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Investigating Information Trust, Professional Ethics and Risk When Embracing E-government

An Empirical Study of Kingdom Of Saudi Arabia (KSA)

A Doctoral Thesis submitted in Partial Fulfilment of the Award of Doctor of Philosophy

By

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Abstract

In an attempt to establish more efficient and transparent governmental services, manual systems of government across the globe are being transferred to e-government systems, including the Kingdom of Saudi Arabia (KSA). However, this transformation, and especially ensuring user acceptance of e-government, poses a number of challenges. Against this backdrop, the current work examines issues that are related to information trust, professional ethics, and the risks incurred in embracing an e-government. This was carried out based on three Saudi Arabian organisations namely the Ministry of Interior; the Ministry of Communication and Information Technology; and King Abdul-Aziz City for Science and Technology. Qualitative methods was adopted for both data collection and analysis based on semi-structured interviews and questionnaires. The data were analysed using thematic analysis to establish perceptions and behavioural patterns of e-government systems among both government officials and general users. A technological gap was identified as the core impediment to widespread implementation and user acceptance of e-government in KSA. It was established that governmental success in ensuring the system is resilient against data loss and hacking, and habitual adoption of checking mechanisms, can lead towards improved implementation of e-government, along with its utilisation throughout KSA. This research contributes a research model, informed by institutional theory, of factors affecting the adoption of e-government from both employees and citizens' perspectives (as evident within KSA). It responds to calls from other Information Systems researchers to study e-government by conducting an in-depth field investigation using qualitative research. In doing so, it addresses issues related to information trust, professional ethics and risk in e-government implementation.

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Dedication

The work is dedicated to my parents, Hamad Alammar and Hailah Alsweyah, who have always encouraged and supported me throughout my life. Their help and enduring love, particularly of my mother, who died during the period of my research, provided with the requisite incentive and encouragement to complete my thesis.

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List of abbreviations

C	Citizen of Saudi Arabia
CIB	Control and Investigation Board
CIO	Chief Information Officer
CITC	Communication and Information Technology Commission
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
ICT	Information Communication Technology
IMF	International Monetary Fund
IS	Information System
KACST	King Abdul-Aziz city for science and Technology
KSA	Kingdom of Saudi Arabia
MCIT	Ministry of communication and Information Technology
MOI	Ministry of interior
NACC	National Anti-corruption Commission
NOGS	Non-Government Organisations
OIC	Organisation of Islamic Cooperation
SACB	Saudi Arabian Cultural Bureau
SaudiNIC	Saudi Network Information Centre
SMG	Seoul Metropolitan Government
UAE	United Arab Emiratis
UN	United Nation

Chapter 1: Introduction

1.1 Research motivation

Recent developments in Information Communication Technology (ICT) and mobile communication technology in the Kingdom of Saudi Arabia (KSA) have opened up new opportunities for improving government standards regarding credibility and performance, with the view to fulfil the need for a more open system of government (Al-Azri, et al, 2010). Albasher (2016) has recommended future research, which could explore and determine any further effects of trust, professional ethics and risk on e-government implementation within Saudi context.

An example of the implementation of such as system is the neighbouring country United Arab Emirates (UAE). The UAE is one of the most rapidly developing countries in the Middle East in terms of the implementation and adoption of e-government. Shaikh Mohammad Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE, has officially stated that any government officers who failed to transfer the manual system of government to one of e-government will be relieved of their posts by the end of the third quarter of 2015 (Gulf news, 2015). This resulted in an increase in the process of the transfer towards e-government, but it has also resulted in a hasty implementation, and system crashes due to a failure to recognise errors.

Al-Khouri (2013) states that the Saudi government is frequently influenced by the decisions made by the UAE government, subsequently adopting identical approaches to achieve similar results, and thus ensure structural harmony. It is

therefore, plausible that, in the near future, the Saudi government will place additional pressure on government departments and officers, in order to hasten the transformation to comprehensive e-government.

The absence of any framework for guidance, along with the provision of a roadmap, are likely to lead to errors and incompetence, thereby creating an inability to build and operate e-government to the sorts of standards that would be required in other parts of the world of e-government. Therefore, the emerging need for a structured implementation and adoption model for e-government concerning issues of trust, professional ethics and risk in KSA served as the primary motivation for this current study.

1.2 Background of the research problem

It is currently imperative for governments to offer their services in a more accessible and transparent manner (Chun, et al 2010, Abdulkareem, 2015). Governments need to adopt advanced methods for meeting the growing demand for service transparency and ease of accessibility, along with suppressing redundant reporting in the current government service system (Nkohkwo and Islam, 2013). E-government is established based on the need for the development of information and communication technologies (Al-Azri, et al, 2010). Al-Khouri (2013) submitted that e-government connects to the public via online media, such as web portals and client-based server systems. Both the sharing and delivery of data by e-government is undertaken electronically, thus reducing physical effort and the need for transport to physically access government services.

Belanche et al. (2012) state that the number of inhabitants reveals the disconnection between the population of KSA and government services unaware of potentially beneficial government interventions. One of the prime aims of e-government is to narrow this gap, thus bringing the population closer to the government, raising their awareness of the services offered, along with the ways in which they are able to benefit (Al-Maghrabi et al, 2011). The open approach of the e-government system enables government officials to reach more of the population at once, as all communications are undertaken electronically and messages can be communicated simultaneously by means of client servers (Al-Busaid and Weerakkody, 2011). Thus, the utilisation of electronic methods for e-government can help transform the current manual service delivery model to one that is online. However, despite the positive indications of the e-government system in theory, its implementation contains a number of pronounced challenges and issues that must be addressed prior to its adoption at the national level (Olusoyi, 2013; Yildiz and Saylam, 2013; Kramer, 2015).

The KSA is ranked ninth among the list of countries, which are vulnerable to attack over the web, during online purchases or transactions (Al-Harby 2010). In addition, cases of cyber fraud and theft have also risen considerably over recent years, leading to security concerns in relation to the implementation of e-government (Rosa et al, 2013). Basamh et al. (2014) further noted that a lack of appropriate knowledge and the poor level of skills among the KSA government officials handling the e-government systems contributes to the increase in vulnerability of online systems through data leakage, which can result into compromise of privacy, leading to potential financial loss. Thus, the susceptibility

of the current e-government model makes it less attractive to the public. Accordingly, people ignore the importance of the e-government models and still carry out their routines and functions using the traditional manual approach. The population does not trust e-government due to information theft and frauds (Al-Jamea, 2012). Against this backdrop, there is the need for the design of a system that is more efficient, technically sound, and less vulnerable to external threats which has the capability to improve public trust and e-government acceptance rate thereby increasing the overall potential of implementing e-government systems at a national scale (Al-Azri et al., 2010).

1.3 Research Aims

The primary aim of the current study is to investigate the major challenges and risks associated with the implementation of e-government in the Kingdom of Saudi Arabia with the view to highlight factors hindering its adoption and which can degrade the overall efficiency of e-government system. The aim also entail the investigation of a number of mitigating measures that encapsulates professional ethics, information trust, risks towards the implementation of an effective e-government system. This will lead to the development of a comprehensive model that is capable of aligning the role of government in establishing an e-government platform that takes user's expectations and needs into consideration.

1.4   Research objectives

1. Allied to the above central aim are the following specific objectives: To investigate the perceptions of both employees with government organisations

and citizens regarding information trust, professional ethics and risk in relation to the use of e-government in KSA.

2. To identify and recommend a sustainable and effective model to be adopted and implemented, in order to promote information trust, professional ethics, along with risk prevention and mitigation in the implementation of e-government in KSA.

3. To provide recommendations to assist the Saudi government in dealing with information trust, professional ethics and issues related to risk concerning the implementation and management of its e-government, along with the delivery of e-services.

1.5 Research questions

To achieve the research objectives, this study will address the following questions:

1. What are the major challenges encountered during the implementation of e-government throughout governmental departments in KSA?

2. What are the perceived risks of acceptance of e-government based on the views and perception of users in KSA?

3. What is the perception of government organisations and citizens with regard to information trust, professional ethics and risk in the use of e-government in KSA?

4. What are the socio-cultural barriers affecting the acceptance of e-government in KSA?

5. What measures can be taken by the Saudi government to align e-government services with users' expectations and needs?

1.6 Thesis structure and organisation

In order to achieve the research objectives and provide answers to the set of research questions posed in section 1.5, the study is organised into eight chapters, as illustrated in Figure 1.1. In chapter 2, a review of the extant literature on e-government is presented. This provides the "window" through which the current study is viewed, laying the foundation for the establishment of the gap in knowledge, which the current work seeks to address. Background information related to KSA regarding the challenges of e-government is provided in Chapter 3. Chapter 4 outlines the research methodology adopted, for this study. Chapters 5 and 6 detail the data collection process including results and findings. In Chapter 7, a detailed discussion of the overall findings from the research is presented. Finally, Chapter 8 outlines the recommendations and conclusions of the study, including the study's main contribution, and its limitations, and suggestions for further work. An elaborate description of the content of each chapter is detailed below:

Chapter 2: Literature review

This chapter forms a discussion of the works related to the subject being studied, thus establishing the way in which it will fit into the existing body of knowledge. This chapter includes works enabling an evaluation and analysis, in due course, to determine whether the current study relates to, or diverges from, the findings of previous work. It also includes an analysis of relevant models and theories related to information trust, professional ethics and risk in embracing e-government.

Chapter 3: The research context (KSA)

This chapter focuses on the Saudi context of the implementation of e-government, including the need to undertake measures to formulate appropriate guidelines and framework for developing e-government in KSA. There is also an analysis of the ICT structure in KSA.

Chapter 4: Research methodology

This chapter outlines, and justifies, the research methodology employed by this study that was appropriate to meet the aims and objectives, and the identified research issues. In doing so, it puts the methodology in the context of the principal research paradigms, i.e. positivist, interpretive and critical. This chapter also outlines the researcher's selection of suitable research philosophy, method and strategy for this study, including a set of criteria for evaluating the quality of the study.

Chapter 5: Data collection procedure

This chapter gives an overview of the organisations selected for research in the current study. It also presents the steps employed in fieldwork data collection, from protocol design to actual interviews.

Chapter 6: Results and findings

This chapter presents the results obtained from the primary research with organisations and citizens. The chapter also provides a thematic analysis of the pertinent themes identified from the qualitative questionnaire and interviews.

Chapter 7: Discussion and analysis

This chapter evaluates the results of the study in relation to previous findings, in order to validate the authenticity and accuracy of the current findings.

The chapter outlines the core study themes, as discussed through the lens of primary and secondary data. The chapter concludes with a proposal for an integrated model for the implementation of e-government in KSA.

Chapter 8: Conclusion and recommendation

This chapter summarises the complete study, identifying the core findings, limitations, and its relevant contributions to the literature. The chapter also evaluates the quality of the research findings, determining the extent to which the results are capable of answering the research questions and fill the identified gap in the literature. The chapter also includes recommendations for future study. The next chapter will provide an insight to the problem and research area. Additionally, it will discuss the literature related to the implementation of the e-government process.

Chapter 2: Literature Review

2.1   Introduction

As describe in chapter 1, this thesis proposes to investigate the perceptions of government employees and of the public (i.e. citizens), concerning information trustworthiness, professional ethics, and risk factors involved in the use of e-government by the government of KSA. This chapter therefore presents a review of the existing literature, detailing the relevant background issues for the current work. The review of extant literature was employed to develop the theoretical and conceptual framework from which the current study emerges and forms the basis of the current research work. This chapter therefore establishes the link between what previous work and the current work explores, leading to the identification of gaps in knowledge that the current work seeks to fill.

2.2   Definition of electronic government

As humans operating within a world that has become increasingly dynamic due to globalisation and economic growth, it is important to have a platform in place that can facilitate the sharing of information. Such dynamism however creates new sets of opportunities and challenges which continue to expand in geometrical proportions. Accordingly, a great deal of pressure is imposed on citizens and government with the view to devise faster and efficient means to meet with the scope of needs and demands. Thankfully, the advent of information and communication technologies (ICT) has contributed immensely towards addressing these challenges. Governments of countries around the world have leveraged the ICT facilities through what is now collectively termed e-government (short for electronic government) to enhance the ways of life of their citizens. Put simply, e-

government entails the use of Internet resources by the public and it can be used to share and disseminate information between one arm of government and the other, government and the general public, government and businesses etc. Over recent decades, the concept of e-government has become increasingly popular, and a number of different viewpoints have been expressed. Many countries have adopted e-government to meet the needs of their citizens (Sideridisa, 2013; Carter et al 2016), and major shifts is already taking place in e-government including digitalisation of critical functions which enables easy access by the public to information through well-established authentication measures (Carlin and Curran 2011). E-government incorporates a large number of activities, leading to a need to achieve an improved understanding of the subject and the various factors influencing efforts towards its adoption, including information trust, professional ethics and risk Khanh (2014).

E-government entails the use of ICTs to improve the activities of public sector organisations. Feeney and Welch (2012) defines e-government as *a process of government, or function, managed in electronic form over the Internet with Web portals providing businesses and individuals with services and public information.* Gracia and Arinob (2015) explain that e-government consists of the use of the Internet when supplying government information and services to the public i.e. citizens. Similarly, Sideridisa (2013) defines e-government as "*government services made available to the citizens on a daily basis, through electronic means, including the Internet and other devices*". David McClure, an Associate Director of the U.S. General Accounting Office, as cited by McClure (2000, p3) provided a detailed definition of e-government:

> *"refers to government's use of technology, particularly web-based Internet applications to enhance the access to and delivery of government information and service to citizens, business partners, employees, other agencies, and government entities. It has the potential to help build better relationships between government and the public by making interaction with citizens smoother, easier, and more efficient. Indeed, government agencies report using electronic commerce to improve core business operations and deliver information and services faster, cheaper, and to wider groups of customers."*

Although the overall general definition of e-government is clear, it is important to state however that such definitions differ from one country to another. This is because some countries define e-government in a less broad sense to imply only networks between government entities, given that initiatives that pertains to e-government across countries are viewed based on one project after another project (Mimicopoulos, 2004). In recent times, governments are increasingly becoming aware of the fact that if they are to enjoy similar benefits that the private sector has derived from electronic delivery channels, heavy investments are required to enhance the integration of both front-end and back-end systems (Mimicopoulos, 2004).

The Internet is increasingly recognised as the most effective channel for delivering government services, but demands that users meet a number of requirements to ensure access, namely a computer and an Internet connection (Voutinioti, 2013). Welch (2012) views e-government as offering good quality services, increased transparency, easier access, and high efficiency towards a better and a more efficient public sector. Based on the aforementioned definitions by different researchers, the current work defines e-government as an avenue where services and information provided by the government sectors to the

common public via electronic media, such as the Internet. Such services might include the online utility bill payments, the information on the advancement in the country, monitoring activities, business transaction and much.

2.2.1 Forms of e-government

The decision-making process within a government is a complex proposition given that several parties including interest group, political parties, and governmental agencies as well as not for profit organisation are all involved. Given these diverse entities within a functional government, e-government can therefore be classified into three major forms including:

(a) Interaction between government and the public: This entails the relationship between the government and citizens with a focus on service delivery and in some instances, the facilitation of democratic practices (Kunstelj and Vintar, 2004). It also involves activities for making transaction online, reporting issues, monitoring progress of a development and contacting key members of the government to report issues (Alsheha, 2007).

(b) Interaction between government and businesses: This can occur in instances where the government interacts with business bodies (Yildiz, 2007). Examples of such transactions include e-procurement, which can be used by government to establish business and contract dealings with businessmen. This further encourages solid interaction between business bodies and government (Alsheha, 2007; Kunstelj and Vintar, 2004).

(c) Interaction between governments with government: Inter-governmental electronic applications have become a thing of paramount importance in recent times. The use of e-government facilitates a strong arrangement for

different governmental agencies to communicate and share useful and important information. Depending on how the e-government platform is designed and constructed, this type of interaction can be between a single country or cross border.As with all forms of services that rely on ICT infrastructure, there are certain merits and demerits that come with their adoption. Against this backdrop, a review of the activities involved in e-government as well as the merits and demerits of e-government with a focus on Saudi Arabia is carried out as detailed in the succeeding section

.

2.3   The Kingdom of Saudi Arabia and e-government

The e-government program of Saudi Arabia is collectively known as "YESSER" and it was launched with an ambitious vision statement which states that: "*By the end of 2010, everyone in the Kingdom will be able to enjoy – from anywhere and at any time – world class government services offered in a seamless, user friendly and secure way by utilizing a variety of electronic means*" (Alsheha, 2007). Therefore, e-government services in KSA can be access from anywhere at any time by using any device such as PC computer or smart phone which is connected to internet. This was a powerful vision statement which sets the tone for ICT infrastructural development across the country but such ambitions are yet to be fully realised due to number of challenges and issues which mostly exist in rural areas. For examples, in these areas people cannot easily access to internet due to ICT infrastructure or people cannot access to e-government systems due to technical problems. Number of challenges and issues are highlighted in section 2.3.3.

Some commentators (Weerakkody et al., 2013 and Sarrayrih, 2015) have argued that although the vision has not yet been fully realised, there is the need for concerted efforts and research towards the realisation of an effective e-government implementation.

2.3.1 National and local government: Typical activities involved in e-government in Saudi Arabia

In Saudi Arabia as with other countries of the world, e-government platform employed for a number of purposes. The Saudi national government, which is highest level of government that governs activities including trade, commerce and currency, have made significant attempts to make their services and information available via the Internet so that citizens can have access to resources to establish effective communication (Colesca and Dobrica, 2008). E-government platform have also find application through other arms of governments, especially through the Ministry of Al Hajj and Umra in case of Saudi Arabia (Alateyah , et al 2013). Ministry of Al Hajj and Umra is a local government agency services Haj Pilgrims, Umra performers and visitor to the holy cities Makah and Madinah.

As such, through the adoption of e-government public sector reform objectives can be disseminated to the public and promote alignment between the entities (i.e. between the government and the people) (Hanna, 2010). For the particular case of Saudi Arabia, e-government platform can be used to establish effective communication with the local government agencies and those in positions of authority. For instance, during the annual pilgrimage where every

Muslim from all corners of the world converge at the holy mosque to observe and fulfil their Islamic rights. Local governments such as Ministry of Al Hajj and Umra, use e-government to facilities and establish communication among the pilgrimage officials, security personnel and the people observing the pilgrim. It is used to communicate security issues, traffic jam, different timing of events, reporting of street lighting issues when they are out of order, situation of toilet facilities and many more (Alsheha, 2007). There are differences between national and local government, therefore the main difference exist in the governing structures, powers and responsibilities. For instance, national government, there is a president or prime ministers. In case of Saudi Arabia, the royal governing court of the kingdom of Saudi Arabia act as national government.

The use of e-government as an avenue to communicate urgent issues to the national government through a gateway established by the government named Tawasol Gateway. Tawasol Gateway is a communication gateway between citizens, and royal governing court in KSA (Tawasol Gateway, 2017). Tawasol is an Arabic name which means ''communicating''. The purpose of creating Tawasol Gateway is that central or national government want to ensure that all services provided by State are accessible to all citizens easily. Therefore, this electronic services provided by the royal governing court, thought it, citizens can arise any shortcoming from any party and consider what is beneficial to all citizens.

E-government facilities are also employed for making transaction online, reporting security issues, monitoring progress of a development project and

contacting key members of the government to report issues (El-sofany et al., 2012).

Within YESSER (i.e. the e-government platform of Saudi Arabia), a number of important goals were set. This include increasing the productivity and efficiency of the public sector; providing improved and better government to citizens (G2C) services for citizens at individual levels as well as government to business (G2B) for business customers; ensuring growth on return on investments for IT services; improving the integrity and accessibility of government data (El-sofany et al., 2012). These set of goals has now yielded several KSA e-government program, which comprises of three main projects that will enhance the activities of the citizens with e-government. Some of the program include *e-payment gateway*, which aims to simply allow payment electronically between governments to business, business to business, and government to citizen. Others include the introduction of smart card - a digital system or chip whose primary objective is to store all citizens' data by using finger print identification mechanism including ID card, health and driving records. The *MOI*, which represent a portal in which the citizens can obtain identification cards and passports as well as the driving license and any certificates as required by citizens was also introduced (El-sofany et al., 2012). Accordingly, KSA has been keen to adopt and activate ICT systems in order to attain an IT community and a digital economy, which offers higher levels of prosperity and welfare to the citizens. A number of action plan and goals, which focus on education and development perspective, business process perspective, customer service

perspective and value management perspective, which will enhance the activities of citizens when they imbibe e-government is provided by El-sofany et al. (2012).

In light of these, it is important to identify both the advantages and the challenges inhibiting the successful adoption and implementation of e-government in Saudi Arabia with the view to make recommendations that are informed by rigorous research.

