments gather vast amounts of data on their citizens through daily transactions, this would bring up fears among citizens when using online services (Almarabeh & AbuAli, 2010). Al-Ghaith, et al, (2010) revealed that online users conceivably abstain from using online services for the reason that they concern about privacy.

Alshehry (2008) studied the factors affecting e-government adoption at national level in Saudi Arabia. He found that the challenge of ensuring the privacy of personal information could be dealt with by limiting access to personally recognizable information, by training government employees on the importance of privacy, raising the consciousness of employees of the significance of the privacy of data, limiting information attained from the users only to the level that is really necessary, and raising the consciousness of consumers about the significance of privacy.

❖ **Accessibility:** It is defined as the ease of reaching information and services provided via a formal e-government web site. Ease of access and use from different kind of machines and platforms, encouraging diverse type of consumers to access the service; actual opportunity of usage from abroad (Al-Busaidy & Weerakkody, 2009). Abanumy et al. (2005) indicate that web site accessibility is a worthy measurement for e-government success, but at the same time serves as an obstacle, for the reason that web accessibility means allowing worldwide use for the information. Even if Internet users are upward growing, there is a substantial percentage of the people who may not be able to have an access to e-government for different reasons. Some people may have physical or mental limitations, both permanent as well as temporary (Signore, et al, 2005; Sahraoui, et al, 2006).

Conversely, the E-government endeavor is critically reliant on the accessibility of its perfect websites. If the website is not easily reached to the intended target users it will not be fruitful (Almarabeh & AbuAli,

2010). E-government services are expected to be accessible 24 hours a day, 7 days a week, and 365 days a year through various access channels. That would be helpful for e-government implementers to accomplish their aims (Alshehry, 2008). What is more, the payment method in online transactions has to be active and protected and available from anywhere in the world. For instance, in Germany, it is only possible to use "Geldkarte" payment inside Germany. However, it is not possible internationally as the payment process involves putting in a card into a card reader which is placed only in Germany (Weerakkody, et al, 2011).

Some studies indicated that accessibility is a challenge to e-government implementation in different countries (Weerakkody, et al, 2011; Almarabeh & AbuAli, 2010; Sarikas and Weerakkody, 2007; Signore, et al, 2005; Seifert, 2003; Sahraoui, et al, 2006; Abanumy, et al, 2005).

On the other hand, Al-Busaidy and Weerakkody (2009) studied the e-government diffusion in Oman from a public sector employees' perspective. They found that the majority of respondents perceived accessibility as good or satisfactory. Therefore, they argued that accessibility will not negatively affect the use of e-government services in Oman.

- ❖ **ICT infrastructure:** This has been identified by many researchers as an obstacle for e-government implementation (Alshehry, 2008; Al-Khouri and Bal, 2006). Al-Sobhi *et al*. (2010) argued that if the ICT infrastructure is insufficient in a nation, the channels of service delivery are unreachable, which may accordingly end up with digital divide. Fountain (2003) define ICT as *"the full range of information and communication technology and applications presently used in digital and electronic government as well as that information technology, systems and applications on the developmental horizon"*(p. 5). ICT involves the Internet, phone lines and telecommunication systems that can compose e-government applications (Salman, 2004).

It is widely recognized that the e-government initiative needs a technically progressive ICT infrastructure, with a higher frequency range, covering the whole country and offering reasonable services for the broad public (Alshehry, 2008). Naduo (2004) state that to converse to electronic government, an architecture, that is, a guiding array of fundamentals, models and standards, is needed. It is also essential for implementing e-government that the improvement of basic infrastructure captures the advantages of new technologies and communications tools. All countries executing e-government have struggled to build a basic infrastructure to make the most of new technologies and communications tools. Many emerging countries, even if having the will, do not have the infrastructure necessary to directly diffuse e-government services throughout their land (Almarabeh & AbuAli, 2010; Reffat, 2006).

A study carried out by Qaisar & Khan (2010) on the e-government challenges in public sector in Pakistan. They found that Information and Communication Technology infrastructure is driving force for organizations to implement e-services. In the same way, Alshehri & Drew (2010) conducted a pilot study on challenges of e-government services adoption in Saudi Arabia from an e-ready citizen. They found that (62.8%) of participants highlighted that weak ICT infrastructure in governmental agencies is deemed as obstacle number one to the implementation and diffusion of e-government services.

❖ **Interoperability:** Systems must be interoperable; both as far as the newly developed are concerned, also with the existing legacy applications. As a result, it is compulsory to define "open standard" architecture, having well-defined interfaces, to avoid substantial maintenance intrusions on existing applications, possibly completed recently (Signore, et al, 2005).

E-government interoperability, in its common sense, is the ability of organizations to work together. At a technical level, it is the aptitude of two or more government information and communications technology

(ICT) systems or constituents to exchange information and to use the information that has been substituted to advance governance (UNDP, 2008).

Placing incompatible record formats online neither simplifies nor diminishes the duties imposed on citizens and government officials. Thus, reliable e- government needs a full reformation of legacy systems (Reffat, 2006). Hence, e-government interoperability leads to better decision-making. It is obvious that in most countries, policy makers are challenged not only with overlapping and incoherent data sources but also with the nonappearance of common terms of reference and means of demonstrating these data. This results in the time consuming and complex cost of comparing data that is demonstrated differently. Interoperability then will allow data collected by different agencies to be used together to make better decisions (UNDP, 2007). Figure 2.2 shows the proposed technological challenges to e-government adoption in Hail region.
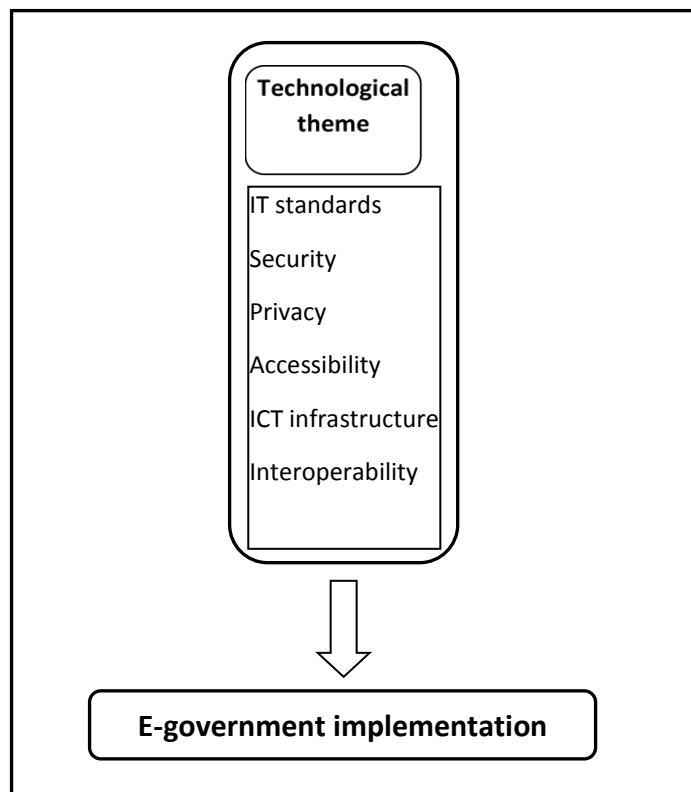
Figure 2.2 The proposed technological challenges to e-government adoption.

2.1.4.2. Social theme impacting e-government implementation

❖ **Awareness:** This factor has been identified to be as a barrier to e-government implementation (Weerakkody, et al, 2010; AlAwadhi & Morris, 2009; Weerakkody, et al, 2006). E-government awareness includes citizens learning and education, and marketing about e-government services (Nduo, 2004; Reffat, 2006; Elsheikh, et al, 2008). The lack of awareness might prevent citizens and employees from participating in e-government services (Reffat, 2006; Weerakkody, et al, 2006; Almarabeh & AbuAli, 2010). Weerakkody, *et al.* (2006) point out that in the UK e-government awareness is lacking and worrying from a national viewpoint as it affirms that good strategies, schemes and execution projects will be worthless if not backed up with applicable marketing tactics to increase e-government awareness levels among citizens. Similarly, Reffat (2006) argue that e-government services are only valuable if people know about them. Therefore, training and outreach programs will be needed.

AlAwadhi and Morris (2009) conducted a study on factors, (including lack of awareness), influencing the adoption of e-government services in the state of Qatar. Their findings indicated that about 87% of participants complained about a lack of awareness of the e-government project in general, and of online services in particular. The participants put the blame on the media and those who are responsible for its adoption for not emphasizing such an essential project that could be valuable to a huge group of people.

In fact, strong campaigns are needed to enhance e-government to accomplish better citizen participation and to reach successful adoption and diffusion. These campaigns would encourage and increase citizens' awareness of e-government initiatives. Examples of such campaigns would comprise government-sponsored presentations and workshops, showing posters and banners to citizens in public malls, mailing newsletters and so forth (Weerakkody, et al, 2011). In the case of e-

government, training and educating citizens and employees is a significant factor that should be kept in mind when initiating e-government services. From a government viewpoint, employees and their managers are encouraged to be familiar with the work under new situations, and are ready for changes (Zarei, et al., 2008).

❖ **Transparency:** E-government transparency refers to the use of ICTs (information and communication technologies) to make public sector decisions and actions more open to close examination. It runs from just offering basic information about government up to allowing public control over civil servants (E-Government for Development, 2008). People occasionally comprehend how government decisions are made. This lack of transparency inhibits the public from dynamically taking a part in government and from raising questions or complaining unfair or misguided decisions. A lack of transparency can hide official graft or favoritism (Almarabeh & AbuAli, 2010; Reffat, 2006). A transparent government reveals the performance information of public sectors timely. The involvement of citizens in government is revealed through the dynamic involvement of people in the public decision-making procedure through online consultation services with the use of web tools such as online forums, community networks, blogs, and newsgroups (Karunasena, et al, 2011). For example, Mexico is complimented for features that raise transparency of government such as the ability to lodge complaints against public employees or the government (Evans & Yen, 2006).

Kachwamba and Hussein (2009) argue that the increase of transparency is dependent on web information accessibility and online transactional services. It is quite obvious from the lack of transparency of e-government programs in Bahrain, though to varying degrees, that such programs are condemned to be restricted to the online delivery of public services without any serious attempt at reforming government or

involving customers or citizens in redesigning government (Sahraoui, 2005).

❖ **E-literacy:** E-Literacy refers to people who are unable to use information and communication technologies for the reason that they are not computer literate. With the digital transformation there is an actual risk that the world will be separated into the "information rich" and the "information poor." E-government has the aptitude of either making equal access to government and its services or increasing the obstacles to contribution (Almarabeh & AbuAli, 2010; Reffat, 2006). ICT literacy is also essential in order for individuals to be able to use and obtain advantages from e-government applications (Ndou, 2004). Chen, et al. (2006) state that owing to the low ICT literacy and high cost of online access, long and pointless transactions need to be simplified in processes to encourage users to quickly access files and print them or fill them out online.

❖ **Trust:** Lack of trust has been identified as a barrier to e-government implementation in developed countries as well as developing countries. However, e-government can play a significant role in building trust between governments and citizens by providing an opportunity for them to participate in the policy process (OECD 2003). Trust is a critically important component of e-government schemes. The lack of trust, people who may already be suspicious of using technology may refrain and even turn away from the use of online services that ask for comprehensive personal information (Reffat, 2006). Alshehry (2008) state that since the mid-1990s, public organization has been at the head of efforts to discover how best to utilize these developing technologies particularly the Internet to construct relationships and trust with its interested parties by providing services for residents in more efficient and effective way. Therefore, it is suggested that to be fruitful, e-government schemes must build trust within organizations, between organizations, across governments, with businesses, and citizens (Almarabeh & AbuAli, 2010).

Ndou (2004) argues that people disbelieve their governments, especially where there has been a history of dictatorship, political instability or large-scale corruption. Thus, to make sure that the public and interested parties will be companions in the e-government effort, it is vital to attempt to construct trust in government (Ndou, 2004).

Interestingly, trust has been found by many researchers to be influenced by other indicators. For instance, Ndou (2004) highlight that the lack of access to e-government services, and the digital divide are reasons that may impact trust. By this means these factors hinder the further take-up of e-services. As a result, constructing a solid trust setting by providing a high level of data privacy, data integrity and user authorization will guarantee electronic operation security and online identity authentication (Ndou, 2004).

On the other hand, Deakins and Dillon (2002); Jaruwachirathanakul and Frink (2005); AlAwadhi and Morris (2009) believe that users' trust of e-government services is associated with security and privacy assurances provided to users. Another influence on trust was identified by Al-Fakhri, et al. (2008). They conducted a study on the challenges facing the process of implementing an e-government program in Saudi Arabia from a government perspective. Their findings indicated that there was a lack of trust in achieving tasks online among Saudi government employees. That was justified as a cause by the lack of knowledge about e-government program.

❖ **Authentication:** It refers to the ability to prove the identity of a person in a certain way (Alshehry, 2008). Authentication in an e-government context is characteristically an act of establishing or ensuring someone or something as real, concerning any procedure through which one evidences and confirms certain related information. For example, evaluate transactions for verification requirements in an accurate manner to avoid possibility of someone fraudulently pay fines or taxes on somebody else's behalf (Lean, et al, 2009).

Concern in authentication systems has improved dramatically for the last three years, both in e-commerce applications and for e-government. The advance of e-government services has begun to concentrate partially on schemes to improve verification systems to improve citizen-centered government. However, continuous debates about government use of authentication systems increase concerns about government use of personal information and the establishment of a centralized identity system or card. Extensive adoption of the technologies will only happen if people trust that strong privacy and security protections have been constructed into authentication systems (Dempsey, et al, 2003).

AlSobhi, et al, (2009) argue that authentication is resulted of a lack of trustworthy security systems, which is acting as a barrier and preventing the development of e-government services.

- ❖ **Culture:** Hofstede (1991) defines culture as "It is the collective programming of the mind which distinguishes the members of one group or category of people from another" (1991, p.5). He suggests that people share a collective national character that represents their cultural mental programming. This mental programming shapes values, beliefs, assumption, expectations, perceptions and behavior (Myers & Aviston, 2002. cited in Ali, M., et al, 2009).

In this respect, Evans and Yen (2006) state that e-government should sustain the liberty and reliability of its people and as a repository of their individual and distinctive cultural inheritance. In a study conducted by Chen, et al (2006) to compare the implementation of e-government in advanced and emerging countries, they found that the culture of some emerging countries can impact their people's use of e-government. They believe that the people of some emerging nations, particularly those having certain religious beliefs, might not do certain activities that are conventional in industrialized nations. Similarly, the culture of the Gulf countries can affect e-government adoption, where technology cannot completely replace face-to-face activities. This is due to the fact that the

Gulf countries' cultures are based on oral and interpersonal traditions where they are deeply anchored. This would explain the reason behind not spreading e-government beyond regular transactions (Sahraoui, 2005). In the same line, Alshehri and Drew (2010) argue that culture is still regarded as one of the most complex encounters in adopting new technology, particularly e-government systems which require a strong cooperation between government and citizens.

On the other hand, researchers such as AlSobhi, et al. (2009) argue that culture is not an issue in implementing e-government projects. They found that citizens of Medina City accepted the electronic payment for services using the card stating that it is useful. Figure 2.3 shows the proposed social challenges to e-government adoption in Hail region.
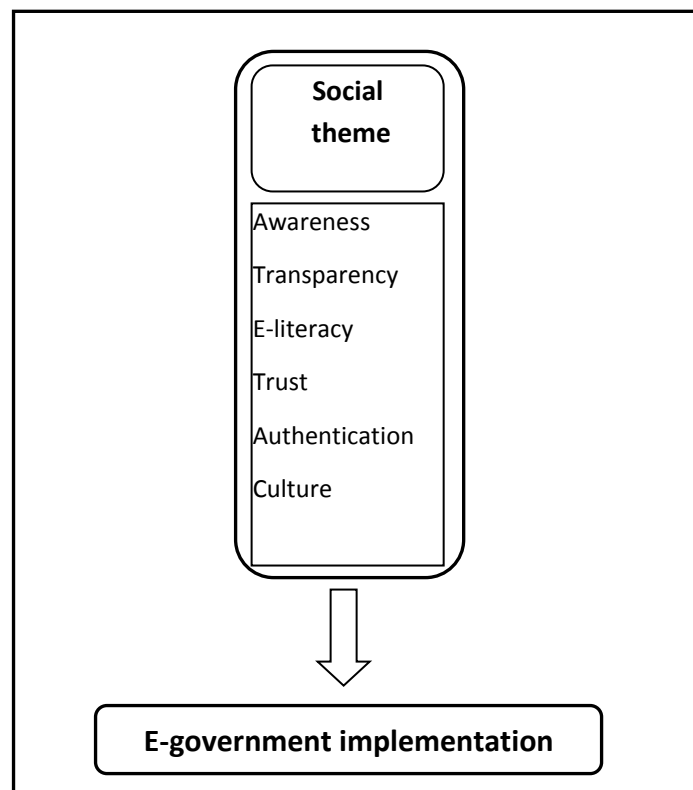
Figure 2.3 The proposed social challenges to e-government adoption.

2.1.4.3. Organizational themes impacting e-government adoption

- ❖ **Strategy:** One of the major barriers for an e-government program is the creation of an applicable and context tailored strategy. Every program or initiative requires rooted in a very cautious, critical and dynamic strategy (Ndou, 2004). This strategy is essential to directing through the exploding e-government marketplace, re-engineering processes and techniques to sustain e-government, and adopting e-government initiatives. Government hastily understands that this strategy must be enterprise-wide to most successfully and efficiently serve the digital society (Lowery, 2001). This appears to be a very challenging task, requiring a concentration on various parts and procedures, a full vision, long-term focus and goals. Many public organizations limit their activities to a simple transfer of their information and services online without taking into account the re-engineering procedure required to understand the full benefits (Ndou, 2004).

  Weerakkody, et al (2011) found that the national ICT strategy in Qatar has an influence on the implementation success of local e-government services initiatives. It was also clear that a flexible strategy was needed to meet the evolving needs of citizens. Likewise, Alshehry (2008) indicated that strategy should be linked to the vision in implementation of e-government projects.

- ❖ **Change management:** This factor has been identified as a challenge to e-government implementation. Change management is addressing the modifications being confronted by current public managers, both internally and externally. Change management, in the case of e-government, is all about how participants of the public service make the conversion from the traditional methods to management, pre-Information and Communication Technologies (ICTs) age, to new approaches of managing in new and developing environments (Riley, 2002). However, the problem sometimes arises from the change

management technique and it needs professionals and full management support for the change to be effective (Alshehry, 2008).

Ndou (2004) argue that the current design of e-government does not simply save costs and advance service quality; instead it develops and reinvents the government procedures and functions.

- ❖ **Resistance to change:** Resistance to change is the action taken by individuals and groups when they perceive that a change that is occurring as a threat to them (Changing Minds.org, 2011). Ndou (2004) argues that resistance to change has been found as the biggest barrier to successful change to e-government. Employees are aware of changes in general and ICT applications in particular as they consider ICT would replace them and so affect their jobs. Besides, it is not easy in a short period to move from traditional methods of working to new ones. Therefore, overcoming resistance fruitfully means making sure the existence of motivations for employees to learn and change and the establishment of well-structured plans that embrace staff involvement throughout all phases of a change procedure (Ndou, 2004).

On the other hand, Schwester (2009) argues that employee resistance to change is not a barrier of e-government adoption. However, e-government application may enhance work environments by freeing up employees to work on more critical aspects rather than working on more routine processes.

- ❖ **Records management**: Records management can be defined as the practice of storing, organizing, retaining, and disposing of information and records in the supervision of government. Obviously, the adoption of accurate records management practices should be regarded as a prerequisite to the effective and timely diffusion of government-held information (Cavoukian & Mitchinson, 2004). Records management is now an important part of governmental structure in developed countries, and has in recent times also become a noteworthy issue in developing

countries (Burns & Robins, 2003). Almarabeh and AbuAli (2010); Reffat (2006) emphasize that better information management can assist administrators recognize obstacles to more efficient government. An information management framework is essential to make sense of available data. Without this framework, policy makers could not develop useful analysis rapidly enough to respond to social and economic developments. Figure 2.4 shows the proposed organizational challenges to e-government adoption in Hail region.
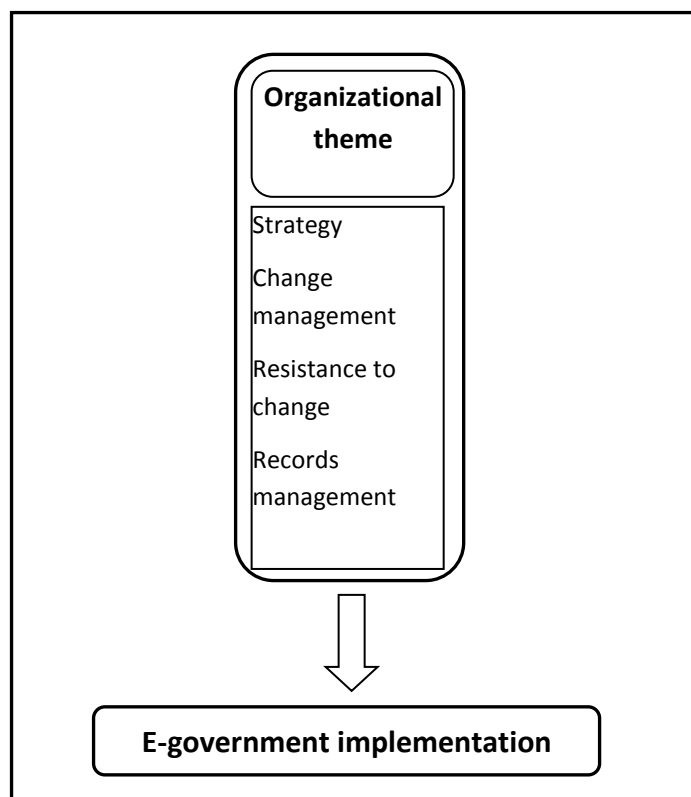
Figure 2.4 The proposed organizational challenges to e-government adoption.

2.1.4.4. Political themes influencing e-government adoption

❖ **Leadership and top management support:** Leadership is one of the major challenges that influence every new and innovative program or initiative (Ndou, 2004). Leadership in an e-government environment is narrowly linked to the political context as achievement relies on the level of obligation and innovative vision shown by politicians (or government officials) who take control of a nation at the time of e-government

adoption (Heeks & Stanforth, 2007). Thus, as e-government is a complicated procedure, supplemented by high costs, dangers and forces, public sectors are generally resistant to the launch of change (Ndou, 2004). Murphy (1996, p. 1) describes leaders as "people to whom others turn when missions need to be upheld, breakthroughs made, and performance goals reached on time and within budget". Since e-government programs are long-term programs, they require a strong leadership with the aim of avoiding most challenges (Weerakkody, et al, 2011).

Alshehry & Drew (2010) found that in Saudi governmental agencies the leadership and top management support in Saudi public sector is regarded as one of the key factors that can help the implementation of e-government services. In accordance to the survey findings, (32.3%) of the respondents indicated that the lack of leadership support is an issue ranking the sixth most significant challenge to the e-government services implementation. They also found that some of Saudi organisations are suffering from the lack of leadership support which can contribute to an early failure of their e-government project. Likewise, Al-Shehry (2008) found that the lack of leadership is a leading factor to an early failure of the e-government initiative. Similarly, the study findings of Qaisar & Khan (2010) indicated that the leadership role is necessary in all stages of e-government adoption.

In the same line, Al-Azri, et al (2010) carried out a case study to investigate the key critical factors that impact the successful adoption of e-government in Oman. They found that 75% of participants believed that support and commitment from senior management are vital in order to offer and allocate adequate resources as well as discourage resistance.

❖ **Legal and regulation issues:** Handling of e-government principles and tasks necessitates a range of new rules, policies, regulations and legislative changes to deal with electronic activities comprising digital signatures, digital archiving, liberty of information, data protection,

computer crime, intellectual property rights and copyright issues (Ndou, 2004). The use of Information and Communication Technology (ICT) to government may face legal or policy obstacles. Policy makers must make sure that regulations are updated to identify electronic documents and transactions. They must consider the influence of law and public policy as well (Almarabeh & AbuAli, 2010; Reffat, 2006).

E-government systems necessitate many protocols and legislation acts to deal with the modifications that are affected by them. These statutory changes may consist of digital signatures, archiving data protection, avoiding computer law-breaking and hackers, and freedom of information acts (Weerakkody, et al, 2011). Heeks (2001) explained that legislative changes are needed for a set of activities from procurement to service delivery. Furthermore, lawful risks in respect of technology may disclose public organizations to serious accountabilities (Watts, 2001). As a result, new e-services regulatory acts have to be improved and updated from time to time to prevent unanticipated consequences or delays of the program. Failing to do so may cause delays and challenges to e-government progress (Weerakkody, et al, 2011).

Al-Fakhri, et al. (2008) carried out a study on the challenges facing the process of implementing an e-government program in Saudi Arabia from a government perspective. Their findings indicated that the existing regulations of the agency are not applicable with the requirements of adopting e-government in Saudi Arabia.

❖ **Funding issue:** E-government programs necessitate substantial financial resources which must be assigned to emerging and handling systems, building up technical structures, and organizing programs and initiatives (Elsheikh, et al, 2008). E-government initiatives are long period programs, hence, it requires long-term monetary support from the government (Weerakkody, et al, 2011). Moreover, Eyob (2004) declares that it is a key challenge particularly when the financial support has to be provided by government where political impact may interfere with decisions made by

high level managers. However, Gottipati (2002) disputes that the way e-government programs are being looked over and supported financially in the Gulf Cooperation Council (GCC) countries is that such programs seem to be budget-based programs rather than being program-based budgets. AlSobhi, et al. (2009) found in their study that e-offices in Saudi Arabia were in need to financial support to sustain the marketing campaign to promote citizens' awareness of e-government services.

On the other hand, funding issue has been found by many researchers to be insignificant challenge in adopting e-government services. Al-Fakhri, et al (2008) argue that funding issue is not considered to be an issue in implementing e-government services in Saudi Arabia. Likewise, Weerakkody, et al, (2011), in their study on the complexities of e-government implementation and diffusion in Qatar, found that financial issues and funding are not a challenge to e-government implementation in Qatar. Similarly, according to the findings of Alshehry and Drew's study (2010), they found that the lack of funding is not an issue in the implementation process of e-government services in Saudi Arabia. Figure 2.5 shows the proposed political challenges to e-government adoption in Hail region.
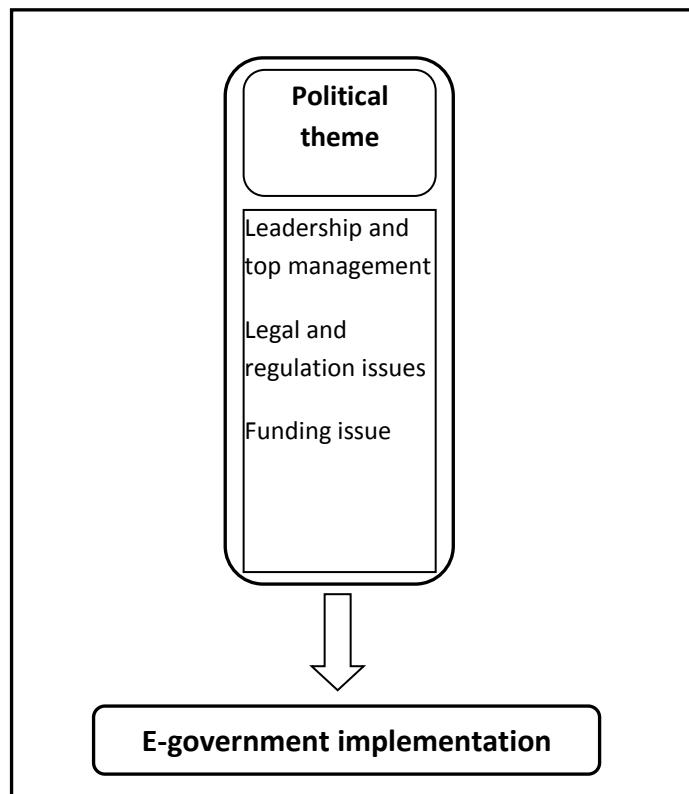
Figure 2.5 The proposed political challenges to e-government adoption.

Table 2.3 Challenges of e-government adoption.