2.3.2 Merits of e-government in Saudi Arabia

As with other nations of the world, the implementation and adoption of e-government in Saudi Arabia comes with a number of proven advantages that are summarised in the succeeding paragraphs.

a) Overall benefits to agencies within government

A great deal of information is shared and transferred across various agencies within a functional government. Finding a way to establish connection and communication between such agencies is vital given the importance of information sharing (Alsheha, 2007). The use of e-government facilities has the potential to get rid of redundancy and manual operations whilst reducing the associated costs of information sharing (El-sofany et al., 2012). This is in line with findings by the Australian Government Information Management Office (AGIMO) that 63% of the surveyed online programs led to overall cost reductions (Missingham, 2008). In the particular case of Saudi Arabia, the use of e-government has assisted in improving communications between agencies especially during the pilgrim period where millions of people around the globe come together to fulfil an important obligation in their religion (Utomo et al., 2016). By making use of ICT facilities such as e-mails, intranets, virtual private networks and the Internet, there was a general

improvement in overall services provided to citizens, visitors, businesses and governmental agencies. The use of e-government also facilitated effective reporting and monitoring of a number of activities within the Kingdom (El-sofany et al., 2012).

b) Faster and efficient ways of delivering services

The speed at which a particular request is processed and responded to is an important aspect of life that most people in Saudi Arabia appreciate (Alsheha, 2007). Prior to the advent of e-government, it takes a considerable amount of time for certain activities (e.g. reporting urgent matters such as security breaches, property vernalisation, damaged and leakages in pipelines, registering a birth/death etc. to the appropriate authorities) to be reported (El-sofany et al., 2012). The time factor aspect of information sharing has largely been addressed through the implementation of e-government, which allows for access to facilities through websites of key agencies and parastatals, allowing faster and easier access to resources. The use of e-government has also shaped the understanding of the government regarding happenings in rural communities. This is because ICT infrastructure has enabled effective communication between the inhabitants of rural communities and the central government (Alfayad & Abbott-Halpin, 2017). An important contribution of e-government in Saudi Arabia manifests during the pilgrim period where worshippers enjoy seamless and effective communications with government agencies. This has over the years improved the overall quality and smooth operation of the entire pilgrim process. For instance, security personnel are able to monitor and report security issues to the appropriate authorities.

Overall, the use of e-government has enhanced the ease of fault reporting, resource utilisation advice/ suggestions and lots more.

c) International trade benefits

One of the important conditions that must be satisfied by any individual country to be a member of the World Trade Organisation (WTO) is the adoption and implementation of e-government. The 2005 United Nations' Global e-Government Readiness Report ranked Saudi Arabia 80th among the UN's 191 member states (Department of Economic and Social Affairs, 2005). In an attempt to secure higher ranking and attract unprecedented benefits, the Saudi government through heavy investment in ICT infrastructure has put in a great deal of effort. This has led to expansion to all parts of the country and improvement in quality of services and internet penetration have been witnessed in recent times.

d) Effective dissemination of information

The use of e-government has improved the way the Saudi government communicates with its citizens and the public (Alharbi and Hawryszkiewycz 2016). It has facilitated the easy and seamless conveyance of new government policies, historical data and information and a wide range of statistical data for trend analysis by the elite community in Saudi Arabia. This has made the government be perceived as transparent.

Despite all the potential merits and benefits highlighted above, there a number of challenges facing the implementation and expansion of e-government in Saudi Arabia as detailed in the next section.

2.3.3 Challenges and issues facing the implementation and expansion of e-government in Saudi Arabia

Regarding the adoption of e-government in Saudi Arabia, a number of critics have suggested that its overall implementation is not feasible given the low level of usage of online transactional systems by many people within the country. It is due to the perceived notion that the concept of e-government is confined to businesses as against the citizens. The cost of implementation due to heavy investment in ICT infrastructure is also cited as a limiting factor. However, with respect to Saudi Arabia, a number of challenges unique to it are detailed in the succeeding paragraphs.

a) Lack of trust and accountability

Most citizens do not have complete trust in e-government systems and this is largely due to lack professionalism by the personnel monitoring the services (El-sofany et al., 2012). As with every technology, human beings are the backbone. Without a system in place to check the activities of personnel operating the e-government platform, its overall adoption might be problematic (Alshehri and Drew, 2010). To rectify this anomaly, King Abdullah bin Abdul-Aziz established the Control and investigation Board to address the issues by recommending effective measures to improve trust, professional ethics whilst minimising the and overall risks associated with the usage of e-government (Alsheha, 2007). The aforementioned problems still constitute bottlenecks in Saudi Arabia in terms of e-government and there is currently

no research that focuses on these key factors. The investigation into these factors constitutes one of the hallmarks of the current work.

b) Complex rules and regulations

The rules and regulations governing the use of e-government in Saudi Arabia are somewhat complex and are highly centralised (Alsheha, 2007). Such complexity is known to deter people from utilising the services rendered via e-government. The rules and regulations must therefore be refined and made less complex to encourage adoption (Alshehri and Drew, 2010).

c) Lack of skilled IT personnel

For efficient and effective operation of the e-government program, there is a need for highly skilled IT professionals to operate the facilities. In recent times however, the government has been embarking on training programmes to develop people with the required skills and mindset (Alshehri and Drew, 2010; Alsheha, 2007).

The issues highlighted above pertains to trust, ethics and risk associated to the implementation of e-government in Saudi Arabia, hence the focus on the three themes in the current work.

2.4 E-government on a global scale

The United Nations E-Government Readiness Report (2014) states that e-government is gaining popularity on a global level, exploiting the synergy between technology, an educated population, and an enabling environment, with the aim of ensuring more rapid rates of economic development (United Nations, 2014). The report has recorded a general movement towards e-government, albeit with different levels of readiness. This readiness ranking identifies the leading four countries as: (1) the United Kingdom; (2) Sweden; (3) Denmark; and (3) the United States of America.

The four countries also lead the ranking when it comes to the delivery of information and services, as well as the presence of an enabling environment for the development of ICT. Regional readiness rankings place Europe in the lead, with Africa ranked as the lowest. The relationship between ICT and quality of life and economic development provides the strongest rationale for the embracing of e-government (United Nations, 2014).

However, the empowerment of societies and creation of knowledge societies is equally important since only an informed society makes adequate use of such opportunities (Welch and Feeney 2014). The study by Gracia and Arinob (2015) further underscores the importance of ICT by listing it as one of the means through which governments can ensure higher service delivery in a world where most citizens are demanding accountability, transparency and effectiveness of their governments.

This view is a reinforcement of the dominant view that e-government is emerging as the best avenue for solving transparency and accountability issues in governments (Yaghobi and Shakeri 2010). This section looks at how e-government plays an important part in economic development and shows the importance of ICT in government services delivery. Important factors to be considering when using e-government will be covered in the following section.

2.5 Important factors to consider when using e-government

This section outlines factors that associated with e-government and government should consider them prior to implement e- government services.

2.5.1 Collecting and authenticating personal information

For example, governments need to consider the following factors relating to information trust (Section 2.6), professional ethics (Section 2.7) and mitigation of risk (Section 2.8): (1) identity; (2) authentication; (3) privacy; and (4) security of data (Gilbert and Lopez, 2012). When providing services to the citizens using e-government, the state needs to collect and employ a wide range of personal information concerning their citizens (Al-Busaid and Weerakkody, 2011).

Available information includes taxable incomes; address, location; and family size (Rabia et al, 2013). In order to reduce the possibility of any unauthorised access to an individual's personal information (i.e. through hacking) the government needs clarify the personal information it requires for carrying out its processes (Rosa et al, 2013)

Danila and Abdullah (2014) argue that the availability of such information and data on networks has created a threat to the infringement of the privacy

constraints of such data. Ramadhan, et al (2011) define privacy constraints as atomic constraints on the use, display, retention, storage and propagation of identity data.

Government agencies need therefore to adopt (and maintain) adequate privacy practices, capable of commanding the trust of citizens, mitigate any risks associated with e-government, as well as being in line with the professional ethics of providing such information and services (Al-Ajeeli and Al-Bastaki, 2010).

2.5.2 Employing appropriate security standards

The e-government consists of an interconnectivity of diverse information systems, in which a high degree of information is exchanged between government organisation and private sectors Ndou (2004). A considerable number of governmental organisation have adopted information technologies (IT), in order to adapt the government's highly disjointed service–centric information infrastructure through the improvement in the information flow and the decision making process (Blank and Reisdorf, 2012).

The adoption of e-government must also negotiate the challenge of mitigating the risk associated with security issues related to data, information, knowledge resources and programme hardware, as posed by employees, government operators, specialised hackers, and commercial organisations (Rahman, et al 2014). Such threats create a number of challenges, including, but not limited to: the defacing of websites; hacking into services; virus attacks; and damage to crucial databases and applications. However, scholars such as Oseni (2015), Sandoval-Almazan and Gil-Garcia (2012) opine that the implementation

of security standards and suitable access controls can assist in the addressing of such challenges. Similarly, Bwalya, et al (2014) state that this involves the implementation of security frameworks (e.g. Public Key Cyptography (PKI)), which facilitate trust in e-government transactions by way of authentication, integrity, confidentiality and non-repudiation of data by unauthorised persons.

2.5.3 Digital security certificate

A further important security framework within the domain of e-government trust and professional ethics, concerns the Digital Security Certificate, which ensures the existence of faith in the signatures created by both public and private keys (Sarrayrih and Sriram, 2015). The party seeking to obtain information from the database, thus ensuring the governors maintain a strict adherence to technological practices, rules and regulations (Wayne and Timothy, 2011), issues this certificate following a verification of identity. Enabling the government to rely on authentication has resulted in the provision of a simple, convenient and secure means for citizens to access government services through the Internet (Khanh, 2014).

The e-authentication (which is a partnership on a wider government level) is maintained by the agencies that make up the Federal Chief Information Officer (CIO) council, and functions through integration with a trusted documentation issuer, making it obligatory for the user to log into the issuer's site to obtain credentials for authentication purposes (Rahman, et al 2014). An analysis of Digital Signature Implementation for user data security in the United Kingdom,

establishing promising results in relation to the technology's ability to meet the demands of data accessibility and privacy simultaneously (Sivarajah, et al. 2014).

Additionally, this technology has a wider implication for a service delivery initiative, as it assists in the identification of the recipients of the service through a set of distinct identity parameters, which remain in place for all ensuing transactions with the corresponding recipient (Blank and Reisdorf, 2012). A further identity parameter concerns access to this information by the government's representatives (Capurro and Britz, 2010). Despite extensive execution of access and identity solutions with management, many states have not yet reached the level required by all private entities (Saleh and Alfantookh, 2011). Chakrabarty (2006) notes that the independency of e-government initiatives in various departments limits the utilisation of the benefits of such initiatives by the end user, resulting in the non-availability of information in these departments, as well as in the attainment of an ideal e-government.

2.5.2 Formulating a Sustainable Legal Technology Framework

There has been a rapid increase in the use and exploitation of the recent developments in ICT, particularly in the twenty-first century (Welch and Feeney, 2014). This can be attributed to the shifts that have taken place in both infrastructural use and connectivity (Bwalya et al, 2014).

It is therefore important for countries to focus on the specific challenges of technological applications (i.e. e-government) in order to address governmental issues, increasing the efficiency of meeting requirements in embracing e-government, i.e. information trust, professional ethics and mitigation of risk.

A number of infrastructural inadequacies can prevent the realisation of e-government's full potential (Bonson et al., 2012), e.g. system management; lack of an effective legal framework; the digital divide; privacy; and issues of security from the ethical and information trust perspectives, which can hold back e-government initiatives (Saleh and Alfantookh, 2011).

Public sector information (originally generated by public organisations) has been undertaken in a number of formats, depending on the requirements of the relevant governmental sectors, and its publication has greatly impacted the lack of control over the use of such information, thus hindering its use by various interested parties (Carlin and Curran, 2011).

Further challenges relating to the adoption of e-government concern the shifts taking place on a daily basis, leading to the challenge of a continuous upgrading of the system in accordance with technological advancements (Velicogna, et al, 2011). The inability of governments to incorporate technological change into the provision of their services has resulted in a decline of enthusiasm for government web pages (Bwalya, et al 2014).

Arduini et al. (2013) indicate that this has resulted in ineffective e-government. In order to ensure the success of e-government, it is therefore important for governments to consider the technological advancements currently taking place (Sivarajah, et al, 2014).

In order to ensure information trust in the use of e-government, it is necessary to address the challenge posed by the state of the legal framework, so

that the policies and the legal framework does not hinder the process (Gracia and Arinob, 2015). Information trust can be achieved through the digitalisation of government operations, leading them to become more transactional. This should be undertaken prior to addressing issues relating to privacy, authentication and the security of public data (Allen et al., 2011).

In the recent past, the use of e-government has remained minimal, due to a lack of a legal equivalence between the digitalised form and manual paper government systems (Al-Khouri, 2013), resulting in difficulties in modelling governmental processes (Al-Ajeeli and Al-Bastaki, 2010). Thus, the e-engineering of public workflows using models that fail to respect the relevant legal frameworks may result in inefficient systems, and thus the waste of governmental resources and an incorrect development of e-government initiatives (Wu, 2014).

On the other hand, legal frameworks can impede professional ethics, leading to a risk of reduced accountability when embracing e-government (Saleh and Alfantookh, 2011). In addition, the sharing of data across networks can be hindered by legislative measures implemented to protect public data, create security and privacy. It is therefore necessary to clarify the use of e-government in providing services to citizens (Wayne and Timothy, 2011).

Almarabeh and AbuAli (2010) accord with Lau (2003), in advocating the undertaking of consultations prior to dealing with the challenges facing the embracing of e-government. Their incorporation in dealing with the challenges facing the adoption of e-government emphasized the embrace of stakeholder engagement with the view of raising the level of awareness around e-government

and facilitate its overall understanding prior to implementation (Almarabeh and AbuAli, 2010; Wu, 2014). For further details on the challenges and opportunities for developing a successful e-government, see Almarabeh and AbuAli, (2010).

2.5.3 Data Protection Laws

The success of e-government is dependent on the population's level of trust in government initiatives (Belanche, et al. 2012). Such trust can only be created through the addressing of the concerns related to privacy, authentication, user identity and security (Reddick et al., 2005, Jain and Nandakumar, 2012). Implementation of such initiatives requires that government demonstrate responsibility when it comes to securing public information through the creation of data protection laws.

The use of e-government has created the risk of both internal and external threats, resulting in a need for government to develop a robust internal architecture and technology, in order to protect public data and information (Rahman, et al, 2014). A further challenge hindering the subsequent adoption of e-government concerns the potential for a digital divide, resulting from differences in literacy and age, affecting technological usability in carrying out governmental processes. This leads to government needing to address the issue of the inability of all citizens to use e-government services (Yildiz and Saylam, 2013).

Bannister and Connolly (2011) note that e-government initiatives have the capacity to provide legislative bodies with the information to function more efficiently, and allow for the overall participation and trust in government projects by all stakeholders. Government also needs to address sociological and ethical

challenges affecting the success of e-government, as well as the factors resulting in risks related to the implementation of e-government solutions (Voutinioti, 2013). At the same time, government needs to: (1) stipulate its common vision for all stakeholders; (2) prioritise its initiatives; (3) and work towards meeting the needs of its citizens, as they constitute the government's core purposes (Muraa et al., 2014).

In order to ensure the success of e-government, governments need to understand that it not only entails the digitalisation of governmental information, but also the utilisation of technological tools to transform governmental structures, in order to improve services for citizens, and realise set goals. Thus, ensuring the existence of information trust, professional ethics and mitigation of risk in achieving an optimal e-government base.

This section has established that e-government consists of three main aspects: (1) information trust; (2) professional ethics; (3) and risk in embracing e-government. The following section will analyse the information regarding these major aspects, followed by a review of the published literature.

2.6 Information trust in e-government

Trust in e-government entails the ability of the potential users to believe in the integrity of the systems in terms of its capability to deliver on its function based on services it promises (Becerra and Gupta, 1999, Lee and Turban 2001). The confidence and trust of citizens in the capability of government department to offer online services is important for the widespread implementation of e-government programs (Venkatesh et al., 2003). Trust is an integral component for the successful implementation of an e-government platform to be guaranteed

and safe (Carter and Belanger, 2005). Trust is a vital factor for a number of public policies that depend on responses related to behavioral patterns from the public to be successful (Alsaghier et al., 2011). A lack of trust can render the implementation of any IT system including e-government potentially meaningless (Grimmelikhuijsen and Knies 2017).

The concept of e-government has remained controversial, due to issues related to information technology (Sarrayrih and Sriram, 2015). The literature concerning information trust focuses on the major factors affecting e-government and its policies. Gracia and Arinob (2015) note a decline in the trust of government in comparison to the past. Belanche, et al (2012) further add that there has been a decrease in the number of individuals using government websites, primarily as a result of a loss of trust. This can be improved if government interacts with its citizens on a regular basis (Yildiz and Saylam 2013).

The decline in trust in government is supported by suspicions of governmental desire to monitor the activities of citizens through surveillance systems made available through the introduction of technology (Bonson et al., 2012). Graciaa and Arinob (2015), however, indicate that information trust can only be achieved if government employs strategic models and systems to increase the efficiency of the e-government process. Voutinioti (2013) emphasises that the population needs to believe that e-government will provide them with greater control and an environment free from stress.

A lack of trust also results from a lack of awareness concerning the benefits of e-services (Aiken and Bousch, 2013). The lack of explicit information concerning the benefits to be obtained from the technology leads to individuals

creating their own perceptions, based on their own prior experience, or others' opinions. Similar to companies' communication and marketing units, public administrations also need to initiate campaigns to augment the awareness level of citizens towards the key service benefits of e-government (Belanche et al, 2012; Gracia and Arinob 2015).

This not only assists in shaping the opinions of citizens in relation to e-government, but also allows them to compare the efficiency of e-government with that of a manual service, thus concluding that e-government is the more beneficial (Welch, 2012).

Beldad, et al (2012) relate the Internet experience of citizens to their level of trust in online government services. Beldad et al. (2012) have established that those with greater Internet experience are more open to trying a new online service, due to being aware of the risks and how these can be mitigated. Thus, alongside awareness, the population's education and level of exposure to the Internet (and other online services) can also positively influence their level of trust and level of engagement in e-government (Zimmer et al., 2014).

The implication for government is the need to ensure the availability of the Internet, along with its perceived accessibility to a larger audience, enabling them to gradually become increasingly familiar with online services offered by government, following an increased awareness of online operations, risks, and mitigation procedures (Al-Busaid and Weerakkody, 2011).Moreover, with the provided accessibility the government must also ensure that the data, or the information is secured and cannot be manipulated for malicious intent. Hence,

data security and privacy is a top notch problem that must be solved before adoption of e-government

2.7 Professional ethics in e-government

A broad discussion of professional ethics in the academic research has been reported in the extant literature. For instance, Reynolds (2011) defined professional ethics as personal values of moral behaviour, which is expected by professional. Ethics entails a form of belief system, which distinguishes between what is right and what is wrong. Therefore, ethical behaviour comply with generally accepted norms. For example, nearly everyone would agree that lying is unacceptable behaviour or unethical. In IT, software piracy - the practice of illegal making software - is generally perceived to be unethical. Kenneth (1995) perceive ethics as a concept that define the moral spectrum upon which decision making between humans are made. Generally, ethics can be defined as systematic reflection related to the moral consequences of the decisions taken, and these moral consequences can be placed in the context of the occurrence of harm to those who are concerned with these decisions (Joseph 2007). Others defined it as standards of ethical conduct, Right versus wrong (Ferrell 2015).

In the context of this work, the concept is restricted to its role in the implementation of e-government. The increased role of government in providing services through Internet using information communication technologies has been central to this research. Ramadhan, et al (2011) focus on the privacy concerns related to professional ethics. Sandoval-Almazan and Gil-Garcia (2012) has

investigated the increased role of government in providing services through Internet, along with information communication technologies.

The term 'professionalism' in relation to e-government is one that is broad, and is not limited to computer and information ethics, but also covers managerial ethics (Berry and Brower, 2004). Those in charge of citizen data, or with responsibility for distributing or transferring citizens' information, are responsible for ensuring that such data is directed to its correct recipients, without any supplementary mediators in the process of data transference, and ensuring there is no leak or misuse from any end or nodes (Gracia and Arinob, 2015).

It becomes increasingly difficult to keep track of citizen data during the process of transferring data from one department to another, along with the actors engaged in its monitoring and evaluation (Sharma, et al 2014). It is therefore the responsibility of e-government managers, and their ethical framework, to understand the data that needs to be sent, and to which location, and to ensure that data privacy can be maintained at all nodes (Welch and Feeney, 2014).

The internal relationship between different administrative units (along with the relationship between the private and public sectors) dictate the efficiency of data handling and security within the system. The existence of any loopholes within the internal and the external network will result in a depreciation of trust and confidence between different units and bodies, thus blurring the concept of professional ethics within the public sector (Chun et al., 2010). Thus, true professional ethics can only be achieved when government officials and managers

comply with cyber ethics, technology ethics, and managerial ethics (Ramadhan et al., 2013).

The access to, or use of, information in networks requires a high degree of protection, which frequently presents a challenge when it comes to Internet usage. Bannister and Connolly (2011) argue that trust is a major requisite for success in any operation, and can assist individuals in relying on information if the government successfully implements its objectives.

Ethical aspects generally focus on the professional features enabling a citizen to analyse a government's privacy policies and procedures (Yildiz and Saylam, 2013). This literature establishes a general view of the issue, and an understanding of the fairness of such procedures, insisting that professional ethics rely on the clarity with which the policies and procedures are implemented.

Berry and Brower (2004) and Shyu (2014) stress the use of the 'Policy Network Theory' for improved data handling within public administrations. Internal relationship between different administrative units (along with the relationship between the private and public sectors) dictate the efficiency of data handling and security within the system is being added by (Mullen and Horner 2004; Berger 2014). The existence of any loopholes within the internal and the external network will result in a depreciation of trust and confidence between different units and bodies, thus blurring the concept of professional ethics within the public sector (Chun et al., 2010). Thus, true professional ethics can only be achieved when government officials and managers comply with cyber ethics, technology ethics, and managerial ethics (Ramadhan et al., 2011).

2.8 Mitigating the risks of e-government

The next major aspect concerns the risk involved in the adoption and implementation services rendered by e-government. Khanh (2014) reveals that one of the main barriers to an individual's adoption of the e-government form consists of the psychological aspect. Sarrayrih and Sriram (2015) highlight the challenges of e-government, indicating that recent developments pose greater risks if there is a failure to correctly design and maintain government websites. Al-Busaid and Weerakkody (2011) analyse the challenges presented by information technology, and other aspects posing a risk to upcoming e-government websites.

The risks of using such websites generally depend on the population's trust in government (Beldad, et al, 2012). Belanger and Carter (2008), on the other hand, propose a method to assist government to provide services that promote trust in e-government. Feeney and Welch (2012) assert that a new strategy, or policy, would revive e-government and reduce the potential for risk in the near future.

Apart from the aforementioned authors, Olusoyi (2013) came out with a completely different perception, stating that the transactional policies of the e-government will certainly include risks and the public must be able to mitigate these risks. Rabai et al. (2013) also argue that the public must have a belief and trust on the government and the migration from a traditional system to an e-government system purely depends on the individual's perceptions and hence, they must know the amount of risk involved in this process. The concept of trust in a different manner; where in the people rely on the information only if the government manages to implement its objectives (Danila and Abdullah 2014).

According to Rosa, Teixeira, and Pinto (2013), the effectiveness in dealing with the problems and policies also play a major role. The ideas and ideologies by each author is different, corresponding to their perceptions and the way they exhibit their ideas about information trust, ethics professionalism and the risk embracing in e-government. To achieve this, the public must have belief and trust in the government. The government should greatly consider vital aspects such as identity, authentication, privacy, and security of data as they relate to information trust, professional ethics, and mitigation of risk (Wayne and Timothy 2011).

Rosa et al (2013) stated that when the government offices decide to upgrade the legacy system of the government i.e. Manual system to e-government system, it is important to take into account the changes that have occurred in the lapse of time in the citizens' needs and new technology upgrade. When dealing with legacy systems' evolution, must be taken into account the understanding and validating not only the previously business model rules, but also the new implementation approaches and options of such rules (Olusoyi 2013). The same standard applies to the architecture of system as the evolution of a given system may or may not need a change in the architecture of application based on people's needs.

Perceived risk mitigation is another pertinent area to be taken into consideration. Whitmore and Choi (2012) highlight that other than the probabilistic risk; there is a perceived risk, which exists only in the minds of the users. The slow acceptance rate of the online services in some countries is often because of the perceived risk in the citizens and not the actual probabilistic risk (Olusoyi 2013). For this, the same approach of awareness campaign is required to be carried out

by the government so that they can address and reduce the perceived risk related to privacy and other issues in e-government.

Additionally, the third party must perform audit on the systems to ensure that they are less risky and in good condition. Hence, the security risk hinders people to adopt and trust the concept of e-government. However, if the potential security risks found a solution then people's trust might boost up and they might adopt e-government at a rampant pace.

2.9 Models of e-government

The preceding sections focused on a number of aspects of e-government, detailing the challenges associated with its adoption and implementation. In this section, a brief review of various models of e-government is presented to highlight efforts towards realising an operational e-government platform.

Notwithstanding recent numerous initiatives at diverse levels of both governmental and academic publications on e-government, the concept remains chaotic and unmanageable. In an attempt to assist public administrators towards the implementation of e-government, Layne and Lee (2001) described different developmental stages for e-government and proposed a '*stages of growth'* model for an e-government platform that can be adjudged functional, using several websites set up by government and associated e-government initiatives to provide an explanation for the model. Their model entails four key steps namely '*cataloguing', 'transaction', 'vertical integration' and 'horizontal integration'*, detailing their functionalities. The four stages provide a robust path for governments to follow whilst suggesting the associated issues as it pertains to

both technical and organisational aspects. They concluded that for e-government to become universally access, privacy and confidentiality issues must be put into consideration before an e-government implementation can be adjudged successful. Andersen and Henriksen (2006) build upon the work of Layne and Lee (2001) on the reorganisation of the maturity models of e-government by adopting IT applications with the view to make core activities become better and integrate key stakeholders into future investments that focus on e—government. Also, Siau and Long (2005) synthesizes e-government stage models using a meta-synthesis based on meta-ethnography approach. Reddick (2004) have also developed e-government based on empirical models focusing on growth in local governments.

An empirical assessment of e-government models was conducted Coursey and Norris (2008) in order to determine their "level of accuracy and correctness". They presented experimental evidence based on three investigations of local e-government in the United States to examine if such models are precise or and offer value in terms of gaining an understanding the actual e-government developmental stages. The authors concluded that e-government at the local level is predominantly based on provision of information. They reported that such platform are used for less transactional activities. As such, the models did not describe or predict in accurate terms the development of e-government, when analysed in the context of American local governments. To address some of the issues Coursey and Norris (2008) offered grounded observations about e-government that scholars and practitioners alike will find extremely useful.

A survey of business models of e-government in the Netherlands based on web sites was conducted by Janssen et al. (2008). By drawing upon e-

government literatures, the authors developed a taxonomy for analysing business models for e-government that are based on the web. Using a systematic survey of 59 e-government Web sites in the Netherlands, their findings suggest that most of the Web sites are based on old patterns that adopt the direct-to-customer *or content provider business models*, with only a few using business models that can be considered novel. They concluded that the concept of business model is attractive and beneficial to the public sector given the complimentary role it plays on identifying useful and functional e-government platform. Carter and Bélanger (2005) integrated paradigms from the Technology Acceptance Model (TAM), Diffusions of Innovation theory and web trust models to form a "*parsimonious yet comprehensive*" model of factors that influence the adoption of e-government initiatives by the citizens. Their study was carried out based on the survey of a wide range of citizens at a community event. They concluded that ease of use, trustworthiness and compatibility are important predictors of the intentions of citizens' to adopt an e-government service.

Beynon-Davies (2007) also presented a meta-model for e-government that takes into consideration of the diverse nature of contemporary socio-technical paradigm. It covers multiple scenarios of "business models" upon which of e-government strategies can be developed based on important business methods and information and communication systems. Using their model, which was based on literatures adopted from the subject areas that include business, informatics, and public administration, they were able to demonstrate that it offers the capability to assist in the reconstruction of the existing experience of e-government

in the UK. They equally identified a number of such models especially those, which provide a clear framework for which e-government can progress.

2.10 Information and communications technologies for development (ICT4D)

Given that the current research context is on a developing country (i.e. the Kingdom of Saudi Arabia), it is important to explore the narratives surrounding Information and communication technologies for development (ICT4D). Information and communication technologies (ICTs) offer improved capability towards the evolution of socio-economic development objectives. The arrival of ICT have contributed significantly towards development strategies at the local, national and global levels and it continues to gain momentum and visibility worldwide (Tongia and Subrahmanian, 2006; Avgerou, 2010). The worldwide spread of mobile telecommunications systems, the advancement of Internet and computer networks extensive use of broadband facilities had had a significant impact on international production routes and trade arrangements (UNCTAD, 2007). However, such developments are still relatively limited in scope with respect to developing countries. Making ICT work for the purpose of development needs more than expansion of infrastructure. To further encourage the productive and inclusive use of ICT, it is essential that Governments across the globe create legal, policy and institutional frameworks whilst generating the requisite skills in business, civil society and government (UNCTAD, 2007).

Generally speaking, ICT4D entails the application of information and communication technologies (ICT) with the view to enhance development across

social, economic, and political endeavours by placing emphasis on rendering assistance to the poor and marginalised people as well as the overall communities (Unwin, 2009a). The primary focus of ICT4D is to offer assistance in international development through the bridging of the digital gap and through the provision of equitable access to technologies (Unwin, 2009a, Unwin, 2009b). The concept is based on the general themes of development, growth, progress and globalisation where technology can be used as a conduit for delivering a greater good (Unwin, 2009a). ICT4D builds upon theories and frameworks from various disciplines ranging across economics, sociology, information science, development studies, communication studies and even library science (Heeks, 2010). Based on discussion regarding the forms of theories that can be adopted in ICT4D research, Heeks (2007) put forward a number of frameworks of information and knowledge used in development ICT research to categorize different ways of theorizing them. He came up with the following classifications: work based on theory are constructed on the basis of theory identification and formulation which are applied and tested to validate the theory; work based on frameworks utilises models that are explicitly derived from a body of analytical studies. These frameworks have been used as a basis to gain an understanding of ICT4D (Pozzebon and Diniz, 2012).

ICT4D came into existence due to the attempts to adopt computing technologies that are evolving to improve conditions in the developing nations and it has been classified into at least three phases based on evolutionary trends: ICT4D 0.0 (mid-1950s to late-1990s); ICT4D 1.0 (late-1990s to late-2000s); ICT4D 1.0 (late-2000s onwards). It has found applications in a number of areas including

agriculture, climate change and environment, education, literacy, health, e-government and civic engagements and many other areas (Heeks, 2002). Unfortunately, the implementation of ICT4D comes with several challenges. For instance, Kleine and Unwin (2009) provided an extensive review of recent developments on the use of ICT4D and submitted that although such infrastructure offers new potential for finding solutions to some of the classic conundrum of policy development and practice, little attention is paid to lessons that can be garnered from previous ICT initiatives. Similarly, in his work titled "*Information Systems and Developing Countries: Failure, Success, and Local Improvisations*", Heeks (2002) presents evidence that together with the successes achieved, many ICT systems and infrastructure in developing countries can be grouped into two categories of either partial or total failure. By drawing on contingency theory, the author developed a new model which seeks to offer an explanation to the high rates of failure by highlighting the match or mismatch between information systems (IS) designs and the actuality of local user, thereby identifying two high-risk prototypes namely, "*country context gaps"* and "*hard-soft gaps"*, that affect IS in developing countries. Overall, the author was able to demonstrate how model and theory can shape the understanding of IS cases in developing nations, and equally, how those cases provide useful data towards the development of IS models and theories. Tongia and Subrahmanian (2006) in their work reported that ICT development plans in the developed and developing nations often lead to partial or in some instances complete failures because of the inadequate assessment of the problem under investigation and lack of robustness of the metrics adopted for evaluating solutions. They argued that in the developed countries, the success

recorded through ICT solutions is often influenced by the market mechanism and available infrastructure. However, such ecosystem does not exist in the developing world and thereby requires an understanding of such systems prior to the application of ICT solutions.

Unwin (2009c) reported that for ICT4D initiatives to be successful, it must be driven through the provision of adequate technological solutions for the challenges encountered by poor and marginalised people and communities, as against through an interest purely based on the physical technologies themselves. Several leading authors in this field have also reported that for the implementation of ICT4D to be successful, there must be effective collaborative engagement among four key stakeholders. These include public sector (governments from developed and developing countries, local governments and international bodies); private sector; informal sector (advocacy groups, NGOs, think tanks) as well as membership from the targeted audience (Unwin, 2009c, Tongia and Subrahmanian, 2006, Pozzebon and Diniz, 2012).

In light of the above submissions, the current work seeks to explore some of this areas with respect to the implementation of e-government using the Kingdom of Saudi Arabia as a case study. Given that e-government is a subset of ICT4D, the current works focused on the issue of information trust, professional ethics and risk, the basis for which has been provided in chapter one.

2.11   Chapter summary

In this chapter, an overview of e-government detailing its merits and demerits was highlighted. Various types of activities that the people of Saudi Arabia can embark upon using e-government was also discussed. Some of the barriers to the adoption of an e-government system have been identified including issues of risk, perception and information trust.

Many citizens are still unaware of the benefits of e-government, and are uncertain when it comes to data handling, and the professional attributes of those processing their information. Therefore, in order to raise the preparedness of the population for the adoption of e-government, there is a need for the government to address these information gaps. The next chapter highlights the main characteristics of KSA, which is represent, the context for an empirical study.

Chapter 3: The research context (KSA)

3.1 Introduction

This chapter is complementary to chapter two and reviews the relevant literature on KSA. The scope of the present research is limited to an investigation of the perceptions of public and government employees in related to information trust, professional ethics and the risks involved in the use of e-government in KSA.

As such, this chapter will present a deeper analysis of the current standing of the country with regard to ICT and government, the progress made in the information technology sector to date, and determine the future direction for the government in its attempts to adopt an e-government system gradually and progressively.

3.2 Categorisation of KSA

KSA ranks 19th globally in terms of gross domestic product (GDP), higher than the UAE, yet it is still categorised as a developing country (United Nations, 2014). According to a report by Nation Online Organisation (2007), the categorisation of a country as developed or developing is based on a number of criteria beyond just GDP and revenues.

Some of the fundamental criteria include technological development, press freedom, political rights and civil liberties, and human development. The United Nations (2011) classified the KSA as a developing country according to its categorisation of human development; this suggests that people in the KSA

do not have the same liberties and freedom of expression that are awarded in other countries in the world, including many Arab countries.

In addition, the involvement of the people in political and civil affairs is also average in comparison to other states with a strong economy and GDP (Aarts and Nonneman 2009). This is concerning in the context of perceived barriers to e-government (discussed further in Section 2.8).

However, Gilbert and Lopez (2012) observe that IT development in KSA has reached significant milestones in recent years; however, there remains much room for improvement.

Thus, in the context of the current study, which connects both technology and human participation, more work needs to be done on advancing the human development and ICT framework of the country.

3.3   Saudi Arabia: Key Features and Facts

The country is located in Southwest Asia, near an intersection of Europe, Asia and Africa. It runs from the west (Red Sea), to the east (Arabian Gulf). In the north, the country borders Jordan, Kuwait and Iraq. Yemen and Oman are its neighbours on the southern border, while its eastern neighbours are the United Arab Emirates, Bahrain and Qatar (United Nations Development Programme, 2013).

Figure 0-1 Facts and Statistics of KSA (United Nations Development Programme 2013)

The terrain of the country is fairly barren and harsh, with salt flats, gravel plains and sand deserts. The country has a few manmade lakes, but there are no permanent streams. On the southern borders are the largest sand deserts in the country, and mountain ranges reaching over 9,000 ft.

According to the Royal Embassy of Saudi Arabia-Washington DC (2013), as of 2013 the population of the country stood at 25 million people, plus over 8.7 million expatriates. However, as of 2017, the population of the country has increased to over 32 million based on estimations by the United Nation (2015).

Islam is the official religion, and Arabic is the most spoken language, followed by English. As an Islamic state, the Qur'an and Shar'iah, the Provincial Council System, Consultative Council and the Council of Ministers govern the country.

3.4   ICT in KSA

Describing the use of ICT in KSA, Al-Maliki (2013) states that any kind of Internet connectivity must be achieved through King Abdul-Aziz City for Science and Technology (KACST). Any alternative to the aforementioned is not viable, and the Internet is censored, to ensure that it is suitable for members of Saudi society for example Saudi residents cannot watch porn movies, or do any activity that cause harm to government or society.

According to Abdulrahman (2002), KACST is centrally located in the country, and the main node for accessing the internet relies on a satelite link; two further nodes, available for the the western and eastern regions are connected to the KACST node. The three nodes connect to the local governement agencies and the Internet Service Providers; from there, the connection can reach other regions as seen in figure 1.2
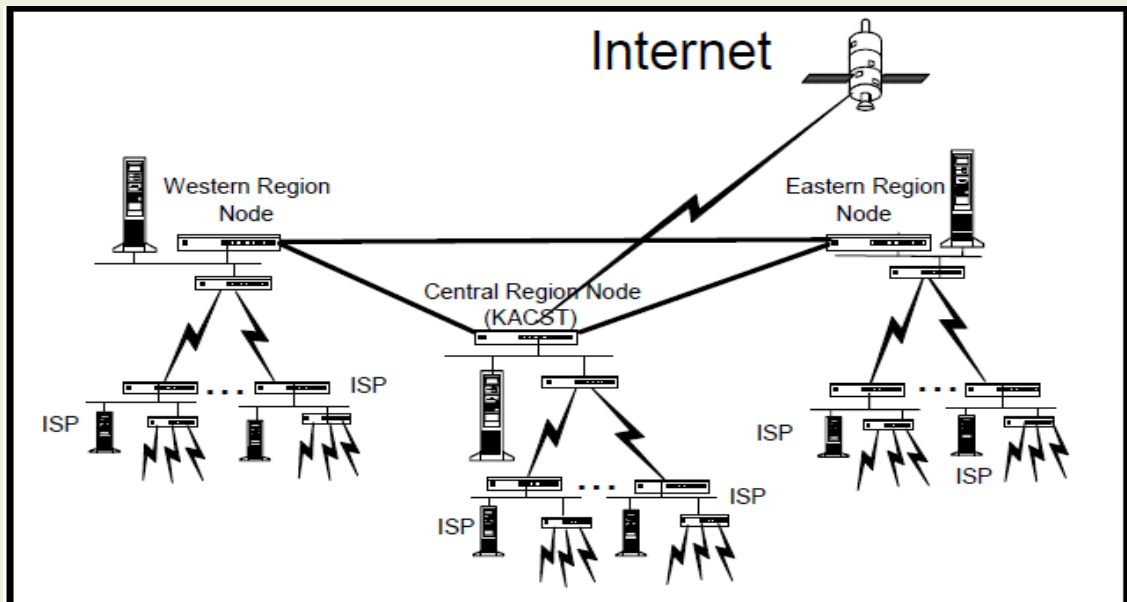
Figure 3-2: ICT Structure in KSA (Abdulahman 2002).

In 2003, the government of KSA created the Communication and Information Technology Commission (CITC) to regulate and control ICT in KSA. Subsequently, in 2004, and as part of the CITC's policies, CITC signed an agreement with KACST, the CITC that formally indicated the completion of the Saudi Network Information Centre (SaudiNIC), which was assigned from KACST, to the CITC. It converted practically in 2007 (ICANN, 2010).

In 2003, the KSA government allocated MCIT to start planning to provide e-government services across the country. As result, CITC created a public department called e-government as shown in the figure below.
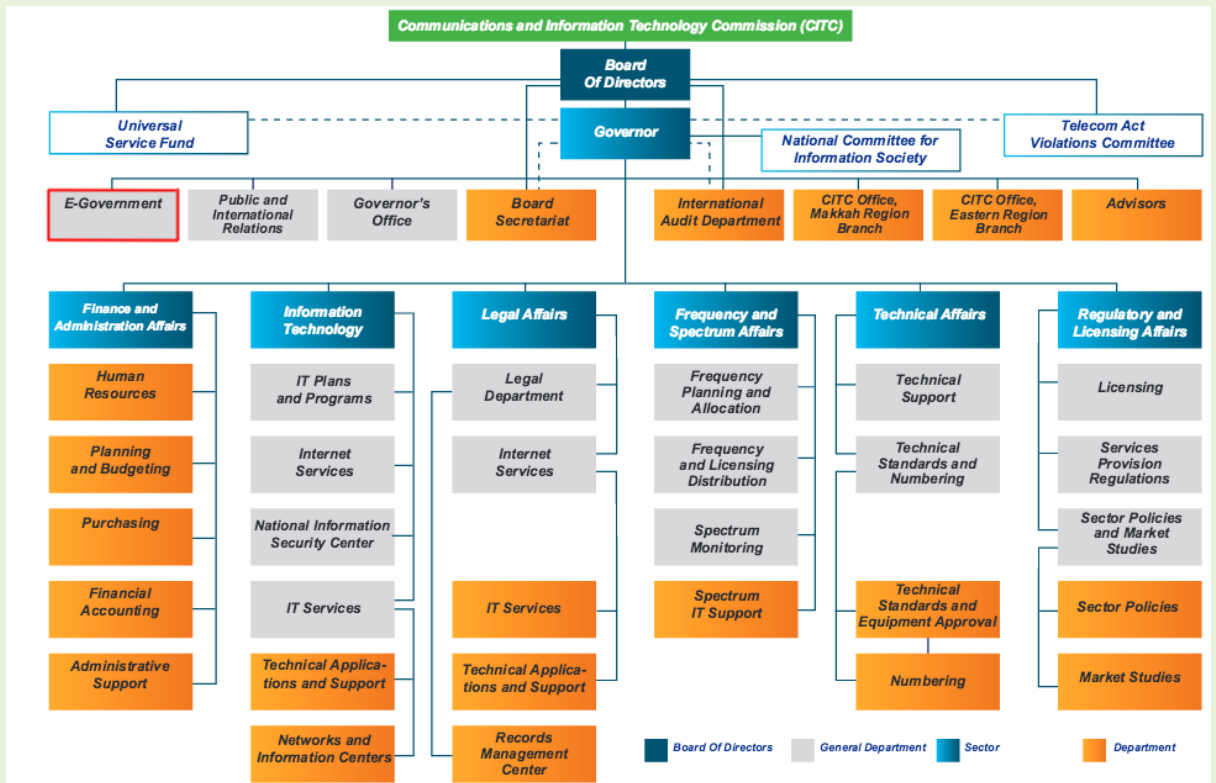
Figure 3-3 CITC's Organizational Structure (CITC, 2011)

In 2005, the e-government programme called 'Yasser' was created (Yesser, 2011). Since e-government is a nationwide government project, all government agencies are involved in the delivery of e-government services to the private sector and public. Yesser Program was tasked to serve as both enabler and facilitator, as it guides the full implementation of the projects of the infrastructure component.

This program also links various government agencies together for the fulfilment and implementation of the infrastructure projects.

"Yesser" is an Arabic word, which means 'simplify'. Yesser works as leader and guidance to other government agencies in KSA (Ayman MZ, 2015).