Theme	Challenge	Authors
Technological	IT standards	Weerakkody, et al, 2011; Alshehry, 2008; Nyrhinen, 2006
	Security	Weerakkody, et al, 2011; Alshehry, 2008; Signore, et al, 2005; Seifert, 2003; Almarabeh & AbuAli, 2010; Reffat, 2006; Al-Sobhi, et al, 2010; Al-Fakhri, et al, 2008; Al-Khouri and Bal, 2004; Sahraoui, et al, 2006; Al-Busaidy & Weerakkody, 2009; Elsheikh, et al, 2008
	Privacy	Weerakkody ,et al, 2011; Signore, et al, 2005; Seifert, 2003; Almarabeh & AbuAli, 2010; Reffat, 2006; Al-Sobhi, et al, 2010; Alshehry, 2008; Al-Khouri and Bal, 2004; Sahraoui, et al, 2006; Al-Busaidy & Weerakkody, 2009; Elsheikh, et al, 2008; Al-Ghaith, et al, 2010
	Accessibility	Weerakkody, et al, 2011; Almarabeh & AbuAli, 2010; Sarikas and Weerakkody, 2007; Signore, et al, 2005; Seifert, 2003; Sahraoui, et al, 2006; Abanumy, et al, 2005; Al-Busaidy & Weerakkody, 2009
	ICT infrastructure	Ndhuo, 2004; Al-Sobhi, et al, 2010; Alshehry, 2008; Al-Khouri and Bal, 2004; Almarabeh & AbuAli, 2010; Reffat, 2006; Qaisar & Khan, 2010; Alshehri & Drew, 2010
	Interoperability	Signore, et al, 2005; Almarabeh & AbuAli, 2010; Reffat, 2006
Social	Awareness	Weerakkody, et al, 2011; AlAwadhi and Morris, 2009; Nduo, 2004; Almarabeh & AbuAli, 2010; Reffat, 2006; Zarei, et al., 2008 ; Elsheikh,

		et al, 2008
	Transparency	Almarabeh & AbuAli, 2010; Reffat, 2006; Karunasena, et al, 2011
	E-literacy	Almarabeh & AbuAli, 2010; Reffat, 2006; Chen, et al, 2006
	Trust	Almarabeh & AbuAli, 2010; Alshehry, 2008; AlAwadhi and Morris, 2009; Al-Fakhri, et al, 2008
	Authentication	Al-Shehry, 2008; AlSobhi, et al, 2009
	Culture	Evans & Yen, 2006; Sahraoui, 2005; Alshehri & Drew, 2010; AlSobhi, et al, 2009
Organizational	Strategy	Weerakkody ,et al, 2011; Ndou, 2004; Al-Shehry, 2008; ; Lowery, 2001
	Change management	Ndou, 2004; Al-Shehry, 2008
	Resistance to change	Schwester, 2009; Ndou, 2004
	Records management	Almarabeh & AbuAli, 2010; Reffat, 2006; Burns & Robins, 2003
Political	Leadership and top management support	Weerakkody ,et al, 2011; Ndou, 2004; Alshehry & Drew, 2010; Al-Shehry, 2008; Qaisar & Khan, 2010; Al-Azri, et al, 2010
	Legal and regulation issue	Weerakkody ,et al, 2011; Almarabeh & AbuAli, 2010; Reffat, 2006; Ndou, 2004; Al-Fakhri, et al, 2008; Elsheikh, et al, 2008; Heeks, 2001; Watts, 2001
	Funding	Gottipati, 2002; Almarabeh & AbuAli, 2010; AlSobhi, et al, 2009; Elsheikh, et al, 2008; Weerakkody, et al, 2011; Alshehry & Drew, 2010; Eyob, 2004

2.1.5. E-government in developed countries versus developing countries

A diversity of terms such as developing, less developed, undeveloped, industrialized, developed, and advanced are used to categorize countries in the basis of their economic status based on per capita income, development, literacy rate, living standards etc. The World Bank has statistical measures for the convenience of classification. Even though there are no definitions for this classification and many developing and underdeveloped countries are critical of this terminology (Adams, 2002).

Advanced world has industrial development, whereas emerging countries relay on the advanced countries for support to create their industries. Advanced countries enjoy healthy economy, while emerging countries are at the beginning stage to taste the progression of economy. Furthermore, industrialized countries witness noticeable progress and development in the areas such as business,

education and transportation. On the other hand, emerging countries are in the beginning phases of growth in the areas of business, education and transportation (Adams, 2002).

In the light of e-government, developed countries differ from developing countries in their performances. It is widely recognized that e-government is not an instrument limited to the industrialized countries. However, without a doubt developing countries are revealing some of the most advanced practices of the Internet in governance, as ICTs are being utilized to facilitate government and make it connected more closely with the beneficiaries it is supposed to serve (CDT, 2002).

Graham and Aurigi (1997) stated that many governmental organizations in industrialized countries have shown enlightened steps toward the web and ICT use, adding consistency to all local activities on the Internet, enlarging local access and abilities, organizing interactive services for local disputes, and growing the contribution of people on enhancement and administration of the territory. On the other hand, the aptitude for e-government in emerging countries remains to a great extent unexploited. It is believed that ICT provides large potential for the sustainable improvement of e-government (Ndou, 2004). Pratchett, et al, (2006) indicate that in England and Wales several local government web sites failed to meet the basic level anticipations due to some obstacles such as lack of funding and human resources. The gap that exists when trying to use the e-government systems for both developed and developing countries, which arises from the gap between a system designed for one country and the reality of a developing country into which the system is transferred (Dada, 2006).

Although e-government technologies have a potential to improve the lives of 80% of the world's population that lives in developing countries, the developed countries such as the U.S., Canada, the UK, and Australia are thus far leading-edge in e-government, earning the great deal of initial benefits of e-government adoption. In fact, the gap between advanced and emerging countries in Internet technological infrastructures, practices, and usage has been broader rather than

narrower over the recent past (Chen, et al, 2006; Ndou, 2004). Hence, the shortage of infrastructure can bring about complications if an e-government model from an advanced country is implemented in its completeness by a less developed country. One of the advantages of e-government in industrialized countries is cost reduction in the transfer of information and online transactions. However, owing to the deficiency of infrastructure in most emerging countries, the telecommunications costs can be high, thereby invalidating this benefit (Dada, 2006; Huang et al, 2002; Schuppan, 2009).

Huang, et al. (2002) have put forward that most e-government strategies and adoption plans in undeveloped countries have been based on models and experiences of advanced countries, which may lead them to earnestly simulate them with undesirable consequences for their success. Nevertheless, Nadou (2004) argue that some e-government initiatives have succeeded in emerging countries such as Brazil, India, Chile, etc. These countries' experiences show that governments in the less developed world can efficiently exploit the benefits of ICT, but e-government success necessitates the utilization of certain unique conditions, needs and hurdles. UN (2008) report gave an example of successful developing countries which made high progress in implementing e-government advanced stages. The report stated that the integration of government practices to accomplish higher service delivery is being taken on in developing countries. *"For example, the Environmental Information Network (EIN) Project in Ghana has used ICT to link the databases of the Environmental Protection Agency (EPA) and the Forestry Research Institute of Ghana (FORIG). The project has provided up to date information on the environment for industry, commerce, and management and for research purposes, as well as enables partner organizations to access information from each other's databases at the click of a mouse. It has reduced travel costs and vastly improved the retrieval and quality of data"*(UN, 2008, p. 9).

According to the UN (2010) survey, Republic of Korea is the leader in e-government adoption. The remaining top 10 countries are (in order): the United States, Canada, the United Kingdom, Netherlands, Norway, Denmark, Australia,

Spain, and France. Their findings demonstrate that the majority of places in the top 10 rankings are of those who have high-income, which is not astonishing as they have the financial resources to develop and show progressive e-government initiatives, as well as to create an encouraging environment for people engagement and enablement (UN, 2010). Many researchers highlight that telecommunication infrastructure and human capital components are associated with the development of e-government programs in both developing and developed countries (UN, 2010; Ndou, 2004; Chen, et al, 2006). Table 2.4 shows the ownership rate of tools such as a land line, cell phone and personal computers in 2005 and 2009. The possession rate was calculated per 100 persons in different countries over the world.

Table 2.4 Technology usage in developed and developing countries per 100 inhabitants. (ITU, 2011).

Country	Land lines		Cellular phone subscribers		Internet users	
Developed Countries	**2005**	**2009**	**2005**	**2009**	**2005**	**2009**
Republic of Korea	50.26	53.69	80.61	100.70	73.50	81.60
United States	57.86	44.81	70.36	90.78	67.97	78.00
Canada	56.17	52.50	52.67	70.92	71.66	80.30
United Kingdom	56.54	52.17	108.65	130.55	70.00	83.56
Netherlands	46.58	44.12	97.04	127.66	81.00	89.63
Norway	45.49	37.06	102.57	111.38	81.99	92.08
Denmark	61.81	37.69	100.59	124.97	82.74	86.84
Australia	49.62	42.36	90.32	113.75	63.00	74.25
Spain	45.19	45.28	99.15	113.76	47.88	62.62
France	55.25	56.94	78.82	95.51	42.87	71.58
Developing Countries	**2005**	**2009**	**2005**	**2009**	**2005**	**2009**
India	4.44	3.09	7.97	43.83	2.39	5.12
Lebanon	15.55	19.03	24.34	56.59	10.14	23.68
China	26.71	23.31	29.98	55.52	8.52	28.90
Egypt	13.58	12.42	17.67	66.69	11.70	24.26
Saudi Arabia	16.28	16.22	59.99	174.43	12.71	38.00
Qatar	23.20	20.24	80.95	175.40	24.73	40.00
Pakistan	3.15	1.95	7.70	52.18	6.33	11.30
Cuba	7.65	9.99	1.21	5.54	9.74	14.33
Colombia	17.84	16.37	50.76	92.33	11.01	49.36

UN (2010) survey stated that "*there is a growth in the use of mobile technology for communication from governments to citizens, whether it is simple SMS, alert notification or a full-fledged mobile service*".

Like developed countries, developing countries are demonstrating improvement in their utilization of ICTs among organizations and citizens. One of the developing countries that show a high progress in the implementation of e-government is Saudi Arabia. Al-Ghaith, et al (2010) argue that Saudi citizens have shown highly increased reliance on ICTs, in particular computers and internet services, when compared with other emerging countries; however it is still far below the possession rate in the advanced world. Saudi Arabia has witnessed noticeable changes in their perspective rankings. According to UN (2010) survey, among the West Asia region Iraq, Oman, Saudi Arabia and Turkey improved their rankings. Saudi Arabia ranked 58 among the 193 UN countries. Interestingly, it moved 12 positions up from 70 in 2008.

Similarly, In the light of Arab countries, Saudi Arabia is one of the countries that highly progress in developing e-government services. Chatfield and Alhujran (2009) state that Jordan, Kuwait, Egypt, Lebanon and Saudi Arabia are advanced with respect to the overall e-government service delivery proficiency. However, the UN (2010) survey shows that Saudi Arabia scored the fourth place among its counterparts of GCC countries as it is shown in table 2.5.

Table 2.5 E-government development in GCC countries (UN, 2010).

Country	Rank in 2008	Rank in 2010
Bahrain	42	13
United Arab Emirates	32	49
Kuwait	57	50
Saudi Arabia	70	58
Qatar	53	62
Oman	84	82

Overall, though there has been significant improvement made in industrialized countries in e government adoption, many emerging countries have been left behind with a long way to come nearer (Chen, et al, 2006).

2.2. E-Readiness

Information and communication technologies (ICTs) have been a crucial engine for the efficiency and evolution of economies for more than four decades. It became the most important technological enabler of economic globalization (Al-Solbi & Mayhew, 2005). In more recent years, these technologies were recognized as efficient instruments to support advance human development. Therefore, a country's general readiness to implement, utilize and take advantages from using ICTs is known as country's e-readiness (Kovacic, 2005).

An 'e-ready' society is described as a society that has the essential physical infrastructure (high bandwidth, reliability, and reasonable prices); integrated existing ICTs throughout businesses (e-commerce, local ICT sector), communities (local content, many organizations online, ICTs utilized in everyday life, ICTs training in schools), and the government (e-government); strong telecommunications competition; autonomous regulation with a responsibility to provide universal access; and no restrictions on trade or external investment (Bridges.org, 2001; CID, 2001; 2002). There are many definitions for e-readiness stated by different researchers as shown in table 2.6. One definition stated by Rahman (2007, p. 226) described e-readiness as *"a country's ability to take advantage of the internet as an engine of growth and human development"*. Another definition brought by McConnell International Report (2000); APEC (2000) and Bui, et al. (2003) defining e-readiness as the degree to which a country or community is ready to take part in the networked world (digital economy). Economist Intelligence Unit (2006, p. 1) described e-readiness as *"the state of play of a country's information and communications technology (ICT) infrastructure and the ability of its consumers, businesses and governments to use ICT to their benefit"*. Obviously, different definitions of the term "e-readiness" depend on research focuses. Bui, et al (2003) provide a comprehensive vision of various viewpoints of e-readiness. These opinions are

44

based on the need of having access to Internet technology, an economic, legal and social environment that is helpful to do business, and to be able to make new business ideals. Table 2.6 shows these perspectives in more details.

Table 2.6 E-Readiness definitions (Adopted from Bui, et al, 2003).

Focus	Definitions	Source
Value creation	Ability to pursue value creation opportunities facilitated by the use of the internet	(Center for EBiz Talk. MIT, 2002)
Network access and appropriate applications	An 'e-ready' community has high-speed access in a competitive market; with constant access and application of ICTs in schools, government offices, businesses, healthcare facilities and homes; user privacy and online security; and government policies which are favorable to promoting connectedness and use of the network.	(CSPP, 1998)
ICT; internet applications; e-government	An 'e-ready' society is one that has the necessary physical infrastructure (high bandwidth, reliability, and affordable prices); integrated current ICTs throughout businesses (e-commerce, local ICT sector), communities (local content, many organizations online, ICTs used in everyday life, ICTs taught in schools), and the government (e-government); strong telecommunications competition; independent regulation with a commitment to universal access; and no limits on trade or foreign investment.	(CID, 2001; 2002)
Promotion of free trade, regionally and internationally	A country that is 'ready' for e-commerce has free trade, industry self-regulation, ease of exports, and compliance with international standards and trade agreements.	(APEC, 2000)
E-society	An 'e-ready' country has extensive usage of computers in schools, businesses, government, and homes; affordable reliable access in a competitive market; free trade; skilled workforces and training in schools; a culture of creativity; government-business partnerships; transparency and stability in government and an evenly enforced legal system; secure networks and personal privacy; and regulations allowing digital signatures and encryption	McConnell International, 2000; 2001)
Facilitation of e-commerce	An 'e-ready' country requires consumer trust in ecommerce security and privacy; better security technology; more trained workers and lower training costs; less restrictive public policy; new business practices adapted to the information age; and lower costs for e-commerce technology	(WITSA, 2000)

The World Bank (2004) stated that one of the main questions facing nations is their readiness to adopt e-government. The significance to a community of evaluating its readiness appears in assessing its unique opportunities and challenges (Zaied, et al, 2007). However, since the implementation of a new

technology is different between countries, it is essential to develop a composite measure of the nation's general readiness to take on and utilize a new technology and also to measure issues that contribute to the implementation of ICTs (Kovacic, 2005).

Historically, in the late 1990s, several organizations started to build survey frameworks with the purpose of providing quantitative snapshots of how comprehensively a specific community, region, or country can make the most of information technology for improvement activities. National e-readiness surveys are very widely held (Luyt, 2006). It is reasonable that when a nation does more online or, as is progressively the case, wirelessly—the principle is that its economy can turn into a more transparent and effective one (Economist Intelligence Unit, 2006).

In the context of e-government, UN (2005) affirms that e-Government readiness is a function of a country's situation of technological and telecommunication infrastructure and of the level of its human resource development as well as web measure. Kovacic (2005) describes e-government readiness as the readiness of government to implement, utilize and benefit from ICTs, and it forms one of the key focuses of analysis as well. The notion of e-government readiness is essential due to the opportunities it makes for each nation in terms of taking advantages from e-commerce accomplishments, openness to globalization, potential to build up democracy and make governments more responsive to the essentials of their citizens, and growing citizen wellbeing. The World Bank report (2004, p. 2) states that "readiness relies on an empowering situation that comprises a:

- Advanced technical infrastructure in several government departments.

- Civil service willing to reengineer, share information, and treat citizens as consumers.

- Deep Internet penetration or presence of many public access points.

- Legal framework that fosters public confidence and supports a government mandate to conduct transactions online.

- Political commitment from departmental champions and managers.

- Demanding, aware citizenry that understands its rights and is willing to express them—and fight for them in cases of laxity and inefficiency".

In the meantime, few governments are entirely ready on all the above scopes. Nevertheless, that should not discourage governments from initiating small through experimental pilot projects utilized to lead to modifications in public sector performance (The World Bank, 2004). However, it is helpful for the nation's that understanding of the elements which make a substantial contribution to e-readiness and the nation's place on the e-readiness scale would assist the nation's leaders to point out the strengths and weaknesses of the nation's present place and to focus on the areas where enhancement and further assimilation of ICT could be made (Bridges.org, 2001). The reason behind the importance of e-government readiness is to observe and evaluate the development of e-government services. Bridges.org (2001) point out that countries' e-readiness is increasingly dependent on their infrastructure. Thus, for a country to be effective in the ICT use, it must be e-ready in respect of infrastructure, the ease of access of ICT to the citizens at large, and the influence of the legal and controlling framework on ICT use. All of these issues have to be tackled in an intelligible, attainable strategy that is designed to meet the local desires of certain countries If the digital divide is going to be bridged (Kovacic, 2005).

Pacific Council on International Policy (2002) argues that readiness for e-government is not only a governmental issue. Once a vision and priority sectors for e-government are recognized, it is essential to evaluate how ready a society is for e-government. Measuring e-government readiness necessitates examination of government itself established frameworks, human resources (comprising ICT leaders, procurement officers, and others), current budgetary resources, inter-organization communication flows, etc. National infrastructure, economic health, education, information policies, private sector development and other issues are issues of society's readiness as well (Pacific Council on International Policy, 2002).

Designing methods and measurements to evaluate e-readiness has been an important activity (Kovacic, 2005; Bui et al., 2003; EIU, 2010; World Bank, 2004; UNPAN, 2008; Rahman, 2007). The main elements contain infrastructure, telecommunications, human skills and Internet connections. These measures are regularly revealed as explanation of the digital-divide. The divide, however, is not limited to individual access but is also revealed between large and micro firms and in non-technology-related areas such as income and education (Brown & Thompson, 2011). Some research on e-readiness evaluation tools emphasize that ICT strategy is vital for e-government implementation to be successful (APEC, 2000; Alghamdi, et al, 2011). On the other hand, some researchers argue that existing tools do not put adequate stress on e-government considerations. That would be clear from some studies of e-readiness framework evaluation tools that do not include e-government in their evaluation (Azab et al., 2009). These tools mostly assess e-services and support, openness and usage of ICT (Azab et al., 2009).

United Nations (UN) has developed a framework for the purpose of assessing e-government readiness in 192 countries across the world. Their framework is basically a supply-side approach to e-government analysis using data about the national government web sites, telecommunication infrastructure and human capital rather than a demand-side approach, which is built on the real use of the e-government web sites by the people, businesses and government or their insights about the value of the online services delivery (Kovacic, 2005). UN's first survey about e-government was carried out in 2002. Since then, UN has been publishing an annual report about e-government readiness. Their measurements include three elements: telecommunication infrastructure, government web sites and human capital. These three elements are discussed in more details in the following sections.

2.2.1. Web Measure Index

The web measure index generally reflects the content and delivery of e-government services. Generally speaking, the more number of advanced services provided by these sites, the higher score of web measure index will be reached

(UN, 2008; Elsheikh, et al, 2008). UN (2008, p. 15) informs that *"the web measure index is based upon a five-stage model, which builds upon the previous levels of sophistication of member state's online presence. As a country migrates upwards through the various stages, it is ranked higher in the web measure index"*.

The five-stage model of the web measure index includes: Emerging, Enhanced, Interactive, Transactional, and Connected. The diagram below shows the movement of these phases from basic to the top services (Figure 2.6) (UN, 2003).
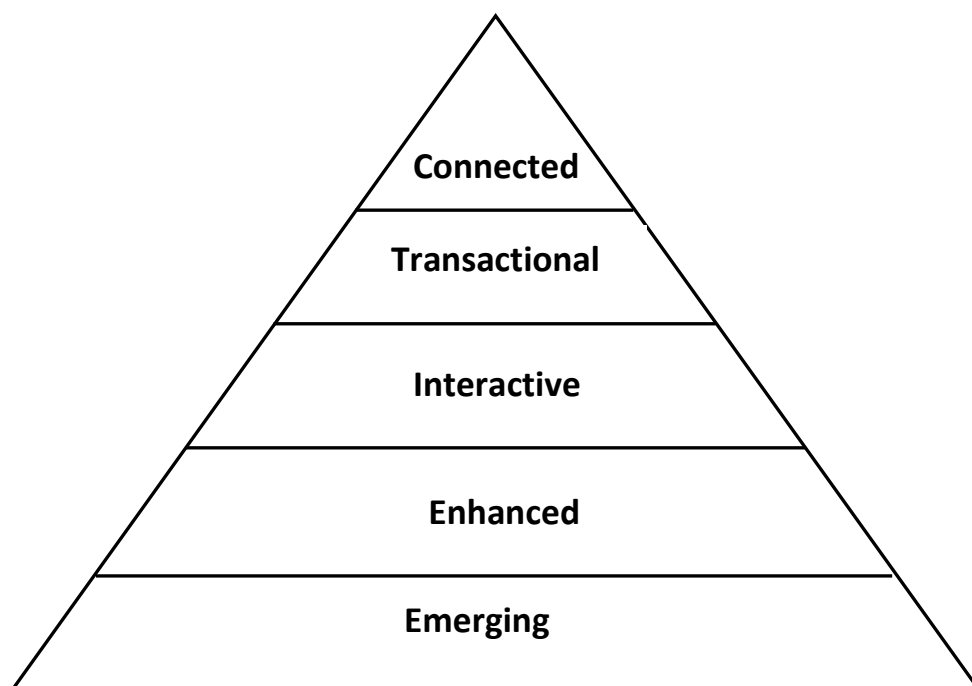
Figure 2.6 The Stages of Web Measure Index (Adopted from UN, 2008).

As nations move upwards towards the phase of connected government, they go throughout many thresholds with respect to infrastructure improvement, content delivery, business re-engineering, data management, security and customer management. Several challenges are suggested to be faced by each nation as it moves up the pyramid, and the issue of how nations come across those challenges will conclude the stride at which they move upwards (UN, 2008).

UN (2003, p. 13) describes the process of evaluating the web presence index in each single stage as follow:

Stage I: Emerging Presence

Web presence through an official website, a national portal or an official home page; links to government ministries, regional/ local government, non-executive branch of the government; information is limited, basic and static.

Stage II: Enhanced Presence:

Online services are enhanced to include databases and sources of current and archived information, such as policies, lows and regulations, reports, newsletters and downloadable databases. The user can search for a document and there is a help feature and a site map provided.

Stage III: Interactive Presence:

Government's provision of online services enters the interactive mode; facilities for online downloading; security link; electronic signature facility; audio and video capability for relevant public information. The government officials can be contacted via email, fax, telephone and post. The site is updated with greater regularity.

Stage IV: Transactional Presence:

Users are able to conduct online transactions, such as paying fines for motor vehicle violations, taxes and fees for postal services through their credit, bank or debit card. There are some facilities for online bidding for public contracts via secure links.

Stage V: Connected Presence

A G2C framework is based on an integrated network of public agencies for the provision of information, knowledge and services. The emphasis is on feedback to the government. A web comment form is provided. A calendar of upcoming government events exists with a government invitation to participate. Government solicits feedback through online polling mechanism; discussion forums; and online consultation facilities.

2.2.2. Telecommunication Infrastructure

The telecommunication infrastructure index reflects the degree to which a nation is ready for e-transformation and e-delivery. In plain English, the more services reengineered and by electronic means delivered over the internet, the higher score of telecommunication infrastructure will be achieved (Elsheikh, et al, 2008). UN (2008) stated that the telecommunication infrastructure index is a composite weighted average of five crucial indicators linking to a nation's infrastructure capability as they relate to the delivery of e-government services. These are:

1. PCs per 100 persons
2. Internet Users per 100 persons
3. Main Telephone Lines per 100 persons
4. Mobile phones per 100 persons
5. Broad banding per 100 persons

Each indicator represents 20% of the overall telecommunication infrastructure index. The telecommunication infrastructure index= 1/5 (PC index) + 1/5 (Internet user index) + 1/5 (Telephone line index) + 1/5 (Mobile user index) + 1/5 (Broadband Index) (UN, 2008; Almarabeh & AbuAli, 2010). The source of telecommunication infrastructure data gained for each follower state in the United Nations International Telecommunication Union (ITU). Building five separate indices for the indicators regulates the data across nations (UN, 2008).

2.2.3. The Human Capital Index

The human capital index reflects the degree to which people are ready to take part in the networked world (Elsheikh, et al, 2008). UN (2008) state that *"the human capital index is a composite of the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio, with two thirds weight given to the adult literacy rate and one third to the gross enrolment ratio. The data for the adult literacy rate and the gross enrolment ratio was drown primarily from the United Nations Educational, Scientific and Cultural Organization (UNESCO)"* (p. 17).

2.2.4. E-Readiness in developed countries versus developing countries

Countries across the world are at different stages of providing e-government services. Some of the industrialized countries are beginning to migrate beyond e-government to i-government, or 'connected government', which offers the basis for the transformation from a bureaucratic government to a citizens-centered one (UN, 2008). Some nations are in the transactional stage of e-government and the other ones are still at the primary stage of e-government, where very limited services are provided online. Thus far, each nation has confronted a number of the same challenges in moving forward from stage to stage (UN, 2008).

Most governments in developed and developing countries have established web portals to offer electronic service delivery to their citizens (ALghamdi, 2011). These portals are single-point web browser interfaces implemented to support the gathering, exchange and flow of information (Lee, 2010). However, the gap in the level of delivering the e-government services between developed and developing countries has existed (UN, 2008; ALghamdi, 2011). Many emerging countries suffer from adopting ICT projects, and are not able to install the suitable ICT infrastructure for e-government deployment (ALghamdi, 2011).

UN (2010) survey demonstrates that high-income nations enjoy the highest rankings in the e-government advance index in 2010 as in preceding years. Interestingly, among the top 20 countries in the United Nations E-government Survey, there are some developing countries such as Republic of Korea, Singapore, and Bahrain, where their rankings are 1st place, 11th, and 13th respectively. However, most of the places in the top 20 rankings belong to high-income nations. This is not unexpected since they have the monetary means to improve and rollout progressive e-government initiatives, as well as to generate an encouraging environment for people engagement and enablement (UN, 2010). (UN, 2010, p. 60) state that *"industrialized nations have a distinct benefit in accomplishing higher positions in the survey, as almost two-thirds of the weight of e-government development index is allocated to the telecommunication infrastructure and human capital components, which both necessitate long-term investment. For developing countries, the challenge is to*

invest in all three dimensions – online services, telecommunication infrastructure and education – to narrow the current digital gap".

Notwithstanding, some undeveloped nations have appeared in an advance progress to catch up with higher-income nations even with these challenges (UN, 2010) see table 2.7. *"Bahrain (0.7363), for instance, has made significant progresses in the last two years, moving up in the rankings to 13th position in 2010 from 42nd position in 2008. Bahrain's recent emphasis on citizen engagement and the electronic provision of government services has propelled the country into the top 15 in e-government development, somewhat closer to Singapore (0.7476) which is among the global leaders in provision of electronic and mobile public services"* (UN, 2010, p. 61).

Table 2.7 Top 14 countries in e-government development in 2010 (Adopted from UN, 2010).

Rank	Country	e-government development index	Rank	Country	e-government development index
1	Republic of Korea	0.8785	8	Australia	0.7863
2	United States	0.8510	9	Spain	0.7516
3	Canada	0.8448	10	France	0.7510
4	United Kingdom	0.8147	11	Singapore	0.7476
5	Netherlands	0.8097	12	Sweden	0.7474
6	Norway	0.8020	13	Bahrain	0.7363
7	Denmark	0.7872	14	New Zealand	0.7311

Developed and developing countries differ in somehow significantly in many aspects of e-government development index. Developed countries enjoy the high scores in the web measure index, telecommunication index, and human capital index. Whereas, most of the developing countries have scored significantly low scores in all those indexes. The significant difference is clearly recognized, see table 2.8. On the other hand, some emerging countries have shown a considerable improvement since 2008 such as Saudi Arabia and Colombia where they moved up 12 positions from 70 in 2008 to 58 in 2010, and 12 positions from 52 in 2008 to 31 in 2010 respectively (UN, 2008; 2010). Saudi

Arabia has been announced to be one of the countries that have made a high progress in improving its online services provided by government among the global e-government readiness surveys since 2005 until 2010 (Alghamdi, 2011). It moved up from 80th place in 2005 to 58 in 2010. It has also shown a noticeable advance among its GGC countries counterparts where its rankings was the 5th position in 2005 and 2008 moving up to the 4th position in 2010 among the six GCC countries namely (arranged according to their rankings in 2010): Bahrain, United Arab Emirates (UAE), Kuwait, Saudi Arabia, Qatar, and Oman, see table 2.8 (GCC website, 2011).

Table 2.8 E-readiness evaluation in developed and developing countries (Adopted from UN, 2008; 2010).

Country	Web measure index		Infrastructure index		Human capital index		E-government readiness rankings	
Developed Countries	**2008**	**2010**	**2008**	**2010**	**2008**	**2010**	**2008**	**2010**
Republic of Korea	0.8227	1.0000	0.6886	0.639	0.9841	0.9929	6	1 (+5)
United States	0.9532	0.9365	0.6663	0.6449	0.9711	0.9691	4	2 (+2)
Canada	0.7659	0.8825	0.6966	0.6799	0.9908	0.9708	7	3 (+4)
United Kingdom	0.6923	0.7746	0.7022	0.7163	0.9699	0.9542	10	4 (+6)
Netherlands	0.7893	0.6794	0.8140	0.7666	0.9881	0.987	5	5
Norway	0.9465	0.7365	0.7375	0.683	0.9908	0.9884	3	6 (-3)
Denmark	1.0000	0.673	0.7441	0.6987	0.9933	0.9933	2	7 (-5)
Australia	0.7525	0.7651	0.6884	0.601	0.9933	0.9933	8	8
Spain	0.6990	0.7651	0.4834	0.51	0.9868	0.9792	20	9 (+11)
France	0.8294	0.6825	0.5992	0.5953	0.9818	0.9772	9	10 (-1)
Developing Countries	**2008**	**2010**	**2008**	**2010**	**2008**	**2010**	**2008**	**2010**
India	0.4783	0.3683	0.0435	0.0583	0.6195	0.6432	113	119 (-6)
Lebanon	0.3913	0.2667	0.1930	0.1964	0.8706	0.8583	74	93 (-19)
China	0.5084	0.3683	0.1600	0.1912	0.8366	0.8535	65	72 (-7)
Egypt	0.6054	0.5302	0.0886	0.1255	0.7323	0.6973	79	86 (-7)
Saudi Arabia	0.4649	0.3111	0.2110	0.4031	0.8056	0.8346	70	58 (+12)
Qatar	0.3913	0.2794	0.3549	0.3168	0.8521	0.8886	53	62 (-9)
Pakistan	0.4247	0.2476	0.0540	0.077	0.4659	0.5025	131	146 (-15)
Cuba	0.2140	0.2413	0.0312	0.0622	0.9572	0.9181	111	96 (+15)
Colombia	0.5552	0.7111	0.1701	0.2421	0.8692	0.8813	52	31 (+21)

Overall, e-readiness assessment began evaluating nations in 2002 by many organizations such as United Nations. Annual assessment has been run to evaluate countries' progresses in e-government development. According to UN surveys (2008; 2010), since 2005 countries around the world have witnessed a considerable movement towards advanced e-government services. Saudi Arabia is one of these countries which have made a high progress in delivering e-government services in the global and regional wide (see table 2.9). As it has been advancing in the last decade, it is noteworthy to have a look at the aspects of this country. The next section will illustrate in Saudi Arabia from different aspects.

Table 2.9 E-government development index in GCC countries (Adopted from UN, 2005; 2008; 2010).

Country	Ranking 2005	Ranking 2008	Ranking 2010
Bahrain	53	42	13
United Arab Emirates	42	32	49
Kuwait	75	57	50
Saudi Arabia	80	70	58
Qatar	62	53	62
Oman	112	84	82

2.3. The Kingdom of Saudi Arabia

Saudi Arabia's official name is The Kingdom of Saudi Arabia (KSA). Even though, all over the world, it is commonly called Saudi Arabia and hence, both names will be used interchangeably in this study. Its official language is Arabic. Nevertheless, in the business circles, especially in the private sector, English language is somehow spoken. Saudi Arabia is a monarchy as the nation is governed by a royal family even though there were some municipal council elections late in 2004 at a local level (ALshehry, 2008). The flag of Saudi Arabia has a green background featuring a white inscription above a white horizontal sword (the tip of the sword points to the hoist side of the flag). The text is known as Shahada or the Islamic statement of faith, "There is no God but Allah and Muhammad is his Prophet". The flag was officially adopted on March 1978. The Saudi Arabian Official Emblem is a date palm, representing vitality and

growth, and two crossed swords, symbolizing justice and strength, see figure 2.7 (The Saudi National E-government Portal, 2010).

Figure 2.7 The Flag and Emblem of Saudi Arabia (Adopted from The Saudi National E-government Portal, 2010).

The capital city of Saudi Arabia is Riyadh City. There are four major cities namely: Makkah which is the birthplace of the Prophet Muhammad and the focal point of Hajj (the Islamic pilgrimage) in which almost two million Muslims from all parts of the world participate every year, Madinah is the city where Prophet Muhammad emigrated and lived, Jeddah is the commercial capital of Saudi Arabia, Dammam is the capital of the Eastern Province and it houses branches of many ministries (Table 2.10).

Table 2.10 The characteristics of the kingdom of Saudi Arabia.

Official name of the country	The Kingdom of Saudi Arabia
Official language	Arabic
The system of government	Monarchy
The capital city	Riyadh
The major cities	Makkah, Madinah, Jeddah, and Dammam

For administrative purposes, the Kingdom of Saudi Arabia is divided into 13 regions. The regions and the cities in which the administrative capital towns of each region are located as:

- Riyadh Region: Riyadh City.

- Makkah Region: Holy City of Makkah.

- Madinah Region: Holy City of Madinah.

- Qasim Region: Buraidah City.

- Eastern Region: Dammam City.

- Asir Region: Abha City.

- Tabouk Region: Tabouk City.

- Hail Region: Hail City.

- Northern Border Region: Arar City.

- Jizan Region: Jizan City.

- Najran Region: Najran City.

- Al-Baha Region: Al-Baha City.

- Al-Jouf Region: Sikaka City.

Each of these regions has a Regional Governor with the rank of Minister who is responsible to the Minister of the Interior. The structure of regional government and the composition of the regional governing bodies and regional councils is clear evidence of the Kingdom's determination to increase the involvement of the citizenry in the government of Saudi Arabia while maintaining stability and continuity (General Housing Authority, 2010).

2.3.1. Location, Size and population

The Kingdom of Saudi Arabia is positioned in the Southeast corner of the Asian continent. It occupies 2,240,000 square kilometers about 865,000 square miles (The Saudi National E-government Portal, 2010), or about 80 percent of the Arabian Peninsula (Long, 2005). According to Al-Farsy (2003), the vital

importance of the location of KSA is a bridge between the Western world and Asia. With Africa on one side and Iran and South Asia on the other, it is in the middle of the strategically important Indian Ocean area, as can be seen in the map in Figure 2.8 (Al-Farsy, 2003 cited in Alshehry, 2008).

In land area it is one-fifth the size of the United States. In the north it borders Jordan, Iraq, and Kuwait, and in the south it borders Qatar, the United Arab Emirates, Oman, and Yemen. The Red Sea forms the western border and the Persian/Arabia Gulf forms the eastern border. Bahrain is located about 40 kilometers (24 miles) off the Gulf coast and is connected to the Saudi mainland by causeway (Long, 2005, p. 2).
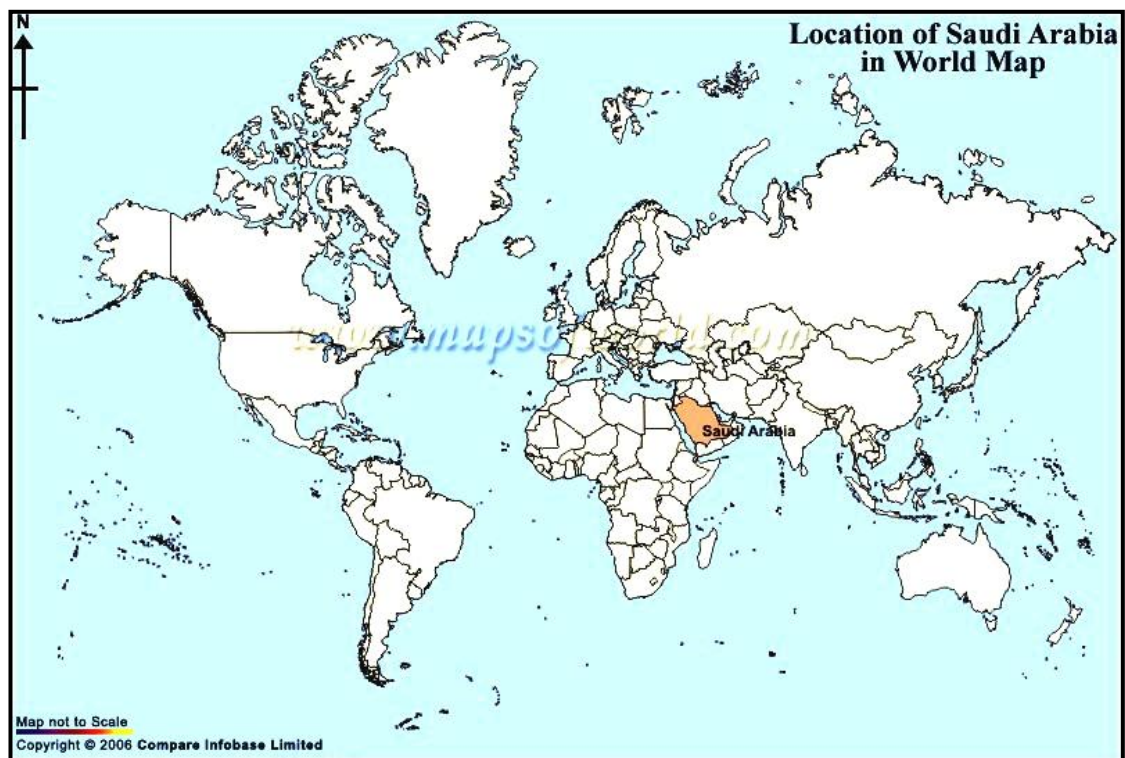
Figure 2.8 Location of Saudi Arabia in the world (Adopted from http://www.mapsofworld.com, 2009).

In the light of Saudi Arabia's population, the Central Department of Statistics and Information (CDSI) (2010) showed the total population of 27,136,977, the annual growth rate of 2.31 percent; however, a part of this total population, 8,429,401 or approximately 31%, is made up of foreign nationals who have come to work in the Kingdom of Saudi Arabia. Males represent (50.9 %) of the whole population, and the females are roughly (49.1 %). Young people who aged 20 or less

represent almost more than half of the total population. As a result, the high rate of youth in the country might encourage the government to implement technological solutions more easily for the reason that young people might more willingly accept technology (Alshehry, 2008). Table 2.11 shows some facts about the Kingdom of Saudi Arabia.

Table 2.11 Facts about the Kingdom of Saudi Arabia.

Location	In the Southern-Eastern part of the Asian continent
Area	2,250,000 square kilometers (865,000 square miles)
Population	- Total of (27,136,977) - Males (50.9%) - Females (49.1%) - Non-nationals (8,429,401) or (31%) - Young people less than 20 years old (51%)
Borders	- North (Jordan, Iraq, and Kuwait) - South (Qatar, the United Arab Emirates, Oman, and Yemen) - East (Persian/Arabia Gulf) - West (The Red Sea)
Religion	Islam 100%
Culture	Is conservative and Islam plays a central role in defining the culture

2.3.2. Economy of the Kingdom of Saudi Arabia

The economic resources of the Kingdom changed after World War II., when so called oil-age of the world started its inherence and introduced a massive economic boom (General Housing Authority, 2010). Since the 1970s, the base of the Saudi economy has been petroleum (Bowen, 2008; Besheer & Janin, 2003). The Kingdome's returns from the sale of its oil have allowed Saudi Arabia to sketch and financially patronize vague development projects that have set global records for size and cost (Besheer & Janin, 2003). As the world's largest oil producer and exporter, home to around 25% of the globe's reserves, Saudi Arabia is more heavily reliant on oil than its Middle Eastern counterparts

(General Housing Authority, 2010). Over 90 percent of Saudi exports, 75 percent of government revenues, and 40 percent of the Gross Domestic Product (GDP) derive from this commodity and its products (Bowen, 2008).

The unpredictability of petroleum revenues, as well as the recognition that it is a limited resource, has led the country to take on serious determinations to make its economy diverse into other commodities: manufacturing, agriculture, and since 2005, the initial stages of pilot programs in tourism (Bowen, 2008). In other words, oil revenue and cheap energy have also been used to develop agriculture and other industries, including iron and steel, construction materials, food processing, engineering, chemicals and metal fabrication (General Housing Authority, 2010). In recent years, however, the kingdom has witnessed private sector evolution with the purpose of reducing the country's reliance on oil by founding free enterprise. Consequently, the private sector is becoming increasingly more involved in and accountable for the industrial growth and modernization of the kingdom (Al-Farsy, 2003 cited in Alshehry, 2008).

Furthermore, in the past twenty years, the government of Saudi Arabia has developed several national plans to employ technical solutions as part of its economic system. In view of that, a study conducted by Economist Intelligence Unit (2010) found that Saudi Arabia's ranking was the 52nd place of 70 countries of the world's leading economic systems.

2.3.3. Saudi Culture

National Culture, in terms of the shared traditions and representations of a society, has an intense effect on the design, adoption and the use of information and communication technologies in each society (Hofstede, 1991). Hofstede defines culture as "It is the collective programming of the mind which distinguishes the members of one group or category of people from another" (1991, p.5). He suggests that people share a collective national character that represents their cultural mental programming. This mental programming shapes values, beliefs, assumption, expectations, perceptions and behavior (Myers & Aviston, 2002. cited in Ali, M., et al, 2009). Whilst Zghal (2001, p.5) defines

culture as an internal logic, a sort of habits and a tacit understanding terrain that members in a society share and to which each adjust his or her behaviors. Another definition of culture states that social and economic systems, family, religion, education, language and communication, and technology are commonly listed parts within a culture (Chanlat & Bedard, 1991; Culpan, 1991; Ferraro, 1990; Hall & Hall, 1987, 1990. cited in Gong, 2009). Culture probably plays a role of an important factor that distinguishes between countries in the adoption of ICT (Bouaziz, 2008). Thus, Saudi culture is one of the main aspects of this study to be introduced.

Obviously, for one to understand the Saudi culture it is essential to consider some characteristics which differentiate this culture, such as the tribal system, religion, its regime and modernization. Saudi culture is in its very nature, religious. That is, Islam plays a central role in defining the culture, and acts as a major force in determining the social norms, patterns, traditions, obligations, privileges and practices of society. This is especially so since Islam is not only a religious ideology, but a comprehensive system which embraces detailed prescriptions for the entire way of life in Saudi Arabia (AlMunajjed, 1997. cited by Al-Saggaf, 2004). Furthermore, the strict adherence to the Islamic law (*Shari'a*) as a solid basis for aspects of life within Saudi Arabia is an important characteristic that distinguishes Saudi society from other societies in the world (Shoult, 2006).

Kingship and the affiliation to a clan or tribe still affect an individual's place in society and might influence his/her success or failure, both in the traditional and in the new spheres of activity (Vassiliev, 2000. cited in Al-Shehry, 2008). Although that Saudi people are classified into three classes, ultra-rich people, middle class people, and very poor, the middle class is where most of the people are classified (Bowen, 2008).

Traditionally, Bedouins and urban people share customary morals as generosity and hospitality. These merits are still perceived by the Saudis in their individual and collective communications and between people and the government (Shoult, 2006)

The Saudi government supports modernization in all parts of life in Saudi society and so that is why, the government has brought in skilled people from across the world to promote the conversion of Saudi Arabia to a modern country (Alshehry, 2008). Besides, Saudi Arabia has well-looked-after, although in a new form, several values of Arab and Islamic civilization and the customary system of power and government whereas, in the meantime, implementing western technology, a market economy, a modern state education system, and health-care and other public sector services (Vassiliev, 2000. cited in Al-Shehry, 2008).

Beliefs exist in every society regarding the roles that are suitable for each gender and both men and women are supposed to have or to develop characteristics consistent with one's assigned role (Elamin & Omair, 2010). However, segregation of gender in probably all conditions is dictated by the traditions and culture in Saudi Arabia. An important cultural point is that of honor and shame. Saudi women are almost, usually homebound (Bowen, 2008). Examples of that can be given in the practice of the car driving. Generally speaking, women are not allowed to drive themselves, however, they can be driven by their escorts (Al-Kahtani, N., et al 2006) that is, male relatives {*maharim*: father, grandfather, brother, husband, son, uncle, nephew} (Amélie Le Renard, 2008). Moreover, women wear abaya (black cloak) and niqab (veil) to cover their bodies and faces. Abaya is worn from neck to ankle where Saudi women shroud themselves in public in a black outer garment. Islam requires women to dress modestly and hide their shape from any person who is not a member of the family (Cuddihy, 2004).

Obviously, Saudi government did not provide women passport department that serves women to achieve their needs regarding their passports. Therefore, women are always aware of their faces being seen by unrelated males. The use of the veil by women in Islamic cultures can be regarded as an expression of privacy (Dempsey, et al, 2003). Obviously, the practice of segregation and confining women to their own company is an institutional mechanism designed to regulate women, to protect their chastity and to prevent other men from

encroaching on the male honor of the family (Almunajjed, 1997. cited by Al-Saggaf, 2004).

However, modernization has taken a place in Saudi society. The spread of ICT in Saudi Arabia has changed the way people think, interact and express their feeling. As Al-Saggaf conducted a study on the effects of online community on offline community in Saudi Arabia in 2004, she stated that the online community has positively and negatively affected people in Saudi Arabia. She reported that *"people gained self-confidence and became more open-minded in their thinking. In addition, they became more aware of the wider characteristics of individuals within their society and less inhibited about, and more appreciative of, the opposite gender. On the negative side, people neglected their family commitments, became less shy and some became confused about some aspects of their culture and religion"(p. 13).*

2.3.4. ICT History of Saudi Arabia

Overwhelming advances in information technology (IT) have impacted people's economic and social life all over the world in several means. It has turned the world into a global village, where individuals are able to enter into commercial transactions and access information on any subject from anywhere in the world speedily and economically (Communications & Information Technology Commission, 2003). Therefore, the government of Saudi Arabia has focused on it as a primary issue. Within the past five decades, the IT sector has witnessed radical changes. For example, IT applications have spread hastily to cover many sectors for the intention of increasing productivity and improving performance in the fields of finance, industry, commerce, education, government and health care (Alshehry, 2008). Notwithstanding, Alshehry, *et al* (2006) IT in the kingdom is viewed to be relatively young technology if compared to some advanced countries such as Japan, Canada, the UK and the USA. ICTs are the responsibility of the Ministry of Communications and Information Technology in the country. The creation of this ministry reflects the importance of the country attaches to this vital sector (Communications & Information Technology Commission, 2003). The Ministry of Communication and Information Technology was founded by the

government in 2003 to control the use of ICT across the country and manage the IT services for citizens (Abanumy and Mayhew, 2005). In 2005 the government put in on an advanced project to provide computers to all families in the kingdom at a low cost to develop computer literacy for people. What is more, the ministry of education offered classes to improve students' ICT skills (MICT, 2004).

The kingdom of Saudi Arabia has also established the Saudi Communications and Information Technology Commission. The implementation of this commission and its regulation and legislation have opened the telecommunication market to competition, and put down the legal framework for the development of a competitive telecommunication sector (Communications & Information Technology Commission, 2003).

In accordance to Al-Turki and Tang, (1998) cited in Alshehry (2008), the concentration of the IT systems development process was on three dimensions:

- Computerization of some public and private organizations.
- Establishment of education and training institutes and programs to prepare human resources that would develop, operate and maintain IT systems and building the basic infrastructure to support IT.
- Encouragement and promotion of the use of IT systems in the economy through the government's own consumption and its import, trade and industrial activities.

It is widely recognized that both public and private sectors in Saudi Arabia have invested heavily in developing the use of computers in many ways. Buying computers and IT-related products were the first step taken for that improvement (Alshehry, et al, 2006). These efforts have led to the development of the internet usage across the country.

The next section will look at the history of the internet usage in the country and its development since its implementation.

2.3.4.1. The Internet usage in (KSA)

The Internet, as a fruitful innovation, has generated very large opportunities as well as pressures for organizations in several business and services sectors, convincing them to support their products or deliver their services electronically using the Internet as a delivery channel (Chau & Lai, 2003). In the light of this, Saudi Arabia has largely showed an increase in the use of the Internet.

The government of Saudi Arabia introduced the new technology of the World Wide Web (WWW) in 1993, which enabled the utilization of the internet backbone by a large number of users with little or no technical skills. However, the Internet was officially made available in Saudi Arabia in 1997. Then the government of Saudi Arabia spent two years building a centralized control system before make it available for public service in February 1999.

According to MCIT (2011), the number of Internet users increased from about 1 million in 2001 to an estimated 11.2 million at the end of third quarter (Q3) 2010. This corresponds to a CAGR of around 33% over the eight years period (2001-2009). Internet penetration increased to 41% of the population by the end of Q3 2010. This rapid growth of Internet users in Saudi Arabia is attributable to increased public awareness, growth in broadband availability, decreasing costs of personal computers laptops; internet enabled handheld devices and Internet access. Additionally increases in consumer ICT literacy, understanding of the value the Internet (personal and business life), availability of local content, of Arabic language sites, and of e-services such as online banking, e-commerce, and e-government applications have played a significant role in the increased adoption and use of internet. Figure 2.9 shows the Internet users and Internet penetration growth in Saudi Arabia from 2001 to 2010.
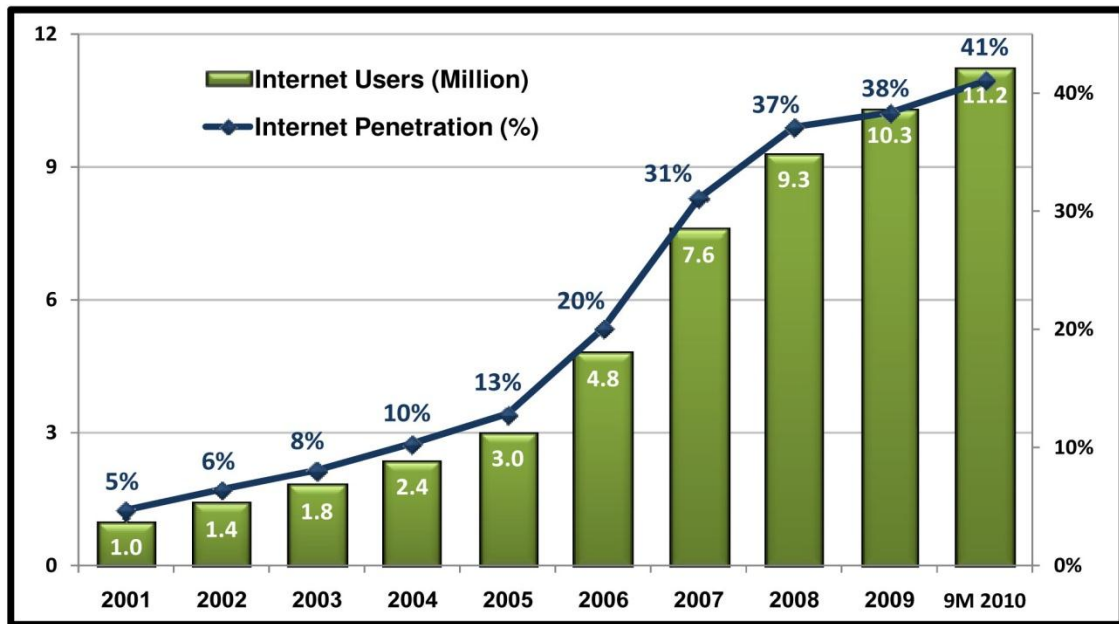
Figure 2.9 Internet market evolution in Saudi Arabia (Adopted from MCIT, 2011).

2.3.5. E-government initiatives in KSA

Based on a royal directive dated 20 March 2003, and within the agenda of the strategic visions for applying e-Government, the Public Investments Fund of the Ministry of Finance set a programme for launching e-Government, based on a comprehensive Action Plan (Communications & Information Technology Commission, 2003). That would comprise policies for instituting e-Government projects, securing the interrelationship between the different systems in future, offering government services for citizens, expatriates and the private sector through electronic means, as well as interchanging information and data between government organizations electronically. The e-government project comprises conducting a number of related activities, such as: the creation of a Single Portal for government services, protecting automated software that would include all applications linked to government procurement, stock control, financial dealings, and other common applications amongst government agencies (Communications & Information Technology Commission, 2003).

In 2003 the Saudi government produced "Yesser" as the name of the e-government program planned to accomplish continuous advance and improvement in all aspects of e-government. Yesser is an Arabic word that

66

stands for, 'simplify' or 'facilitate'. It is launched by the Saudi government with the cooperation of the Ministry of Communication, the Ministry of Finance and the Governor of Communications and Information Technology Commission for transforming the public sector into an information society (Saudi e-Government National Portal, 2011). The key objectives of Yesser are to improve the productivity and proficiency of the public sector; to deliver better and more effective services to people and business; and to offer the needed information in a timely and highly perfect style (MICT, 2004). Figure 2.10 shows the objectives of Yesser program in the kingdom as stated by Yesser.

PROVIDE BETTER SERVICES BY THE END OF 2010

1. Provide the top priority services (150) at world class level of quality electronically
2. Deliver services in a seamless and user friendly way and at highest standards of security
3. Make services available to everyone in the Kingdom and allow 24/7 access from cities as well as countryside and even outside the country
4. Realise 75% adoption rate with respect to the number of users
5. Ensure 80% user satisfaction rating for all services provided electronically

INCREASE INTERNAL EFFICIENCY AND EFFECTIVENESS

6. Deliver all possible official intra-governmental communication in a paperless way
7. Ensure accessibility of all information needed across government agencies and storage of information with as little redundancy as possible
8. Purchase all goods and services above a reasonable value threshold through e-procurement

CONTRIBUTE TO COUNTRY'S PROSPERITY

9. Contribute to establishment of information society in the Kingdom through spreading information, knowledge and use of e-services
10. Help improve use of country's assets and resources by increasing society's productivity in private, business and public sector

Figure 2.10 The objective of e-government program in Saudi Arabia (Adopted from www.yesser.gov.sa).

To shed light on, the government of Saudi Arabia has created a Saudi national portal which serves citizens, businesses and visitors. This portal connects users with the services provided by many governmental organizations via clicks. Descriptions are provided for every service in both languages Arabic and English with an external link directing to the organization's website. The portal can be accessed via (www.saudi.gov.sa). Figure 2.11 shows the Saudi Portal Home Page.

Figure 2.11 Saudi Portal Home Page.

Many e-government projects have been taken seriously by the government in the recent past years. These projects have been implemented by different public organizations successfully. The following section will look at these projects in more details.

2.3.5.1. E-government national projects in Saudi Arabia

The accomplishments of Saudi government in adopting more e-projects have been recognized nationally and internationally. These projects are:

 ➢ **E-Payment Gateway "SADAD"**

 (SADAD) was established by the Saudi Arabian Monetary Agency (SAMA) to be the national Electronic Bill Presentment and Payment (EBPP) service provider for the Kingdom of Saudi Arabia (KSA). The core mandate for SADAD is to facilitate and streamline bill payment transactions of end consumers through all channels of the Kingdom's Banks. SADAD was

launched on October 3rd, 2004 (Saudi e-Government National Portal, 2011). In July 2008 SADAD was honoured as the best service enhancement in e-government projects in West Asia by the United Nations Public Service Award (Al Ghoson, 2010).

- **Smart Card Project**

The Ministry of the Interior has adopted a smart card, which has a micro-chip for storing personal identification information, thumbprints, medical and driving records, and may also hold digital certificates (Alsabti, 2005). This smart card might also be used as a passport in crossing GCC countries' borders (Al Ghoson, 2010). According to Al Ghoson (2010), the smart card project has been considered as one of the most innovative identity project in the Middle East.

- **E-Umrah Project**

Every year Saudi Arabia hosts a lot of Muslims to perform Umrah in the cities of Makkah and Madinah. Those people are not charged for visas, but the application process in some cases used to probably take up to three months to be completed. However, the E-Umrah project permits visas for Umrah to be issued within 24 hours through the ministries of the Interior, Foreign Affairs and Hajj (Al Ghoson, 2010).

- **Electronic Data Interchange Project (SaudiEDI)**

The Electronic Data Interchange Project is responsible for the structure for supporting the procedures of international imports and exports, which comprises customs, the general organization of ports and agents that deal with cargo and customs clearance (Alsabti, 2005). The transformation to this system of e-government has cut down costs by about half, and the speeded up the process of handling these aspects (Al Ghoson, 2010).

- **Al Madinah Almunawwarah E-Government Portal**

  The municipality of Madinah has designed an e-government website that provides G2B and G2C services that allow grater efficacy (Alsabti, 2005). However, this project is generally under development (Al Ghoson, 2010). In accordance to Al Ghoson (2010), this portal is recognized in the informational and transactional phases which are phase two and three respectively. It can be accessed via (www.almadinah.gov.sa).

- **Ministry of Interior Portal (eDashBoard)**

  The National Information Centre (NIC) of the Ministry of Interior has built a portal of more than 20 electronic services for individuals (Al Ghoson, 2010). These services include passport, birth certificate, driver license, vehicles, traffic violations, labour importation and travel records using e-forms (Al Ghoson, 2010; Alsabti, 2005; Saudi e-Government National Portal, 2011).

- **"Jadara" Program for e-Recruitment**

  The Ministry of Civil Service is running now a recruitment program for both male and female citizens in the public sector by e-registering their own data in the ministry's website. One of the key advantages of the program as it assists to construct a consolidated record for each applicant, even with various opportunities, which allows the Ministry of a precise and quick reading to aid in the preparation and decision making (Saudi e-Government National Portal, 2011).

- **"Hafiz" Program for Jobseekers**

  The Ministry of Labour has run this program for Saudi jobless and jobseekers to apply for unemployment benefits national program, by sending their names and identity card numbers via short message service

(SMS), or by signing up on the ministry's website (Saudi e-Government National Portal, 2011).

> *E-Training Caravans*

Recently, the e-Training Caravans initiative has come as a partnership of the Ministry of Communication and Information Technology within other initiatives implemented by the government and private sectors to enable all segments of community to effectively deal with IT and communications. Aiming at bridging the digital gap and raising awareness of all individuals about importance of communications and information technology, the initiative is planned to concentrate on rural regions and low-income people in addition to availing the basic free-of-charge training on how to use IT and communications. Being directed to individuals, small and medium enterprises all over the Kingdom, the Initiative is intended to reach PC and Internet literacy after highlighting the significance of IT and Internet for such targeted audience. The Initiative has also aimed to reach primary and preparatory education students in addition to rural inhabitants. Training here is implemented at movable training classes equipped with necessary requirements including training materials and transportation means among villages and cities. Training programs are offered about PC and Internet with 10 hours for each group of trainees over the one week (Saudi e-Government National Portal, 2011).

2.4. Hail City characteristics

This section will identify the characteristics of Hail City in terms of its location, size, population and economy. Besides, it looks into the e-government initiatives in Riyadh City and Madinah City.

2.4.1. Hail City Location, Size, and Population

Hail City is located in the central-northern part of Saudi Arabia. It is the provincial capital of Hail Province in the central-northern Saudi Arabia. The region of Saudi Arabia is located in the southern border of the Nafud desert. The elevated mountains Jabal Shammar, Jabal Aja, and Jabal Salma impose themselves on the nearby horizons (Cuddihy, 2004). In the north it borders Al-Jouf region and the Northern Border Region, and in the south it borders Qasim Region. Madinah region and Tabouk region form the western border and Northern Border Region forms the eastern border of Hail region (Figure 2.12) (Hail1, 2009).