3.5 E-government in KSA

Al-Maliki (2013) remarks upon the increased funding allocated by the KSA government to revolutionise its service delivery system. Realising the potential benefits and need for an e-government system, government administrators and policy makers have been convinced that the conventional mode of operation is no longer suitable for government operations, and that adopting e-government is the only way forward (Bannister and Connolly, 2011). Fang (2002, cited in Al-Garni, 2015), argues that the key objective of e-government is to offer all public services online.

Al-Khouri (2013) adds that the primary aim is not simply to offer online services, but to make government services easily accessible and reachable to the masses, which can be achieved through an efficient e-government system. Across the globe, different countries are at different phases of e-government adoption. According to the UN, the adoption of e-government can be divided into five phases of presence, namely: emerging, enhanced, interactive, transactional and seamless (Alfarrajet al, 2011).

The KSA has not been left behind, despite being a relatively late adopter of this technology. The country has overcome challenges in the process of adopting e-government, specifically regarding its applicability within KSA. At each stage, there have been different technological requirements and a need for organisational change, as argued by (Norris and Moon (2005) and Stephen et al. (2003, cited in Ali Ahmary, 2010)) and Al-Khateeb et al (2015).

In a study carried out by Ali Ahmary (2010) to evaluate the adoption of ICT in KSA, it is revealed that just 14% of the Ministries used the internet, 38% had no internet, and only 48% of the Ministries had some presence.

3.6   Issues and challenges concerning e-government in KSA

The cultural, societal, and IT structure of KSA presents some key challenges in the implementation of an e-government system in the country (Aiken and Bousch, 2013). These issues or problems are inherent to the highly complex and technical nature of e-government. Despite the government's success in KSA and other countries, a lot of scholars still consider this initiative and its advantages to be limited to the private sector, rather than government agencies (Al-Khouri, 2013). One particular issue or challenge concerns the availability of adequate funding or budgets, as e-government requires huge capital and skilled professionals (Alshehri and Drew, 2010). Based on literature review, In terms of e-government, KSA is facing the following existing challenges as detailed in the succeeding sections:

3.6.1   Accountability

E-government demands that those responsible for its development, implementation and delivery are accountable to the people (Sharma, et al 2014). The complexity of the project makes it difficult for key agencies to police irregularities, corruption and neglect on the part of government officials (Zimmer, et al 2014).

Professionalism is another issue, as the nature of the programme requires that the entire workforce, from high-ranking officials down to the lowest ranking employees, act responsibly (Arduini, et al, 2013).

To police and monitor the conduct of government officials, King Abdullah bin Abdul-Aziz created the Control and Investigation Board (CIB 2009), where professional ethics plays a significant role in promoting accountability among public officials and programme implementers (Ramadhan et al, 2011).

To monitor the implementation of national strategy to protect integrity and combat corruption King Abdullah launched National Anti-Corruption Commission (NACC), where moral commitment, transparency and justice and confidentiality and protection of data plays important role in the country (NACC 2014). This Commission called NAZAHA (Arabic word is mean integrity).

Alshehry, et al (2006) stated "*the managerial reasons behind the adoption of e-government include reforming the public sector, leading to more efficient government management with increased accountability and transparency*".

3.6.2 Leadership

The e-government programme requires strong and competent leadership (Ziemba, et al, 2013). However, for this leadership to influence other areas of responsibility, it must be anchored in the right principles and strategies (Nurdin, et al, 2012).

The issue of leadership in this digital era poses great challenges. To be successful in e-government adoption, government leaders must succeed across different networks and influence collaborative engagements and supplies across organisational boundaries. The lack of authority is considered as a major setback for the development of e-government at the national level (Salem, 2006, AL Athamay 2015).

Fortunately, the Yesser Programme provides a roadmap of strong leadership that guides not only the approach needed to successfully implement e-government, but also strategic steps to make delivery more efficient which follows some of the recommendations provided by Nkohkwo and Islam (2013), whose work focus on Africa.

3.6.3   Rules and regulation issue

Rules and regulation is another challenging area, as many of the rules and regulations issued by various government agencies are complex and have a centralised structure (Ziemba and Olszak, 2012). This potentially hinders the delivery of e-services to its intended beneficiaries (Olusoyi, 2013). One possible way to solve this issue is to standardise rules and regulations to ensure effective compliance and to facilitate more transparent and democratic processes and transactions (Welch, 2012).

3.6.4 Qualified staff

E-government requires more than just adequate funding, but also qualified staff and teams to perform various technical and leadership roles (Ndou, 2004, Ryan, et al 2012, Afonso et al, 2015). To sustain e-government in KSA, the national government must continue supporting universities, encourage training, promote IT education, and foster technology transfer (IFIP, 2008).

3.7 Why KSA?

A report by Internet Stats (2014) shows a considerable improvement in the number of internet users in KSA (10% increase between 2013 and 2014), making it one of the countries within the Gulf Cooperation Council (GCC) who have witnessed a surge in terms of internet penetration and usage.

Moreover, Al-Husein and Sadi (2015) add that both Internet literacy and accessibility have also increased over the last decade, and more users have embraced new technology to access the internet.

In additions, StatCounter (2013) reports that 38% of Saudi users access the internet via their mobile or smart phones. Thus, not only has the rate of

internet usage increased, the technology has also seen a dramatic improvement in utility also. There is a consequent increasing willingness to adopt, and adaptability is a characteristic present among Saudi internet users.

However, in spite of this increased accessibility and usage, the rate of online shopping and online service consumption remains low in the KSA. According to a study by Rahaman (2014), less than 11% of total Saudi internet users purchase products or services online, which makes the total number of online purchasers in the country less than in the UAE and Oman, despite that KSA is currently leading the way in terms of total number of internet users. This suggests that there is a prevailing level of distrust and perceived risk among Saudi users regarding purchasing products and services online.

Al-maghrabi, et al (2011) also state that the online market potential in the KSA has not been fully taken advantage of yet. A significant proportion of the Saudi population comprises of teenagers and adults, the segments that make up the majority of internet users. The discrepancy between internet accessibility and willingness to shop online explains the low level of trust and acceptance among the Saudi population regarding online products and services.

A further topic for discussion is online transaction, which is another significant component of national revenue creation and the technological stance of a country (AT Kearney, 2013). Rahaman (2014) argues that the majority of government in the KSA offer an internet service, and the number of users is rapidly rising. Yet, again, the numbers are mediocre when compared to the number of online users in the UAE, Oman and several Asian countries. In

addition, Al-Husein and Sadi (2015) note that internet and mobile is mostly used for internal or domestic transactions, and that a manual system is used for international transactions. Al-Husein and Sadi (2015) also add that people's level of awareness of what can be done with internet is still mediocre in a number of developing countries, including the KSA.

Thus, it is clear that there is great potential for online service consumption to be developed in the KSA. User acceptance of technology, in terms of online service dynamics, has been slower than actual technology development. This means that it takes more time for a new technological or online service to be accepted and trusted by people in the KSA. Studying KSA will also reveal the persistent perceived risks related to ICT in the country. The efforts of government to present a more positive image of e-government to target users will also benefit other online services in the country, having a wide-ranging positive impact.

In addition, KSA is considered the leader of the Islamic and Arabic states. This is because KSA is the land of the two holy mosques in Makkah City and Madinah City. KSA hosts the Organisation of Islamic Cooperation (OIC), which involves 57 states and plays an important role in the World Bank as well as International Monetary Fund (IMF). Therefore, KSA is the only Middle Eastern country among the top 20 members of the IMF.

Furthermore, Citizens' adoption of e-government differs from state to state due to many issues such as state's infrastructure, human behaviour, and culture (NKohkwo and Islam, 2013 cited by Alsufayri 2014). The literature review exposed that little research into e-government adoption had been conducted in

KSA, which encourage the researcher's interest to conduct this research and make a new contribution to knowledge.

3.8 Chapter summary

This chapter has supplemented chapter two by presenting the KSA context, and explaining the current state of e-government and ICT in KSA. Finally, it has highlighted issues and challenges concerning e-government adoption and usage in KSA. After exploring the KSA context, the following chapter will discuss the research methodology used in this study in more detail.

After understanding the KSA context, the next chapter describes the research methodology adopted by this study in more detail. While this study applied qualitative research strategy as the chosen research methodology, some literature was reviewed at an early stage of the research to identify the gap in the knowledge base that needed to be studied. Additional literature was reviewed once findings of the study became known. This enabled the researcher to compare the study's findings with the relevant literature and to participate in the world of research.

Chapter 4: Research Methodology

4.1   Introduction

In chapters two and three, a detailed literature review pertaining to e-government and KSA research context was presented respectively. In this chapter, a description of the research approach employed in this work is presented. Before moving on to the results chapter, it is important to understand steps involved in the collection of data, the participants engaged in the collection of data procedure, and data's validity with regards to the study objectives. Accordingly, this chapter describes the techniques adopted for this study and highlights the steps involved in conducting the research with the view to collect and analyse data. In their work, Trochim and Donnelly (2001) submitted that every research is based on certain assumptions about the manner the world is perceived and how an understanding of it can be achieved. These assumptions are based on various factors such as the research area (Trauth 2001), the phenomenon under investigation (Myers, 2013; Remenyi and Williams, 1998) and, to a certain degree, the perception and viewpoint of the researcher (Fielden 2003). In order to carry out research with the view to providing answers to the research questions, it is important that the research be carried out based on well-established frameworks using a set of research paradigms and philosophies (Kumar 2014). Against this backdrop, the current work adopts the research methodological framework based on "Research Onion" depicted in Figure 4-1. As indicated, the research onion illustrates several stages of a research including (i) research philosophies which is the first layer of the onions and where research paradigms such as positivism, realism, pragmatism, interpretivisim etc. are ascertained and taken into consideration by the researcher with the view to shape

the nature of the research. The second layer of the onion entails the research approaches where it is decided whether the research will take the deductive or inductive approach to conduct the research. The third layer of the research onion pertains to the research strategies based on whether the research is a case study, action research, survey, experiment, etc. The fourth, fifth, sixth and seventh layer constitute the choices, time horizon, techniques, and procedures respectively.
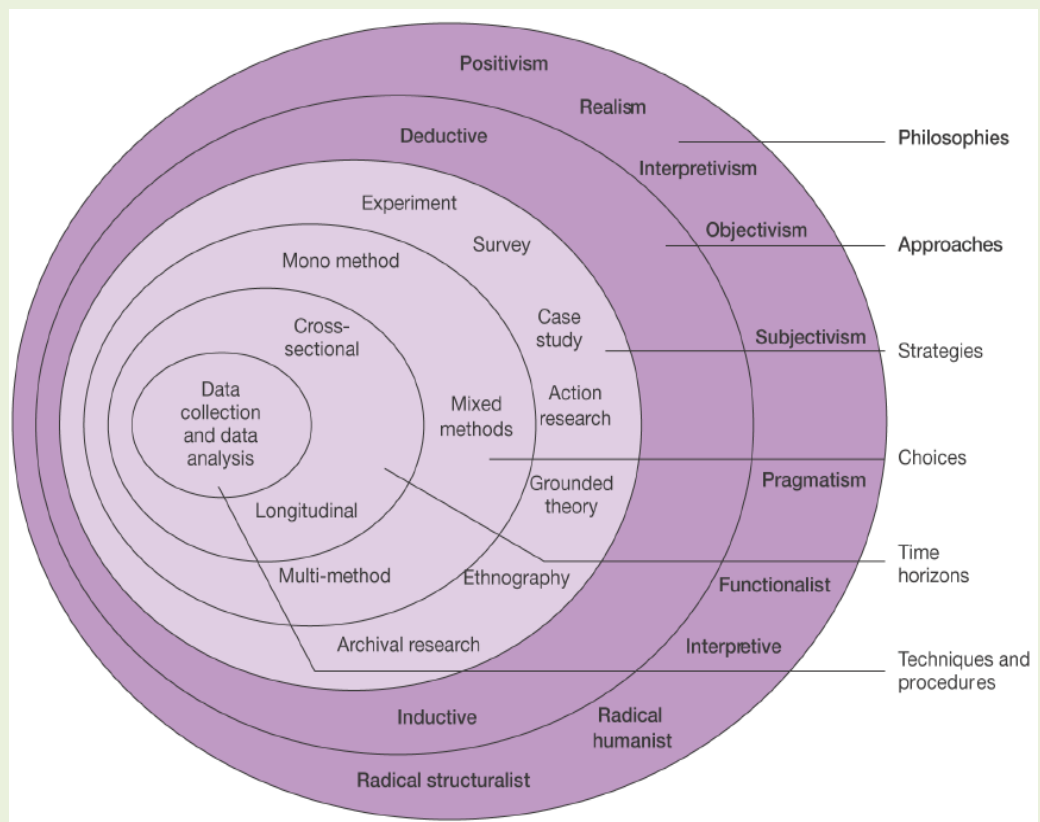
Figure 4-1: The Research Onion (Saunders et al., 2009, P108)

Based on the framework depicted in Figure 3.1 above, an examination of the research philosophy and strategy upon which the current work is based are presented in the succeeding sections. Given the broad nature of topic and the vast array of views and opinions from different researchers, it is impossible to

exhaust discussion on it in a study such as the current one. Accordingly, in the context of the current work, only key findings that are of importance are highlighted. In doing so, the current work provides an explanation of research approaches taken in the current work whilst drawing a distinction between interpretivist and positivist approaches to research.

4.2   Research Paradigms

A research paradigm is, "a philosophical and theoretical framework of a scientific school or discipline within which theories, laws, and generalisations and the experiments performed in support of them are formulated" (Katsirikou and Skiadas, 2009:p8).Paradigms refer to frameworks that are built based on a belief system regarding the nature of existence and knowledge, and these models are then shared within a wider research community and used as a guide to assist researchers in their approaches toward inquiry (Saunders et al, 2009). The philosophical stance employed by any research helps to determine which approach best suits either the phenomena to be investigated or the aim of the research as to whether it entails theory building, testing, or extension (Knight and Cross 2012). Epistemology and ontology are the two main philosophical phenomena employed to guide any form of research approach (Amaratunga et al. 2002; Bryman, 2006). Epistemology pertains to the extent to which reality can be ascertained (i.e. the assumptions that are made pertaining to the nature of the knowledge of humans and how such knowledge is derived and understood) (Knight and Cross 2012). Ontology entails the nature of reality irrespective of human attempts to understand it (Saunders et al, 2009; Amaratunga et al. 2002). Both philosophical stances (i.e. epistemology and ontology) have been characterised by researchers into distinct research paradigms, which are sets of

generally accepted perspectives and basic beliefs about a particular discipline at a given time (Creswell and Clark 2007). In the subsections that follow, a description of the two distinct paradigms that form the basis of a research process is provided. This then leads to the final justification for the paradigm applied in the context of the current work.

4.2.1 Interpretivist

Interpretivist research seeks to explain the way in which people experience social phenomena, attempting to draw empirical conclusions depending on specific phenomena and experiences (Willis et al*., 2007; Neuman, 2011). The interpretivist approach focuses on understanding the phenomena and experiences under investigation instead of using mathematical calculations to start particular relationships (Walsham, 2006). Interpretivists recognise the investigator as a fellow of a social group in which he/she is a social actor with vital roles to play in its formulation and development with the view to deriving meanings of its relations. This philosophy has its background in the intellectual notions in which humankind seek to gain an understanding of the social world around them (Saunders et al, 2009). As such, reality is seen in terms of its descriptive qualities.

The basic tenet of interpretivisim is that there is no singular reality, and that 'truth' is subjective, and depends on the observer or the scenario. This means that there is room for personal interpretation in understanding data on the part of the researcher (Seale et al., 2004). Thus, the contribution of the researcher is quite significant in interpretivist research, as they must draw meaning out of the data collected, interpreting and discussing it in reference to other available data.

In the context of social research, the proponents of the interpretivist paradigm assert that sociology is related to human minds and behaviour and, therefore, it is inappropriate to use statistical tools to understand the relationship between compound variables, as often this relationship is not direct (Bryman, 2008). Consequently, the proponents of interpretivisim not only support the paradigm, but also challenge the ability of other research paradigms to deal with complex phenomena.

Another way to understand the principles of interpretivisim is from the standpoint of the people i.e. participants, those who have experienced what is being studied (Choudrie and Dwivedi, 2005). Regarding the method of collection of data, the interpretivist considers a methodology that permits an exhaustive inquiry into behaviour of human that is capable of producing important insights into the social considerations of the enquiry (Saunders et al., 2009). In terms of descriptive and in-depth research, it provides scope for study participants to openly share their views, suggestions, experiences, and determine their roles. Accordingly, natural methods of data collection including interviews, observations, and analysis of prevailing texts, are the most commonly employed methods within the interpretivist approach (Guba and Lincoln, 2004).

Such methods ensure that an appropriate and adequate dialogue is established between the researcher and the chosen sample to create a meaningful reality in a collaborative manner. Therefore, qualitative studies are typically based on the interpretivist paradigm (Walsham, 2006). Research that

follows interpretivist principles should therefore carefully articulate the research question, as well as demonstrate an understanding of the decisions and interpretations made by the investigator during the research process (Morgan, 2007).

A written account that generates persuasive arguments should be presented, along with a comprehensive evaluation of the impact of the results. Political and ethical considerations should also be incorporated as well; this is achieved by ensuring that issues regarding protection of privacy, confidentiality, voluntary participation and informed consent are taken into account.

Like other research models and paradigms, the interpretivist model has been subject to criticism, which should also be discussed in order to understand the limitations of this approach. Marcen et al. (2013) state that as the principle of 'ethnography' is involved in the interpretivist paradigm, the research becomes more intricate and thus difficult to generalise for a larger audience. When cultural issues and societal mindsets are also considered in data analysis, clearly the applicability of the results are limited to that particular culture, meaning the researcher cannot state with certainty whether the results would have the same level of applicability outside the target segment. Furthermore, Sallaz (2011) states that the approach ignores changes that have occurred in societies and behaviours over time, and provides a very narrow and conditional view of a society or group of people. The third criticism made by a number of scholars is that the involvement of the human or personal element in data extraction and analysis can affect data accuracy and validity (Onwuegbuzie and Leech, 2004).

The power of generalisability and replicability of a given research is an important issue that also characterises research epistemology. Research that adopts the positivist approach (details in section 4.2.2); can be generalised and reproducible given that it is based on a theoretical basis, which to a large extent influences the collection of data and analysis. However, for the case of the interpretivists, they may actually be exploring the prospect of creating a relationship or a social perception regardless of whether it is replicable or generalisable (Saunders et al., 2009). The fact that it offers the prospect of exploring an individual phenomenon and supplement knowledge about social procedures and methods of interpretation, whilst allowing meaning and new knowledge to be extracted from such investigations, renders it an integral contribution to knowledge in its own right. This forms the basis of its adoption in this research. While it is not the goal to group research based on these philosophical perceptions, because reality suggests that interactions do unavoidably exist in the adoption of these methods. However, Bryman and Bell (2015) stated that it is nevertheless important that researchers appreciate these philosophical divides whilst taking into consideration the implications on their research from initiation. In the subsection that follows, a description of the positivist approach to research is provided.

4.2.2 Positivist

The positivist approach employs a scientific way of approaching a research problem, where the researcher seeks to acquire numeric data (Prasad,

2005; Guo and Sheffield, 2008). Neuman (2011) describes the positivist as an organised paradigm of doing research, in which the researcher has a general idea of where the study is heading, and the level of uncertainty is minimal. Tyson (2006) states that due to the approach taken in the positivist paradigm, uncertainty becomes indiscernible. Social scientists that observe reality through the lens of fact that are considered tangible whilst favouring the "scientific" method to enquiry are collectively known as Positivists. They adopt the "natural scientist's" approach to investigate the research problem at hand and is mainly characterised by articulating research questions in the form of hypotheses and establishing appropriate equations to test the validity or authenticity of the hypothesised phenomena (Bryman and Bell, 2015).

Generally, a set of hypotheses is created prior to commencing the collection of primary data procedure, and all statistical techniques, key performance indicators and factors, and will also have been identified (Saunders et al., 2009). In addition, the data results are also structured and contained within a specified boundary by the researcher, unlike in the interpretivist approach, whereby the data results are not bound and can deviate from the and primary inquiry and objective of the study (Kune and Jerry, 2012).

Positivist researchers subscribe to the belief that they can attain a full understanding of a phenomenon through research that is based on experiments and observation (Trochim, 2000). In which case, concepts and knowledge are perceived as products of experience and are interpreted through rational

deduction. A particular effect is brought about by the dominance of positivist assumptions regarding research: the notion that the only way to carry out research is to follow a scientific model (Tyson, 2006).

The following are characteristics of positivist research (Seale et al 2004; Ritchie et al, 2013):

- The main approach of the scientific method is the experiment, meaning an endeavour to recognize natural laws through immediate observation and manipulation.
- Positivists are empiricists; this term relate to the idea that measurement and observation are at the principal of all scientific endeavours.
-

Positivist principles focus on realist ontology, which posits that, aside from what humans know, other real world objects exist; hence, there is an objective reality (Krauss, 2005). This stance also includes a representational epistemology, which assumes that humans are aware of this reality, and utilises symbols to describe and explain it in an accurate manner (Cohen, et al 2013). By suggesting that a reality exists separate from individuals' knowledge of it, the positivist paradigm offers an objective reality with which investigators can compare their assertions and determine the truth.

This paradigm is also characterised by predictions and the control of variables that affect a phenomenon; this involves the formation of hypotheses or preconceived ideas regarding the relationships among the variables contributing to the phenomenon under study (Muijs, 2004). It assumes that cause and effect can be utilised as basis to predict and control natural occurrences; as such, patterns can be observed (Trochim, 2000).