Hail is positioned 700 kilometres northwest of Riyadh, 400 kilometres northeast of Medina, 300 kilometres southwest of the settlement of Rafha close to the border with Iraq, 600 kilometres south of the settlement of Qurayyat near the border with Jordan. Sakakah and Buraydah, the capitals of the nearby provinces of Al-Jouf and Qasim respectively, are located between 250 to 300 kilometres away (PABMEC, 2011). Hail City lies between the peaks of Aja Mountain (about 1,400 meters) and Salma (about 1,100 meters), two mountain ranges at the northern end of the Nejd plateau of the Arabian Peninsula (PABMEC, 2011).

Figure 2.12 The location of Hail region (Adopted from http://www.freebase.com)

According to the recent survey by CDSI (2010), the total population of Hail City is 597,144, the annual growth rate of 3.78 percent; however, a part of this total population, 109,940 or approximately (18.4%), is made up of foreign nationals who have come to work in Hail City. Males represent (49.8 %) of the whole population or 242,305, and the females are roughly (50.2 %) or 244,899 (Table 2.12).

It occupies 118,232 square kilometres about 73,466 square miles or 6% of Saudi Arabia. It is about 600 meters high of the sea level surface (Hail Principality website, 2007). There are more than 865 towns and villages that belong to Hail Province (Table 2.12).

As the capital of the Hail Province, it is the headquarters for the governor and several governmental departments. Historically significant as a transit point for pilgrims heading to Makkah from Iraq and Syria, Hail City is a mixture of an ancient history with modernity. While Hail contains historic palaces, fortresses,

and wells dating as far back as the Ottoman era, it has been transformed into a modern city. Traditionally, Hail is well known by the generosity of its people in Saudi Arabia and the Arab world as it is the place where Hatim al-Tai lived (MobileReference, 2007). Table 2.12 presents some facts about Hail City.

Table 2.12 Facts about Hail.

Location	In the central-northern part of Saudi Arabia
Area	118,232 square kilometers (73,466 square miles)
Population	- Total of (597,144) - Males (49,8 %) - Females (50,2 %) - Non-nationals (109,940) or (18,4%)
Borders	- North (Al-Jouf region and the Northern Border Region) - South (Qasim Region) - East (Northern Border Region) - West (Madinah region and Tabouk region)
Height	600 meters high of the sea level surface

2.4.2. Hail Economy

The strategic position of Hail City on the routes between the Arabian Gulf and Damascus and, later, from the northern regions to Riyadh, facilitated the city to grow as a market centre and provisioning centre (Cuddihy, 2004). The importance of the city is widely recognised nationally and internationally. According to Alfayez (2006); Cuddihy (2004) and Hailnews.net (2011) the importance of Hail City is emphasized as:

- It links between the northern part of Saudi Arabia and the two holy cities (Makkah and Madina).
- The location of Hail airport is at the confluence of global airlines.
- Hail City is believed to be as far as 1 hour from 11 Arabian capitals, and 4 hours from the middle of Europe by airplane.
- It is located on the trade routes between the Arabian Gulf and Damascus and, later, from the northern regions to Riyadh.

Hail is largely agricultural, with significant grain, date, and fruit production. A large percentage of the kingdom's wheat production comes from Hail Province. It was reported by Blunt (1881) that Hail region is a relatively excellent area for pasturage. AMEinfo.com (2006) reported that Hail's agricultural base accounts for 90% of corn, 33% of potato, and 31% of barely produced in the kingdom. The total annual production is in excess of 800,000 tons.

Tourism has played a considerable role in Hail's economy. This is owing to the reason that the climate of Hail is moderate, together with its wild beauty. Moreover, Hail's rich heritage makes it a possible destination of choice for tourism. It has over 260 historical and ancient sites. Therefore, it is anticipated to attract over 700,000 visitors yearly (AMEinfo.com, 2006). In 2006, Hail City launched Hail International Rally. This rally is run in February every year. It has attracted people from everywhere inside the kingdom as well as from overseas. Tourism Information and Research Centre in Saudi Arabia conducted a survey in Hail City in 2010 to obtain people's views about Hail International Rally. They found that people comes from more than 32 destinations in the Kingdom to enjoy the rally-related activities. In addition, 73% of the participants were happy about the tourism activities in Hail City and they ranked it as excellent. Furthermore, 90% of the respondents stated that they would visit Hail City every year (Hailrally.com.sa, 2011). Consequently, it can be said that Hail International Rally has greatly contributed to the promotion of Hail economy. For more information about Hail International Rally you can visit their website in (www.hailrally.com.sa).

To shed light on, the importance of Hail location has encouraged the government of Saudi Arabia to exploit this benefit. The government is now building the second biggest economic city in Hail region among 5 other economic cities across the Kingdom as it can be seen in figure 2.13. It is named Prince Abdulaziz Bin Mousaed Economic City (PABMEC). In accordance to PABMEC website, this economic city is a leading development that is being planned by the Saudi Arabian General Investment Authority (SAGIA). However, PABMEC is a vital element in Saudi Arabia's current initiative to further improve its economy, to

create regional advance and to generate employment opportunities for its youthful population.

The new Economic City will be divided into a number of primary groups comprising the Logistics Centre, the Dry Port, the International Airport, the Petrochemical Area, the Agricultural Park, the Mining Centre, the Business Centre, and the Down Stream Industries Centre, in addition to comprehensive residential, entertaining and supporting services (PABM-EC.com).

PABMEC is estimated to become the largest transportation and logistics hub in the Middle East (AMEinfo.com, 2006). According to AMEinfo.com (2006), Engineer Abdullah Al-Rakhis, Chairman of Rakize Holdings, which is the developer of this project, said that *"…Hail is one of the kingdom's most attractive regions in terms of economic growth potential and investment opportunities. The region offers a strategic location, moderate climate, well-established agricultural sector, and the potential of large mineral resources waiting to be exploited".*

Figure 2.13 The economic cities in Saudi Arabia (adopted from www.sagia.gov.sa).

2.4.3. The state of e-government initiatives in Hail City

The government bodies in Hail City have endeavoured to implement e-services. Initiatives have been seen to be seriously taken in some departments; however, the others are still far behind in the implementation process.

According to Almogheis's article in Hailnews.net (2008), the prince Saud Bin Abde Al-Mohsen (the governor of Hail) has been thanked for his attributes to transform the Hail Principality to be one of the e-services leaders in the city. The principality provides e-services such as Interactive Voice Inquiry System (IVIS), Interactive Messaging System (IMS), and inquiry by e-mail (Hail Principality website). AlGahtani in his article dated 8/5/2011 in Al-Youm newspaper said that Hail Principality shows an advance level of e-government services in the kingdom. He also states that the customer's satisfaction level toward e-government services provided by this organisation is high.

Similarly, EXA Information Technology (2010) state that the Directorate General of Health Affairs in Hail has a website that serves the health sector in the region. The websites contains a range of services offered to serve personnel directorate, such as query service for employees, which enables employees to access to all data and information from the financial expense, etc. It contains also news, health and social articles, and a communication channel where users can contact officials by email.

 In the same line, Hail municipality has shown an online presence since 2008. Sadad Payment System website (2008) affirmed that Hail municipality associated with Sadad Payment System to enable citizens to pay services fees and reduce the large number of procedures. On the other hand, Alatawi (2009) evaluated online presence of all the municipalities in Saudi Arabia. He found that Hail municipality had no online presence. However, AlAmeer in his report (2010) evaluated Hail municipality website. He found that the municipality has offered

many services online. Nevertheless, there are many critical issues to be considered like:

1. There is a lack of useful information for citizens.
2. There is no update, news concerning the municipality, and activities.
3. There is no contact channel offered on the website.
4. Some icons are not working.

Moreover, the website has made a survey on their website. The result showed that 70% of the participants were not satisfied about the e-services as they described them as very bad and more improvement needed.

The General Directorate of Education in Hail region held a seminar on e-administration in 2006. This seminar was for the launch of techniques of messaging via email. The aim of these techniques was to create an environment communication mechanism entirely between the departments of the general directorate and between the general directorate and all schools ("A seminar about e-government in Hail," 2004). However, (Alzwimel, 2011) states that this organization offered free training courses for students of primary and middle schools to be familiar with computers in the region in 2011. Besides, according to (Alomim, 2010), The General Directorate of Education launched the final version of the developed e-mail service which has been determined to confirm the wide domain of procedural dealings between the region's schools and the administrative departments, as an alternative to traditional paper work.

2.4.4. The state of e-government initiatives in Riyadh City and Madinah City

E-government initiatives differ from region to region inside the kingdom of Saudi Arabia. Some cities have shown some advance progresses comparing to the other cities. In this respect, the author will view the endeavours taken in two cities namely Riyadh City which is the capital city of the kingdom, and Madinah City which is one of the holy cities in the country. These cities will be discussed in more details in the following section.

2.4.4.1. E-government initiatives in Riyadh City

Riyadh is the first electronic city in Saudi Arabia, where all the efforts goes to it as the capital city of the kingdom (Qusti, 2007). As all ministries are located in Riyadh City, the readiness of e-services would be higher comparing to the other cities.

However, it is widely recognised that e-services are much better implemented in Riyadh, where it reflects the whole picture of Saudi Arabia internationally. On the other hand, there are many governmental agencies and offices have been established in different cities where all of them belong to various ministries. For example, municipalities such as Riyadh Municipality, Hail Municipality, and Madinah Municipality, all belong to the Ministry of Municipal and Rural Affairs.

Riyadh has shown a considerable advance in implementing e-services in the city. In 2007 the Riyadh municipality was awarded the Technical and Information Portal Award in Middle East where it represented the 12th place in the winning list. Furthermore, it was awarded "Abha Award" where it took the first place in the kingdom for its initiatives in adopting e-government services in 2011 (Riyadh Municipality, 2011).

In 2008 the Riyadh Principality launched a number of electronic services such as mobile interactive service, voice query system for incoming and outgoing transactions to the principality, and the tracking service transaction through the website (Riyadh Principality, 2011). Conversely, Riyadh Department of Health is having a problem in its website. It is not working by the time when this study is conducted.

Overall, there is a considerable online presence of most the government entities in Riyadh. Moreover, the initiatives in the government offices were well-recognized in the city.

2.4.4.2. E-government initiatives in Madinah City

Madinah can be called "Almadinah Almunawarah". This city is considered as the second holy city for not only Saudis but all Muslims in the world. Its importance as a religious site derives from the presence there of the Masjid al Nabawi, the Mosque of the Prophet, which was built on the site of Muhammad's home and is where he is buried. Furthermore, the first mosque of Islam is also located in Madinah and is known as Masjid Quba (Quba Mosque) (Religionfacts, 2010).

The local authority of Madinah has been aware of the city's electronic presence and services. It began implementing local e-government project in 2003 (AlSobhi, et al, 2009). This project carried out by the government of Saudi Arabia with the cooperation of the private sector. The partnership of these sectors has worked greatly on developing, managing, and expanding e-services in Madinah (AlSobhi, et al, 2009). Various projects were clustered under one initiative in the Madinah region for developing e-government system. According to AlSobhi, et al, (2009), those projects comprise government procurement, design, training, e-commerce, digital economy, e-learning, and "Khadamatec" (the Arabic word used for services, which in the e-government context are services offered by e-offices or intermediaries). However, Madinah is the only city in Saudi Arabia adopted intermediary (e-office) gateway for the local e-services provided by 60 government bodies (AlSobhi, 2010).

According to Al-Fayed (2009) Madinah Municipality issued the first electronic license of new buildings in 2009. That license was issued by the municipality associated with engineering offices through the electronic services system. It is worth mentioning that Madinah Municipality received e-Government Achievement Award in 2010. That was for its advance in providing e-government services and strengthening the national economy. In the light of this, Taibah today (2010) stated that Yesser program issued a report in 2010 that is about the transformation measurement to e-government. The report demonstrated that the Madinah Principality was one of the best 20 government entities in Saudi Arabia. The intensive e-initiatives have been recognised in many government

agencies such as General Directorate of Water in Madinah, General Directorate of Education in Madinah, and Madinah Traffic Department.

Based on the website of High Commission for Development of Madinah Region, this organization started the implementation of e-government transactions through the execution of planning systems and application development in 2011. According to (Riyadh WAS, 2011), Yesser program has organized a number of workshops, lecturers and training courses for the government leaders in Madinah. This was for the reason that the government of Saudi Arabia aimed to raise the level of awareness among employees and managers.

Based on the literature, the comparison between these cities could be summed up in table 2.13. This will be based on the UN e-government measurement index as mentioned in section 2.1.3. It would appear that Riyadh and Madinah municipalities are between the second stage (Enhanced) and the third stage (Interactive) whereas, Hail municipality is still in the first stage (Emerging). In addition, Riyadh and Madinah principalities progress in the enhanced stage. However, Hail principality is still in the emerging stage. Therefore, more studies are needed to be conducted on Hail city where they could identify more challenges to the adoption process of e-government services.

The reason for selecting Hail region as the case of this study is due to the economic advances that it has made for the last five years. Another main reason as to why Hail is a good case is because much of the research on e-government has concentrated on countries/cities that are well down the path to full e-government, whereas Hail is developing, yet has the opportunity to learn much from other countries/cities and improve much more quickly.

Table 2.13 Stages of E-government adoption in Riyadh, Madinah, and Hail (Based on UN measurement).

Organisation	Riyadh	Madinah	Hail
Municipality	**II-III** (Enhanced to Interactive	**II- III** (Enhanced to Interactive	**I** (Emerging stage)

	stage)	stage)	
Principality	**II** (Enhanced stage)	**II** (Enhanced stage)	**I** (Emerging stage)

2.5. Chapter Summary

This chapter reviews the existing body of literature relevant to this research work. It presents an overview of e-government definitions, stages, strategies, benefits, and challenges. In addition, it highlights the comparison of e-government between developed and developing countries. It also looks at e-readiness context emphasizing its definitions and measurements. It then compares between developed and developing countries in the domain of e-readiness.

An overview of Saudi Arabia is provided, covering geographical, economic, cultural, and ICT issues of relevance to the e-government projects. Moreover, it identifies the characteristics of Hail City in terms of its location, size, population and economy. Furthermore, it looks into the e-government initiatives in Hail City, Riyadh City and Madinah City with a comprehensive comparison between these cities. The next chapter will present the research gap and the research questions.

Chapter Three: The Research Gap and Questions

This chapter identifies the research gap after narrowing down the literature to the point that is needed to be studied. However, as it is essential to develop a research question that directs the research focus, this chapter will mention clearly what the study will examine or endeavour to prove.

3.1. The Research Gap

The coverage of previous studies has been on the implementation of e-government in Saudi Arabia at a national level. Many issues in the field of e-government were discussed previously concerning e-readiness of the ministries of Saudi Arabia internationally, challenges facing e-government adoption in the country, and etc. However, there were few studies conducted on e-government services locally such as (AlSobhi, et al, 2009; AlSobhi, et al, 2010) where their focus was on e-government services in Madinah city.

In the light of this, the success and failure of e-government adoption significantly differ whether in the local, regional or international level. The local government has been suggested by many researchers to be highly trusted when implementing e-government services in the local level. In other words, the adoption of e-government in a local level by the local government will lead to citizen trust of their government (Tolbert & Mosenberger, 2006). According to Deakins, et al (2010) most e-government benchmarking research has concentrated on central government initiatives, where very few studies have been carried out at the regional level. Therefore, this study is an attempt to investigate the level of initiatives taken by the regional government in implementing e-services in Hail region.

The implementation of e-government is not only a technological issue rather it is influenced by various factors such as organisational, cultural, social, political, and economical. These factors are important to be considered as the nature of government in a specific nation is different from the others (Alshehry, 2008). On the other hand, there is no much research on the regional level showing the influence of these factors on e-government adoption. Therefore, this study is

going to address the challenges that Hail City face in implementing e-government services in the regional level.

Another issue to be argued is that MCIT (2011) state that the number of Internet users increased from about 1 million in 2001 to an estimated 11.2 million at the end of third quarter (Q3) 2010. This corresponds to a CAGR of around 33% over the eight years period (2001-2009). Internet penetration increased to 41% of the population by the end of Q3 2010. This rapid growth of Internet users in Saudi Arabia is attributable to increased public awareness, growth in broadband availability, decreasing costs of personal computers laptops; internet enabled handheld devices and Internet access. In spite of that, there is still slow progress in implementing e-government in Hail region. Thus, this study is an attempt to find out the reasons behind the slow progress in adopting e-government services in the region.

In this regard, this study comes also as an evaluation study to assess the e-services provided by the government agencies in Hail city. The comparison of e-government adoption progresses between Hail City, Riyadh City and Medina City has given a clear picture of the difference of e-readiness level that each has, where Hail city appears to have the lowest level of e-government progress. Therefore, this study evaluates the e-government adoption initiatives in Hail.

The reason for selecting Hail region as the case of this study is due to the economic advances that it has made for the last five years. Moreover, it is now building the second biggest economic city in Saudi Arabia. In addition, it is estimated to be the largest transportation and logistics hub in Middle East (AMEinfo.com, 2006). The argument is that the economy of Hail region is developing and the city is moving to be widely an international gateway for Saudi Arabia in various industries. Besides, it has already launched Hail International Rally that was the motivating factor for the development of its economy. In this regard, those developments would encourage the researcher to investigate e-services progress in this region and figure out the obstacles that the public sector encounters in adopting e-government. Then, the outcomes of this study will help the government in Hail region to understand those barriers and try to overcome

its challenges. Another important reason as to why Hail is a good case is because much of the research on e-government has focused on countries/cities that are well down the path to full e-government, whereas Hail is emerging, yet has the opportunity to learn much from other countries/cities and develop much more quickly.

3.2. The Research Questions

It is essential to develop a research question that directs the research focus and must address the identified research gap. It also states clearly what the study will investigate or attempt to prove. Therefore, to conduct this study there are research questions are addressed to be answered. The questions this research addresses can be divided into three parts. The first question is about the current state of e-government services in Hail City. In addition to the e-readiness of government service offered in the city. The question is *(1) what is the current state of e-government services in Hail City?*

The second question focuses on the challenges that government bodies in Hail City face in implementing e-government services. The question is *(2) what are the challenges for e-government services adoption in Hail City?*

The third question is about the opportunities that Hail City has to improve its e-services in the public organisations. The question is *(3) what are the opportunities to improve e-government services in Hail City?*

Table 3.1 The research questions.

No	Research question
1	What is the current state of e-government services in Hail City?
2	What are the challenges for e-government services adoption in Hail City?
3	What are the opportunities to improve e-government services in Hail City?

3.3. The conceptual model

The literature and theoretical analysis presented above delineated the different issues that impact e-government adoption under the broad themes of technological, social, organizational, and political contexts. There have been some arguments by many researchers about these challenges and their impact on the adoption process of e-government services. Therefore, these classifications can be synthesized and captured in a conceptual model as main factors that require to be considered from the public sector employees' perspective for e-government adoption. Figure 3.1 suggests such a conceptual model that would as a result construct the foundation for exploring empirically e-government adoption in Hail region.
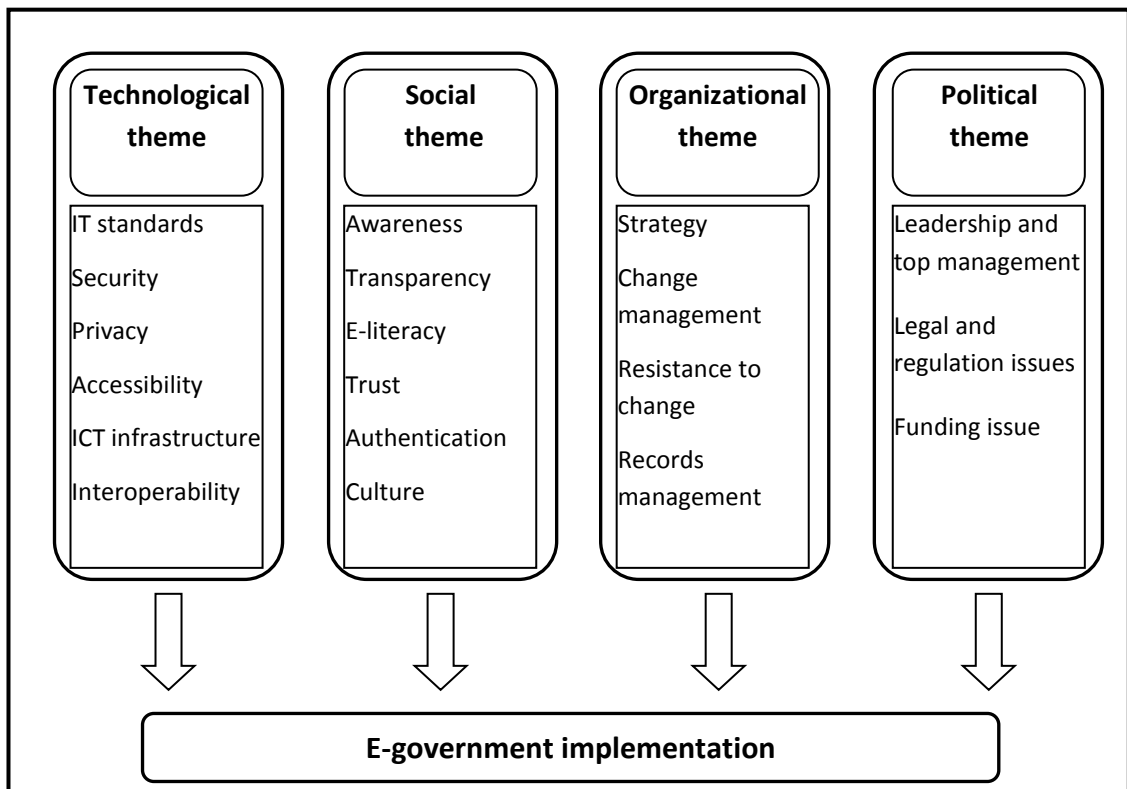
Figure 3.1 The conceptual model for e-government.

Chapter Four: Methodology

E-government is a new matter which can be categorized under information systems subjects. In the area of information systems (IS) there are various research methodologies and approaches existing. This chapter delineates the stages used to address the purposes, objectives and research questions in this research. It clarifies and rationalizes the selection of the methodology the author employed in carrying out the empirical research. Therefore, in this chapter, a discussion of the reasons for deciding on the research methodology and strategy is demonstrated, together with a clear picture of the most applicable methods of gathering data for the study. This chapter will illustrate in the research philosophy used in this research. It also touches on the research approach as well as the reasons for selecting it. Moreover, it will discuss the research techniques used and justify this choice. In addition, this chapter will explain the data collection methods in details and how this data is going to be analyzed.

4.1. Research Philosophy

There are three schools of thought (paradigms) related to Information System (IS) field. These paradigms are applied to carry out empirical research in the interest of Information Systems (IS). The paradigms are: the positivism school, the interpretivism school and the critical social school (Orlikowski and Baroudi, 1991; Oates, 2006; Deetz, 1996). Moreover, some scholars stated that it could be potential to embrace paradigms to be used in IS field from other fields such as social science which is also multi-disciplinary (Orlikowski and Baroudi, 1991). Oates (2006:282) states that a paradigm is a set of shared assumption or ways of thinking about how to do research and gain knowledge.

To begin with, in the positivist paradigm, scholars must attempt to accomplish objectivity and to determine realities that can be simulated by other academics (Myers, 1997; Walsham, 1995). Objectivity can be upheld by using scientific methodologies and by being dependent on the rules of proper sense and statistical expectation to evaluate theories and draw conclusions in a self-determining and balanced manner (Myers, 1997). The expectation of the

positivist paradigm is that there is an objective truth existing in the world. This could be revealed by utilizing scientific approaches where the emphasis is gauging relationships between variables analytically and statistically (Deetz, 1996).

On the other hand, interpretive scholars try to recognize phenomena through gaining access to the meanings that participants assign to them, where their studies reject the probability of an object or factual account of actions and conditions (Orlikowski and Baroudi, 1991). Thus, the interpretivist researchers' explanation to the ontological question is that actuality is a social concept which is made-up by human beings in relation to each other (Guba & Lincoln, 1994; Oates, 2006). However, their answer to the epistemological question is that research methodologies must not depend only on the gathering of data and facts, but they must consider the complication of human action and deal with explaining the meanings and manners of the observed human performers (Burrel & Morgan, 1979; Myers, 1997).

Ultimately, in contrary to the positivism and interpretivism paradigms, the critical or (postmodernity) school argues that reality is founded and that it is described through a discourse (Orlikowski & Baroudi, 1991). Therefore, it takes the ontological point that reality is historically and on a social basis established and includes different forms of social, cultural, political, ethnic and gender domination. The epistemological perspective is that the investigator and the examined object are interchangeably linked. Accordingly, knowledge of the social world is valuable (Gube & Lincoln, 1994). The role of this paradigm's scholars is to uncover and criticize unfairness and unbalanced settings in society from which individuals need freedom (Oates, 2006). The critical school adapts the research methodology of the interpretive school with the aim of meeting certain requirements (Orlikowski & Baroudi, 1991).

4.1.1. Chosen Research Philosophy

Choosing an appropriate research philosophy to follow in this research is a critical stage to be taken seriously. There are many research philosophies in the field of information systems as mentioned above. However, one philosophy can be adopted in this study. This study looks at the implementation process of e-government in one city as well as exploring the challenges and opportunities that are faced by government organizations in Hail City. It is consequently essential to recognize in depth the implementation procedure from the perspective of its meaning to individuals as a social contact. According to the discussion above, the study methodology that is followed through this study can be described as being generally interpretive. The reasons behind choosing this approach are stated as follow:

- Researchers in the interpretivism paradigm usually endeavor to recognize phenomena through the meanings that people assign to them. Hence, in this case, an interpretivist method would allow the author to investigate empirically the challenges and opportunities of the implementation of e-government in a natural setting. Moreover, the challenges as stated in section 2 are also impacted by many research matters and themes; such as technological, social, organizational and political.

- The interpretive approach is the most suitable approach to use for realizing the procedure of e-government implementation in the public sector. That is for the reason that public sectors are administrated and controlled by different people in a complex way.

It is conceivable, on the basis of the above, that the author chose a methodology that allows an explanation to be made of the socially built senses and behavior relating to these matters by some stakeholders. In so doing, the research attempted to obtain deep recognition of the e-government implementation process. In particular, the author was interested in the major challenges that might hinder the adoption of e-government in Hail City.

4.2. Qualitative Research

Qualitative research is a research strategy that generally puts emphasis on words rather than numbers in the gathering and analysis of data (Bryman & Bell, 2007). The terms "quantitative" and "qualitative" express a range of approaches of exploration (Myers & Avison, 2002) and come from various scientific backgrounds (Maykut & Morehouse, 1994). Methods used in quantitative research were initially established in the natural sciences to study natural phenomena whereas, qualitative research approaches, however, were primarily established in the social sciences to allow scholars to look at social and cultural phenomena (Myers & Avison, 2002).

Qualitative research is unambiguously interpretive. Authors state that the analytical process involves interpreting the meanings, values, experiences, views and behaviors of other people. This process has been defined as descriptive-inductive to differentiate it from the hypothetico-deductive means of drawing results in quantitative research (Myers & Avison, 2002).

As this study is an attempt to recognize the challenges that may hinder the implementation of e-government in Hail City, there are some reasons why a qualitative approach is appropriate for this research. E-government is a relatively new phenomenon. Strauss and Corbin (1990) assert that the qualitative research methods can be utilized to better recognize any phenomenon about which little is yet known. They can also be utilized to obtain new perceptions on things about which much is already known, or to obtain more in depth knowledge that may be hard to deliver quantitatively. Hence, qualitative methods are suitable for this research where different perspectives such as technological, social, organizational and political are adopted in this study.

In the light of this, there are some strengths and weaknesses of a qualitative approach as stated by some many researchers such as (Silverman, 2001; Maykut and Morehouse, 1004; Myers, 1997; Lee, 1991). These are:

Strengths

- Allows researchers to obtain in depth recognition of a phenomenon and its complexities of processes.

- It enables the study of information systems in their natural setting.

- It allows researchers to generate theories from practice.

- It allows researchers to have close description of phenomenon.

- It allows reduction of the barriers between researcher and user or developers of information systems.

Weaknesses:

- Data is opened to a number of interpretations which can reduce accuracy of result.

- Smaller sample which reduce the generalizability and controllability.

- Data textual with a richness that can be lost when summarization occurs.

- Time-consuming in terms of data collection and data process analysis.

- Collected data unstructured and unbounded.

Ebrahim, *et al*. (2003) and Alshehry, *et al*. (2006) argue that studies about models of e-government implementation require an exploratory approach to classify the required technical and organizational issues applicable for a certain country's settings. In accordance to Zikmund (1994), exploratory research is initial research carried out to elucidate and describe the nature of the problem and to simplify vague areas.

In this regard, the setting of empirical studies is a key factor in choosing an approach that is most appropriate and conventional to reach the aims of the research (Alshehry, et al, 2006). Generally, societies that can be described as conservative such as Arabic societies are found to be unwilling to be involved in any academic survey. The public sector employees in such societies are also reluctant to take part in any academic investigation, fearing that their interpretation could be taken the wrong way or distorted and used against their individual interests (Al-Shehry, et al, 2006). Furthermore, Hofstede (1997) stated

that those in traditional cultures hold conservative values and hardly ever challenge the current situation or question existing norms and practices, especially in the work force.

It is conceivable, on the basis of the above, that the researcher used an interpretive case study. That will be explained in more details in the next section.

4.3. The use of a case study

The research strategy that was used in this study was an exploratory case study. Eisenhardt, (1989) and Lam (2005) highlighted that case study analysis is a well-known method for conducting exploratory research. A clear definition was stated by Yin (2003a: 13) that the case study approach is *"an empirical inquiry that investigates a contemporary phenomenon with its real-life context; especially when the boundaries between phenomenon and context are not clearly evident"*. The focus of case studies is on one or a few occasions of a particular phenomenon with a sight to offering a full explanation of events, experiences, relationships or procedures happening in that certain occasion (Denscombe, 2007). According to Yin (1994), case studies can be either single case or multiple-case designs. Single cases are used to approve or test a theory, or to represent a distinctive or extreme case (Yin, 1994). Single-case studies are also optimal for revelatory cases where an investigator may have an access to a phenomenon that was before unreachable. Single-case designs need cautious observation to prevent misrepresentation and to take full advantage of the observer's access to the evidence. These studies can be holistic or embedded the latter happening when the same case study includes more than one unit of analysis (Tellis, 1997).

Case studies provide the authors with the opportunity to study the organizations information systems by the use of series of interviews, document analysis and observation (Ebreahim, et al, 2004). However, the exploratory case study strategy concentrated on the implementation procedure of e-government in public sector organizations, which discovered the implementation phases of e-government services that have been pursued by government agencies. This led to recognize the challenges and opportunities at a particular stage of e-

government in Hail City. Furthermore, the case study approach is innovation of the e-government phenomenon, since the approach is principally suitable for complications where a study and theory are at their primary, developmental stage, as in the situation here (Eisenhardt, 1989; Yin, 1994).

In order to understand how e-government might be affected by some factors in Hail region, many research methods, such as interviews and document analysis, were employed in this study. Thus, an interpretive case study was selected to be utilized as research strategy under the umbrella of the qualitative category. In fact, case study analysis is a well-known approach for carrying out exploratory studies (Eisenhardt, 1989; Lam, 2005).

Moreover, the author decided to carry out a single case study for the purpose that the one case study would offer richness and assist to create a more applicable framework.

Next part will shed light on the data collection methods that are potential for this study to utilize. It also discusses the options in more details.

4.4. Data Collection Method

Data Collection is an essential aspect of any kind of research. Its techniques allow researchers to systematically gather information about their objects of study (people, objects, phenomena) and about the situations in which they happen. Inaccurate data collection can influence the outcomes of research and eventually lead to worthless results. For conducting a case study based on a qualitative study, Yin (1994) identified at least six techniques to collect data. They are as follow:

- Document.
- Archival records.
- Interviews.
- Direct observation.
- Participant- observation.
- Physical artifacts.

However, this study used interviews and documentation methods to collect data. These two techniques are identified in more details in the coming subsections.

4.4.1. Interviews

The interview method is the most popular approach in the qualitative studies which involves the researcher "interviewer" and participants "interviewees" in order to collect qualitative data (Oates, 2006; Yin, 1994). Kahn and Cannell (1957: 149) define an interview as "a conversation with a purpose". Interviews offer the opportunity for the investigator to collect data which could not have been attained in other means (Cunningham, 1993).

However, qualitative interviews vary in the degree to which they are structured. They can be classified as: structured or (survey) interviews, unstructured or (open-ended) interviews and semi-structured or (focused) interviews (Oates, 2006; Yin, 2003; Bryman & Bell, 2007). Survey interviews involve more organized questions whereas, open-ended interviews allow investigators to ask participants for the details of a matter as well as for the participants' views about events. The main advantage of using semi-structured interviews more than other types of interview is their flexibility and their ability to extract more detailed information from the participants (Alshehry, 2008). It also enables observers to answer the research questions in a purposeful way. What is more, it provides the researcher with the opportunity to present the interview questions in various formulations, and to ask for clarification from the interviewee if needed for the research goals (Abanumy, 2007; Bryman & Bell, 2007).

The researcher used a semi-structured (focused) interview. The reason behind the researcher's choice of focused interview was that it allowed the flexibility to discover the challenges that were faced by the e-government initiatives in Hail region. It also helped the researcher to gain in-depth understanding of the potential factors impacting the progress of e-government services implementation. There were some structured questions in the interview where they provided insight into declarative knowledge used.

The researcher conducted 25 interviews with employees from different levels. The researcher had the chance to interview 2 top managers, 3 IT directors, 7 senior managers, and 13 medium to low level employees. However, the interviews were performed personally. A follow up calls were needed to elucidate unclear answers. Interview guide was written in English and translated to Arabic language. The interview was carried out in Arabic for the reason that there was illiteracy in English language in public sector in Saudi Arabia. An interview guide was sent in advance to the interviewee, so that they would have adequate time to be ready for the interview and collect necessary information. Each volunteer participant was contacted by phone or email to confirm the meeting date, time and location. Prior to each scheduled interview the researcher sent a friendly reminder by email or phone to the participant to remind them of the meeting's date, time, and location.

However, in the beginning of each interview the researcher took around 10 minutes to explain the nature of the research. Following this, each interviewee was given a consent form (see appendix 1) at the first contact to sign.

During the interview, the participants were asked to describe how they viewed the delivery of e-services to customers. They were also asked about the interactivity level of their website. In addition, they were asked about the barriers that hinder e-government implementation in their organizations. All the twenty five interviewees were asked to indicate their opinion about the challenges and opportunities on a Likert scale in two questions. The same questions did not ask all of the participants (as shown in appendix 2). The different employees in different positions were asked questions according to the assigned work in the organizations. In so doing, the research could discover different views regarding different barriers. However, the interview duration probably took 30 to 45 minutes. The researcher used a tape-recorder after asking the permission from the interviewee. Notes were also made.

Most of the interviews questions were adopted from various studies such as (Alshehry, 2008; AlShihi, 2006; Kessel, 2008; Kanaan, 2009). However, 8 questions were developed by the researcher.

4.4.2. Documentation

Documentation, as a complementary instrument, was mainly used to provide background information about the e-government services in Hail region. Documents could be letters, memoranda, outlines, administrative documents, newspaper articles, or any document that was relevant to the research. In the importance of triangulation of evidence, the documents serve to confirm the evidence from other sources (Tellis, 1997). Certainly, documents offer valuable further information to enhance information available from other resources and occasionally emphasize new areas that required to be studied further by the researcher (Yin, 2003). The advantages of utilizing this technique are stated by Denscombe (2007) as: ease of access to data, cost-efficient, and continuity of data. The disadvantages, on the other hand, are: reliability of source, secondary data generated for other goals, and social composition (Denscombe, 2007). The utilization of this technique aids to better disclose significances, advance recognition and find out insights (Merriam, 1988). Conversely, it is worth pointing out that the author was mindful of the natural bias that might be embraced in the gathered documents, and which has been unknown to him (Yin, 2003). Thus, the documents were used as a supplementary source of evidence for the data gathering. The researcher used documents analysis as evidence of e-government challenges. Therefore, the researcher analyzed some documents and websites that helped in supporting the interview results in term of some challenges facing e-government adoption. These documents were classified as follows (table 4.1):

1- Official e-government documents: This includes three documents such as:

- Vision statement for Saudi Arabia's e-government initiative. This document contains information about e-government strategies for all e-government programs in the country. It contains 18 pages.

- The e-government Action Plan projects. It looks into different e-government models and the Saudi choice. It also presents the roles and responsibilities of the implementation organizations. It gives an

overview of the estimated budgets for these organizations. It contains 112 pages.

- Yesser Annual Report 2009. It contains various topics in the context of e-government such as, challenges to e-government, decisions and royal decrees on e-government, prominent projects. It contains 52 pages.

2- Newspapers articles. These include 5 articles from various newspapers such as: Al-youm, Hailnews, Taibah today, Al-jazerah and Taibah news.

3- E-government websites. Approximately 14 e-government websites were viewed to gain knowledge about e-government progress.

Table 4.1 Documents used for this study.

Type of document	Number of documents	Examples
Official e-government documents	3	- Vision statement for Saudi Arabia's e-government initiative. - The e-government Action Plan projects - Yesser Annual Report 2009
Newspapers articles	5	- Al-youm - Al-jazerah - Hailnews - Taibah today - Taibah news
E-government websites	14	

4.5. Sample selection

It is often impossible or too expensive to gather information from all the possible units of analysis comprised in the study problem. Thus, a minor number of units, a sample, are regularly selected to represent the relevant attributes of the whole

group of units, the population. Due to the fact that the samples are not perfectly representative of the population from which they are drawn, the researcher cannot be confident that the conclusions will be generalized to the whole population (Graziano & Raulin, 1997).

For this study, the researcher used a multiple–respondent sampling, since multiple respondents could add confidence to findings. By looking at a variety of similar and different respondents, the researcher could recognize the case finding, grounding it by specifying how and where and, perhaps, why it performed as it did (Yin, 2003).

The sample consists of 25 employees in four different positions namely top manager, IT manager, senior managers, middle-level and low-level employees. Five government bodies were approached namely Saudi Credit & Saving Bank, the General Directorate of Education, the General Directorate of Health affairs, Municipality of Hail and the University of Hail.

4.6. Ethical Considerations

Ethical considerations were a substantial element in carrying out this research. Therefore, the researcher endeavored to protect every single person who was taking part in this process and their organizations from harmful consequences from the research activities. Ethical considerations necessitate a cautious treatment of participants and should take into account many important ethical issues that comprise anonymity, deception, privacy, confidentiality and accuracy (Bryman & Bell, 2007).

The ethical requirements were met by attaining ethical approval from the Faculty Human Research Ethics Committee, making respondents aware of the research goal before the interviews; guaranteeing their privacy and anonymity; giving them the right to withdraw from the case study; giving them another chance to drop out of the research for the duration of the review of the interview notes, by either modifying the interview notes or deleting any unwanted part of the interview notes/questions; the privacy of the individuals was protected by

carrying out interviews in a private, closed office, by transcribing interviews away from research participants, by referring to individuals in transcripts by nicknames which were chosen by the researcher and kept in an electronic folder together with the actual names of the applicants in a very protected folder used only by the researcher; electronic versions of interview records were saved on the researcher's computer; and lastly, the researcher attempted to act in a manner that would not hurt the reliability and reputation of the interviewed government agencies.

4.7. Data analysis

The process of data analysis includes examining, classifying, tabulating or in another way reintegrating the gathered data with the intention of concluding answers to the listed research questions (Yin, 2003). Analysis refers to the breaking up of something into its component parts so that helps to discover its nature proportion, function, relationship (Denscombe, 2007).

The interviews were recorded except 4 interviewees who requested not to record their conversations. In addition to recording, notes were taken in a circumstance where emotions play a role in the interviewee's conversation. After finishing each interview in the Arabic language, the record was transcribed into that language. The author read the transcripts two to three times to ensure the accuracy of correlation between tape and written transcript. Then, the Arabic transcripts translated into English language. However, to stay away from bias, the researcher sent the interviews in Arabic and English to one English lecturer in the University of Hail and asked him to read and inform the author if some modifications needed, so that correction could be made. However, all the interviews kept in a secure place.

With the intention of analysing the collected data, thematic analysis and coding approaches were utilized (Bryman & Bell, 2007). These two methods supported the researcher in analysing the transcribed data to produce common themes. However, SPSS (version 15.0) was used to evaluate the questions that designed

as a Likert scale. It only produced tables on the percentage of people who agreed or disagreed about the statements.

Coding is the process of combing passages of text to themes, concepts, classifications that are about the same thing, say the same thing or discuss things in the same way. These similar data is marked with a label, the code, that is usually linked to a longer explanation of what the code means, what the data has in common and, perhaps, a general interpretation of them (Gibbs, 2009). However, codes support a thematic analysis of the meaning of the transcript and allow the fast retrieval of transcript that embodies common concepts, themes, articulations and approaches. In this study, the researcher carefully read the transcribed information, line by line, and then divided the information into meaningful analytical units. After that, the author assigned a code name to signify the particular segment (see appendix 3).

Thematic analysis is defined by Braun and Clarke (2006) as *"a method for identifying, analysing and reporting patterns (themes) within data"(*p. 79). In this case, a six stages procedure suggested by Braun and Clarke (2006) for carrying out thematic analysis is adapted. They are as follow:

- The first stage is spending time for the engagement of the data. This involves reading the texts or listening to the audio recordings more than once.

- The second stage is generating initial codes that describe the features in the text that appear interesting to the researcher.

- The third stage is searching for themes. Once the text has been read twice or more, and has been coded and labelled, all the data extracts that have been coded now need to be sorted in a more general sense. That includes classifying all codes that have been recognized into groups.

- The fourth stage is reviewing themes where this stage involves refining the main themes that have been created by sorting the coded data extracts. Doing so in this phase, Braun and Clarke (2006: 93) suggest that

"it will be evident that some participant themes are not really themes, while other themes may collapse into each other (two themes that appeared separate are actually found to be the same thing)".

- The fifth stage is defining and naming themes. After having produced a thematic map, the themes need to be defined and refined; the sense of what the theme is about must be taken into account. Therefore, for each theme a thorough analysis will also need to be written, which recognizes the story of that theme, and uses that data extracts to discover and defend the main overarching theme (Braun & Clarke, 2006).

- The sixth and final stage is producing the report. It includes the final analysis and write up of the report. The thematic analysis then offers concise, coherent, rational, non-repetitive and stimulating account of the story the data tells.

4.8. Validity and Reliability (trustworthiness and dependability)

Validity in qualitative research is relatively different from that in quantitative research. In the quantitative research trustworthiness is about what the research is measuring and how, however, in qualitative research it refers to what to observe or identify. With the intention of increasing the internal validity, the findings of each interview was sent to the interviewee to ensure the accuracy of the analysis. Also, a triangulation approach was used which was based on matching data from different sources "interviews". However, the external validity "transferability" is seen as a significant problem for qualitative research owing to the difficulty of generalising the findings. In order to reduce this threat, the idea of Geertz (1973) was followed. His idea is to produce so-called "thick description" which refers to producing rich accounts of details of a culture in order to be a database for transferring this knowledge to other environment.

The threat of the reliability "dependability" of the study was one of the main difficulties that were facing this study. In the qualitative world, in general, it might be impossible to replicate a study. That could be because of the difficulty

of finding another society or environment that was alike or the same as the original environment (Bryman & Bell, 2007).

4.9. Chapter Summary

Taken in sum, a qualitative approach was the most suitable method for this research for the reason that the author was trying to understand the challenges and opportunities of providing e-government services in Hail City from a government perspective. Interview method was the primary source of data collection. Therefore, this needed a close connection with employees and the working environment within the government agency. Documentation came as a secondary source for gathering information. Qualitative research supported the author in learning from practice and qualified him to recognize the challenges that public organizations faced in Hail City. The procedure of analysing data and the methods of reducing the threats of validity and reliability were mentioned.

Chapter Five: Findings

This section covers the findings about the readiness of e-government services in Hail region according to Ebrahim, et al, (2004) e-government stages model. In addition, it identifies the opportunities of e-government services. Moreover, it covers the results of challenges facing regional e-government adoption in Saudi Arabia derived from the analysis of the empirical data. These challenges were already classified under four principal themes: technological, social, organizational, and political. The case study was carried out from an interpretive perspective and data collection methods were used (interviews and documents analysis). Therefore, the following sections emphasize the main results and answer the research questions regarding the implementation process of regional e-government in Saudi Arabia.

5.1. Regional e-government readiness (the case of Hail City)

This section answers the first research question: *What is the current state of e-government services in Hail City?* However, the responsibility of implementing e-government programs in Hail city is different from one organization to another. Some of the organizations and government offices in Hail region depend on the organizations themselves in transforming their transactions to electronic means such as, The Directorate of Education and The General Directorate of Health Affairs. However, some of them are linked to their ministries where those are linked to their ministries' websites such as, Saudi Credit & Saving Bank, General Directorate of Water and The Directorate of Transportation in Hail. A top manager commented:

"The responsibility for transforming to electronic means is on the organization itself. Therefore, we always endeavor to promote our services that we have been good at among others in different regions. But, for the ministry, the

implementation of e-government services is not one of the ministry's priorities, however, it is an effort made by the organization itself."

The study findings indicated that the participating organizations use intranet system, website, and simple to advanced electronic services. In addition, they have an understanding of the benefits of the intranet system. Some interviewees indicated that the intranet system helps organizations to improve the communication and coordination between employees within the organization, enhance the quality of the decision making process in the organization management, and reduce the costs and time of content development, duplication, distribution and usage. Nevertheless, some organizations highlighted that they depend on the email system and the central as primary channels in their communication within their entities. In the contrary, others are still in the process of applying this system to be used formally in their organizations. For instance, The University of Hail and the Saudi Credit & Saving Bank use email system as a formal communication channel, whereas the Directorate of Education in Hail is still in the process of applying this channel to be formally used within the organization in the near future. One top manager commented:

"…we use a website that was built 3 years ago, and we have a central service to communicate with other departments within the organization and we are now in the process of applying email system as a means of communication between departments to be organized in a formal way".

The study results also emphasized that all the participating organizations realized that e-government adoption would offer many benefits to their organizations. Interviewees pointed out that e-government adoption would importantly improve management and support decision making process. In addition, it would help an organization to be more organized in its business process and increase collaboration among other public organizations. Moreover, it would increase organization productivity and reduce operation cost of services delivery. Furthermore, e-government implementation would enhance the ICT infrastructure, increase the exchange of data between organizations, improve the efficiency of government services and develop new skills with motivation. It

would also be in a place where it could help in fastening the process and response to citizens' needs and expectation.

After having visited websites of most government bodies in Hail, it could be said that the e-government progress in Hail is still slow. 14 websites of government offices have been viewed and analyzed. Four organizations were found with no online presence namely The Directorate of Transportation in Hail Region, Traffic Department of Hail, Passport Department of Hail, and Department of Civil Defense. Nonetheless, other visited organizations were found to be completing the second stage of implementing e-government services which is one-way service delivery. In this stage, those organizations provide advanced level of data that links organizations to people by offering dynamic information, electronic application forms, and creating channels with government officials. They also provide primary planning in term of technical issues for organization and psychological for people. Table 5.1 shows the e-government readiness in Hail region.

Table 5.1 E-government readiness in Hail region.

The stages / The organization	Government Information Delivery 1	One-Way Service Delivery 2	Two-Way Service Delivery 3	Government Integration 4
Principality of Hail	√	√	×	×
Municipality of Hail	√	√	×	×
General Directorate of Education in Hail	√	√	×	×
General Directorate of Water in Hail	×	×	×	×
General Directorate of Health Affairs in Hail	√	√	×	×
Technical and Vocational Training Corporation	√	√	×	×
The University of Hail	√	√	×	×
Saudi Credit & Saving Bank	√	√	×	×
The General Directorate of	√	√	×	×

Agriculture in Hail				
The Directorate of Transportation in Hail	✕	✕	✕	✕
Traffic Department of Hail	✕	✕	✕	✕
Passport Department of Hail	✕	✕	✕	✕
Department of Civil Defense in Hail	✕	✕	✕	✕
Hail Chamber of Commerce	√	√	✕	✕

A top manager was asked to summarize the adoption process of e-government services to date. He answered:

"I have now been administering this organization for two years and when I came to it, there was only a simple website that provides only information. However, since two years till now I could say that I have succeeded in developing the electronic work in this organization. Now we offer many e-services to our beneficiaries and we succeeded. So, I could say that the development process is quite good and we promise our beneficiaries to provide satisfactory e-services soon".

Another top manager commented:

"We made a lot of efforts to meet the central office requirements of transforming our transactions to be electronic. In this time, we successfully provide many e-services despite of the technical obstacles that we face".

Table 5.2 Some of the websites visited in the period (September to November 2011).

Organization	Website Link
Principality of Hail	http://www.hail.gov.sa
Municipality of Hail	http://www.amanathail.gov.sa
General Directorate of Education	http://hailedu.gov.sa/
General Directorate of Water in Hail	No website

General Directorate of Health Affairs in Hail	http://www.hailhealth.gov.sa/
Technical and Vocational Training Corporation	http://www.tvtc.gov.sa/Arabic/TrainingUnits/CollegesOfTechnology/hct/Pages/default.aspx
The University of Hail	http://www.uoh.edu.sa/
Saudi Credit & Saving Bank	http://www.scb.gov.sa/
The General Directorate of Agriculture in Hail	http://www.moa.gov.sa/hail-dir/portal
The Directorate of Transportation in Hail	No website
Traffic Department of Hail	No website
Passport Department of Hail	No website
Department of Civil Defense in Hail	No website
Hail Chamber of Commerce	http://www.hc.org.sa

Comparatively, websites of governmental offices in Hail, Riyadh and Madinah were viewed and compared with regards to their readiness of being present online. The study findings indicated that organizations in Riyadh and Madinah were seen as competitors in providing online services where both were classified to be mostly in the third stage of implementing e-government services. These organizations include municipalities, general directorates of education, and general directorates of health affairs.

Nevertheless, Hail was viewed to be still progressing in the second stage of providing online services within its governmental offices as it appears in (Table 5.3). However, it was found that General Directorates of Water in Hail and Riyadh do not have individual websites whereas the General Directorate of Water in Madinah has built a website and offered some e-services on it, where it is classified to be progressing in the third stage.

Similarly, Traffic Department of Hail does not have an individual website but it is linked to the ministry website. On the other hand, the Traffic Department of Riyadh shows a huge progress in providing e-services on its website where it is classified to be progressing in the third stage. However, Traffic Department of Madinah was found to be offering simple e-services where it is classified to be in the second stage of implementing e-government services.

On the other hand, some organizations showed slow progress in the three cities equally. It was found that those organizations were still progressing in the second stage of implementing e-government services. These organizations include principalities, technical and vocational training corporations, chambers of commerce, Saudi credit & saving banks, and the general directorates of agriculture.

Other organizations in all the three cities were found to have no online presence namely Department of Civil Defense, Passport Department, The Directorate of Transportation, where all these departments are linked to their ministries' websites (Table 5.3). It was also found that people can benefit of some of the e-services, which all these departments offer, from home. However, no individual websites built by each department that should contain information about each department in different cities.

Table 5.3 Comparison of e-government readiness between different cities in Saudi Arabia.

The organization	Hail	Riyadh	Madinah
Principality	II	II	II
Municipality	II	II- III	II- III
General Directorate of Education	II	II- III	II- III
General Directorate of Water	No presence	No presence	II- III
General Directorate of Health Affairs	II	II- III	II- III
Technical and Vocational Training Corporation	II	II	II

Saudi Credit & Saving Bank	II	II	II
The General Directorate of Agriculture	II	II	II
Chamber of Commerce	II	II	II
The Directorate of Transportation	No presence	No presence	No presence
Traffic Department	No presence	II- III	II
Passport Department	No presence	No presence	No presence
Department of Civil Defense	No presence	No presence	No presence

5.2. E-government Opportunities

This section answers the research question that states: *What are the opportunities to improve e-government services in Hail City?* However, the fast development of the internet and the huge achievement of e-commerce in the last few years have caused a strong effect to the public sector and the private sector in Saudi Arabia. Thus, governments began to adopt ICT to increase their accomplishment and to reach what was deemed to be away from their expectations. E-government has come to be the effective instrument to renovate Saudi public administration, which is structured in a bureaucratic hierarchy. E-government offers many opportunities to advance the quality of services to beneficiaries.

However, the present emphasis on e-government uses is a key opportunity for all the actors in the ICT sectors. Obviously, all the participants agreed that all the expected opportunities of e-government are very important to the implementation process of the project in the region. As one top manager stated:

"There are a lot of e-government opportunities but I cannot mention them all, and I will mention two of them as examples. For instance, fast communication between employees within the organization and reducing efforts in achieving transactions are the two advantages."

With this regard, e-government in Saudi Arabia can produce the following opportunities as the participants indicated:

1- Improve management and support decision making process.

2- More organized government business process.

3- Increase collaboration among other public organizations.

4- Increase organization productivity.

5- Reducing operation cost of services delivery.

6- Enhance the ICT infrastructure.

7- Increase the exchange of data between organizations.

8- Improving the efficiency of government services.

9- Quick processing and response to citizen's needs and expectation.

10- Developing new skills and motivation for employees.

5.3. E-government Challenges impacting Regional e-government implementation

This section tries to show and analyze the research results with regards to key challenges, including (technological, social, organizational and political), at a regional level as critical issues in implementing e-government project. This study looks at those key challenges that impact the implementation of e-government from the employees' perspective. Therefore, this section answers the research question that states: *What are the challenges for e-government services adoption in Hail City?*

5.3.1. Technological Challenges

This section includes information regarding IT standards, security, privacy, accessibility, ICT infrastructure, and interoperability issues as crucial technological factors recognized by the participants in the matter of the e-government initiatives in Hail City.

The research findings show that IT standards are a critical factor affecting e-government implementation in Hail City. Participants in this study emphasized the importance of building IT standards that can be used in all public sector organizations. In addition, the study pointed out that IT infrastructures built within many government organizations do not adhere to particular standards. For example, an IT director said:

"We have a number of IT standards related difficulties. For example, we utilize an old version of Java while in some government organizations and some beneficiaries use the latest one, which leads to compatibility complications".

The study findings also highlighted that IT standards are essential to all components of an IT structural design. One IT manager commented:

"IT standards are important to all components of an IT construction for e-government solutions".

Other employees and managers agreed that the lack of IT standards is considered as a challenge to e-government implementation. However, they did not comment on that but rather they showed that from the quantitative data derived through the interviews.

Another critical factor that impedes the process of e-government adoption is the security issues. This study found that security issue is a key challenge to e-government implementation since the high level of data being transferred electronically through the internet. All the participants agreed that security would impact e-government adoption in Hail city. They emphasized that offering high security for the data would encourage the beneficiaries to adopt and use e-government services and vice versa. One employee said:

"…the concept of e-government services was not successful in Saudi Arabia. This is clear to all people since the data security is still terribly weak through the use of the internet".

Additionally, the importance of security issues was highly recognized by all the participants. According to the participants in this research, one of the key technological issues that should be treated cautiously is the issue of security. An IT manager commented:

"Nowadays, people use the internet to gain information from, interact, with others; accomplish commercial transactions, along with its use in government and military institutions, which naturally necessitate an impressive level of security".

Some of the participants indicated that if e-government services are not safe enough, the beneficiaries' personal information will be under risk and can be changed or misused by hackers. Furthermore, participants referred to the low level of security in the country generally. That is due to the neglect of public key infrastructure (PKI) across the country. For example, one of IT staff said:

"….as the data gathered by governmental offices may be politically sensitive, putting in suitable security mechanisms may be an essential technological concern. Now, we widely use Public Key Infrastructure (PKI) in Saudi Arabia. However, I think that we certainly need to look back again to it to tackle and develop it with the intention of guaranteeing secure electronic transactions between organizations and people".

Privacy issues were seen as a significant challenge to e-government implementation. The study findings indicated that most of the participants agreed that ensuring the privacy of personal information is a significant challenge. For example, one top manager commented:

"Lack of ability to comprise the signing of documents, letters and models is an important barrier to switch from paper work to electronic ways"

Moreover, the findings also highlighted that the privacy of personal information is a challenge that could be tackled by restricting access to personal data, by educating the public sector employees on the significance of privacy, restricting data taken from the costumers to the level that is truly compulsory, and increasing the awareness of users regarding the significance of privacy. For instance, an IT manager commented:

" …. I really hope our organization to encourage employees to concern about privacy. In addition, it ensures them to be careful with people's information".

In the contrary, the study findings also pointed out that privacy issues are not a real challenge to e-government implementation in the region. Only one of the participants links that to the clear privacy policies that have been put in the organizations' websites. Besides, the employees seem to be aware of the

importance of privacy in the e-government transactions. For example, a middle level employee said:

"…I do not see privacy issues as a challenge to e-government adoption. This is due to the high level of awareness among the employees in the organization about e-transactions privacy".

Accessibility was seen as a challenge to e-government adoption. Some participants indicated that most of what governments do includes interactions with individuals least likely to have access such as the less educated people and the poor. The study findings also pointed out that, in the area of accessibility, people may have limited access to ICT technologies and devices which result in the lack of accessibility. One IT manager said:

"… e-government services should be accessible from everywhere and anytime 24/7. Let me tell you something, we have in Hail region a lot of people who live in villages that are not connected to the internet world. Such people how they could benefit from the e-government services! (…) Therefore, I would say that accessibility not only in Hail region but in Saudi Arabia forms a challenge to the full implementation of e-government services."

Another employee commented:

"In my opinion, accessibility is one of the main factors that help in the process of developing e-government or leading it to failure. Imagine that we hardly find access to the internet in Hail city, what we would do to approach these services. This is the case in areas outside the city such as some villages."

Nevertheless, the study findings highlighted that one participant did not consider accessibility factor as a challenge to e-government. This participant said:

" … Almost all the places were covered with internet connections. What I see is that the places that cannot have an internet connection via landlines, they can use 3G connection via mobile phones or laptops. Therefore, those people in those places can access to the services provided by the government."

In the area of ICT infrastructure, the study findings pointed out that ICT infrastructure is a key technological challenge to e-government adoption in Hail region. Some participants indicated that ICT infrastructure is a driving factor for organizations in the public sector to adopt e-government services within and outside the organizations. Therefore, the basic ICT infrastructure is important for adopting e-government. For instance, one IT employee commented:

"…We are lacking ICT infrastructure in the country. (…) this is due to the long period of developing infrastructure in our country."

Another IT manager commented:

"Our organization has established a comprehensive system to meet the requirements of the beneficiaries; however, as a result of the lack of ICT amenities in our country, citizens show reluctance to use computers to achieve their needs."

The study findings also highlighted that some government agencies in the public sector are still suffering from the weakness of ICT infrastructure, while others need to spend on the setting up of new tools and need to promote their current infrastructure before considering implementing new e-government services. This points out that the improvement of ICT infrastructure within government agencies should be a great priority with the purpose of adopting e-government. For example, this employee commented on this matter as follow:

"There are a lot of computers in our institution and everyone in the organization has just like what others have of files, there is no network or file servers. Therefore, there is no basic IT infrastructure in our organization (…) in the organization, the basic infrastructure was constructed before 8 years and does not deliver any services at present. It is really required to be modernized before thinking about e-government project."

Another major finding of this study is that interoperability is a challenge of e-government adoption. All the participants agreed that interoperability is a key challenge to e-government implementation. They believed that government

agencies in the region have different IT systems which may result in the lack of interoperability between them. However, systems used within an organization are interoperable. For instance, an IT manager stated:

"If it is about interoperability within our organization, I would say that it is not a challenge where all systems that are run in our organizations are interoperable. But it forms a challenge when it comes to share information with other government agencies in the country where there are different systems that are not interoperable."