Empirical verification also implies that perceptions of the world can be relied upon to provide researchers with accurate data. If a methodological set of rules is followed, a study based on the positivist paradigm will avoid subjective bias, as achievement of objectivity can be demonstrated.

However, needless to say, the positivist paradigm is also subjected to criticism. Wenhstrom and Dewar (2011) state that the very basis of the positivist approach relies on the false premise that humans are capable enough to transform their subjective reality to achieve objective effect. For example, if the motivation of employees is studied in relation to management practices, then it is assumed that management influences employee motivation, whereas in reality it could be that employees are only motivated by the salary package, job security, or any other factor (Marcen, et al 2013).

As such, even if no direct relationship exists between the tested variables, the positivist researcher assumes one and bases the study on this assumption, which is consequently flawed in many ways. Moreover, Kune and Jerry (2012) assert that understanding human concepts and realities requires a diverse and in-

depth approach, which is not possible using only the statistical tools offered by positivism.

4.2.3 Critical

The critical paradigm acts as a bridge between research and action (McEvoy and Richards, 2006). It takes the role of the researcher one step further, into the domain of action, where the researcher endeavours to make an impact on the subject under study (Griensvena, et al 2014).

In both the interpretivist and positivist approaches, the role of the researcher is that of a mere observer with no influence on the research environment (Choudrie and Dwivedi, 2005). In critical theory, researchers must think about their own role in relation to the lives of people (Seiler, 2008). They must also be critical of social practices and achieve critical action study in order to get changes in norms, values and beliefs in accordance with the social, cultural and political context (Brincat, 2012).

In so doing, the researchers will begin to be critical of their own practices and those of others, whilst trying to apply theories in practice. The major pivots of arguments and counter-arguments are the practice of theory, research methods and research philosophy (Seiler, 2008). Researchers who adopt the critical paradigm believe that knowledge can be viewed from many angles including social, history, culture and politics and different realities can ensue in each category (Seiler, 2008).

In the critical paradigm, even quantitative data can be analysed and

interpreted so as to recognise reality and to make political decision regarding a compulsory intervention (Harvey, 2006). The researcher is not expected to be neutral; rather, they become an active political player, pursuing positive change in society. As a result, researchers have begun focusing on the process of research, instead of the techniques and results.

There are several practical and results-related limitations of the critical paradigm. First, affecting an environment, for instance, organisation management practices and behaviour, is a time consuming task, which makes the research process very elongated, without any certainty that the desired change of mind set can be accomplished (Wit and Meyer, 2010).

Moreover, researchers are often not given the level of freedom required for exercising emancipation and transformation within the particular environment; this limits the applicability of this approach (McLean and Stahl, 2007).

4.2.4 Justification of chosen interpretivist paradigm for this research

The distinct issues and research questions that the current study seeks to address have led to the interprevist research paradigm being employed. Notwithstanding the methods employed, the philosophical assumptions underlying this research can be conveniently explained with reference to the research paradigms highlighted above. The current work seeks to explore and understand certain critical issues namely information trustworthiness, professional ethics and risk that underpins the implementation of e-government in KSA. Answering this research question requires in-depth data to be collected so that a deep understanding of the relevant issues can be achieved. This entails

the establishment of views and perception of the citizens of KSA regarding e-government.

Interpretivism offers the prospect of exploring an isolated phenomenon and complementing knowledge about social processes and methods of interpretation, whilst allowing meaning and new knowledge to be extracted from the phenomenon under investigation (i.e. e-government as in the case of this research). Interpretivisim emphasises meaning and thus uses data collection and analysis methods that are in-depth and inductive, so that rich analyses can be obtained that are able to address the research questions adequately. As such, interpretivisim was deemed to be the most appropriate approach for collecting and analysing data for this study, as it allows for a more comprehensive view of the experiences and opinions of the participants and the generation of in-depth information (Hanson, 2010).

Some of the methods employed in this paradigm include in-depth interviews, qualitative questionnaire, participant observation and reviewing existing documents, which can be used to describe the context of the variables that are being considered, as well as the interactions between such variables in the chosen context. Interpretivisim also facilitates a wider understanding of the situation overall (Seale et al, 2004).

By contrast, the positivist and critical paradigm are not considered appropriate for the current study. Through, it is essential to understand perceived risks, which cannot be determined by structured questions, the use of quantitative questions and analysis are not applicable.

Moreover, the researcher is targeting government organisations and general users for data collection; as such, it is not possible to engage in a critical action process, where the researcher can be part of either the government system or the back-end ICT framework design department. Thus, the role of the researcher is limited to being an observer or information mediator, and therefore, a critical paradigm is not applicable (Kune and Jerry, 2012).

4.3 Research methods

This section will discuss a number of common research methods and approaches; while a qualitative approach has been used for this study exploring information trustworthiness, professional ethics and risk in relation to e-government in KSA, other methods have been taken into consideration.

4.3.1 Qualitative method

Qualitative research is preferred for studies related to human behaviour, social sciences, and psychology (Neuman, 2011). The qualitative style of inquiry is based on the interpretivist paradigm, and utilises the social constructivism archetype, which places significant emphasis on the socially constructed nature of reality (Bryman, 2008).

This method involves data collection, recording and analysis in an attempt to elucidate the key issues under study and their significance to humanity (Bernard, 2010). Using this approach, researchers are able to gain a richer understanding of people's experiences (Sallaz, 2011).

Below are some of the reasons that make qualitative inquiry a suitable approach for the current study:

1. Qualitative research is socially constructive and is not typically based on a pre-determined hypothesis (Merriam, 2009).

2. This approach clearly identifies the problem under study, so that the investigation can be carried out through a theoretical lens (Sallaz, 2011).

3. This approach collects data in a textual format, with information collected and documented through the observation of and interaction with the subjects under study, which could involve in-depth interviews and focus groups. The information obtained is not usually converted into numerical form (Creswell, 2009; Merriam, 2009).

4. Data collection takes place in real time, involving gestures, tones of voice, and expressions in reaction to the questions put forward by the researcher (Marshall and Rossman, 2006). This is not the case with quantitative inquiry, where a questionnaire is sent via email or distributed in the form of hard copies and then collected later. As such, the researcher does not experience the participants' reactions when the questions are put to them (Robson 2011).

5. Qualitative research allows participants a certain level of freedom by allowing them to express their views and provide answer based on unique examples and experiences (Shank, 2002).

Lihong and Miguel (2013) argue that qualitative research is 'inductive' in nature, taking a bottom-up method. In an inductive research, a direct observation is conducted at the beginning, which is then narrowed down to form a pattern of occurrences or events, in order to allow the study to form a tentative hypothesis (Yin, 2009).

depending on the nature of this kind of study, researchers must suggest themes and patterns prior to conducting a collection of data process, and must then compare the primary data collected with the themes and patterns that been formulated

4.3.2 Quantitative method

The quantitative research method is associated with the positivist paradigm and involves the collection and conversion of data into a numerical format in order that statistical calculations can be generated and relevant conclusions drawn (Johnson and Christensen, 2004). This approach is typically associated with positivism (Neuman, 2006; Bryman, 2008).

Important components of a quantitative study include the following:

1. Researchers who adopt a quantitative approach seek to collect empirical data and statistics, "*where the data is in the form of digits and numbers*" (Rittichainuwat and Rattanaphinanchai, 2015).
2. A clear plan of action, along with pre-defined materials and instruments for collecting and analysing quantitative data are of great importance (Borrego, et al 2009).

3. Objectivity is critical to quantitative research, where the attitude, behaviour, and presence of the researcher should not affect the results, such as in changing the context that is being studied, or causing the participants to behave in a different manner (Saunders et al., 2009).

4. Objectivity also allows for a critical examination of the methods and conclusions for any possible bias (Ratner, 2002).

5. External factors, which can influence the research results, should be controlled, for instance by using a multiple perspective strategy to validate the findings (Robson, 2011).

6. The quantitative method features deductive reasoning, that based on getting away from the general toward more specific features of phenomena, making it a top-down method. However, the present study will use an inductive approach, whereby themes in the results will be based on the material extracted (Lihong and Miguel, 2013).

7. The validity of conclusions depends primarily on the prior statements, conditions and findings being valid. (Seale et al, 2004).

8. The participants involved in quantitative research represent a large unit of a population, allowing the researcher to make reliable inferences regarding a wider group (Saunders *et al.*, 2009). The extent to which generalised statements are made possible will somewhat depend on the number of individuals involved in the research, how they were selected, and whether they truly represent a larger group (Creswell, 1994).

Overall, the quantitative approach to research has been commonly acknowledged for its logical and systematic inclinations towards data collection

process and analysis alongside the use of unambiguous questions and statistical analysis for improved levels of precision and accuracy (Merriam 2009).

4.3.3 Mixed Methods

Mixed methods involves a combination of qualitative and quantitative methods (Cohen et al., 2013). As such, this approach embraces multiple research paradigms in its processes of data collection, reduction, and analysis. Rittichainuwat and Rattanaphinanchai (2015) state that a mixed approach provides an avenue to resolve problems using both quantitative and qualitative methods, and as such it has received significant attention from scholars.

As mentioned earlier, that there are limitations to both the interpretivist and positivist paradigms; the proponents of the mixed methods approach assert that these limitations can be overcome by adopting a combination of the two approaches, meaning that the final results are not the complete derivative of any single approach (Griensvena, et al, 2014; Wenhstrom and Dewar, 2011).

Thus, it can be said that this approach addresses the reality that all research methodologies have weaknesses, and can therefore complement each other if utilised in unison (Johnson and Onwuegbuzie, 2004). Using a mixed methods approach, a larger-scale study can be carried out, in which words and narratives based on qualitative information can be combined with numerical data, thereby increasing the generalisability of the study findings.

Some common features of this approach include:

1. The flexibility to use multifaceted approaches to answer the research question (Creswell, et al, 2006).

2. Transformation of qualitative into quantitative data, and vice versa (Maxwell, 2005).

3. Allows triangulation by combining numerous research methodologies within one study, to carry out a mixed method study of the phenomenon being investigated (Fassinger and Morrow, 2008).

4. Triangulation may involve a variety of data sources, utilise numerous researchers, and examine multiple perspectives to analyse and interpret the information collected and, at the same time, make use of multiple methods in approaching the research problem (Currall and Towler, 2003).

One of the reasons for not employing mixed methods for the current research is that the study is guided by the previous studies of Voutinioti (2013), Welch and Feeney (2014), Wu (2014), and Al-Azri et al. (2010), who have established a strong relationship between the independent variables of information trustworthiness, professional ethics, and risk, with the dependent variable of e-government acceptance and adoption in KSA.

Thus, there is no need to reengage in the discussion of whether or not these variables affect the adoption and performance level of e-government services. The aim of this research is to undertake a more in-depth inquiry of why this relationship exists, why people might not trust the credibility or ethics of government officials,

and why they might think that disclosing their data via e-government services is risky. These questions can only be answered through a qualitative inquiry, such as that undertaken in the current study (Creswell, 2005).

4.4   Approaches to qualitative research

After justifying the use of a qualitative research approach for the current study, the next section will discuss the various types of qualitative analysis methods, in order to determine which are the most suitable and feasible for the current study. Some of the most commonly used qualitative research approaches are the following:

4.4.1 Action Research

Action research can be considered a combination of the interpretivist and critical paradigm (Robson, 2011). In the first phase of action research, the researcher analyses the problem and the causes of the problem by conducting primary research. In the second phase, an action plan is created to address those problems, listing the responsibilities of management and employees, if it is an organisational problem that is under consideration (Bryman, 2008). In the third phase, the researcher works alongside managers and supervisors to implement the action plan and then determine whether it has resolved the problem in hand.

As mentioned earlier, a practical disadvantage of this approach for participant is that the majority of organisations are not flexible enough to take part in action research (Punch, 2013). In addition, the action research approach is criticised for being driven by pragmatic rather than academic goals, which shifts

the attention of the researcher towards practical scenario building rather than filling literature and theoretical gaps (Marcen et al 2013).

4.4.2 Ethnography

Ethnography is the study of culture, societal ethos, and human psychology, usually depending on people observation and resulting in a written account of a participants, location (Punch, 2013). In ethnographic research, researchers listen to what is being said about a phenomenon and engage in continuous interaction over an extended period to become more familiar with the subject matter and to be in a better position to understand how different variables affect behaviours (Bryman, 2008).

The main application of the ethnographic approach is in cultural studies, in which the subjects are in need, or are encountering traumatic or other issues. For example, Rafedzi, et al (2014) employed an ethnographic approach to understand behavioural changes in prisoners returning to society, specifically whether they are able to cope with their new environment after spending a significant portion of their lives in prison.

There are two main disadvantage associated with the ethnographic approach. First, it demands that a great deal of time be spent preparing participants in societies or organisations so that they will accept an in-depth study (Harvey and Myers, 2002). Second, ethnographic studies are longitudinal in nature, and periodic observations need to be carried out in order to understand behavioural changes or improvements over time (Schwandt, 2001).

As the research subjects are general participants who have not undergone any drastic behavioural change (within the context of the study), the ethnographic approach does not fit the context of the current study. Also, the ethnographic approach requires a large time-span, which is not possible at this stage.

4.4.3 Grounded Theory

Grounded theory is based on observation and data collection, and the analysis is considered secondary. It uses an approach that is the direct inverse of the positivist approach, as the research findings are typically based on a single question, though sometimes no discrete question is formulated prior to beginning the research.

Corbin and Strauss (2014) explain that the researcher collects data based on a developed understanding of a literature gap, revises the questionnaire, collects further data, and repeats the process in a continuous cycle.

In this approach, the primary research provides grounds for further primary research. When primary research is complete, all data is encoded, categorised, and common themes are identified to develop a general theory of application (Howitt and Cramer, 2007).

One reason the grounded approach is not suitable for the current study is that it uses a longitudinal approach, whereby the researcher must be continuously engaged in the data collection process, revising the questionnaire each time new data is collected. The continuous process of data collection, coding, and analysis

mean this approach is both time consuming and complex (Robson 2002; Tashakkori and Teddie 2003).

Apart from this, the grounded approach relies on information acquired during the course of the study (Bernard, 2010).

By contrast, the current research has been guided by the framework of other studies in the field of e-government adoption; thus, the basic grounds for the current study were established before conducting the primary research.

4.4.4 Thematic Analysis (Chosen Approach)

Thematic analysis, identifying major themes in the collected data (Bryman, 2001). Amina and Yokb (2015) define thematic content analysis as the "descriptive presentation of qualitative data". According to Saunders et al. (2009), thematic content analysis is based in inductive reasoning - which explains why the method is alternatively called 'inductive analysis' - which helps to identify themes from collected data in a manner that is seen as objective and systematic, such that the researcher does not enforce their own predetermined notions and ideas regarding the themes that emerged from the data analysis and how they interrelate. This in turn increases the validity and reliability of the findings.

The advantage of thematic analysis involves identifying key themes in the data, and then condensing these themes and meanings into relevant research findings. This approach involves working through the entire transcript content line by line, identifying the topics (themes) and patterns that emerge and categorising them according to their meaning, so that those that are similar are combined in

one category (Clarke, 2013). The different categories are then coded so that it is easier to assign subsequent themes as the researcher continues to analyse the data (Creswell, 2009).

The strength of thematic approach is that it assist in understand connections of the problem with the real world, while focusing the on the mastery of overall objective of the research. However, its disadvantage is that it is not accessible sometimes due to the cultural, academic, or ability differences (Cresswell, 2009). Further information and description of thematic analysis in terms of how it was adopted in the current work is provided in Chapter six.

4.5   Data Collection

Data collection is critical for any study that seeks to establish new grounds and address a knowledge gap. For the latter, it is important that the researcher first analyses all of the previous work done in the field, and proceed from there. As such, both primary and secondary data collection will form part of this research. This section will briefly discuss some of the common primary data collection techniques, and will clarify which of these were employed in the current study.

4.5.1 Questionnaire

The questionnaire developing strategy is utilized in both qualitative and quantitative researches, when the aim of the researcher is to find answers to questions not readily available in the literary sources (Denscombe, 2014). Both descriptive and narrowed questions can be part of the questionnaire. Survey questionnaire that indicate quantitative method, which dealing with number in the

analysis will not be used in this study. The reason for selecting qualitative questionnaire type in the present study is the questionnaire often helps researcher in getting detailed responses of the questions (Bernard 2010). Participant often provides a details answer to the question, which does sufficient information that can aid in the in-depth understanding of the study.

Questions in qualitative questionnaire are prepared in advance (Otes 2006, Yin 2015). There is limitation and restriction for researcher when he Interact with participant. Therefore, there is no indication of bias by draws for any answers (Oates 2006, Saunders 2009). Qualitative questionnaire is performed with e-government citizens in the current study.

4.5.2 Participant observation

Participant observation is a technique whereby the researcher does not directly interact or communicate with the research subjects, but simply observes their activities to collect relevant data. Studies of children's learning procedures and how they engage in activities often employ the participant observation approach to data collection (Denscombe, 2014). The researcher then notes down what the subject did and in what circumstances in the form of a narrative, which is then coded using one of a number of possible data analysis techniques (Griensvena, et al 2014). Participation observation is not been used, as it is difficult to repeat the study to check reliability (Denscombe, 2014).

4.5.3 Focus groups

A focus group is a group-based technique, in which the researcher acts as a mediator of a conversation between the group participants (Morgan, 2002). The

advantage of this approach, as explained by Bryman (2008), is that the participants feel more comfortable sharing their views in a group-based setting, as opposed to individually.

The setting of the focus group is such that respondents with similar interests or experiences are grouped together, so that they can share their experiences and acknowledge those of others. In this way, the mediator has the opportunity to not only understand different views on the same theme simultaneously, but also identify contradictions between these views, where multiple different perceptions are expressed. The availability of sufficient participants at a single time is a necessary requirement of focus groups, which was difficult to achieve for the current research. As such, arrangements and scheduling were not possible for this research, focus groups were not employed.

4.5.4   Interview

Interviews are one-to-one interactions with a participant (Oates 2006). The difference between an interview and a questionnaire is that the researcher engages in a direct, face-to-face, conversation with the participant (Kune and Jerry, 2012). This means that an interview can be conducted either in person or via a video call, where the responses are given immediately following the questions being posed, unlike the questionnaire approach, in which questions are sent via email at one particular time, and the responses are received at a later point.

According to Hanson (2010) interviewing participants is the most effective strategy for gathering descriptive and comprehensive responses, as the

researcher can frame questions differently to make them clearer to the participant. In addition, the researcher can repeat the statement back to them to understand more fully what the participant's mean and what they intend to say. There are many pros and cons when using interviews as listed by Oates (2006), the pros as follows:

1) Suitable for researcher who conduct in-depth or details study.

2) There is no particular equipment that researcher need to conduct interviews.

3) Flexibility, one of advantage of interview is that researcher can controls interview and ask questions according to the flow of conversation.

4) Participants have the chance to speak about their ideas.

The cons are:

1) Time consuming to conduct interviews

2) It is not appropriate for study that require generalisation about the population.

This approach is well suited to the current study, and therefore, it was employed to collect data from the organisations employees and citizens.

4.6 Sampling

In any research, data collection is very important, as if data is collected inaccurately the results of the study will be impacted, leading to invalid results and waste of time (Best and Khan, 2009). Methods of data collection include both primary and secondary research, and a combination of the two methods is often

used. Secondary research plays an essential role in providing background information to primary research through reviewing existing literature. One of the main advantages of secondary study is the relative ease with which secondary data can be gathered, allowing the researcher to implement a focused method whilst collecting data (Hewitt and Craner, 2007).

For this study, secondary data was collected by collecting information related to the selected study by reviewing scholarly books and journal articles, conference papers government documents, and online resources. All the collected data was organised to begin a comprehensive literature review relating to the practice of e-government in KSA, and specifically issues regarding information trust, professional ethics, and risks.

As a purposive sampling technique was used to select the research subjects, consent later were also produced and distributed to ensure the readiness and compliance of the chosen participants see appendix C.

4.6.1 Purposive Sampling

Purposive sampling is a technique of selecting participants that satisfy pre-defined criteria, or, in other words, who are selected purposively (Oates, 2006). In this way, it is different from a random selection technique, which ensures that a diverse and unbiased group of participants is selected.

To meet the aims of the current study, it was important to examine the situation under study from the perspective of both the users and administrators, or managers, of e-government. For this reason, a purposive sample of individuals

working at the King Abdulaziz City for Science and Technology (KACST), the Ministry of Interior (MOI), and the Ministry of Communications and Information Technology (MCIT) were selected.

The rationale for selecting these three organisations will be provided in the next chapter. Moreover, university students and other individuals were selected to collect citizen data, as it was important to ensure Internet and overall literacy among the selected participants.

4.7   Interview and qualitative questionnaires' questions development

The themes that informed the development of the interview and qualitative questionnaires questions were derived from the results of the literature review in chapter 2 which some of them represented in the following sections. These themes helped to shape the questions development in order to address the research objectives.

4.7.1   Envisioning the e-government

This theme was suggested in studies by Yaghobi and Shakeri (2010) and Al-Azri, et al (2010). How people perceive and envision something forms the basis of their response to it, whether they are motivated or demotivated by it, and whether they consider it productive or unproductive. For this reason, the foremost questions asked in both organisation's employee and citizens aimed to gain an appreciation of how individuals perceive e-government services and frameworks, and what their personal feelings are on the subject.

4.7.2   Professional ethics and accountability

As acknowledged in the literature (Gracia and Arinob, 2015; Olusoyi, 2013) ethical and accountability issues are relevant when studying people. Thus, there was a need to formulate a separate question regarding these two attributes in relation to corporate ethics and professionalism, in order to discern whether there is a perceived lack of ethics and accountability in the government sector. The questions were framed in a very general way, asking participants if concerns regarding ethics and accountability influenced their trust in e-government.