The study also found that some participants believed that there is no cooperation between the government agencies in the region which could result in the lack of interoperability. One top manager commented:

"My point of view is that there is a lack of collaboration between the organization in Hail, and this as I see could lead to the lack of interoperability".

5.3.2. Social Challenges

This section includes information about social challenges that imped e-government implementation such as awareness, transparency, e-literacy, trust, authentication, and culture. These social factors were recognized by the participants in the matter of the e-government initiatives in Hail City.

In the social domain, awareness is a main issue in e-government implementation and was found as a high important challenge by the interviewees who participated in the study. In accordance to some participants, awareness plays a crucial role in the implementation of e-government. This includes using the mass media to present the notion of e-government and, moreover, to introduce this program to organizations in the public sector by carrying out workshops, seminars, and sessions as part of the determination to increase awareness. They consider it as an essential issue with the aim of encouraging managers and employees to agree to take the e-government program as part of their daily tasks. One top manager commented:

"I think that the most important obstacle is the lack of the full awareness about e-government by citizens and employees which means that their knowledge of electronic government is almost non-existent. We are a traditional society which means that even employees are away from reading about e-government. Then, it is not all citizens qualified to use electronic government services, especially those who do not have computers or land lines".

Similarly, awareness among public sector employees and directors is too necessary for implementing an e-government program. There is shortage concerning the delivery of this matter to organizational levels as stated by some participants. For instance, an IT director said:

"You can see in many organizations that many employees are not familiar with the benefits of e-government, and it is worth enhancing these benefits to directors and employees".

The study findings also pointed out that the services of e-government project have to be intensively promoted to users, as one of the participants commented:

"Fruitful adoption of e-government initiative necessitates sufficient awareness with the intention of supporting the adoption process".

This factor is still concerning organizations in the public sector. They highly work on spreading the awareness of e-government in their initiatives. A top manager was asked about their plan to cope with the little awareness among Saudis in the implementation of e-government initiatives. He answered:

"I would say that this is an important matter for us and we endeavor now to educate the employees before the beneficiaries through offering lectures as I said previously. In addition, we offer some training sessions that help them to be aware of e-government services. However, for citizens we are thinking of distributing brochures that contain information about e-government and its benefits to enhance the Hail society. Furthermore, we are intending to inhibit people to visit our organization for the purpose of interacting with us electronically."

Some participants indicated that training is needed for employees and managers to increase the awareness of e-government services. One interviewee commented:

"Suitable training course prior to the implementation of e-government is needed in order to have the required understanding and ability to deal with change in the procedure".

By reviewing the documents, it was found that efforts should be made through conducting many workshops, conferences and presentations in the implementation of e-government project in Saudi Arabia, where they could spread the awareness of it among both citizens and employees.

Another finding identified by many interviewees as a challenge to e-government implementation is transparency. They emphasized that there is lack of transparency in e-government programs and such programs are condemned to being restricted to the electronic delivery of public services without any thoughtful effort at improving government or involving beneficiaries or citizens in reshaping government. For example, one employee said:

"If government web sites are built wisely and flexibly, they could be valued means for transparency as people and other interested parties should be able to see governmental information, rules and policies. For example, in the past it was sometimes compulsory to visit governmental agencies to gain information, however, at this time this data should be offered on the web via the internet".

It was also found that some participants believed that personal interests would lead to a lack of transparency in e-government. Therefore, an IT manager commented:

"I believe it is really challenging for organizations to be transparent in the whole county. This is because that those organizations have a high level of corruption, where it is represented in the way that they behave to create and cancel any rules that serve their personal interests".

The study findings also indicated that government agencies in Hail region are still lacking transparency in their electronic presence. This is because of the lack of knowledge about e-government benefits. One employee explained:

"Our organizations in the region are away from being transparent in their presence. The reason behind that is that all these organizations including their directors and employees are lacking the shortage of knowledge on e-government benefits".

E-literacy was found as a main challenge to e-government adoption process. Some participants highlighted that government agencies are lacking computer literate employees to deal with online services; they like better to use existing manual processes. One top manager explained:

"*Electronic literacy is still low. There is no willingness of people to adopt online systems. This is due to lack of trained people to deal with e-services. 70 to 80 % of our activities are done offline".*

The study findings also indicated that e-literacy forms a challenge where most the Bedouins in the country are illiterate where they cannot read and write. Likewise, elderly people are seen as computer illiterate. Both kinds of people were considered by the participants as a challenge to the implementation process of e-government services. One interviewee commented:
"We have a lot of Bedouins who cannot read and write and also they are unable to use computers where they are considered as a barrier to e-government implementation. In addition, the elderly people are considered as a barrier of e-government adoption as well, where many of them are computer illiterate."
Some of the interviewees pointed out that employees who are computer illiterate believe that e-government initiatives as a risk to their jobs. One IT director explained:

"In the public sector, employees who are computer illiterate regard e-government as a risk to their jobs, from the time when they will be asked to acquire new expertise linked to computers and it can be hard for them to get and acquire such expertise."

The study findings pointed out that trust is considered by all the interviewees as a challenge to e-government implementation process in the region. Some participants indicated that there were fears to the utilization of the e-government services because of, either distrust or an unsatisfactory experience with the e-government services. People still distrust the e-government services, especially those services that necessitate consumers to make online payment. For instance, one employee commented:

"Some of the services that are offered on the organizations websites involve electronic payment, so some people including me cannot trust these websites at this phase. But, in the future, we may trust the e-services as soon as we have seen other people utilizing those services and making online payments without problems".

The study findings also emphasized that some of the participants have fears of private information that can be exposed when they are transferred by electronic means, or viruses might devastate information. In addition, people trust physical ways more than electronic ones. For example, one interviewee commented:

 "The problem that we face in the implementation of e-transactions is that people still do not trust e-services. An example of that is that when we ask them to apply online they say how we can get our needs when we sit in our homes, we have to go to the right person and get what we need face to face".

One low-level employee explained: *"My friend has bought a computer by his credit card from the internet*; however, *he lost his money and did not get anything. All that happened because of the lack of security. So, how can I trust the Internet"*.

According to the comments above, the lack of awareness and knowledge and lack of security were found as leading factors to the mistrust of e-government services in the region. It appeared from the low-level employee comment that not only citizens but also employees do not trust the process of e-transaction even though they work with it. Therefore, the lack of trust in achieving tasks

electronically among public sector employees is seen as a result of the lack of knowledge about the e-government project.

In the area of authentication, most participants agreed that the lack of authentication systems is a key challenge to e-government adoption process in the region. They highlighted that people's identities must be identified in a secure way where employees can ensure who they are dealing with. Furthermore, they emphasized that there are several technology systems that can offer authentication such as the utilization of digital signature, adopted to verify the identity of a sender. Together with message abridgment, digital signatures inhibit someone from changing a message and incorrectly claiming that the sender wrote the modified message. Therefore, there are many essential applications that must utilize Public Key Infrastructure (PKI) with regards to e-government services, as many interviewees in this research have mentioned. For example, make e-mail messages safe, secure websites where PKI can be utilized to verify users and execute safe transactions. Others utilize digital signatures, which can be added to letters, documents, forms, etc. Furthermore, to protect and secure communication between computers, a system can create its own electronic signature, utilizing timestamps for official papers and messages, where the rigorous formal time of a transaction is attained and attached to the transaction. An IT director commented:

"A part from the utilization of public key infrastructure, confidentiality, security, and data authenticity in such systems will be extremely compromised".

Some participants indicated that most of the involved government agencies encountered transactions where beneficiaries provided incorrect identifications or those belonging to others to benefit from some of the services the government offers. Some of the government agencies have emphasized that they have pulled out some of the electronic services they offered on the Internet after realizing that some people offered fabricated information to obtain access to sensitive information and take advantage of some of the government electronic services. One employee explained:

"We certainly need an identity management solution that ensures to us the identity of people who are interacting with us online. Setting laws in place that criminalizes identity theft actions could be one part of the solution. But take into consideration that all those who do such doings realize that they are breaking the law. We require a mechanism to verify those users online."

In the domain of culture, most of the interviewees agreed that culture is a key challenge to e-government implementation in the region. They pointed out that as ways of communications are part of the country's culture, the people of Saudi Arabia in general and citizens of Hail region specifically prefer the face to face way of communication in the area of work. Furthermore, the oral way of communication is widely used in the region as a formal way. Therefore, the interviewees thought that these would affect the implementation process of e-government services in the region of Hail. As a top manager explained:

"I think yes, culture does impact e-government implementation in Saudi Arabia generally and Hail region specifically because people here in Saudi Arabia prefer face to face way of communication at work. Moreover, the oral culture in the country is a very popular communication method where people still use oral communication rather than written or type ways."

The study findings also highlighted that almost all the interviewees considered the connections (Wasta) is a major obstacle to the implementation process of e-government services in the region. They thought that this kind of practice, which was believed wide-spread in government agencies, assists to keep up corruption in society and raises discrimination between people. As a result, they believed that the utilization of e-government would be the means through which wasta would be seriously restricted and that all individuals would be offered an equal opportunity to perform their governmental transactions. Furthermore, some of the participants thought it would be challenging to restrict wasta in the public sector work because they deemed it to be part of their culture. An employee commented:

"Wasta in the society is used in everything, even if it is electronic".

Another employee said:

"…I think that costumes and traditions hinder the adoption of e-government services. For example, we still rely on wasta to get our needs."

Moreover, some participants believed that culture, by its forms, play a significant role in hindering the process of implementing e-government services in the region of Hail. They thought that tribal systems still control the process of conducting transactions in the community. One IT manager said:

"Sure, culture has an impact on e-government implementation. You can see the wasta is still dominating at work, and the tribal system has a significant role in doing so."

In the contrary, others emphasized that culture does not impact the adoption process of e-government services in the region. They indicated that e-transactions are made smoothly as planned. One interview commented:

"I do not see that culture is a challenge to e-government implementation process in Hail. The reason is that e-transactions are carried out as planned."

5.3.3. Organizational challenges

This section includes information about strategy, change management, resistance to change, and records management issues as important organizational factors acknowledged by the interviewees in the matter of the e-government initiatives in Hail City.

The research findings showed that some participants believe that organizational strategy can hinder the adoption of e-government project in the region. They pointed out that each organization within the public sector has a plan to implement e-government system requirements to take in, in its strategy, a roadmap on how to meet the anticipated goals; this comes to be the aim for all decisions and strategies in all departments within the targeted government agency. Interviewees highlighted the significance of linking e-government adoption to an organization's strategy. A mid-level employee said:

"Every single organization must comprise e-government adoption within its strategy. It is basically to comprehend to what extent they are aware of adopting this technology or not, this is only to check their tactic".

Some interviewees indicated that employees and managers in the public sector thought that the e-government system would be substantial and time consuming and thus it is not true in their concern to embrace it. Accordingly, they believed that it is essential for e-government designers in the government agencies in the region to connect their vision with constitutional strategy for the reason that e-government is a long-term program that cannot be executed shortly and hence, requires to be a crucial part of everyday life for any targeted government agency. An IT director said:

"A lot of government agencies restrict their actions to an easy delivery of their information and services electronically without taking into account the re-designing procedure required to get the desired advantages. So, these organizations must have clear strategies to be connected to their visions to overtake the obstacles that hinder the change process."

The study findings also indicated that some participants put emphasis on the gap between strategy and reality in executing the e-government project. They also indicated that many projects usually fail not in planning but in adoption. One employee commented:

"Personally, I think that we have a good scheme and tactic however, how this plan could be seen applied in the actuality. I could say that there is a gap between outlining and execution".

By reviewing the documents, the importance of strategy and plans that stand behind initiatives of e-government was highly recognized by many government officials. Moreover, it was highlighted that strategy and plans could be the main elements in the success and failure of e-government projects.

Change management was seen as a challenge to e-government implementation process by many interviewees. Some of the participants put emphasis on the

necessity of change management in the implementation process of e-government services in the region. They indicated that there is a lack of awareness towards change management in the government agencies in the region. One of the staff members stated:

"I see that change management in Hail's organizations needs a high level of awareness about the necessity of it."

Similarly, another interviewee commented:

"Change management in an organization must be regarded as an essential factor, and should support both the e-government planned agenda and development".

The study findings also pointed out that the organizational and cultural modifications are regularly more challenging to perform than the other challenges. Therefore, the absence of change management was seen as a challenging factor where it could be in a place whether to succeed or fail the process of e-government implementation. As one employee said:

"Change management is required to succeed e-government adoption."

The document analysis revealed that for government employees, the processes of administering redesigned e-services will change; this means they need to be alerted to these changes and need to be trained in running the new processes.

In the area of resistance to change, the study found that a lack of e-government recognition amongst the government employees can result in resistance to change. Adoption of e-government will also result in modifications in positions in the organizations. Therefore, these modifications may not be welcomed by employees, who as a result will not accept them. Fears arise from some employees to lose their careers when the program is executed. One IT manager stated:

"In my opinion, e-government services form a risk to the employees. Let me be more frank with you, the employees think that the implementation of e-

government services will deny many of them from enjoying the privileges that they used to have. In addition, they fear that their organizations may need to reduce the employee number for the reason that they do not need them anymore."

The study findings also highlighted that significant changes will occur by implementing e-government projects. Therefore, the emphasis on the importance of the organizational challenges including resistance to change was put by a senior manager. He explained:

"To my knowledge, many directors and employees might resist the change to the new programs because they fear that they cannot keep up with new changes or fail to deal with new system."

Another interviewee commented on this issue:

"The success of e-government project is still controversial in the region. This is due to resistance to change from the employees in the public sector."

Similarly, some participants put emphasis on the difficulty of convincing employees to deal with e-programs. Those employees perceive those programs as an enemy to them, which could take away their jobs. For instance, one top manager stated:

"…actually, to be honest with you, we face a difficulty of convincing our employees to deal with e-programs that we have in our organization. This is the reason behind the slow progress of implementing e-government services. There are many employees who perceive such projects as an enemy to them, which could take away their jobs. And we still offer them with lectures and programs, which we try through them, to make them aware of the e-government services."

The findings of this study indicated that records management is considered as a challenge to e-government implementation by some interviewees. They emphasized that e-records have to be controlled and upheld by electronic ways to obtain the complete advantages of e-government. However, that is still away

behind to be applied in the region as some the interviewees said. For instance, one top manager stated:

"E-records management in the government agencies in Hail is at its early stages. Many organizations in the region are lacking records management policy, which makes it hard to identify and care for e-records."

In addition, some participants pointed out that this challenge comes as a result from the fact that employees and managers are lacking understanding of the benefits of e-transactions. An employee commented:

"I guarantee that most of the employees in our organization do not realize the benefits of e-government, and so, they will not have the skills of managing e-records."

5.3.4. Political challenges:

This section includes information about leadership and top management support, legal and regulation issues, and funding as important organizational factors recognized by the interviewees in the matter of the e-government initiatives in Hail City.

The study findings indicated that leadership and top management are considered as a significant challenge to e-government adoption. Some participants pointed out that the top management support is a crucial element in the success of the implementation process of e-government services. They emphasized that if the role of the leadership is strong towards e-government implementation, then the project will succeed and vice versa. An example of that, one employee said:

"We are here in Saudi Arabia have a plenty of talk and little actions. I mean that for many years we have heard about the e-government program and nothing tangible happened except some government agencies that have built websites and offered information about their services. For example, the university has applied e-transactions tracking system and however, the employees still do not work on it. This is so, because of the poor leadership that did not support such projects."

Similarly, the study found that some participants agreed that the e-government initiatives cannot begin without strong management and the lack of it will result in the failure of e-government program. One employee commented:

"E-government implementation requires strong leadership…" He explained this more and said: *"it is not about decisions; it is rather about executing these decisions."*

Moreover, some of the interviewees thought that motivations and support from the top management are necessary with the purpose of offering and assigning adequate resources as well as disheartening resistance. For instance, one participant said:

"The commitment and support from the leadership provides us with motivations to be more efficient at work and produce new concepts."

Furthermore, when an IT director was asked about the level of readiness of ICT infrastructure, he commented "not bad but also not good" and he justified that by saying:

"…That is because of the lack of the top management support. When we always requested our needs to promote our services, there were dead people".

From reviewing documents concerning e-government project in Saudi Arabia, it was found that the entire reliance on IT professionals to implement and lead such projects without the active participation of leaders.

Legal and regulation issues were seen as a challenge to e-government adoption process. Some participants indicated that current regulations and policies would be insufficient in addressing new types of internal and external interactions that result from e-government. For example, the policies of paper-based response that are seamlessly effective for paper documents usually prove to be poor for e-documents exchange; and finance devices for various organizations may necessitate substantial alterations. Hence, some interviewees pointed out that e-government implementation will necessitate regulations to protect the rights of

beneficiaries who use online services. Moreover, the participants indicated that people should be aware of e-transactions policies. One employee commented:

"It is not adequate to present new regulations, we also want to promote our society and make them aware of those regulations and train the rules execution department to follow and adopt the new regulations."

An IT manager said:

"Organizations in Hail are required to amend their current laws and establish new ones that are compatible with e-transactions."

The study results showed that funding issue is a crucial challenge to e-government adoption process. Some participants highlighted that the e-government project is a huge project. In their opinion, organizations do not have the aptitude to adopt such a program, as it necessitates an enormous amount of money. The majority of participants, both managers and employees, declared that funding from the government is the most suitable solution for executing e-government in the country. They also stated that e-government scheme in Saudi organizations need a separate financial plan which should be controlled by a separate team, as one employee stated:

"I think that it is important that there should be a team for controlling the project and it has to be totally autonomous and has its own financial plan; otherwise things will go on slow."

According to the top manager of the Directorate of Education in Hail region, the percentage of the yearly budget that is assigned to the development of e-government services is approximately 10%. This small amount is assigned because the organization needs financial support to build schools, recruit teachers, offer administrative jobs. The director of the directorate of education commented:

"In fact, I can say that the assigned budget to develop e-government services in our organization is about 10% from the total budget, because we need to build new schools, recruit more employees and teachers. Therefore, 10% comparing to

these needs is considered high percentage for the electronic development to keep up with all regions"

Likewise, some interviewees indicated that financial support is generally offered by the Ministry of Finance. However, they highlighted that the e-government project is not the priority of some organizations. One IT manager said:

"I think that the financial support is offered by the Ministry of Finance. So, project like e-government needs a great amount of money. However, the university has priorities and in my opinion, the e-government is not one of the university's priorities."

On the other hand, some participants emphasized that funding is not an issue in the process of implementing e-government services. They believed that there is adequate financial support from the leaders of the country. They also thought that financial issues do not represent a problem to e-government implementation; however, the time factor for obtaining financial support is slowing down the process of e-government adoption in the region. One employee said:

"In my opinion, it cannot be said that the financial issue is a main challenge, but it takes time to go through the procedure of getting financial consent and resources".

Furthermore, another employee commented:

"We have unlimited monetary support from the leaders of this country for the development of e-government scheme".

Financial support was also identified to be a problem in the employment process of IT professionals. An IT director commented:

"I am really sick of this matter. How come the IT staff in our organization, unfortunately, doesn't have high level of IT skills and this is because that the salaries they offered to attract the technical competencies are very simple and not feasible".

The document analysis showed that there is a difficulty of obtaining distinctive competencies in specialized areas. This is because of the low wages offered to employees in such program, where most of those qualified people prefer to work in the private sector for the high wages provided.

5.4. Descriptive results

This section includes descriptive findings from a question that revolves around e-government challenges. This question is a Likert scale and was computed and analyzed by SPSS application (version 15.0). As a secondary data, descriptive questions were developed to support the interview results. Participants from all positions in the public sector participated in answering the Likert scale question. The Likert scale had five statements (i.e. 1=strongly disagree, 2=disagree, 3=no opinion, 4=agree, 5=strongly agree). The first part of the scale was about organizational challenges. The second part was about social challenges. The third part was about technological challenges. The last part was about political challenges to e-government implementation process.

First, in the domain of organizational issues, the study findings indicated that some participants (40%) agreed and others (60%) strongly agreed that lack of top management support is a challenge to e-government implementation as it appears in table 5.1. Likewise, strategy was seen as a challenge by most the participants. Some participants (28%) agreed and others (68%) strongly agreed that strategy is a challenge to e-government adoption. Only (4%) indicated that they had no opinion about that.

Resistance to change from managers and employees was noted as a challenge to e-government adoption. Some of the participants agreed and some of them strongly agreed where their rates (40%) and (60%) respectively. Interestingly, none of the participants showed disagreement about that statement. Table 5.4 also shows that records management failure is a challenge to e-government implementation process. The majority of the participants (52%) and (32%) showed their agreement and strong agreement about records management as a challenge respectively. On the other hand, only (4%) strongly disagreed about

that whereas, (12%) showed no opinion regarding this issue. In addition, some participants showed their agreement and strong agreement about weakness of change management as a barrier to e-government where their rates were (48%) for both groups. However, only (4%) of the participants showed their neutrality about this issue (Table 5.4).

Table 5.4 Results of organizational issues.

Organizational factor	Strongly disagree %	Disagree %	No opinion %	Agree %	Strongly agree %
Lack of top management support	0	0	0	40	60
Unclear vision and management strategy	0	0	4	28	68
Resistance to change from management and employees	0	0	0	40	60
Records management failure	4	0	12	52	32
Lack of coordination between departments	0	0	0	56	44
Weakness of change management	0	0	4	48	48

Second, in the area of social challenges, the majority of the participants showed their agreement and strong agreement about awareness as a challenge to e-government adoption where their rates are (32%) and (60%) respectively (Table 5.5). Nevertheless, the minority (8%) of the participants showed no opinion about that issue. Moreover, some participants agreed and strongly agreed that negative attitude towards e-government hinders the process of e-government where their rates were (36%) for both groups. On the other hand, only (8%) of the participants showed their disagreement about that statement whereas, (20%) of the participants showed no opinion about that statement.

The study findings also revealed that the majority of the participants (48%) agreed and (36%) strongly agreed that unreliable networks and communication is a challenge to e-government implementation. Nevertheless, (16%) demonstrated no opinion about that statement. Lack of IT training was seen as a challenge by all the participants where (32%) agreed and (68%) strongly agreed. Similarly, all the participants agreed (40%) and strongly agreed (60%) that lack of IT expertise as a challenge to e-government adoption. Likewise, lack of

employees with IT skills was seen as a challenge by all the participants where (40%) agreed or (60%) strongly agreed about that statement.

The study results indicated that (48%) of the participants agreed and (40%) strongly agreed that lack of internet access is a barrier to e-government adoption while (12%) of the participants showed their neutral stance towards this issue. Similarly, the majority of the participants revealed their agreement and strong agreement about lack of transparency as a challenge to e-government adoption where their rates are (44%) and (40%) respectively. However, (16%) of them displayed their neutrality towards that statement. Low ICT literacy was noted as a challenge by most the participants where their rates are (52%) for agreement and (36%) for strong agreement. However, the minority of them (12%) showed no opinion about this challenge.

The descriptive results also revealed that all the participants agreed and strongly agreed that lack of trust is a barrier to e-government adoption process where their rates are (28%) and (72%) respectively. Disability of authentication was seen by most the participants as a challenge to e-government adoption where their rates are (52%) for agree and (28%) for strongly agree. In the contrary, only (4%) of the participants disagreed whereas (16%) showed no opinion about this challenge. With regard to the social challenges, a great number of the participants indicated that they agreed and strongly agreed that culture has an impact on e-government adoption where their rates are (32%) and (60%) respectively. In contrast, only (8%) displayed their disagreement about this challenge (Table 5.5).

Table 5.5 Results of social issues.

Social factor	Strongly disagree %	Disagree %	No opinion %	Agree %	Strongly agree %
Lack of awareness about e-government	0	0	8	32	60
Negative attitude towards e-government	0	8	20	36	36
Unreliable networks and communication	0	0	16	48	36
Lack of IT training	0	0	0	32	68
Lack of IT expertise	0	0	0	40	60
Lack of employees with IT skills	0	0	0	40	60
Lack of internet access	0	0	12	48	40
Lack of transparency	0	0	16	44	40
Low ICT literacy	0	0	12	52	36
Lack of trust	0	0	0	28	72
Disability of authentication	0	4	16	52	28
Saudi culture impact e-government adoption	0	8	0	32	60

The study findings also revealed that almost three quarters of the participants agreed and strongly agreed that interoperability is a challenge to e-government implementation where they rated at (44%) and (40%) respectively. Nevertheless, only (4%) of them showed that they strongly disagreed about that whereas (12%) of the participants had no opinion about this barrier. Similarly, the majority of the participants (96%) agreed and strongly agreed that there was no integration across internal systems which represent the lack of interoperability. Though, only (4%) did not have any opinion about this issue (Table 5.6).

Lack of security rules, policies and privacy was noted by approximately (96%) of the participants who agreed and strongly agreed that this is a challenge to e-government execution. On the other hand, (4%) of them showed their strong disagreement about that. Likewise, the study findings also indicated that (52%) agreed and (44%) strongly agreed that threats from viruses, hackers, and Trojans could be a challenge to e-government adoption. In the contrary, (4%) of them revealed their disagreement regarding that statement. Interestingly, all the participants agreed and strongly agreed that developing a website by unskilled

staff is a barrier to e-government adoption where they rated at (32%) and (68%) respectively.

The quantitative results also showed that (84%) of the people who participated in this study agreed and strongly agreed that the lack of IT standards could be a challenge to e-government implementation, whereas only (4%) strongly disagreed about that and (12%) of them had no opinion with regard to this issue. Likewise, (80%) of the participants revealed their agreement and strong agreement with the statement that says: High cost of IT infrastructure could a barrier to e-government adoption. However, (8%) of them disagreed and strongly disagreed with that statement whereas (12%) showed no opinion about it. In the same line, a high number of the participants agreed and strongly agreed that lack of accessibility is a challenge to e-government implementation where their rates are (48%) and (40%) respectively. On the other hand, only (4%) of them disagreed with that while (8%) had no opinion about this challenge (Table 5.6).

Table 5.6 Results of technological issues.

Technological factor	Strongly disagree %	Disagree %	No opinion %	Agree %	Strongly agree %
Existing systems are incompatible and complex	4	0	12	44	40
No integration across internal systems	0	0	4	28	68
Lack of security rules, policies and privacy laws	4	0	4	44	48
Threats from viruses, Hackers and Trojans	0	4	0	52	44
Developing website by unskilled staff	0	0	0	32	68
Lack of standards for IT	4	0	12	44	40
High cost of IT infrastructure	4	4	12	36	44
Lack of accessibility	0	4	8	48	40

In the area of political challenges, all the participants indicated that they agreed and strongly agreed that weakness of leadership is barrier to e-government adoption process where they rated at (56%) and (44%) respectively (Table 5.7). However, lack of funding was seen by many participants as a challenge to the implementation procedure of e-government services where (24%) picked (agree)

and (68%) picked (strongly agree). Nevertheless, the minority of the participants showed their disagreement where they rated at (8%). Lastly, unclear regulations and laws was also noted as a challenge to e-government adoption by most of the participants where there were (24%) of them agreed and (68%) strongly agreed with this statement. In contrast, only (4%) showed no opinion about this issue (Table 5.7).

Table 5.7 Results of political issues.

Political factor	Strongly disagree %	Disagree %	No opinion %	Agree %	Strongly agree %
Weakness of leadership	0	0	0	56	44
Lack of funding	0	8	0	24	68
Unclear regulations and laws	0	0	4	36	60

5.5. Chapter Summary

The study findings indicated that e-government progress is still slow in Hail region. Most of the organizations in this region are classified to be progressing in the second stage. However, the comparison of e-government readiness between Hail, Riyadh and Madinah shows that Hail region is still away behind in the implementation of e-government services, where Riyadh and Madinah are generally classified to be progressing in the third stage (two-way service delivery).

The study findings also highlighted that there were some challenges that would hinder the implementation process of e-government adoption in Hail region. These challenges were classified as technological, social, organizational and political. Participants emphasized that the technological challenges that could affect the implementation process are (IT standards, security, privacy, accessibility, ICT infrastructure, and interoperability). They also pointed out some social challenges including (awareness, transparency, e-literacy, trust, authentication, and culture). The results also showed some organizational challenges that could hinder the e-government adoption including (strategy, change management, resistance to change, and records management). In addition, some political challenges were found to be in the place where it

impacts the implementation process of e-government in the region such as (leadership, legal and regulation issues, and funding issues).

Nevertheless, the study findings also emphasized some opportunities that could help the organizations in Hail region to advance its e-government services. These opportunities are (improving management and decision making process, organizing government business process, increasing collaboration among public organizations, increasing productivity, reducing operation cost, enhancing ICT infrastructure, increasing the exchange of data between organizations, improving the efficiency, fastening the transaction process and response, and developing new skills for employees).

Chapter Six: Discussion

The overall goal of this research is to evaluate regional e-government readiness in Saudi Arabia. This study also identifies the obstacles that hinder e-government implementation regionally. Furthermore, it comes as an attempt to reveal some opportunities that regions have to improve their e-services. However, as this study conducted an exploratory case study to meet the aims of this study, the findings were analyzed and then presented. The discussion below answers the research questions*: What is the current state of e-government services in Hail City? - What are the opportunities to improve e-government services in Hail City? - What are the challenges for e-government services in Hail City?*

6.1. E-government Readiness in Hail City

The study findings indicated that e-government progress is still slow in Hail region. It was viewed to be still progressing in the second stage of providing online services within its governmental offices. According to Almogheis's article in Hailnews.net (2008) and AlGahtani in his article dated 8/5/2011 in Al-Youm newspaper, Hail Principality was one of the e-services leaders in the city, where it provided e-services such as Interactive Voice Inquiry System (IVIS), Interactive Messaging System (IMS), and inquiry by e-mail. Similarly, Alatawi (2009) evaluated online presence of all the municipalities in Saudi Arabia. He found that Hail municipality had no online presence. However, AlAmeer in his report (2010) evaluated Hail municipality website. He found that the municipality has offered many services online but with critical issues such as a lack of useful information, no contact channel, some icons were not working. However, since 2008 to date, Hail Principality and Hail Municipality have not made a satisfactory progress in implementing e-government services. This is real since they were evaluated to be in the first stage in the literature (see table 2.13) and barely moved up to be in the second stage (see table 5.1.1). Therefore, organizations need to make a lot of efforts to the transformation to e-government.

In the same way, the study also found that the Directorate of Health Affairs in Hail is progressing in the second stage. Based on EXA Information Technology

(2010), this organization has a website that serves the health sector in the region. The websites contains a range of services offered to serve personnel directorate, such as query service for employees, which enables employees to access to all data and information from the financial expense, etc. It contains also news, health and social articles, and a communication channel where users can contact officials by email. Yet, it did not show any movement towards the advancement of its e-services. Therefore, it needs to reconsider its e-services and tries to offer more services as others do in different cities in Saudi Arabia.

In comparison, as a top manager explained that he succeeded in developing the e-services in his organization in the last two years, it is still away behind when comparing it to its counterparts in different cities in Saudi Arabia such as Riyadh and Madinah. This answers the research question: *What is the current state of e-government services in Hail City?*

However, since the appearance of e-government, several studies have discovered the challenges that impact its implementation and adoption. This empirical research has proved these challenges further concentrating on their effect in the context of regional e-government in Saudi Arabia. Thus, these findings are analyzed and discussed below in relation to the literature.

6.2. Technological theme

The study findings emphasized that there are some technological challenges facing e-government implementation in Hail region. These challenges are IT standards, security, privacy, accessibility, ICT infrastructure and interoperability. This section answers the research question: *What are the challenges for e-government services adoption in Hail City?*

The study results found that all interviewees agreed that IT standards are a critical factor impacting e-government adoption in Hail region. The reason behind this impact is that IT infrastructures that were built within several government agencies do not adhere to particular standards. This is in line with the arguments of Nyrhinen 2006; Alshehry, 2008; and Weerakkody, et al, (2011) that IT standards dictate how IT resources are to be attained, managed, and used

138

within the organization. Standards perform as the adhesive that links the use of physical and intellectual IT assets. Thus, to conclude to a fruitful adoption of e-government, the IT standards should be deemed as a key and an effective element from an e-government adoption viewpoint.

The study findings also highlighted that security issue is a key challenge to e-government implementation since the high level of data being transferred electronically through the internet. All the participants agreed that security would impact e-government adoption in Hail city. They emphasized that offering high security for the data would encourage the beneficiaries to adopt and use e-government services and vice versa. This supports the findings of several studies such as (Weerakkody, et al, 2011; Alshehry, 2008; Signore, et al, 2005; Seifert, 2003; Almarabeh & AbuAli, 2010; Reffat, 2006; Al-Sobhi, et al, 2010; Sahraoui, et al, 2006; Al-Busaidy & Weerakkody, 2009; Elsheikh, et al, 2008; Al-Fakhri, et al, 2008). In the same line with Al-Khouri and Bal (2006) and Alshehry (2008), this study found the importance of security was highly recognized by all the participants. In addition, it was found that the low level of security in the country is a result of the neglect of public key infrastructure (PKI) across the country. Therefore, this finding supports the findings indicated by Alkhouri and Bal (2006) and Alshehry (2008).

Privacy issues were seen by many participants as a challenge to e-government adoption in Hail region. They highlighted that the privacy of personal information is a challenge that could be tackled by restricting access to personal data, by educating the public sector employees on the significance of privacy, restricting data taken from the costumers to the level that is truly compulsory, and increasing the awareness of users regarding the significance of privacy. In the literature, several authors such as Weerakkody ,et al (2011), Signore, et al (2005), Seifert (2003), Almarabeh & AbuAli (2010), Reffat (2006), Al-Sobhi, et al (2010), Alshehry (2008), Al-Khouri and Bal (2004), Sahraoui, et al (2006), Al-Busaidy & Weerakkody (2009), Elsheikh, et al (2008), Al-Ghaith, et al (2010) identified privacy issues as a major factor affecting the implementation of e-government services in the public sector. In the contrary, only one participant

highlighted that privacy was not an issue affecting the implementation process of e-government services. Thus, it could be said that as the majority of the participant indicated that privacy could affect e-government adoption, this would be supportive to the findings of the above mentioned studies.

In the area of accessibility, the results of this study emphasized that most interviewees agreed that lack of accessibility would impact the implementation procedure of e-government services in Hail region. Some participants indicated that most of what governments do includes interactions with individuals least likely to have access such as the less educated people and the poor. The study findings also pointed out that, in the area of accessibility, people may have limited access to ICT technologies and devices which result in the lack of accessibility. This is similar to the findings by Weerakkody, et al (2011); Almarabeh & AbuAli (2010); Sarikas and Weerakkody (2007); Signore, et al (2005); Seifert (2003); Sahraoui, et al (2006); Abanumy, et al (2005). On the other hand, this finding disproves the results of Al-Busaidy and Weerakkody (2009) where their findings indicated that the majority of respondents perceived accessibility as good or satisfactory. Therefore, they argued that accessibility will not negatively affect the use of e-government services in Oman. In this matter, the government is encouraged to try to solve this problem by deploying ICT in the villages as well as looking at poor people needs.

In the area of ICT infrastructure, the study findings pointed out that ICT infrastructure is a key technological challenge to e-government adoption in Hail region. Some participants indicated that ICT infrastructure is a driving factor for organizations in the public sector to adopt e-government services within and outside the organizations. They also highlighted that some government agencies in the public sector are still suffering from the weakness of ICT infrastructure, while others need to spend on the setting up of new tools and need to promote their current infrastructure before considering implementing new e-government services. This points out that the improvement of ICT infrastructure within government agencies should be a great priority with the purpose of adopting e-government. These findings confirm previous literature such as the research by

Qaisar & Khan (2010), Alshehri & Drew (2010), Ndhuo (2004), Al-Sobhi, et al (2010), Alshehry (2008), Al-Khouri and Bal (2004), Almarabeh & AbuAli (2010), Reffat (2006).

Another major finding of this study is that interoperability is a challenge of e-government adoption. All the participants agreed that interoperability is a key challenge to e-government implementation. They believe that government agencies in the region have different IT systems with may result in the lack of interoperability between them. However, systems used within an organization are interoperable. Hence, this proves the findings of previous studies such as Signore, et al (2005), Almarabeh & AbuAli (2010), Reffat (2006).

6.3. Social theme

The study results highlighted that there are some social challenges facing e-government adoption in Hail region. These challenges are awareness, transparency, e-literacy, trust, authentication and culture. This section answers the research question: *What are the challenges for e-government services adoption in Hail City?*

Awareness was found to be a main issue in e-government implementation and was found as a high important challenge by the interviewees who participated in the study. This supports the findings of research by Weerakkody, et al (2011), AlAwadhi & Morris (2009), Weerakkody, et al (2006). The results of the case study and document analysis indicated that awareness plays a crucial role in the implementation of e-government. This includes using the mass media to present the notion of e-government and, moreover, to introduce this program to organizations in the public sector by carrying out workshops, seminars, and sessions as part of the determination to increase awareness. They consider it as an essential issue with the aim of encouraging managers and employees to agree to take the e-government program as part of their daily tasks. This finding comes in the line with AlAwadhi and Morris (2009) who found that the majority of participants complained about the lack of awareness of the e-government project in general, and of online services in particular, where they put the blame

on the media and those who are responsible for its adoption for not emphasizing such an essential project that could be valuable to a huge group of people.

The study findings indicated that some participants pointed out that training is needed for employees and managers to increase the awareness of e-government services. This comes as supportive to the findings by Reffat (2006) and Zarei, et al (2008) who emphasized that training and educating citizens and employees is a significant factor that should be kept in mind when initiating e-government services.

It was found that all interviewees emphasized the lack of transparency in e-government programs and such programs are condemned to being restricted to the electronic delivery of public services without any thoughtful effort at improving government or involving beneficiaries or citizens in reshaping government. However, they suggested that this is due to the lack of knowledge about e-government benefits. This proves the results of prior research by Almarabeh & AbuAli (2010), Reffat (2006), Karunasena, et al (2011), Kachwamba & Hussein (2009), Sahraoui (2005).

Some participants highlighted that government agencies are lacking computer literate employees to deal with online services; they like better to use existing manual processes. Some of the interviewees pointed out that employees who are computer illiterate believe that e-government initiatives as a risk to their jobs. This is in line with Almarabeh & AbuAli (2010), Reffat (2006), Ndou (2004), Chen, et al (2006). Trust was found by the case study as a critical challenge to the implementation process of e-government services. According to some participants, there were fears to the utilization of the e-government services because of, either distrust or an unsatisfactory experience with the e-government services. People still distrust the e-government services, especially those services that necessitate consumers to make online payment. This supports the results found by Reffat (2006), Alshehry (2008), Almarabeh & AbuAli (2010). Some participants also indicated the lack of awareness and knowledge and lack of security were found as driving factors to the mistrust of e-government services in the region. It appeared from the low-level employee

142

comment that not only citizens but also employees do not trust the process of e-transaction even though they work with it. Therefore, the lack of trust in achieving tasks electronically among public sector employees is seen as a result of the lack of knowledge about the e-government project. This proves the findings of several studies by Deakins & Dillon (2002), Jaruwachirathanakul & Frink (2005), AlAwadhi & Morris (2009), and Al-Fakhri, et al (2008).

Lack of authentication was found by all respondents a key challenge to e-government adoption process in the region. They pointed out that people's identities have to be recognized in a secure way where employees can ensure who they are dealing with. Furthermore, they highlighted that there are several technology systems that can offer authentication such as the utilization of digital signature, adopted to verify the identity of a sender. Together with message abridgment, digital signatures inhibit someone from changing a message and incorrectly claiming that the sender wrote the modified message. Therefore, there are many essential applications that must utilize Public Key Infrastructure (PKI) with regards to e-government services, as many interviewees in this research have mentioned. This finding is in accordance with the research findings of Alshehry (2008). In addition, some participants indicated that most of the involved government agencies encountered transactions where beneficiaries provided incorrect identifications or those belonging to others to benefit from some of the services the government offers. This would result in the reluctant of employees and citizens to work with the online services. This finding consistent with the literature as well as general views (Lean, et al, 2009; AlSobhi, et al, 2009; Dempsey, et al, 2003), which advocates that authentication systems are a key driving factor in the success and failure of e-government project.

In the context of e-government literature, some authors such as Chen, et al (2006), Sahraoui (2005) and Alshehri & Drew (2010) identified culture as an essential factor impacting the process of implementing e-government services. Findings from the case study confirm the fact that culture is a key challenge to e-government implementation in Hail region, where some participants highlighted that as ways of communications are part of the country's culture, the people of

Saudi Arabia in general and citizens of Hail region specifically prefer the face to face way of communication in the area of work. Furthermore, the oral way of communication is widely used in the region as a formal way. Therefore, the interviewees thought that these would affect the implementation process of e-government services in the region of Hail. Moreover, some participants believed that culture, by its forms, play a significant role in hindering the process of implementing e-government services in the region of Hail. They thought that tribal systems still control the process of conducting transactions in the community. This supports the findings of Sahraoui (2005) and Alshehri & Drew (2010). Nevertheless, these findings disprove the findings of AlSobhi, et al (2009) who argue that culture is not an issue in implementing e-government projects.

6.4. Organizational theme

The study results highlighted that there are some organizational challenges facing e-government adoption in Hail region. These challenges are strategy, change management, resistance to change, and records management. This section answers the research question: *What are the challenges for e-government services adoption in Hail City?*

The study findings indicated the significance of connecting e-government implementation to an organization's strategy. With this regard, some participants highlighted that e-government system would be substantial and time consuming and thus it is not true in their concern to embrace it. In view of that, they thought that it is essential for e-government designers in the government agencies in the region to connect their vision with constitutional strategy for the reason that e-government is a long-term program that cannot be executed shortly and hence, requires to be a crucial part of everyday life for any targeted government agency. Furthermore, the case study and document analysis pointed out that there is a gap between strategy and reality in executing the e-government project. However, strategy and plans could be the main elements in the success and failure of e-government projects. Therefore, this gap would result in the failure of many projects not in planning but in adoption.

These views are supported by the literature (Lowery, 2001; Ndou, 2004; Alshehry, 2008; Weerakkody, et al, 2011).

Change management was found by many participants as a challenge to e-government adoption process. Some of the participants emphasized the necessity of change management in the implementation process of e-government services in the region. The case study and document analysis also indicated that there is a lack of awareness towards change management in the government agencies in the region. The study findings also pointed out that the organizational and cultural modifications are regularly more challenging to perform than the other challenges. Therefore, the absence of change management was seen as a challenging factor where it could be in a place whether to succeed or fail the process of e-government implementation. These findings are in accordance with the research findings of Alshehry (2008) and Ndou (2004).

In the area of resistance to change, the study results indicated that a lack of e-government recognition amongst the government employees can result in resistance to change. Adoption of e-government will also result in modifications in positions in the organizations. Therefore, these modifications may not be welcomed by employees, who as a result will not accept them. Similarly, some participants put emphasis on the difficulty of convincing employees to deal with e-programs. Those employees perceive those programs as an enemy to them, which could take away their jobs. These findings are in the same line with Ndou (2004) who found that resistance to change is the biggest barrier to successful change to e-government. This author found also that employees are aware of changes in general and ICT applications in particular as they consider ICT would replace them and so affect their jobs. On the other hand, these findings disprove the findings of Schwester (2009) who advocates that employee resistance to change is not a barrier of e-government adoption, where e-government application may enhance work environments by freeing up employees to work on more critical aspects rather than working on more routine processes.

Records management was found to be as a challenge to e-government implementation by some interviewees. They emphasized that e-records have to be controlled and upheld by electronic ways to obtain the complete advantages of e-government. However, that is still away behind to be applied in the region. In addition, some participants pointed out that this challenge comes as a result from the fact that employees and managers are lacking understanding of the benefits of e-transactions. These findings support the results found by Almarabeh & AbuAli (2010) and Reffat (2006).

6.5. Political theme

The study findings pointed out that there are some political challenges facing e-government adoption in Hail region. These challenges are leadership and top management, legal and regulation issues, and funding issue. This section answers the research question: *What are the challenges for e-government services adoption in Hail City?*

The study findings indicated that leadership and top management are considered as a significant challenge to e-government adoption. Some participants pointed out that the top management support is a crucial element in the success of the implementation process of e-government services. The results of the case study and document analysis emphasized that the entire reliance on IT professionals to implement and lead such projects without the active participation of leaders. Therefore, if the role of the leadership is weak towards e-government implementation, then the project will fail and vice versa. However, some interviewees agreed that the e-government initiatives cannot begin without strong management and the lack of it will result in the failure of e-government program. These findings are in accordance with the research findings of Weerakkody, et al (2011), Alshehry & Drew (2010), Al-Shehry (2008), and Qaisar & Khan (2010), which indicate that the lack of leadership is a leading factor to an early failure of the e-government initiative in Saudi Arabia, Pakistan, and Qatar.

Moreover, some of the interviewees thought that motivations and support from the top management are necessary with the purpose of offering and assigning

adequate resources as well as disheartening resistance. This is in line with the results of Al-Azri, et al (2010) who found that 75% of participants believed that support and commitment from senior management are vital in order to offer and allocate adequate resources as well as discourage resistance.

Legal and regulation issues were viewed as an important challenge to e-government adoption process. Some interviewees indicated that current regulations and policies would be insufficient in addressing new types of internal and external interactions that result from e-government. For example, the policies of paper-based response that are seamlessly effective for paper documents usually prove to be poor for e-documents exchange; and finance devices for various organizations may necessitate substantial alterations. Hence, some interviewees pointed out that e-government implementation will necessitate regulations to protect the rights of beneficiaries who use online services. In addition, it was indicated that people should be aware of e-transactions policies. This proves the previous studies by Weerakkody ,et al, 2011; Almarabeh & AbuAli, 2010; Reffat, 2006; Ndou, 2004; Al-Fakhri, et al, 2008; Elsheikh, et al, 2008; Heeks, 2001; and Watts, 2001, who found that the existing regulations of governmental agencies are not applicable with the requirements of adopting e-government in most countries, where it could hinder the e-government adoption.

The study results showed that funding issue is a crucial challenge to e-government adoption process. Some participants highlighted that the e-government project is a huge project. In their opinion, organizations do not have the aptitude to adopt such a program, as it necessitates an enormous amount of money. The majority of participants, both managers and employees, declared that funding from the government is the most suitable solution for executing e-government in the country. They also stated that e-government scheme in Saudi organizations need a separate financial plan which should be controlled by a separate team. However, only two interviewees indicated that financial support is not an issue in implementing e-government projects in Hail. Thus, it could be said that as the majority of the participants believed that financial support is an

issue affecting the adoption of e-government projects, this issue would be considered by this study as a major challenge. Hence, these findings in accordance with the findings of Elsheikh, et al (2008), Eyob (2004), and AlSobhi, et al. (2009), who indicated that e-government initiatives are long period programs, hence, it requires long-term monetary support from the government. The financial resources must be assigned to emerging and handling systems, building up technical structures, and organizing programs and initiatives. On the other hand, these results disprove the findings of Al-Fakhri, et al. (2008), Weerakkody, et al (2011), and Alshehry & Drew (2010) who advocate that the lack of funding is not an issue in the implementation process of e-government services.

6.6. Chapter Summary

In summary, Hail region is still progressing in the second stage of providing e-government services. In addition, all challenges suggested by the literature are supported by the findings of this study to be key challenges affecting the adoption process of e-government services in Hail region.

Chapter Seven: Limitations and Implications

This chapter identifies some limitations that could be tackled in future research. In addition, it presents the methodological and theoretical implications that could help both fields.

7.1. Limitations

This section addresses the limitations of this research that need to be taken into consideration in future research.

As mentioned previously in Chapter 3, the methodology used for this research was a qualitative approach. However, since there is a lack of studies in the e-government context, this helped the author to understand and examine the implementation process in depth, to determine existing challenging factors, and point out some opportunities for e-government through comprehensive interviewing and observation. Moreover, qualitative research approaches assist in the generalization of soft, rich contextual information, connected with human and organizational matters. Though, there is often concern about the qualitative studies whether or not they can be generalized, particularly when the sample of a case study is relatively small.

In addition, the number of participating organizations would be another limitation in this study, where future research is encouraged to conduct more interviews and visit more organizations in the region to get in depth understanding of the challenges facing e-government implementation. Another limitation is that this study focuses on Hail region only, whereas future research could target other regions in Saudi Arabia to evaluate the regional e-government readiness broadly and examine the challenges and opportunities that these regions face in Saudi Arabia.

Furthermore, while the study concentrated on the sights of government employees, one could dispute that the findings embody only the perspectives of e-government service providers and consequently might be influenced by their own experience, background and attitude towards online services. Besides,

public sector employees are largely more eager to take part in this kind of research for the reason that they are more interested to deliver a positive image of their own organizations/agencies and departments. Hence, future research is encouraged to look at the challenging factors acknowledged in this study from a Saudi citizens' viewpoint. In addition, merging these two studies or viewpoints, where they will assist the authors to provide a more balanced perspective of regional e-government implementation in Saudi Arabia.

7.2. Implications

The research presents an original contribution to the literature by creating a conceptual model of regional e-government adoption in Saudi Arabia (as shown in Figure 2.7.1).

However, the main implications of this research to theory are as follow:

1- By viewing the e-government literature, this research provides a full summary of the e-government challenges by highlighting different factors related to four themes, (technological, social, organizational, and political), and offering a conceptual model.

2- Utilizing a research strategy to concentrate on emerging countries that are not in the higher phases of e-government, this research provides a comprehensive sight on recognizing the challenges and opportunities of e-government adoption for the benefit of similar nations.

3- This study is based on a single case study that has investigated, addressed and explained the regional e-government readiness in Saudi Arabia as well as the challenges and opportunities to the implementation process. Therefore, to obtain an obvious image of the phenomenon, a future research needs to be carried out. Furthermore, a mixed-method approach utilizing both qualitative and quantitative approaches would offer a deeper insight and understanding into the phenomenon under examination.

The main implications of this research to practice are as follow:

1- The significant results from the empirical case study indicate that the public sector organizations must be prepared to address several challenges in relation to the adoption of e-government services, which is deemed more complex.

2- It was obvious that emerging nations require better alignment of their national ICT strategies with different regional level of e-government projects. Close collaboration is needed between government organizations adopting e-services and third-party consultants and ICT providers assisting these organizations to make fruitful adoption.

3- A strong and up-to-date ICT infrastructure in all governmental organizations and agencies in Hail region is the basis of the implementation process and that require to be ready before hosting e-services. The weakness of ICT infrastructure is a crucial challenge for all e-government adoption phases.

4- Clear regulation, adoption strategies and standards with regard to the technologies that are utilized to support e-government will require to be acknowledged by the particular governments, and closer collaboration will need to be established between different regional agencies and central government to assist the smoother adoption of e-government.

5- This study might be as "a wakeup call" for Saudi government to concern about regional progress of implementing e-government services and tries to fasten the adoption process.

6- This study encourages the government to provide employees with the correct training facilities to be able to use e-government services. This would decrease resistance to change caused by believing that employees will lose their jobs once the e-government is established.

7- Training of top leadership and authority leaders within the public sectors is needed to comprehend and sustain vital considerations to the implementation and success of e-government projects in Saudi Arabia.

8- Recently, connections (Wasta) are a more noted challenge having been recognized in different places in Saudi Arabia. This study found, however, that its impact in e-government may not be strange to Saudi or to the implementation of e-government. Future studies are encouraged to find out if Wasta has an impact on the adoption of e-government in other Arabic nations or in other ICT schemes, even within Saudi Arabia.

Chapter Eight: Conclusion

E-government has the opportunity to significantly expand how government functions internally and how it provides services smoothly to its citizens. E-government is considerably more than an instrument for advancing cost-quality ratios in public services. It is a tool of improvement and an instrument to renovate government. Therefore, e-government is not principally about computerization of current processes, but about changing the method in which government carries out business and provides amenities.

However, e-government projects present many challenges if the public sector is to make use of the potential of ICT in carrying out its business. Nevertheless, e-government is a comparatively new investigation area. Accordingly, its phases, meaning, and necessities are all still exposed to discussion. In spite of the fast adoption of e-government, there is no general model that could be applicable in all nations. This is for the reason that each nation has its own conditions which reflect its environment, containing influences such as the technological, political, organizational and social systems which might impact the implementation of e-government in the target nation.

This research offered a literature review of e-government characteristics, comprising its definitions, phases, strategies, benefits and the differences of e-government progresses among three regions in Saudi Arabia such as Hail, Riyadh and Madinah. This paper also offered a context of e-government challenges and opportunities. The challenging factors were classified into four themes, including technological, social, organizational and political.

The originality of this study is represented in an exploratory case study to investigate key challenges and opportunities of regional e-government in Saudi Arabia. In addition, it looks at the current state of e-government readiness in Hail region as an example of regional e-government readiness in the country.

Given the overall empirical results in this research, it can be concluded that e-government progress is still slow in Hail region, where most of the government agencies in this region are categorized to be progressing in the second stage.

However, the comparison of e-government readiness between Hail, Riyadh and Madinah shows that Hail region is still away behind in the implementation of e-government services, while Riyadh and Madinah are generally classified to be progressing in the third stage (two-way service delivery).

The study also indicated that there were some challenges that would hinder the implementation process of e-government adoption in Hail region. These challenges were categorized as technological, social, organizational and political. Respondents highlighted that the technological challenges that could impact the implementation process are (IT standards, security, privacy, accessibility, ICT infrastructure, and interoperability). They also pointed out some social challenges including (awareness, transparency, e-literacy, trust, authentication, and culture). The results also showed some organizational challenges that could hinder the e-government adoption including (strategy, change management, resistance to change, and records management). In addition, some political challenges were found to be in the place where it impacts the implementation process of e-government in the region such as (leadership, legal and regulation issues, and funding issues).

The key findings also put emphasis on opportunities that could help the organizations in Hail region to advance its e-government services such as (improving management and decision making process, organizing government business process, increasing collaboration among public organizations, increasing productivity, reducing operation cost, enhancing ICT infrastructure, increasing the exchange of data between organizations, improving the efficiency, fastening the transaction process and response, and developing new skills for employees).

Overall, this paper could provide further research with knowledge about regional e-government readiness in Saudi Arabia. Researchers are encouraged to further investigate more challenges that could affect the process of implementing e-government services such as Wasta issues.

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Appendices

Appendix 1: Interview guide

Part 1: Information Sheet

THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Information sheet

Dear Sir,

E-government has become a popular focus of local and central government's efforts in many nations around the world. Saudi Arabia is a developing country that has implemented e-government services. Therefore, regional e-government readiness should be considered when such programs are adopted.

This study aims to evaluate the level of regional e-government readiness, investigate the challenges facing e-government adoption regionally and figure out what regional opportunities to improve its progress in developing e-government services.

In order to accomplish the desired goals, the researcher is conducting interviews with employees in different positions such as yourself, who are in a position to provide valuable information on the challenges that face e-government implementation as well as the state of e-services.

I would like to invite you to be part of this study, which will help the researcher to identify the challenges that regional cities encounter in implementing e-government. It will also help the Saudi government in the implementation process of e-government regionally. The interview will probably take 30 to 45 minutes. The interview will be taped in order to record information accurately. I assure you that the information gathered will be kept confidential along with the identity of the participant. Serious measures will be taken to insure the anonymity and confidentiality of the participant and the information collected. **Could I please ask you to complete the attached Consent Form prior to our interview?**

In order to find out more information about the research, the researcher or the supervisor, you can use the contact details provided below.

- **Contact details:**
  - o The researcher: Abdulrahman Aldhabaan. Email:
    asa27@students.waikato.ac.nz   Mobile no: (from 15/08/2011 to

30/11/2011) contact me on my Saudi mobile number +966 580937666 after that you can contact me on my New Zealand mobile number +64 02102960823.

- o Supervisor: Dr. Stuart Dillon. Email: stuart@waikato.ac.nz Phone: +64 7 838 4234

Thank you for your cooperation

Yours sincerely

Abdulrahman Aldhabaan

Part 2: Consent form

Waikato Management School
Te Raupapa

THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Regional E-government Readiness in Saudi Arabia:
Challenges and Opportunities
(The Case of Hail City)

<u>Consent Form for Participants</u>

I have read the **Information Sheet for Participants** for this study and have had the details of the study explained to me. My questions about the study have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I also understand that I am free to withdraw from the study at any time, or to decline to answer any particular questions in the study. I agree to provide information to the researchers under the conditions of confidentiality set out on the **Information Sheet**.

I agree to participate in this study under the conditions set out in the **Information Sheet** form.

Signed: _____

Name: _____

Date: _____

Researcher's Name: Abdulrahman Aldhabaan   **Contact No.** (NZ) +642102960823, (KSA) +966580937666   **Email:** a.aldhabaan@hotmail.com

Supervisor's Name: Dr. Stuart Dillon   **Contact No**. +64 7 838 4234   **Email:** Stuart@waikato.ac.nz

Part 3: Interview questions for the top managers:

1. In your opinion, do you think Hail Region needs to pursue e-government applications? If yes why?
2. In your opinion, what are the benefits for developing e-government services in Hail Region?
3. Can you think of any disadvantages in the implementation of e-government? If yes, explain?
4. Does your organization have its own ICT department? If no, who is managing ICT in your organisation?
5. Has the ICT department set a strategy for e-government adoption? Yes/ No How?
6. Is e-government development the responsibility of the local organization or the ministry?
7. What are the key goals of e-government strategy?
8. What do you think is required before adopting new ideas like e-government to your organization?
9. Can you describe the main barriers for e-government adoption that your organization faces?
10. What is the percentage of the yearly budget for e-government program in the organization?
11. Are the following systems used within your organization and how long are these systems being used? [Website; Intranet, Electronic services]?
12. Which communication channels are used for formal and informal communication (Use and Importance)? [Face to face; e-mail; telephone; mobile phone; fax; memo's; intranet; internet]?
13. Does your organisation offer training for personnel?
14. Is there any resistance to the e-government program?
15. How would you summarize the adoption process to date? (key events, episodes)
16. How are you planning to cope with the little awareness and motivation among some Saudis to utilize the new e-government initiatives?
17. Do you think culture has an impact on e-government implementation? If yes, how?
18. Can you think of any opportunities that could be exploited in your organisation?
19. What are the benefits derived from e-government adoption in your organization? (Indicate all that apply 1= Not important ,3= Normal   5= Very important)

E-government expected benefits	1	2	3	4	5
Improve management and support decision making process					
More organized government business process					
Increase collaboration among other public organization					
Increase organization productivity					
Reducing operation cost of services delivery					
Enhance the ICT infrastructure					

Increase the exchange of data between organization					
Improving the efficiency of government services					
Quick processing and response to citizen's needs and expectation					
Developing new skills and motivation for employees					
Others					

20. What are the barriers to e-government adoption in your organization? Please indicate for these following barriers (0= strongly disagree, 2= no opinion, 4= strongly agree).