4.7.3   Trust in government

The theme of trust was highlighted by (Yildiz and Saylam 2013; Beldad, et al 2012; and Bannister and Connolly 2011); it is apparent that those individuals who do not trust the present government are less likely to have trust in e-government, which can be deemed as riskier than manual systems of government.

For this reason, it was important to first identify people's level of trust in current government and government systems, and then move on to the issue of trust in e-government.

4.7.4   Professionals' competency

In the literature review (Ramadhan et al, 2011; Arduini et al. 2013), a gap in the competency framework was identified. The government is not sufficiently informed about the competence level of their officials, specifically whether they can manage mounting security and technological demands. Similarly, users are

unaware of the competency level of those to whom they are expected to hand over their personal data to.

Thus, it was essential to determine the competency level of the professionals working in government offices, and also the perceptions citizens have regarding professional competency.

4.7.5 Prevalent and perceived risk

The theme of risk is discussed by Gilbert and Lopez (2012). The most prevalent risks include information security (Rabai et al., 2013), financial loss (Muraa et al., 2014), difficulty of access (Al-Busaid and Weerakkody, 2011), and corruption of government officials (Sharma, et al 2014).

Perceived risks comprises of individuals' own created or imagined risks, which they believe to be associated with e-government, without any convincing evidence for the risk. Identifying both types of risk is important in order to formulate appropriate strategies to overcome them.

4.7.6 Hesitancy to share data

The theme of users' hesitancy and reluctance to share data has been discussed by Nurdin, Stockdale and Scheepers (2012) and Ziemba, et al (2013). In addition to users' lack of trust in government ability and the perceived risks of e-government, individuals' reluctance to share data is another potential barrier in the adoption of e-government.

Thus, it was important to determine whether people are reluctant to share their personal data because of security concerns, or because of personal unwillingness.

4.8   Data Analysis

Given that data for the study was collected using qualitative tools (semi-structured interviews, qualitative survey questionnaires), the resultant data is also qualitative (Bryman, 2008). It comprises of the opinions and perceptions of respondents regarding the adoption of e-government in KSA, taking into consideration the issues of information trustworthiness, professional ethics and perceived risk. As such, a qualitative data analysis approach was required.

As qualitative data is descriptive in nature, it cannot be analysed using statistical tools; thus, the researcher must carry out a comprehensive review and examination of the data in order to make meaning out of this data.

As illustrated in Section 4.3, there are a number of ways to conduct qualitative analysis, of which 'thematic analysis' was chosen for the current study. Employing thematic analysis requires a very specific analysis and coding procedure, which will be described in the next sub-section.

4.9   Thematic Analysis process

A short description of thematic analysis has already been provided in Section 4.4.4. This section will brief about the mechanism of thematic analysis and how it has been implemented in the present study. The logical sequence of thematic analysis is shown in Figure 4.2. As the premises of the thematic analysis

is based on generating categories and codes from the collected data, the researcher should collected and display a large amount of data in order to generate sufficient themes (Amina and Yokb, 2015).

```
┌─────────────┐     ┌─────────────┐     ┌─────────────┐
│Emerged themes│ ──→ │Development of│ ──→ │Collection and│
│from literature│    │questionnaire │    │reduction of │
│             │     │             │     │    data     │
└─────────────┘     └─────────────┘     └─────────────┘
                                               │
┌─────────────┐     ┌─────────────┐     ┌─────────────┐
│             │     │Synthesizing of│    │Generation of │
│Plan of action│ ←─ │  literature  │ ←─ │   themes    │
│             │     │             │     │             │
└─────────────┘     └─────────────┘     └─────────────┘
```
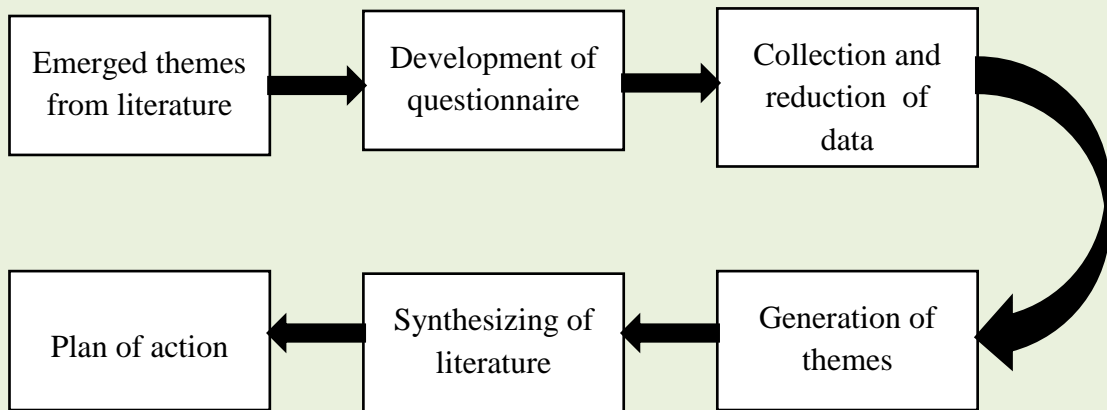
Figure 4-2 Sequence Flowchart of Thematic Analysis (Amina and Yokb 2015)

4.9.1   Themes from literature

The first parameter of thematic analysis is that relevant themes must be identified from the secondary data collected from journal articles, published reports, and other secondary sources. These themes serve as the basis for the questionnaire development, unlike in the grounded theory approach, whereby themes identified in primary research serve as the themes for further primary research (Crawford, 2008). The themes identified in the literature are highlighted in Section 4.7. These themes has been chosen because it related to the current study, which focus on information trust, professional ethics and risk in e-government. The researcher aims to answers his research question. Other themes is not be chosen as they are out scope of the current study.

4.9.2   Questionnaire development

This is the stage in which the interview and qualitative questionnaire questions must be created. Khan and Mustafa (2014) explain that this is one of the most important stages of pre-thematic analysis, as the questions should address the research objectives and questions.

As the aim of the study is to investigate the factors of information trust, professional ethics, and perceived risk in relation to embracing e-government, the questionnaire asked about these areas.

4.9.3   Data reduction

This is one of the most vital stages of thematic analysis, as it enables the researcher to shape the descriptive results that have been obtained in such a way that they can be compared and contrasted (Schutt, 2012). Comparing descriptive results that include narrative and personal experiences cannot be carried out in a similar fashion to a comparison of quantitative data.

For this reason, data reduction is essential for making the data comparable (Yin, 2009). First in the process is the coding of responses; in this stage, the researcher skims through the responses to identify all codes or keywords in the data. Table 4.1 below is an example of how the data is coded.

Response	Main Codes	Secondary Codes
What is to be feared is that e-government employs a virtual environment. All data is stored in bits and often it becomes difficult to track any fake data, or desecration or loss. I'm not sure how good or prone our government systems are in tracing data loss and protecting it.	- Difficulty in tracking fake data - Difficulty in tracking data loss	- Fear of virtual environment - Uncertainity with system credibility

Table 4.1 Example of how the data coded

In the above example, it can be seen that the respondent is afraid of data loss, and is not sure whether an e-government system is able to ensure data security. Consequently, a real-risk code of data loss is generated, and a perceived-risk code of uncertainty regarding system credibility. This indicates that, aside from the real risks, there are also perceived risks, due to the citizens' lack of awareness of government systems.

The next stage is keyword generation, in which commonalities within the responses are identified. Coding responses provides a general idea of the subject the response relates to, while keywords give a more comprehensive overview of the particular nature of that response.

Therefore, when the keywords are combined with the codes, all the responses are categorised into themes, some of which overlap. For example, the code of data loss can appear many times, in different circumstances. Adding the keyword of virtual environment, or professionalism, or viruses, facilitates a more in-depth understanding of the response.

4.9.4 Themes generation

After both codes and keywords have been generated, relevant study themes can be identified, which can help in addressing the primary research questions. Yin (2009) explains that similar codes can be combined to form a more general code that covers all aspects of the related theme.

In order to generate themes, it is important to return to the research objectives in order to create themes that are relevant to the aims of the study.

4.9.5   Literature synthesizing

This is the stage at which the themes are analysed in reference to the theoretical foundation of the study. The researcher must here return to the literature review to determine the significance of each theme and the impact each has on the area being researched (Marcen, et al 2013).

For example, one of the themes highlighted in the present study is the 'technological gap', meaning the gap between people's expectations regarding standards of data privacy in e-government, and the actual standards. This theme is then compared and contrasted with themes identified in other studies to establish a more in-depth and comprehensive link between the theme and the subject (Amina and Yokb, 2015).

4.9.6 Action plan

Unlike grounded theory, in which the researcher concludes by formulating a generalised theory, thematic analysis culminates in an action plan for the individuals concerned. In the context of the current study, the proposed framework, analogous to the action plan is intended for government officials and

policy makers, with a view to improving the standards, outlook, and general adaptability of the e-government system in the KSA.

4.10 Criteria for evaluating the quality of research design

Qualitative research takes a more carefree approach to the collection and analysis of data and it is one of the reasons it is considered susceptible to errors and discrepancies (Lihong and Miguel, 2013). Northcote (2012) remarks that a well-conducted and comprehensive study is worthless if it is not able to answer the core research questions, and cannot justify the authenticity and generalisability of the study results. As such, it is essential to formulate evaluation criteria to guide the research design, ensuring that the results answer the research questions and that the research questions address the problem statement.

4.10.1 Contributory

Tracy (2010) asserts that no study can be considered 'good' unless it adds something to the current literature. For this reason, researchers must identify what contributions the research will make to the existing knowledge base in the chosen field of study.

Will the research address a theoretical gap, or make systematic connections between different components highlighted in the literature, or will it justify the pragmatism of existing theories? The research should use relevant data collection and analysis instruments in order to fill a gap in existing literature and knowledge (Lihong and Miguel, 2013).

4.10.2 Transparency

The instruments employed in the study should be clearly defined and explained so that readers and interested researchers are given a clear idea of the procedure via which the data was collected and analysed (Cassell and Symon, 2011).

Northcote (2012) states that research transparency means that similar data can be produced at a later date using the same approaches and data sources.

Consequently, any vagueness in the research methodology decreases the overall academic standing of the research.

4.10.3 Defensibility

It is very important that the primary or secondary data presented in the study are able to defend the research questions (Alvesson and Skoldberg, 2009). Another way to say this that the research data should comply with the core study questions. In instances where the data collected is unable to justify the research questions that the research seeks to answer the authenticity of the research outcome may be rendered questionable.

4.10.4 Credibility

Cassell and Symon (2011) assert that findings should be buttressed by relevant evidence derived from reliable and trustworthy sources. The researcher cannot simply arrive at a conclusion based on personal views of the primary results alone; the results must be assessed for their credibility and authenticity

by comparing and contrasting them with prior findings. The researcher is in a position to recommend credible research findings only when a sound connection between previous findings and current ones are established (Alvesson and Skoldberg, 2009).

4.11 Research design

Before moving on to discussing the actual data collection process undertaken for this research, and the organisations from which the data was collected, it is essential to provide a brief overview of the overall research design and flow. Based on the evaluation criteria for research design (Section 4.10), a comprehensive literature search was conducted to identify relevant knowledge gaps and areas that require further academic attention. It was found that though technology is moving at a relatively swift pace in KSA, the acceptance rate remains mediocre. This indicates the influence of psychological and other behavioural factors on the adoption and acceptance of the e-government framework at a mass level. After identifying a relevant literature gap, research questions were developed with the aim of addressing the identified knowledge gap.

In the next stage, relevant themes were extracted from the literature to guide the design of the interviews and qualitative questionnaire' questions to be used for conducting the primary research. Care was taken to address the

identified themes both directly and indirectly; to this end, multiple questions were designed, which each targeted a common research theme.

After the research had been designed, a short pilot study was conducted as a test (Section 5.4.1). The aim of the pilot study was to verify the credibility of the interviews and qualitative questionnaire' questions, particularly whether the data collected addressed the research questions or not. The questions was further improved following the pilot study, reducing the wordiness of the questions and using more simple and direct language to inquire about individual perspectives on the key study themes.

The descriptive results obtained from the primary study were then processed, filtered, and categorised using thematic analysis (Section 6.5), whereby the results relevant to the area of study were selected and combined with other similar responses, and irrelevant data was discarded.

As Cassell and Symon (2011) state, data credibility cannot be ensured unless the findings are compared and contrasted in reference to other, credible sources; thus, the researcher embarked on the data analysis procedure after identifying the key themes that had emerged from the data (Section 7.1).

In order to elucidate the various socio-cultural factors involved in the implementation and acceptance of e-government in the KSA, a discussion of Institutional Theory in the context of e-government was presented (Section 7.3).

Finally, an integrated model was presented combining personal, cultural, ethical, and security factors relevant to the implementation of a robust e-government system with low susceptibility to risk and high user acceptance.

4.12   E-government and Institutional Theory

In recent time, institutional theory has become a popular and very powerful tool for studying various issues at the organisational levels (Cai and Mehari 2015). The theory highlights the deeper and more robust features of any form of structure and considers the dynamics by which structures such as rules, schemes, routines, norms and, become well known as influential protocols for social behaviour (Ritzer, 2004). It can be used in any type of research with a social focus with the shape to enhance the understanding of the phenomenon under investigation. A number of authors have established the usefulness of institutional theory. Lammers and Barbour (2006) for instance, applied institutional theory of organizational communication to bridge the gap in social research that centres on both microphenomena and macrophenomena. A number of studies have also adopted an Institutional Theory to examine IT solutions. Examples include studies by: Svejvig and Pries-Heje (2011); Currie (2009); Currie and Guah (2007); Liang et al. (2007); Lai et al. (2006); Butler (2003) and Teo et al. (2003). However, the application of institutional theory e-government is now evolving. For instance, Kim et al. (2009) carried out an institutional analysis of an e-government system to test for anti-corruption using Online Procedure Enhancement for civil application (OPEN) as a case study. In addition, Luna-Reyes and Gil-García (2011) combined institutional theory with dynamic simulation to gain an understanding of complex e-government

phenomena. Similarly, Hassan and Gil-Garcia (2008) provided a roadmap for institutional theory and e-government. In the context of the present work, given the people focus nature of the research, institutional theory was employed because of its deep-rooted ability to deal with numerous features of socio-cultural ambience including morals, behaviour, economics, social life, politics and legal aspects (Scott, 2008; Weerakkody et al., 2009). Additionally, institutions have the ability to govern and constrain behaviour at different levels, from world systems, including organisations, to users and customers of those systems (Scott, 2008). Previous theories related to institutions (i.e. Systems Theory) have overlooked the role of culture and societal roles in the formation of institutional structures and their sustenance (Scott, 2008). It is also noted that legal policies and business structures form the basis for any firm or organisation, and the social environment and cultures in which the firm operates also play a highly significant role. Thus, it is essential to understand e-government in the light of institutional theory (Hassan and Gil-Garcia, 2008). In the subsections that follow, detailed explanation of Institutional theory as it pertains to the current work is discussed.

4.12.1 Understanding Institutional Theory

One of the core tenets of Institutional Theory relates to way in which structural or process changes occurring at the higher-level can be optimised through the implementation of identical changes at the lower level. Greenwood et al. (2008) state that the paradigm of Institutional Theory assumes that all sectors of an institution are closely linked and synchronised. This leads to the need for any policy change at the higher-level to be reflected at the lower level, and vice versa. Therefore, if a policy change is implemented in the reporting

format and accountability of lower-level employees, the same policy should be implemented at the higher-level, in order to maintain organisational coherency and harmony.

A number of researchers have criticised this assumption, stating that the institutions are not completely ideal, and it is therefore impractical to assume that all changes brought into the system should be uniform at all levels (Najeeb, 2014; Chadwick and May, 2011). When it comes to e-government, this can be viewed as different levels of accountability, and different communication and reporting structures followed at different levels of e-government. This state of non-uniformity is unsuitable for e-government, and a standard should be followed at all levels to establish effective communication and, therefore, the paradigm of Institutional Theory is applicable to e-government. The institutional approach employed in analysis involving organisations is referred to as organisational institutionalism (Greenwood et al., 2008), and focuses on the behavioural aspects of an organisation, raising such questions as:

(1) "What do individuals think of their role in the institutional process?"

 (2) "What are the perceptual inconsistencies in the institution?" and

(3) "How are the inconsistencies reflected at the higher and the lower levels?"

Svejvig and Pries-Heje (2011) state that Institutional Theory recognises each individual as an 'actor', with a specific role to play, with their role frequently dictating their behaviour. Thus, Svejvig and Pries-Heje (2011) state that the

actors within an institution will be less cautious of their actions and tasks when their role does not directly impact on the standing and reputation of the organisation. On the other hand, individuals will prove more cautious of their actions if they believe that their role directly affects the organisation's financial or reputation standing. Thus, it can be seen that the position of each individual within the system, along with their perception of their role, influences their overall behaviour and the ways in which their role will contribute to the organisational process.

Later studies by Najeeb (2014) have expanded the discussion on the social environment to cover organisational ties with suppliers, citizens, and other external stakeholders. Najeeb (2014) notes that, for an organisation to be fully functional, it is essential to modify the business process in accordance with the external actors, along with their social and cultural values. Urquhart, et al (2010) discuss Institutional Theory from the perspective of citizens, asserting that it is their social values and demands that shape the social and structural environment of institutions.

4.12.1.1   Institutional Isomorphism

Most institutions within an organisational field possess a legal constitution and regulatory agencies, and have dealings with external suppliers or agents, while the generation of resources or services practices a mechanism that governs its internal and external procedures (Frumkin and Galaskiewicz, 2004). This mechanism is known as 'isomorphism' and defines the way in which a legal framework (i.e. a constitution) and the affiliation of the institution with regulatory

(and other) bodies can affect the behaviour and practices of the institution, or actors in the institutional process (Beckert, 2010; Lai et al. 2006). Institutional theory defines three types of isomorphism, as discussed in the succeeding paragraphs:

4.12.1.2 Normative Isomorphism

Normative isomorphism refers to the normative mechanism practiced to maintain consistency and standards within an organisation (Scott, 2001). Paauwe and Boselie (2003) associate the normative mechanism with policies and procedures implemented by managers to promote professionalism within an organisation. This includes the level of education, experience, and training level of individuals acquired by employees prior to joining the institution, or managers should ensure that employees acquire such skills (Beckert, 2010). Thus, in the context of e-government, the normative mechanism would comprise of a set of policies regarding each individual's level of IT education and experience, and, even if they are well acquainted with the system, s/he will be required to have the stated level of qualification to meet the normative standards (Beckert, 2010; Lai et al. 2006).

Shi and Hoskisson (2012) note that the benefit of normative isomorphism is that it allows the organisation to maintain defined standards, thus reducing internal conflicts. Therefore, normative isomorphism deals primarily with the standards and policies governing an institution's operations and procedures. Hoffman and Ventresca (1999) also note that policies and procedures are not

always designed to maintain internal consistency, but rather to maintain a consistency with international norms and standards.

Thus, organisations frequently change their economic policies and guidelines, not only due to economic considerations, but also due to being expected to follow industry norms. As institutions are part of a social environment, they are expected to follow societal and industrial norms.

4.12.1.3 Coercive Isomorphism

Political and other legal pressures and influences form the core components of coercive or regulatory isomorphism (Lawrence 1999). As organisations work within the territory of one country, but may be linked to several other countries, they are bound to follow the legal guidelines of that country(s). The legal guidelines of the country in which the organisation works set down the level of transparency, minimum wages, quality of products and services, applied taxes, etc. Kim, Pan and Pan (2007) assert that some of the most influential pressures are political, and government sectors have many motivations for such pressures. Political pressures often do not originate from government, but from an opposing party with the potential to win the next election and gain power. Therefore, all such considerations need to be taken into account when designing the organisational framework for accountancy and taxation etc.

In the context of e-government, (Hoffman and Ventresca 1999; Hassan and Gil-Garcia 2008) define coercive pressures as a considerable emphasis on the legitimisation of both internal and external procedures, being aligned with laws relating to breach of transparency and privacy, and ensuring that all

communications are recorded and reported in a timely manner, in order to maintain an effective service delivery database.

4.12.1.4   Mimetic Isomorphism

The term 'mimetic' refers to imitating, or copying, another human being or an object. Mimetic isomorphism refers to procedures and standards copied from other organisations, which are perceived as successful and legitimate ((Tingling and Parent, 2002; Han, 1994). DiMaggio and Powell (1983) discuss the fact that new organisations undertaking structural transformation are often ambiguous about the legal framework and policies they adopt to ensure their operations are successful and legitimate. This uncertainty forces them to adopt policies already in practice.

Organisations often attempt to imitate policies from highly successful organisations or business models, frequently ignoring the implications of cultural and societal differences. For example, the South Korean e-government model is based on that of the Japanese, which was established and modified according to the social environment and workforce of Japan. The implementation of an identical model in Korea raised a number of issues, including the heavy workload, a lack of IT skills, and anti-corruption policies. Corruption and the leaking of data is not generally an issue in Japan, due to the existence of highly secured networks and social values grounded on high moral principles. Thus, there was a need to revise the anti-corruption and accountability framework of Korea according to the needs of the Korean environment. It can therefore be seen that mimetic isomorphism can benefit an organisation when it is unclear of the policies

to follow, however, the adopted (or copied) structural and working framework needs to be modified according to each individual environment and set of socio-cultural values.

4.12.1.5   Sociological Aspect of Institutional Theory

It is essential to understand a number of social factors capable of influencing the efficiency of a system, prior to entering into a discussion concerning the application of Institutional Theory for e-government (Campbell, 2007). As highlighted in both the literature and the current study, one of the major concerns relating to the implementation of e-government at country level concerns the human element (Ragin, 2008). The presence of a human mediator (i.e. a government official) ensures that the elements of personal gain, errors, or corruption cannot be completely overlooked. Improved security and data monitoring techniques can reduce the number of cases of fraud and corruption, however these cannot be eliminated completely (Ragin, 2008).

This augments the need for understanding the sociological aspect of Institutional Theory, in order to identify the causes leading to such undesired incidents in the system as data fraud and corruption. Amenta (2005) states that the element of personal interest takes place in an institution in which there has been a failure to ensure that: (i) policies are clearly defined; (ii) the monitoring measure is well-equipped; and (iii) no personal advantage can be gained from violating the system's policies, i.e. it is possible for an individual to be persuaded by rival organisations to leak (or corrupt) a company's data (Gilbert and Lopez, 2012).

These intentions need to be realised in relation to the cultural and societal perspective. In addition, the lack of motivation also drives an individual to violate both the law, and organisational policies, leading to a need to consider the concerns of employees, and ensure that they are motivated and reminded of their social and corporate responsibilities when working as part of the system (Gilbert and Lopez, 2012).

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4.13   Using Institutional Theory for e-government implementation in KSA

After understanding institutional theory, and how to apply it into IS research including e-government in previous section, the following section outlines how the researcher applies this theory for the current study.

4.13.1 Normative Isomorphism

Normative isomorphism is related to the themes of a technological gap, along with risks related to privacy and confidentiality and information trust. During the implementation phase of e-government, it will be essential for the KSA government to employ qualified, trained, and experienced personnel, in order for the system to be effective and operational. This suggest that those employed in the government sector and operating online need to be highly qualified in the relevant profession of public administration or finance, etc. and should also be trained and experienced in the entering of computer data, along with storing, securing, and networking procedures. This ensures that, IT cannot be an isolated unit within e-government (as it is in other organisations), but an integral aspect, as all departments need to have a good command of IT skills.

For example, in the e-government infrastructure of the Seoul Metropolitan Government (SMG), the normative pressure of the need for transparency has served as the basis for the reform of 'War against Corruption' (O'Byrne et al., 2014). The mayor demanded that each department to report on the level of service given, which was then analysed, along with citizen complaints, and other loopholes in the system. This assisted in the setting of higher transparency and corruption free system standards for the government. Kim et al (2009) note that ambiguous (or ill-defined) employment role and hierarchical models have been replaced with well-defined job descriptions and a hierarchy of accountability for each individual.

Similarly, the government of KSA will also need to set parameters to define the level of transparency, service quality, and corruption-free service it is willing to provide to its citizens. Thus if the level of transparency is at 100%, the flaws in the system need to be made public, along with the process of dealing with complaints and requests and the individuals accountable for each job. Moreover, Capurro and Britz (2010) note that it is possible to delay a number of procedures to resolve complaints, either intentionally or unintentionally. When government demands a high level of transparency in the system, the public needs to be informed about the delays, along with their causes. Government will not wish its citizens to consider the system flawed, or that its employees delay certain procedures, leading to a need to work with greater rigor on improving its operations and service management procedures.

4.13.2 Coercive Isomorphism

One implication of regulatory or coercive pressure is to emphasise correct, timely, and rapid reporting. If the government aims to transfer its work online, any delays and errors existing in the manual system need to be eradicated, as the e-government system will lead to these becoming transparent.

However, there are also a number of drawbacks. Employees in Indonesia have reported that their system of e-government has increased the workload of government officials, due to the expectation that they will respond almost instantly to each enquiry, as well as having to record the response for further use. Similar inquiries can often be made at different times, thus duplicating the inquiry, making the reporting redundant.

One solution is to improve the infrastructure of the IT system deployed, to enable similar inquiries made from a specific user (or on a specific theme) to be grouped and reported together. Kim, et al (2009) have revealed that a similar problem was reported by e-government officials in Seoul, for which the SMG government implemented an OPEN network system, which assisted in categorising inquiries, complaints, and service requests made of different departments, or at different times. The OPEN system was responsible for automatically assigning a specific code to the inquiry, relevant to the service department, and also creating connected links to identify similar complaints, so enabling all similar inquiries to be looped together for easy reporting. This greatly reduced the reporting redundancy in the e-government system.

4.13.3 Mimetic Isomorphism

As noted previously, the mimetic procedure enables a route towards the new service delivery mode, as initial procedures often have uncertainties and ambiguities. The Saudi government can therefore mimic the legal framework practiced by other successful e-governments, simultaneously imitating the technological framework of private organisations in the country of KSA.

It will not be beneficial for KSA to adopt a technology model from a Western county, due to the variance in the levels of technological expertise and infrastructure. Institutional Theory stresses societal structure, values, and attributes, and it is therefore important to bear in mind the technological familiarity and expertise of the Saudi population when implementing the technological model and structure of e-government.

Private organisations and Non-Government Organisations (NGOs) operating within KSA will be able to provide a reference in this regard, as many have adopted the e-system mode for communication and service delivery. Moreover, the Saudi government is not required to implement identical legal frameworks and IT strategies for all of its government departments, i.e. a pilot project could be initiated in one or two departments, and the same structure (with appropriate modifications) can be applied to all other departments following the successful completion of the pilot phase.

4.13.4 Sociological Isomorphism

It will be necessary for the government to address the socio-cultural barriers and perceptions in relation to the implementation of e-government. This

study establishes that, despite the population having faith in the morality of their government, they have a lack of trust in its credibility and professionalism. It is therefore important that the government take measures to publicise government interventions, including the benefits to individuals, and an assurance of the ability of government officials to implement the proposed system model. It is only when the perceptual barriers are eradicated that there will be a true willingness to adopt the e-government system.

4.14   Chapter summary

This chapter has presented a brief analysis of the research paradigm and mechanisms employed in the current study. It discussed the most commonly used research approaches and then provided a justification for the use of the qualitative method (based on the interpretivist paradigm, using thematic analysis) in the current study. The chapter also briefly described the evaluation criteria for qualitative research, illustrated the entire research flow and described how credibility has been ensured at each stage of the research process.

Next chapter, describes the procedure followed by this research for the fieldwork data collections, how the tools for primary data collection was designed, which public organisations were selected in KSA, and why? What processes were taken to inform the participants about the objective of the study and getting their consent before data collection processed.

Chapter 5: Data collection procedure

5.1   Introduction

Having decided on the paradigm, methods and process in previous chapter. This chapter will provide a brief outline of the data collection process, how the primary data collection instrument was designed, which organisations were selected for data collection and why, and what procedures were followed to inform participants of the objective of the study and to obtain their consent prior to beginning the interview and qualitative questionnaire process.

5.2   Organisation selection

As mentioned by Cassell and Symon (2011), in order to maintain data credibility, an appropriate data sample was required, for which reason purposive sampling was employed in the current study. Three government organisations were selected for this purpose, the King Abdulaziz City for Science and Technology (KACST), the Ministry of Interior, and the Ministry of Communication and Information Technology. The primary reason for selecting these three organisations for data collection is that they have been involved in the design and implementation of e-government services, and their employees and officials have had sufficient exposure to the e-government framework. As such, the selected employees of these three organisations are not laymen, but rather have knowledge and understanding of how e-government works, as well as its potential risks and benefits.

Eight employees from each of the three public organisations who were potentially relevant to the topic under study were selected and interviewed.

Effort was made to recruit the majority of participants from the IT, networking, and business analysis departments, as they are more closely involved with the design, implementation, and upgrading of the e-government system.

In addition to this, thirty citizens of the above three organisations were initially selected, also as part of the purposive sampling (Section 4.6.1), to complete qualitative questionnaires in order to acquire a rich and integrated view of the issues of information trustworthiness, professional ethics and perceived risk of e-government implementation from a citizen perspective.

5.2.1 King Abdul-Aziz City for Science and Technology (KUCST).

This governmental institution is located in Riyadh, Saudi Arabia, and was established in 1977 as the Saudi Arabian National Centre for Science and Technology; it was later renamed King Abduaziz City for Science and Technology. This institution is an independent scientific organisation tasked with science and technology related decision-making, research, data collection, research funding, and houses other related services, such as the patent office (KACST, 2014). Currently KACST has more than 2,500 employees.

There is some of the e-government services that KACST provides are:

1. Patent search and registration; this service helps to search data for Protection Documents and applications.
2. Research funding requests; this service is offered to individuals applying for funding to support research projects.

5.2.2 Ministry of Interior (MOI)

Founded in 1951, the Ministry of Interior is responsible for maintaining national security and immigrant inflow in KSA (Yesser.Gov, 2014). The key pillars of MOI are national and citizens' security; it is for this reason that e-government security and stability also fall under their area of responsibility.

Alshehri and Drew (2010) state that, currently, all private and personal information about the citizens and immigrants of KSA is stored in the National Information Centre (NIC), which is supervised and controlled by the MOI.

MOI officials have collaborated with the Yesser programme to share aspects of this information to progress the adoption and diffusion of e-government in KSA within the scheduled time frame. About Yesser programme see Section 3.4.

There are some of the e-government services already initiated by the MOI include:

1. E-services for passport registration and renewal, and visa issuance.
2. Online complaint registration regarding civil affairs.
3. Issuance of Hajj permits (MOI. Gov, 2015).

5.2.3 Ministry of Communications and Information Technology (MCIT)

The MCIT is responsible for the overall development and implementation of Saudi e-government. Jointly formulated, this multi-billion dollar Yesser programme was the result of a strategic collaboration between the Ministry of Finance and the Communications and Information Technology Commission

(Yesser, 2006). Since the implementation of e-government services is a nationwide government project, all government agencies are involved in their delivery to the private sector and public. There are some of services MCIT provide include the following:

1. Registration for the digital excellence award (Websites branch) – the Ministry of Communications and IT provides this routine service to allow electronic sites to register for excellence.

2. Registering e-training convoys. This service allows individuals to register and join a training course within the e-training convoy's initiative.

5.2.4 Ethical considerations

The present research was carried out in accordance with the ethical review procedures of De Montfort University prior to commencing the data collection process. Since the research involved human interactions, in the form of participant interviews with organisational employees and qualitative questionnaires with citizens, the following documents were produced or obtained:

1. Ethical Approval obtained from De Montfort University, see Appendix (B)

2. A document outlining the objective of the project, which was shown to the participants before, they were asked any questions regarding the research. See Appendix (C).

3. An informed consent letter, which was signed by both the informants and the researcher to indicate acknowledgement and agreement. The informed consent letter was written in two dialects including English and Arabic. The original letter was written in English, and then translated into Arabic. Two English and Arabic native speakers were then asked to

assess the validity of the translation by ensuring that both texts had the same meaning. The letter clarified the significance and aim of the research, and asked for the assistance and co-operation of participants. It was spelt out that participation is voluntary, and that participants have the right to pull out from the study at any time. Additional important information that participants needed to know about was also included in the informed consent letter. See appendix (C).

It is also significant to respect the right of participant in regards to their privacy. There are significant issues need to be considered by the researcher such as confidentiality, secrecy and the protection of data. To assure the participants regarding the confidentially of their data and responses, it was clearly mention in the interview guide and in the informed consent letter that the data would be anonymised, completely private and would be used for study purposes only. Researcher address these issues in order to encourage participants to freely express their feelings and thoughts.

5.3   Research protocol

A research protocol is designed to guide the research along a smooth and directed path, which can assist in gathering relevant responses (Yin, 2009). By following the protocol, the researcher can gain a sense of whether the chosen approach is capable of achieving the study aims and objectives, or whether there might be alternatives that are more suitable.

This section will present the research protocol that was designed for and followed in the data collection process of the current study.

Objective of the research

The objective of the study is to collect enough information and evidence on the prevalent disconnect factors between the proposed e-government system and citizens' acceptance rate. The researcher plans to propose an integrated model for enhanced e-government system design, based on institutional theory and the socio-cultural attributes and expectations of the Saudi people on the information trust, professional ethics, and risks in e-government.

Field note

The fieldwork for this study is to be held in the KSA. The research will seek prior consent from each of the organisations and individuals participating in the study, so that they are aware of the study objectives and that participation is completely voluntary. The fieldwork conducted between 16th June 2013 and 16th Sept 2013.

Interview guide

- The researcher will first contact the participants via email or telephone to request their participation and determine a feasible time for them to be interviewed.

- The researcher will send the participants a copy of the research themes and objectives via email so that they have an idea of the purpose of the research.

- At the time of the interview, the researcher will remind participants' that

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their responses will be recorded using written notes and a sound recorder.

- A consent letter will be signed by each of the participants, confirming their voluntary participation in the study and their right to withdraw from the interview at any point.

- The researcher will explicitly inform participants both prior to the interview and at the time of the interview that their names will not be asked for or recorded and that their responses will be kept confidential.

Example of questions for organisations employees, before starting the interviews

General Questions

- How do they envision e-government?
- What is your perspective of e-government services and their role in enhancing its effectiveness?

Chief Questions

- What problems they have encountered? What procedures have been implemented to overcome these?

- How citizens are facilitated?

- Is there any difference between citizens' expectations and the proficiency of the e-government that is delivered

Example of qualitative questionnaire questions for citizens.

- Have they used e-government services before? When? How was their experience?

Table 0-1 Example of Organisation's Employees and Citizens' Questions used in Fieldwork

5.4 Fieldwork executions and data collection procedures

The researcher commenced the fieldwork phase of the research with a pilot study to refine the interview in terms of the time taken, location, questions and to update the research protocol as necessary. The pilot and fieldwork studies are described in the following sections.

5.4.1 Pilot study and its results

Prior to the actual data collection process, a pilot study was conducted to test the suitability of the chosen methodology prior to implementing a wider scale study. The pilot study was conducted between 01/03/2013 and 20/03/2013. In this case, a pilot study refers to a smaller-scale version of the larger planned study, implemented as an exact replica.

According to Everitt (2006, p55), a pilot study is an, "*investigation designed to test the feasibility of methods and procedures for later use on a large scale, or to search for possible effects and associations that may be worth following up in a subsequent larger study.*" Thabane1 et al. (2010, p23) agree that "*pilot studies are the best way to assess the feasibility of a large, expensive full-scale study, and in fact are an almost essential prerequisite, (and as such) …conducting a pilot prior to the main study can enhance the likelihood of success of the main study and potentially help to avoid doomed main studies*".

Consequently, it was necessary to identify a small-scale context in which data could be generated using an exact replica of the research design chosen for the larger study. This meant that the pilot study had to be conducted in a public service agency, institution or office dispensing public services for and on behalf of the KSA government.

The chosen locale for the pilot study also had to have employees with knowledge regarding the use of e-government services, and who were accessible to the researcher. As it was only a pilot study, it was not feasible to commit significant time and resources to its execution. As the researcher was a foreign

student studying in the United Kingdom, there was also concern regarding the need to travel to and from KSA for both the pilot and actual studies.

In light of these considerations, a KSA government organisation located within the UK was selected as the ideal location for the pilot study. The Saudi Cultural Bureau in London was a perfect fit with regard to all of the aforementioned requirements. The purpose of the pilot study is to ensure that relevant data can be obtained from participants, and that the interview questions can be understood easily without any ambiguity. Second, it should aid the researcher in preparing the data collections process, practise their interview skills and obtain useful information. As such, interviews were conducted within the Saudi Cultural Bureau in London (SACB). The pilot study led to the following findings:

1. The pilot study yielded useful information with regard to information trustworthiness, professional ethics and perceived risks of e-government, and facilitated a limited understanding of the issue under investigation.

2. There were some limitations in the interview questions that requires slight modifications in order put the research aims and questions into proper perspective. For instance, researcher need to re-phrased or re-worded some questions to clarify their meaning, and some new questions were included.

3. The researcher's interview technique needed to be developed in some areas, such as the process of introducing the interview, and managing the interview process and length.

4. The interviews were disturbed, as they were conducted at the interviewees' places of work, during working hours. As a result, most of

the interviews conducted for the fieldwork proper were held in a coffee shop, outside of working hours.

In summary, feedback from the pilot study was used for the modification and enhancements of the clarity of the instruments and for further development of certain aspects of the interview guides. Furthermore, it assisted in the design and development of data collection procedures before to the primary data collection stage, in the hope that this would help to prevent errors from occurring.

5.4.2 The main fieldwork study
This section explains how the fieldwork is being conducted which involve two subsections as follows:

5.4.2.1   Conducting the interviews

Semi-structured interviews were employed to gather data for this study. The interview questions were written in English and supervision team gave feedback, final interview version was shaped see Appendix D. Then interview questions were translated to Arabic by researcher. Two English and Arabic native speakers were then asked to assess the validity of the translation by ensuring that both texts had the same meaning. All interviews were conducted in Arabic, which is the mother language of interviewee. Interviews conducted in the following manner: The researcher contacted the management of e-government services and arranged interviews with key individuals, such as members of the project management team, business analysis and IT departments. Email correspondence, telephone calls and site visits were used for this purpose. The researcher then informed the interviewees of the time and the date of interviews.

The researcher gave the interviewees a consent letter declaring that data gathered are strictly for research purposes. The interviewees had the opportunity to read the Informed Consent Letter, after which it was duly signed by each of the interviewees (see Appendix C). The researcher sought participants' permission to identify them in the present research. An audio recorder was used to record the interviews, and written notes were also taken during the interview. However, some interviewees did not wish to be recorded, which was respected. In this instance, only written notes were taken.

At the end of each interview, the researcher summarised the issues discussed and gave the interviewees the opportunity to correct or add to their responses. After completion, each interview was transcribed and translated from Arabic to English. Two English and Arabic native speakers were then asked to assess the validity of the translation by ensuring that both texts had the same meaning. An example of interview with a government employee of MOI, that has been transcribed and translated then analysed by is given in Appendix F.

On average, each interview lasted for between 40 and 50 minutes. As is the interviews were semi-structured, some questions were prepared prior to conducting the interview (see Appendix D), and others emerged throughout the course of the interviews.

5.4.2.2   Conducting qualitative questionnaire:

Before conducting the interviews, it was important to get a sense of citizens' views regarding information trustworthiness, professional ethics and perceived risks of embracing e-government services. Purposive sampling was

used to select participants. The same principles of conducting interviews applied when carrying out the qualitative questionnaire. Qualitative questionnaire questions were written in English and been reviewed by supervision team until final version shaped, then it translated to Arabic by researcher. Two English and Arabic native speakers were then asked to assess the validity of the translation by ensuring that both texts had the same meaning See appendix E. All qualitative questionnaire were conducted in Arabic, which is the mother language of participants. Qualitative questionnaire conducted in the following manner: Researcher get access to citizens through face to face meetings within the government organisation location. The scope of the study is then discussed with them after which their opinions on key aspects of the research was asked. After completion, each qualitative questionnaire was transcribed and translated from Arabic to English. Two English and Arabic native speakers were then asked to assess the validity of the translation by ensuring that both texts had the same meaning.The citizens were given a consent letter explaining that data was being gathered for scientific purposes. The citizens had the chance to read the Informed Consent Letter and then sign it. Copy of consent letter is been attached on appendix C. Qualitative questionnaire question which is been attached on appendix E.

5.5   Chapter summary

This chapter has discussed issues related to the planning and undertaking of the data collection process of this study. The use of a research study protocol design was justified and ethical issues were considered. The research study protocol was explained, including the research objectives, interviews guidelines,

field notes, and interviews and qualitative questionnaire questions, and the pilot and actual fieldwork studies were described. This study took place in three Saudi government organisation namely; Ministry of Communications and Information Technology (MCIT), Ministry of interior (MOI), and King AbduAziz City for Science and Technology (KAUST) and was piloted in Saudi Arabian cultural bureau in London (SACB). This chapter forms the basis for the analysis of the data, which will be discussed in the next chapter.

Chapter 6: Results and Findings

6.1   Introduction

This chapter outlines the findings from the fieldwork conducted with three government organisations in KSA and e-government citizens, detailing the outcomes of the analysis based on the perspectives of the employees of the targeted organisations for this research. In total, eight experts each from the selected organisations as highlighted in Chapter 5 were interviewed. They included IT professionals and consultants, network engineers, policymakers, business analysts, data mining analysts and other professionals who are familiar with the concept of e-government. Prior to each interview, a high-level discussion was embarked upon by the researcher with the interviewees to refresh the memory of the interviewees despite sending them the questions in a semi-structured format before the interview time. The aim of the discussion was to highlight the overall aim and scope of the research and to identify the needs of policy makers and professionals who are saddled with the responsibilities of implementing e-government platforms. The interview adopts a semi-structured approach and was conducted for direct assessment to fully explore the issues raised by the interviews. The goal was to accord them the opportunity to describe their attitudes towards the design and implementation of e-government based on their personal/professional views and perspectives. This was recorded to preserve the sanctity of the qualitative data collected.

Before delving into the analysis of the interviews, it behoves to start from the description of the qualitative analytical procedures adopted for this research,

detailing how it was applied to the results and examples of past work that has adopted the framework.

6.2 Qualitative analytical procedures adopted for the research- thematic analysis

The views and perception of the subjects regarding the relevance, utility, and experience as related to the use of e-government is vital to the evaluation process. As such, it is important to utilise a systematic procedure that allows for: (i) the use of a framework, theoretical or structural precepts from which themes can be identified from the qualitative data; (ii) the development of themes in a natural manner, which further augments the findings from the qualitative data set. This will provide further intuition and enhance the ability to identify other important features that were not initially taken into consideration. Accordingly, the findings will enable detailed answers to be provided to the overall research question that the research seeks to address.