Organizational Issues	1	2	3	4	5
Lack of top management support					
Unclear vision and management strategy					
Resistance to change from management and employees					
Records management failure					
Organizational structure					
Lack of coordination between departments					
Lack of reward systems					
Social issues					
Lack of awareness about e-government					
Negative attitude towards e-government					
Unreliable networks and communication					
Lack of IT training					
Lack of IT expertise					
Lack of employees with IT skills					
Lack of internet access					
Lack of transparency					
Low ICT literacy					
Lack of trust					
Disability of authentication					
Saudi culture impacts e-government adoption					
Others					
Technological issues					
Existing systems are incompatible and complex					
No integration across internal systems					
Lack of security rules, policies and privacy laws					
Threats from viruses, Hackers and Trojans.					
Developing website by unskilled staff					
Lack of standards for IT					
High cost of IT infrastructure					
Lack of accessibility					
Other					
Political issues					
Weakness of leadership					
Lack of funding					
Unclear regulations and laws					

Part 4: Questions for IT managers:

1. In your opinion can your organization offer services electronically to your clients? Yes/ No why?
2. Do you share knowledge electronically or manually with other government agencies?
3. If yes, describe the advantages and disadvantages?
4. If no, what are the major obstacles?
5. How the e-government project was promoted (e.g. advertising campaigns, promotional material or initiatives)?
6. Does your organization have intranet-based communication as a part of IT infrastructure? Yes or No

- If yes how important are the following intranet benefits to your organization?

Intranet Benefits	Yes	No
Improving the communication and coordination between employees within the organization		
Enhance the quality of decision making process in the organization management		
Reduce the costs and time of content development, duplication, distribution and usage		
Others		

7. Does your organizational top management have a clear vision and realize the significant of e-government project? Yes or No why?
8. How would you describe the IT infrastructure progress in your organisation?
   i. Very good progress.
   ii. Somewhat proper IT infrastructure progress.
   iii. Slow progress since the lack of commitment and support from top management, lack of in-house IT expertise and shortage of necessary funds.
   iv. Other ………………..
9. How would you describe the maturity and readiness of the IT infrastructure for the adoption of e-government? E.g. (High, medium, not mature enough) why?
10. What are the key problems of IT infrastructure in your organization that will impact negatively the adoption of e-government? For example
    i. Integration problems (e.g. integrating data residing in multiple databases throughout the organization, connecting the applications and processes within and between organization departments)
    ii. Unreliable networks and communication infrastructure.
    iii. The required technologic and applications for e-government adoption are not compatible with existing applications and systems in organisation due to their complexity.
    iv. Other …………
11. Do you think culture has an impact on e-government implementation? If yes, how?
12. How would you describe the qualification level of IT staff in your organisation?

13. How would you describe the IT training strategy that has been applied in your organisation?

i.   We have a clear vision for the importance of training strategy and top management support this vision.

ii.   We have set a training strategy plan for the organisation but not completely follow it due to lack of support from top management and employees.

iii. We have not set a training strategy plan in the organisation.

iv.   Others.

14. Are citizens involved in the process of redesigning your website or suggesting some changes to it?

15. What are the benefits derived from e-government adoption in your organization?
(Indicate all that apply 1= Not important ,3= Normal   5= Very important)

E-government expected benefits	1	2	3	4	5
Improve management and support decision making process					
More organized government business process					
Increase collaboration among other public organization					
Increase organization productivity					
Reducing operation cost of services delivery					
Enhance the ICT infrastructure					
Increase the exchange of data between organization					
Improving the efficiency of government services					
Quick processing and response to citizen's needs and expectation					
Developing new skills and motivation for employees					
Others					

16. It is expected that fear and trust issues arise when performing electronic transactions on the internet. How you plan to cope with this challenge to the adoption of e-government?

17. Can you think of any opportunities that could be exploited in your organisation?

18. What are the barriers to e-government adoption in your organization? Please indicate for these following barriers (0= strongly disagree, 2= no opinion, 4= strongly agree).

Organizational Issues	1	2	3	4	5
Lack of top management support					
Unclear vision and management strategy					
Resistance to change from management and employees					
Records management failure					
Organizational structure					
Lack of coordination between departments					
Lack of reward systems					
Social issues					
Lack of awareness about e-government					
Negative attitude towards e-government					

Unreliable networks and communication					
Lack of IT training					
Lack of IT expertise					
Lack of employees with IT skills					
Lack of internet access					
Lack of transparency					
Low ICT literacy					
Lack of trust					
Disability of authentication					
Saudi culture impacts e-government adoption					
Others					
Technological issues					
Existing systems are incompatible and complex					
No integration across internal systems					
Lack of security rules, policies and privacy laws					
Threats from viruses, Hackers and Trojans.					
Developing website by unskilled staff					
Lack of standards for IT					
High cost of IT infrastructure					
Lack of accessibility					
Other					
Political issues					
Weakness of leadership					
Lack of funding					
Unclear regulations and laws					

Part 5: Questions for the middle-level and lower level employees:

1. Have you taken any computer trainings provided by the organisation? If yes, How many? If no, why?
2. How would you describe your level of computer knowledge? [good- normal- poor]
3. In your opinion, what are the benefits for developing e-government services in Hail Region?
4. Can you think of any disadvantages in the implementation of e-government?
5. Are the following systems used within your organization and how long are these systems being used? [Website; Intranet, Electronic services]?
6. Which communication channels are used for formal and informal communication (Use and Importance)? [Face to face; e-mail; telephone; mobile phone; fax; memo's; intranet; internet]?
7. Do you share knowledge electronically or manually with other departments in your organisation?
8. How would you describe the IT infrastructure progress in your organisation?

v. Very good progress.
vi. Somewhat proper IT infrastructure progress.
vii. Slow progress since the lack of commitment and support from top management, lack of in-house IT expertise and shortage of necessary funds.
viii. Other ………………..

9. Does your organisation offer trainings for personnel?
10. Do you think culture has an impact on e-government implementation? If yes, how?
11. Do you think e-government program reduces job opportunities?
12. Can you describe the main barriers for e-government adoption that your organization faces?
13. Can you think of any opportunities that could be exploited in your organisation?
14. What are the benefits derived from e-government adoption in your organization? (Indicate all that apply 1= Not important ,3= Normal   5= Very important)

E-government expected benefits	1	2	3	4	5
Improve management and support decision making process					
More organized government business process					
Increase collaboration among other public organization					
Increase organization productivity					
Reducing operation cost of services delivery					
Enhance the ICT infrastructure					
Increase the exchange of data between organization					
Improving the efficiency of government services					
Quick processing and response to citizen's needs and expectation					
Developing new skills and motivation for employees					
Others					

15. What are the barriers to e-government adoption in your organization? Please indicate for these following barriers (0= strongly disagree, 2= no opinion, 4= strongly agree).

Organizational Issues	1	2	3	4	5
Lack of top management support					
Unclear vision and management strategy					
Resistance to change from management and employees					
Records management failure					
Organizational structure					
Lack of coordination between departments					
Lack of reward systems					
Social issues					
Lack of awareness about e-government					
Negative attitude towards e-government					
Unreliable networks and communication					
Lack of IT training					
Lack of IT expertise					
Lack of employees with IT skills					
Lack of internet access					
Lack of transparency					
Low ICT literacy					
Lack of trust					
Disability of authentication					
Saudi culture impacts e-government adoption					
Others					
Technological issues					
Existing systems are incompatible and complex					
No integration across internal systems					
Lack of security rules, policies and privacy laws					
Threats from viruses, Hackers and Trojans.					
Developing website by unskilled staff					
Lack of standards for IT					
High cost of IT infrastructure					
Lack of accessibility					
Other					
Political issues					
Weakness of leadership					
Lack of funding					
Unclear regulations and laws					

Appendix 2: List of the questions assigned to each employee.

Question	Top manager	IT manager	Medium to low level employee
Do you think Hail region needs to pursue e-government applications? If yes why?	X		
What are the benefits for developing e-government services in Hail region?	x		
Can you think of any disadvantages in the implementation of e-government? If yes, explain?	X	x	X
Does your organization have its ICT department? If no, who is managing ICT in your organization?	X		
Has the ICT department set a strategy for e-government adoption? Yes/No How?	X		
Is e-government development the responsibility of the local organization or the ministry?	X		
What are the key goals of e-government strategy?	X		
What do you think is required before adopting new ideas like e-government to your organization?	X		
Can you describe the main barriers for e-government adoption that your organization faces?	X	X	X
What is the percentage of the yearly budget for e-government program in the organization?	X		
Are the following systems used within your organization and how long are these systems being used? {face to face, email, telephone, fax, memo's, internet, and intranet}?	X		X
Does your organization offer training for personnel?	X		X
Is there any resistance to the e-government program?	X		
How would you summarize the adoption process to date? (key events, episodes)	X		
How are you planning to cope with the little awareness and motivation among some Saudis to utilize the new e-government initiatives?	X		
Do you think culture has an impact on e-government implementation? If yes, how?	X	X	X
Can you think of any opportunities that could be exploited in your organization?	X	x	X
What are the benefits derived from e-government adoption in your organization? (Likert scale)	X	x	X
What are the barriers to e-government adoption in your organization? (Likert scale)	X	x	X
In your opinion can your organization offer services electronically to your clients? Yes/ No why?		X	
Do you share knowledge electronically or manually with other government agencies?		X	X
How the e-government project was promoted (e.g.		X	

advantages campaigns, promotional materials or initiatives)?			
Does your organization have intranet-based communication as a part of IT infrastructure?		X	
Does your organizational top management have a clear vision and realize the significant of e-government project? Yes or No, why?		X	
How would you describe the IT infrastructure progress in your organization?		X	X
How would you describe the maturity and readiness of the IT infrastructure for the adoption of e-government?		X	
What are the key problems of IT infrastructure in your organization that will impact negatively the adoption of e-government?		X	
How would you describe the qualification level of IT staff in your organization?		X	
How would you describe the IT training strategy that has been applied in your organization?		X	
Are citizens involved in the process of designing your website or suggesting some changes to it?		X	
It is expected that fear and trust issues arise when performing electronic transactions on the internet. How you plan to cope with this challenge to the adoption of e-government?		X	
Which communication channels are used for formal and informal communication (Use and Importance)? [Face to face; e-mail; telephone; mobile phone; fax; memo's; intranet; internet]?			X
Have you taken any computer trainings provided by the organization? If yes, How many? If no, why?			X
How would you describe your level of computer knowledge? (good-normal-poor)			X
Do you think e-government program reduce job opportunities?			X

Appendix 3: Lists of codes and themes along with key phrases or words

Codes (concepts)	Examples of Key Words/ Phrases
IT standards	"We have a number of IT standards related difficulties", "IT standards are important"
Security	"Since the data security is still terribly weak", "Which naturally necessitate an impressive level of security", "Develop it with the intention of guaranteeing secure electronic transactions", "Protecting information from being penetrated", "Data relating to personal issues about citizens and employees".
Privacy	"Lack of ability to comprise the signing of documents, letters and models", "Encourage employees to concern about privacy", "Awareness among the employees in the organization about e-transactions privacy".
Accessibility	"E-government services should be accessible", "Accessibility not only in Hail region but in Saudi Arabia forms a challenge", "Accessibility is one of the main factors", "What we would do to approach these services", "People in those places can access to the services".
ICT infrastructure	"We are lacking ICT infrastructure in the country", "As a result of the lack of ICT amenities", "The long period of developing infrastructure in our country", "There is no basic IT infrastructure in our organization", "The weakness of ICT infrastructure".
Interoperability	"All systems that are run in our organizations are interoperable", "And this as I see could lead to the lack of interoperability", "There are different systems that are not interoperable".
Awareness	"Lack of the full awareness", "Their knowledge of electronic government is almost non-existent", "Employees are not familiar with the benefits of e-government", "E-government initiative necessitates sufficient awareness", "To be aware of e-government services", "In order to have the required understanding and ability to deal with change".
Transparency	"They could be valued means for transparency", " Away from being transparent in their presence", "I believe it is really challenging for organizations to be transparent in the whole county."
E-literacy	"Electronic literacy is still low", "Are unable to

	use computers", "Where many of them are computer illiterate", "Employees who are computer illiterate".
Trust	"Cannot trust these websites at this phase", "People still do not trust e-services", "We may trust the e-services", "How can I trust the Internet".
Authentication	"Authenticity in such systems will be extremely compromised", "We certainly need an identity management solution", "A mechanism to verify those users online".
Culture	"Culture does impact e-government", "Wasta in the society is used in everything", "Costumes and traditions hinder the adoption of e-government", "The wasta is still dominating at work", "The tribal system", "I do not see that culture is a challenge".
Strategy	"Adoption within its strategy", "Re-designing procedure required to get the desired advantages", "Organizations must have clear strategies", "We have a good scheme and tactic", "A gap between outlining and execution".
Change management	"Change management in Hail's organizations", "Change management in an organization", "Change management is required".
Resistance to change	"Organizations may need to reduce the employee number", "Employees and citizens might resist the change to the new programs", "This is due to resistance to change from the employees", "Many employees who perceive such projects as an enemy to them", "Could take away their jobs"
Records management	"E-records management in the government agencies", "In the region are lacking records management policy", "Skills of managing e-records".
Leadership and top management	"Because of the poor leadership", "Requires strong leadership", "Executing these decisions", "The leadership provides us with motivations", "Lack of the top management support", "There were dead people".
Legal and regulation issues	"Aware of those regulations", "Their current laws and establish new ones", "Adopt the new regulations", "Change all their regulations and laws".
Funding issue	"Has its own financial plan", "The assigned budget", "The financial support", "Needs a great amount of money", "The financial issue is

	a main challenge", "Unlimited monetary support".

Appendix 4: Examples of transcribed interviews

Part 1: An example of a transcribed interview with a top manager

1. **In your opinion, do you think Hail Region needs to pursue e-government applications? If yes why?**

Answer 1: Yes. Because Hail is one of the kingdom' cities and the government has recommended to develop all regions, therefore, we can see that applying e-services is going to be equaled in all regions. Another reason is demographic position, and a lack of transportation between towns that belong to Hail region which count 15. Also the number of villages that count more than 400 hundreds will need these e-services that could facilitate them.

2. **In your opinion, what are the benefits for developing e-government services in Hail Region?**

Answer 2: I think that there are a lot of benefits that could be seen from the implementation of e-government programs in the country. You can say that this program may fasten the process of conducting transactions, reduce corruption. It may also reduce the travel expenses where people need to travel to the government departments to get their needs done.

3. **Can you think of any disadvantages in the implementation of e-government? If yes, explain?**

Answer 3: I don't see that there are many disadvantages of this phenomenon, but they are very few things to be said like the loss of person to person interaction which is really valuable to many people. For example, when we move our services to electronic based systems, this movement would lose the person to person interaction. Also, we used to work with the traditional way, which is based on paper-based work, for tens of years and this has been applied in all the government agencies. However, in the case of electronic government, these processes will be declined and if we want to go back to any transaction, for example, let's say 10-year old transaction; I don't know how we are going to do so.

4. **Does your organization have its own ICT department? If no, who is managing ICT in your organisation?**

Answer 4: Yes we do. We have our own ICT department in the organization and it is by some means going well. But I'm expecting more efforts from them to develop our work environment by creating and adopting some good ideas.

5. **Has the ICT department set a strategy for e-government adoption? Yes/ No How?**

Answer 5: Sure it has. That was done by making frequent meetings by this department staff and me.

6. **Is e-government development the responsibility of the local organization or the ministry?**

Answer 6: The responsibility for transforming to electronic means is on the organization itself. Therefore, we always endeavor to promote our services that we have been good at among others in different regions. But, for the ministry, the implementation of e-government services is not one of the ministry's priorities, however, it is an effort made by the organization itself.

7. **What are the key goals of e-government strategy?**

Answer 7: There are 6 key goals of our e-government program. The first goal is activating the role of strategic partnership between the organization and its beneficiaries through support and care for their interests. The second goal is developing electronic services to our beneficiaries. The third goal is taking part of the contribution to enhance and develop the Hail society. The fourth goal is developing the internal work environment of the organization electronically. The fifth goal is developing the external relationships with other organizations in the region. The last goal is achieving financial balance to continue the development process of our e-government services.

8. **What do you think is required before adopting new ideas like e-government to your organization?**

Answer 8: Plan, making a plan is the most important factor to be considered before doing any task. Successful plans always lead to successful adoption. We should realize what inputs we have and what we need to be able to implement such projects.

9. **Can you describe the main barriers for e-government adoption that your organization faces?**

Answer 9: There are a lot of barriers to mention but I think the most important obstacle is the lack of the full awareness about e-government by citizens and employees which means that their knowledge of electronic government is almost non-existent. We are a traditional society which means that even employees are away from reading about e-government. Then, it is not all citizens qualified to use electronic government services, especially those who do not have computers or land lines. Also, lack of ability to comprise the signing of documents, letters and models is an important barrier to switch from paper work to electronic ways.

10. What is the percentage of the yearly budget for e-government program in the organization?

Answer 10: In fact, I can say that the assigned budget to develop e-government services in our organization is about 10% from the total budget, because we need to build new schools, recruit more employees and teachers. Therefore, 10% comparing to these needs is considered high percentage for the electronic development to keep up with all regions.

11. Are the following systems used within your organization and how long are these systems being used? [Website; Intranet, Electronic services]?

Answer 11: we use a website that was built 3 years ago, and we have a central service to communicate with other departments within the organization and we are now in the process of applying email system as a means of communication between departments to be organized in a formal way.

12. Which communication channels are used for formal and informal communication (Use and Importance)? [Face to face; e-mail; telephone; mobile phone; fax; memo's; intranet; internet]?

Answer 12: Face to face way of communication is the formal way that it is still used in the organization and I could say that it is used also in most the organizations in Hail region. Following this, telephone and fax are used for our internal and external communication. However, the other systems like (email) are being established and it will be effective soon.

13. Does your organisation offer training for personnel?

Answer 13: Yes sure, there are many training programs that we have offered to our employees whether administrative or technological training programs to enhance our employees' capabilities to be excellent.

14. Is there any resistance to the e-government program?

Answer 14: Actually, to be honest with you, we face a difficulty of convincing our employees to deal with e-programs that we have in our organization. This is the reason behind the slow progress of implementing e-government services. There are many employees who perceive such projects as an enemy to them, which could take away their jobs. And we still offer them with lectures and programs, which we try through them, to make them aware of the e-government services.

15. How would you summarize the adoption process to date? (key events, episodes)

Answer 15: I have now been administering this organization for two years and when I came to it, there was only a simple website that provides only information. However, since two years till now I could say that I have succeeded in developing the electronic work in this organization. Now we offer many e-services to our beneficiaries and we succeeded. So, I could say that the development process is quite good and we promise our beneficiaries to provide satisfactory e-services soon.

16. How are you planning to cope with the little awareness and motivation among some Saudis to utilize the new e-government initiatives?

Answer 16: I would say that this is an important matter for us and we endeavour now to educate the employees before the beneficiaries through offering lectures as I said previously. In addition, we offer some training sessions that help them to be aware of e-government services. However, for citizens we are thinking of distributing brochures that contain information about e-government and its benefits to enhance the Hail society. Furthermore, we are intending to inhibit people to visit our organisation for the purpose of interacting with us electronically.

17. Do you think culture has an impact on e-government implementation? If yes, how?

Answer 17: I think yes, culture does impact e-government implementation in Saudi Arabia generally and Hail region specifically because people here in Saudi Arabia prefer face to face way of communication at work. Moreover, the oral culture in the country is

a very popular communication method where people still use oral communication rather than written or type ways.

18. Can you think of any opportunities that could be exploited in your organisation?

Answer 18: There are a lot of e-government opportunities but I cannot mention them all. I will mention two of them as examples. For instance, fast communication between employees within the organization and reducing efforts in achieving transactions are the two advantages.

Part 2: An example of a transcribed interview with IT managers:

1. **In your opinion can your organization offer services electronically to your clients? Yes/ No why?**

Answer 1: In fact, yes. As you can see that we have many services that we could offer for our employees and students up to now, and we thank God.

2. **Do you share knowledge electronically or manually with other government agencies?**

Answer 2: I regret to say that we still use the old system, although we follow the most successful ministry in the implementation of electronic transactions.

3. **If yes, describe the advantages and disadvantages?**

Answer 3: In my opinion, the most important benefit is to facilitate routine government procedures in the government departments which could provide citizen access to the services provided by this organisation or others in the possible simplest way to save time. Another benefit is giving every citizen his/her rights. For example, I may have to go to X department to finish something and I assume that I provide all the requirements for this transaction to be done. And then it comes to personal issues Y employee tries to delay it or decline it for no reasons. I tell that because we always receive many complaints regarding this issue. However, the use of e-government will eliminate this matter and there will be strong sponsorship on the public sector employees.

There is also another important advantage of reducing the pressure on government agencies by the citizens and the fighting against the administrative slack. Also, it facilitates the citizens of Hail with the services offered by the ministries where all these ministries are located in Riyadh City.

- **What are the disadvantages of e-government?**

Currently, I cannot think of any. But I think that e-government benefits don't let us think of the other side of it.

4. **If no, what are the major obstacles? (no need to answer)**
5. **How the e-government project was promoted (e.g. advertising campaigns, promotional material or initiatives)?**

Answer 5: Initiatives were the main promotion tool to our e-government project.

6. **Does your organization have intranet-based communication as a part of IT infrastructure?**

Answer 6: Yes.

- **If yes how important are the following intranet benefits to your organization?**

Intranet Benefits	Yes	No
Improving the communication and coordination between employees within the organization		
Enhance the quality of decision making process in the organization management		
Reduce the costs and time of content development, duplication, distribution and usage		
Others		

7. **Does your organizational top management have a clear vision and realize the significant of e-government project? Yes or No   why?**

Answer 7: Yes they do have a clear vision, but it is not applied in our organization for some reasons that I couldn't mention.

8. **How would you describe the IT infrastructure progress in your organisation?**

Answer 8: Somewhat proper IT infrastructure progress.

9. **How would you describe the maturity and readiness of the IT infrastructure for the adoption of e-government? E.g (High, medium, not mature enough) why?**

Answer 9: I would say that the readiness of IT infrastructure is medium and I am not saying that it is good or bad. This is because the lack of the top management support. When we always requested our needs to promote our services, there were dead people. We didn't find any collaboration from the responsible people.

10. **What are the key problems of IT infrastructure in your organization that will impact negatively the adoption of e-government? For example**

Answer 10: Integration problems (e.g. integrating data residing in multiple databases throughout the organization, connecting the applications and processes within and between organization departments).

11. Do you think culture has an impact on e-government implementation? If yes, how?

Answer 11: Sure, culture has an impact on e-government implementation. You can see the wasta is still dominating at work, and the tribal system has a significant role in doing so.

12. How would you describe the qualification level of IT staff in your organisation?

Answer 12: I am really sick of this matter. How come the IT staff in our organization, unfortunately, doesn't have high level of IT skills and this is because that the salaries they offered to attract the technical competencies are very simple and not feasible.

13. How would you describe the IT training strategy that has been applied in your organisation?

     v.   We have a clear vision for the importance of training strategy and top management support this vision.

     vi.   We have set a training strategy plan for the organisation but not completely follow it due to lack of support from top management and employees.

14. Are citizens involved in the process of redesigning your website or suggesting some changes to it?

Answer 14: I'm certainly one of the most supporters to involve beneficiaries in that. It is a good feeling when you see people share you the development of something. This reflects their high level of care about our progress. So, I'm absolutely happy to encourage them to do so.

15. What are the benefits derived from e-government adoption in your organization? (Indicate all that apply 1= Not important ,3= Normal   5= Very important)

E-government expected benefits	1	2	3	4	5
Improve management and support decision making process					
More organized government business process					
Increase collaboration among other public organization					
Increase organization productivity					
Reducing operation cost of services delivery					
Enhance the ICT infrastructure					
Increase the exchange of data between organization					
Improving the efficiency of government services					

Quick processing and response to citizen's needs and expectation					
Developing new skills and motivation for employees					
Others					

16. It is expected that fear and trust issues arise when performing electronic transactions on the internet. How you plan to cope with this challenge to the adoption of e-government?

Answer 16: We are making a lot of efforts to deal with this issue. We have endeavored to spread the awareness of citizens to deal with e-services. We have encourages our students to help in that process by educating their parents and families to be familiar with e-services. With the cooperation with our staff and lecturers, we have offered some articles on e-government topics, where by this means we hope to encourage our society to be aware of e-services and then trust us. This is basically what we have been doing so far, and there are a lot to do in the future.

17. Can you think of any opportunities that could be exploited in your organisation?

Answer 17: I would like to keep the answer for myself. If there are opportunities, I'm the one who would like to exploit them and expose them under my contributions.

18. What are the barriers to e-government adoption in your organization? Please indicate for these following barriers (0= strongly disagree, 2= no opinion, 4= strongly agree).

Organizational Issues	1	2	3	4	5
Lack of top management support					
Unclear vision and management strategy					
Resistance to change from management and employees					
Records management failure					
Organizational structure					
Lack of coordination between departments					
Lack of reward systems					
Social issues					
Lack of awareness about e-government					
Negative attitude towards e-government					
Unreliable networks and communication					
Lack of IT training					
Lack of IT expertise					
Lack of employees with IT skills					
Lack of internet access					
Lack of transparency					

Low ICT literacy					
Lack of trust					
Disability of authentication					
Saudi culture impacts e-government adoption					
Others					
Technological issues					
Existing systems are incompatible and complex					
No integration across internal systems					
Lack of security rules, policies and privacy laws					
Threats from viruses, Hackers and Trojans.					
Developing website by unskilled staff					
Lack of standards for IT					
High cost of IT infrastructure					
Lack of accessibility					
Other					
Political issues					
Weakness of leadership					
Lack of funding					
Unclear regulations and laws					

Part 3: An example of a transcribed interview with middle/low level employee

1. **Have you taken any computer trainings provided by the organisation? If yes, How many? If no, why?**

Answer 1: Yes I have taken 3 training programs. 2 training programs were offered by the organization and one was by my own money.

2. **How would you describe your level of computer knowledge? [good- normal- poor]**

Answer 2: I can say normal as the technology is getting advanced day after day but comparing to the level of my colleagues I would say that my level is good.

3. **In your opinion, what are the benefits for developing e-government services in Hail Region?**

Answer 3: My point of view is that if e-government is applied, then wasta is going to be something from the past. I also think that e-government will help citizens to get their needs from home. For me as an employee, it will add to me new skills whether technical skills or administrative ones.

4. **Can you think of any disadvantages in the implementation of e-government?**

Answer 4: I don't see that there is even one disadvantages of e-government at least this is my own opinion. I am really optimistic of this project.

5. **Are the following systems used within your organization and how long are these systems being used? [Website; Intranet, Electronic services]?**

Answer 5: we have our own website for 3 years but it wasn't a priority of our organization. Therefore, the progress was slow to develop our website to be as it is now. But we have some electronic services that can classify us in the advanced group of e-government services in Saudi Arabia. We have also used intranet system for if I'm not mistaken 2 to 3 years.

6. **Which communication channels are used for formal and informal communication (Use and Importance)? [Face to face; e-mail; telephone; mobile phone; fax; memo's; intranet; internet]?**

Answer 6: we use face to face as a formal way of communication and we also use fax.

7. **Do you share knowledge electronically or manually with other departments in your organisation?**

Answer 7: We still use the normal way and we need some time to be transformed to the electronic way.

8. **How would you describe the IT infrastructure progress in your organisation?**

Answer 8: Slow progress since the lack of commitment and support from top management, lack of in-house IT expertise and shortage of necessary funds.

9. **Does your organisation offer trainings for personnel?**

Answer 9: Yes they do. But you need to know someone from the committee who are responsible for selecting limited number of employees for those training programs. Otherwise, you won't get trained in any program.

10. **Do you think culture has an impact on e-government implementation? If yes, how?**

Answer 10: Of course, culture impacts every aspect of our lives. However, in the context of e-government I think that costumes and traditions hinder the adoption of e-government services. For example, we still rely on wasta to get our needs. So, wasta in my opinion is dilemma in our society that couldn't be solved easily. The problem is I myself depend on wasta in everything I want even I tell you that wasta is a problem and that because I live in a society depends on that.

11. **Do you think e-government program reduces job opportunities?**

Answer 11: mmm, I think it is really hard to answer this question. This may reflect my attitude towards this project. Look, I understand the advantages of e-government will really make easy for me to get my need as a citizen. But in the contrary, the government its self may get rid of me at any time because of the technology that will take a place of some employees. You now can analyse what I am saying.

12. **Can you describe the main barriers for e-government adoption that your organization faces?**
Answer 12: As I said before, wasta will hider e-government implementation and lack of knowledge also about this project. Managers that are old will impact this project where they will still hold the old processes as they have been experts in the old systems.

13. **Can you think of any opportunities that could be exploited in your organisation?**
Answer 13: I'm sorry nothing new I could add in this respect.

14. **What are the benefits derived from e-government adoption in your organization? (Indicate all that apply 1= Not important ,3= Normal 5= Very important)**

E-government expected benefits	1	2	3	4	5
Improve management and support decision making process					

More organized government business process					
Increase collaboration among other public organization					
Increase organization productivity					
Reducing operation cost of services delivery					
Enhance the ICT infrastructure					
Increase the exchange of data between organization					
Improving the efficiency of government services					
Quick processing and response to citizen's needs and expectation					
Developing new skills and motivation for employees					
Others					

15. **What are the barriers to e-government adoption in your organization? Please indicate for these following barriers (0= strongly disagree, 2= no opinion, 4= strongly agree).**

Organizational Issues	1	2	3	4	5
Lack of top management support					
Unclear vision and management strategy					
Resistance to change from management and employees					
Records management failure					
Organizational structure					
Lack of coordination between departments					
Lack of reward systems					
Social issues					
Lack of awareness about e-government					
Negative attitude towards e-government					
Unreliable networks and communication					
Lack of IT training					
Lack of IT expertise					
Lack of employees with IT skills					
Lack of internet access					
Lack of transparency					
Low ICT literacy					
Lack of trust					
Disability of authentication					
Saudi culture impacts e-government adoption					
Others					
Technological issues					
Existing systems are incompatible and complex					
No integration across internal systems					
Lack of security rules, policies and privacy laws					
Threats from viruses, Hackers and Trojans.					
Developing website by unskilled staff					
Lack of standards for IT					

High cost of IT infrastructure					
Lack of accessibility					197
Other					
Political issues					
Weakness of leadership					
Lack of funding					
Unclear regulations and laws					