Against this backdrop, several qualitative analytical methods, including thematic analysis, were identified from past research work (McGrath and Pistrang, 2007; Braun and Clarke 2006; Cassell, et al. 2006). The deductive approach entails the use of a predefined framework, structure or theoretical concepts to identify themes from a data set (Burnard et al., 2008) and thereby imposes a predefined structure on data, which is then adopted to analyse the interview transcripts (Williams, et al. 2004). This approach is laced with bias and impedes the emergence of theme(s) that are not covered in such a predefined framework or theoretical concepts and is therefore disposed to losing sight of

other themes that might have emerged (Burnard et al., 2008; Fereday and Muir-Cochrane, 2006). Nonetheless, the deductive approach finds application in studies where the researcher is aware of probable participants' responses, but sought to investigate the reasoning behind such responses (Burnard et al., 2008; Fereday and Muir-Cochrane, 2006). On the other hand, the inductive approach enhances natural emergence of themes (Fereday and Muir-Cochrane, 2006). By extension, no predefined framework, structure or theory is assumed or imposed on the data set. As such, themes emerge in a natural fashion and support the promotion of theory development, which explains their suitability for grounded theory research (Burnard et al., 2008).

In the context of the current research, thematic analysis - a qualitative analytical method - that contains the benefits of thematic was adopted. A select but not exhaustive list of past work that has adopted the thematic analysis includes studies by McMillan (2009), Burnard, et al. (2008), McGrath and Pistrang (2007), Pope et al. (2006), Fereday and Muir-Cochrane (2006). The concept of thematic analysis is further classified into two major categories: the deductive approach and the inductive approach. Each can be applied in a variety of ways, as reported by Burnard et al. (2008). In the subsection that follows, a description of the steps taken for the data analysis.

6.3   Qualitative data analysis

Exact transcripts of the interviews and qualitative questionnaire were analysed based on principles and techniques derived from thematic analysis described above. The analysis followed general approaches to qualitative data

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analysis. The first step in the data analysis process was to transcribe the recorded interviews into text. Then, since most interviews were in Arabic, researcher produce English translation of the text. Two Arabic and English native speakers were asked to assess the validity of the translation by ensuring that both texts had the same meaning. Next step entails a detailed checking and reading of each interview transcript to minimise errors whilst enhancing a profound understanding of the views expressed by the experts being interviewed. Tentative "tags" were then developed to capture the meaning and importance of each idea or theme for example in this study, the theme of perception of e-government identified as one of the theme because participants give their perception about e-government and whether their engagement with e-government had provided them with any better capability to fulfil their professional responsibilities. The next step involves the categorisation and aggregation of ideas or codes that are similar into unified themes for each transcript; following this, common themes were established from all the transcripts. The theme tags were then screened and each transcript was coded to further categorise the themes. Based on the standard methodological procedure of good practice in qualitative data analysis (McGrath and Pistrang 2007), "credibility checks" were carried out the team of advisors, with the view to validate the generated codes. This ensures firmness, reliability, and conciseness of the analysis, whilst minimising elements of bias (Cruzes and Dyba 2011; Burnard, et al. 2008).

The next stage involved the integration of themes to establish relationships between the identified themes. Themes that are related were collected together to produce a small set that focused on capturing the very essence of the

explanations offered by the interviewees. Accordingly, an understanding of the meaning of the themes that emerged from the codes was realised. The themes drawn from codes were then screened along with the conceptual framework used in the research. Accordingly, key findings under each theme were presented using descriptive and interpretive reporting methods (Burnard et al., 2008) as detailed in the succeeding sections.

6.4 The outcome of analysis based on organisational employees' perspectives

This section relates to the data collected from employees of the organisations under study; it will be divided into sub-sections according to the emerged themes of each question in the employee interview.

6.4.1 Perceptions of e-government

Each interview began with a question about how the participants perceive e-government, and whether their engagement with e-government had provided them with any better capability to fulfil their professional responsibilities.

This question served to obtain an idea of the general attitude of the interviewee toward e-government. When answering this question, Interviewee 3 from the MOI stated that e-government in the KSA may not be as effective as regular government (MOI_3). He noted that "*At the moment, there is long way to go in terms of realising the full potential of e-government. You see, here in Saudi the effectiveness of e-government is not felt yet because people find it difficult to adapt to change. However, with time the perception of people to e-government,*

might change and they will begin to embrace the concept when the level of awareness increases."

Aside from general opinions, a number of interviewees explained that it would be impossible for them to perform their role unless the gaps in citizens' participation in the e-government system were eliminated (KACST_3, MCIT_1, and MCIT_4)

For instance, one of the interviewees (KACST_3) commented that "*one of the difficulties we are witnessing pertains to the fact e-government facilities is currently not fully accessible by the citizens of Saudi. For e-government to realise its potential, the level of proficiency of the citizens must improve and every citizen must have access to it*"

In the same vein, another interviewee (MCIT_4) suggested that " *if the level of awareness among the citizens regarding e-government does not improve or if the people are not convinced about using the facilities, then it will be difficult for us to do our job because the system may be rendered non-functional due to gap in knowledge of the citizens about the whole concept of e-government*"

Another interviewee (MCIT_1) also echoed the same view when he said "*One of the key factors limiting the overall acceptance of e-government has to do with the fact that many inhabitants of Saudi are still very much unaware of the overall benefits of e-government in terms of how it adds value to them…. And for the few individuals that seem to have an understanding of how the system works, lack of trust as to how the information they supply is used and the proficiency of the professionals handling the e-government platform is also a major concern…*"

However, a number of the interviewees provided positive views about the concept of e-government. For instance, interviewees (KACST_7, and MCIT_1) said that they consider e-government to be a useful form of government that augments the accountability of government officials, as they can be questioned by the people. More specifically, interviewee (KACST_7) submitted that: "*When the potential of e-government becomes fully realised and the citizens begin to buy into the concept, it can serve as a means to reach out to government officials and make them accountable for any form of policy or decision they make which affects them in one way or the other. If government officials are aware that citizens can express their views without fear, it may go a long way in enhancing accountability and responsibility in government…*"

One of the interviewee explained that "*e-government is more than just another form of government, as it offers greater transparency compared with conventional government forms*" (MCIT_5).

From the interview responses, the positions of two interviewees namely MOI_3 and MCIT_5 slightly conflicted each other. For instance, MOI_3 rejects the notion of the universal utility of e-government, due to discrepancies in citizens' access to and participation in e-government. He stated : "*…until the wide gap in accessing e-government facilities is reduced, the likelihood of the success of e-government is minimal. The level of awareness of e-government and incentives to encourage citizens to use it must be improved…*"

However, (MCIT_5) asserts that e-government is beneficial to all and should be considered more effective than traditional processes. He submitted

that "when *the balance between the citizens and e-government services is gotten right, e-government will always prove to have an overall competitive edge compared to the traditional approach to government. With increased level of awareness and wider internet penetration, the benefits of e-government will be brought to the fore in the nearest future..."*

By drawing inferences from the above submissions by the interviewees from all the three organisations under consideration based on the first question put forward to them (i.e. their perception on e-government), it can be observed that there is a general consensus about the overall benefits of e-government although some interviewees expressed concern about factors limiting its wider acceptability at the moment. For instance, the technological gap between the users of e-government and the services it provided is one key factor for which attention was focused. Overall, it is not the concept of e-government that is the issue. The main issue pertains to the frame of mind of the users and their overall awareness about the benefits it guarantees. Accordingly, it can be argued that offers a positive effect in terms of acting as a conduit for delivery of information. Essentially, technological and societal obstacles impede, but do not prevent the implementation of e-government in the KSA.

6.4.2 Transition from the manual government to e-government

The theme "transition from the manual government to e-government" seeks to highlight the problems, complications and other challenges that the

government and relevant departments might face when transitioning from manual to e-government.

The interviewee (MOI_3) shed some light on a number of dimensions related to e-government and its implementation. He asserted that " *the implementation of e-government in the KSA would help to eliminate a number of problems associated with the traditional form of government which is mainly based on manual procedures*". (MOI_3) also warns that "*e-government in KSA should not be considered an absolute solution, given its people and technology-dependent nature*. He suggested that "*strategies for backing up information should be put in place when e-government facilities are temporarily down. Once the e-government platform is stable and the KSA citizens are aware of its potential, the operation of e-government will become smooth but effective back up plans should also be put in place.* " Finally, the same interviewee expressed confidence that "*the shift from manual to e-government would inevitably lead to a deep sense of reform, accountability, responsibility, and swift delivery of services*".

The interviewee (KASCT_2) said that "*the complete substitution of old manual government with e-government is as complex as an overhaul of the main structures of government*". In this case, he believed that "*the implementation of e-government must be complemented with alterations and amendments in terms of policies, service delivery and transparency*". He further stated that "*for the smooth delivery of e-government to be ensured effective policies which guarantees quality of service delivery and transparency must be put in place. This*

will go a long way in building trust among the citizens, thereby enhancing the tendency for the effective utilisation of e-government."

Interviewees (KASCT_4, and KASCT_7), echoed views that are similar to those of (KASCT_2, and MOI_3). The common opinion of these interviewees is that the process of transition from the older system of government (i.e. the traditional or manual system of government) to e-government is quite risky and challenging, but that the risk factor can be reduced by employing qualified professionals to implement the change and improving the information technology security framework. Specifically, KASCT_4 stated that *"the risk associated with the design and implementation of e-government in Saudi Arabia can be minimised by ensuring that requisite and qualified professionals are recruited to manage the e-government infrastructure. Ideally these should be people who have skills in ICT, computer networking, data mining and database management. In doing so, it will be possible to identify problems on time and probable solutions can be offered within time and overall performance objectives.*"

By contrast, interviewees (MOI_3, MICST_4) stated that they do not consider the implementation of e-government to offer very promising reform; these interviewees were disposed to think that e-government could facilitate citizens' access to public services only if safety and security parameters could be guaranteed*. For instance, MICST_4 stated "unless the safety and security of potential users of e-government is guaranteed, the implementation and overall acceptance of e-government will be pretty difficult. People tend to be generally sceptical when supplying personal information but provided an assurance of their*

safety and security is taken into consideration, the risk factors associated with e-government will be largely reduced…"

Despite this criticism raised by some of the interviewees, none of them entirely rejected the viability of e-government as a substitution for the traditional system of government based largely on manual operations. In addition, it must be stated that all interviewees agreed that the the steps towards the transitioning from traditional system of government to e-government is not an easy proposition. Effective stakeholder engagement and discussion is required among all the stakeholders involved in the design and implementation whilst taking into consideration the views and perceptions of the citizens at large. Accordingly, all interviewees are of a unanimous opinion that the transition from the manual or traditional government to e-government must be accompanied by a complete overhaul of relevant policies, transparency issues and quality of service delivery.

6.4.3 Level of adoption of the e-government

The theme of level of adoption of e-government addressed and asked the interviewees whether they would recommend that e-government be adopted across the entire system of government within KSA, or be restricted to certain aspects of government.

Taking an assertive position, interviewee (MOI_5) saw no impediment to the implementation of e-government across the whole of government, but warned that "*it must be carried out by a group of experts who are capable of properly evaluating all the relative advantages and disadvantages of certain facets of e-government. In doing so, it will ensure that easy fault tracing and ensures that conflict are resolved within time without affecting overall operation*".

Similarly, interviewee (MCIT_6) pointed out that "*the adoption of e-government across KSA government as a whole would mean that government operations could be monitored and issues of poor government could be resolved via a central point*". However, interviewee (MCIT_6) recognises that "*it is impossible to guarantee benefits to both the citizens and the government through total adoption of e-government platforms if the system lacks an adequate mechanism of control. This is because the wider the network nodes, the more complicated the overall network infrastructure supporting the e-government. A robust conflict resolution mechanism must therefore be put in place when consideration is given to the adoption of e-government to the entire system of operation*".

On this same issue of general coverage, (MCIT_6) explains that "*it is not sufficient to have e-government across all functions and services if there is no confidence that this system will contribute to all sectors of the economy. The cost of implementing e-government is very high, so if there is no assurance of how such integrated implementation will benefits key economic sectors under consideration, it might become counterintuitive to implement e-government across the entire operation of government. Key sectors must therefore be prioritised and a detailed analysis of their requirements from an e-government perspective must be provided*".

The stance of (MCIT_4) is that "*the adoption of e-government across all of KSA would inevitably stimulate other functions that relate to the system of government, as a total implementation of e-government is capable of*

transforming every function of government and thus can ensure the quality of the services delivered".

On this point, (KACST_3) said that "*it would be wise to adopt e-government throughout KSA, as long as it is well designed and well executed, in order to prevent possible disappointment*".

Regarding the views of others, interviewees (MOI_8 and MCIT_6) stated that they perceive no substantial impediments to the implementation of e-government for the entire system of Saudi government. For instance, MOI_8 submitted that "*the structure of government is quite compact and that the implementation of e-government across shouldn't constitute much of a problem. The key issue is to ensure that highly trained ICT professionals are at the helm of affairs during design and implementation. By focusing on certain aspect of government and neglecting other aspects, it is highly likely that information transfer mismatch might become the order of the day.* Similarly, MCIT_6 suggested that "*the government is compact enough and the relationship between one sector and another is quite well managed and streamlined, so the implementation of e-government across board will create an added advantage...*"

Two other interviewees (MOI_8 and MCIT_2) expressed the opinion that the problem is not the extent to which e-government should be implemented, but in the quality of its implementation. According to these interviewees, aside from the total implementation of e-government in all sectors of Saudi government, it is essential to guarantee that effective measures of control and response will be put in place to counter any possible threats that may occur. MCIT_2 specifically

stated that "*the issue here is not about the coverage or spread of e-government. The key point pertains to whether the design and implementation of e-government is robust and equipped with control measures when faults develops across the entire system.* " Therefore, these interviewees reflect the position of Interviewees (MOI_8 and MCIT_6).

By drawing inference from the above views, submissions and comments, it can be observed that most of the respondents express confidence regarding the implementation of e-government or a broader scale across all sector of the Saudi government. Accordingly, provided adequate control measures are put in place, implementation of e-government at all levels of government seem to be considered a favourable choice.

6.4.4 Professional ethics in e-government

This theme focused on professional ethics with regard to e-government. The purpose of this theme was to determine the respondents' positions concerning the key ethical issues that arise from the adoption of e-government. Accordingly, the views of the interviewees are detailed in the succeeding paragraphs:

Interviewee (MCIT_3) stated that *"major professional ethical issues stem from and affect any e-process, and no e-process could be completely immune from the leakage of confidential data. Therefore, it is incumbent on those who operate e-government to ensure that issues of privacy and confidentiality are acknowledged and attended to in a timely fashion.*".

Other interviewees expressed similar opinions with regard to this issue. Interviewee (KACST_3) said that "in *my view professional ethics in relation to e-government centre around issues of privacy and confidentiality"*.; However, in contrast to interviewee (KACST _3); (MOI_8, MCIT_4) do not believe that the problems of professional ethics in terms of e-government are confined only to issues of confidentiality and privacy. According to these two interviewees, there is a wide range of other issues related to professional ethics in e-government, such as politeness, openness, accuracy of information, and use of formal language. For instance, (MCIT_4) submitted that "*across the years, the subject of ethics has become an integral part in the interaction among humans being as is the case even with the adoption and implementation of e-government. Accordingly, issues including politeness, openness, accuracy of information, and use of formal language have become the focal points of professional ethics in e-government. The issue of professional ethics therefore goes beyond confidentiality alone...*"

In light of the above submissions, three interviewees (MCIT_4, MOI_8 and KACST_3) pointed out that the individuals entrusted with administering e-government "*must have clearly defined professional duties to guarantee that issues of professional ethics are fully addressed*".

Interviewees (KACST_1, MOI_3, and MCIT_6) also expressed a common opinion, namely "*that issues of professional ethics in e-government includes not only privacy and confidentiality, but also honesty, transparency, integrity, accountability, loyalty, obedience to the law, respectfulness and objectivity*".

Interviewees (MOI_3, and KACST_1) both agree on their definition of integrity, and stated "*that integrity is an important component of professional ethics in relation to e-government, requiring managers to ensure consistency in values, actions, principles, citizen expectations and professional outcomes*".

To summarise all of the responses pertinent to the inquiry into professional ethics in e-government, the personal attributes of honesty, integrity, communication skills, and politeness were identified, as well as the professional or organisational attributes of confidentiality, privacy, and accuracy of information.

6.4.5 Accountability in e-government

Accountability is a key area of professional ethics, and thus it was dealt with explicitly during the interview process. The interviewee (MOI_5) expressed an understanding of the concept of accountability as involving answerability to citizens, as well as liability and acceptance of blame. This can be inferred from his statement when he said, "*the issue of accountability is an integral part of the overall success of any e-government both around the world in general and Saudi Arabia in particular. When a system is perceived to be accountable, it breeds trust and confidence and it can go a long way in shaping the views of potential users of e-government facilities*"

In terms of e-government, the concept of accountability relates to various problems connected with the implementation of national policies. Interviewees (MICT_3, MOI_2, and KACST_5) expressed that accountability as an ethical

category implies not only abstract principles but also internal standards of individual behaviour.

To this end, this these interviewees asserted that "*it is impossible to achieve successful implementation of e-government in KSA without those people who are entrusted with the management of e-government also adopting certain standards of individual behaviour. If the general public knows that people who are responsible for overall operation of e-government, it will make them to become more comfortable.*

Interviewees (MOI_2, KACST_5) associated loyalty and trustworthiness with accountability. These interviewees asserted that "*true accountability could only be achieved if government officials are truthful and loyal, to both themselves and to the public*".

The attribute of patriotism was also highlighted in this regard (MOI_2), and the concept of objectivity as an element of professional ethics and accountability was mentioned in the responses of (MICT_6). He submitted that "*the concept of objectivity encompasses disinterestedness, fairness, factuality and non-partisanship; certainly, it is not possible to guarantee information trustworthiness in relation to e-government unless the managers of e-processes are objective and understand their level of accountability*".

In summary, it can be said that the interviewees agree with the fact that accountability in e-government is closely related to the professionalism of the employees and government officials working in the system.

6.4.6 Risks of e-government

This theme concerned the prevalent risks and hazards in the adoption of e-government. Interviewee (MCIT_3) responded that the primary risk in the adoption of e-government in KSA stems from poor safeguarding of data from hackers.

More specifically, hacking is considered one of the main risks, since the perpetrators are inclined to erase private information and, thus, inflict substantial damage on the government as stated by interviewee (KACST_3). According to (KACST_3) *"if information is leaked, it will be difficult for the government to exercise its agenda for all citizens of the country"*.

In a similar context, (KACST_6) suggested that "*the adoption of e-government has more risks, compared with the old system, as e-government is more closely connected with technology, and thus the risks are more pronounced"*.

In addition, (KACST_6) claimed that ''*e-government requires significantly more funds that the older system, in order to ensure its effectiveness and operability"*. On the other hand, interviewee (MOI_3) also argued that the investment of additional funds would lead to more risks associated with the availability of constant financing to support e-government, as lack of money would threaten the provision of governmental functions.

Similarly to (KACST_6), interviewee (KACST_01) argues that:

''e-government implies that all issues will be addressed in a virtual environment; this environment is different to what citizens of KSA have previously experienced''.

Interviewee (KACST_6) suggested that "*the implementation of e-government might not be adequately performed at this level, particularly as virtual processes are limited, both in application and in scope*". Hence, it follows that the implementation of e-government may lead to imbalances between actual opportunities and citizens' expectations. With regard to the other interviewee (MOI_8) expressed:

''a belief that all risks concerning e-government can be divided into two groups''.

The first group can be defined as implementation and legal risks; the implementation risk comprises a wide range of issues, covering management, budgets, legal issue, and records management. On the other hand, legal risk concerns issue with collecting, preserving, using, and disseminating identifiable personal data and information and ensuring that all third parties, who may have limited access to the e-system, use a state-of-art confidentiality system.

Other interviewees (KASCT_7, and MOI_5) expressed a common opinion that, notwithstanding a wide range of other threats, the biggest risk in the implementation of e-government in KSA is of electronic intrusion. Aside from the risk of electronic transfer frauds, they also said that the risk of identity fraud, and explained that, unlike other online environments where users can disguise their identities whilst online, an e-government system usually requires citizens to

reveal their real identities.   For instance, KASCR_7 submitted, "*one of the greatest fears of people about the adoption e-government pertains electronic intrusion which can be a source of fraud*"

On the other hand, citizens of government services need to be sure that they are visiting the legitimate government agency site, and that the provider of services is genuine, whereas the providers of e-services must be sure that only legitimate users are utilising services.

6.4.7 Information Security

Information security is one of the major hazards in the implementation of e-government; as such, the interviews addressed this issue explicitly by asking a separate question about the risk of information security and trust issues in moving from a manual to electronic form of government.

Interviewees (MOI_1, and MOI_4) agreed that information security and system credibility in terms of data protection are two of the most significant challenges and hurdles to overcome in e-government implementation and maintenance. Moreover, interviewee (MOI_1) confirmed that, from the perspective of their organisation*:*

'' information trustworthiness, and other security-related issues remain major challenges for e-government in KSA.''

According to (MOI_4):

''information security and trust constitute not only major challenges, but are also key expectations of the majority of stakeholders''.

In this interviewee's (KASCT_1) opinion:

''individuals, particularly experts on e-processes, may interfere with critical information in order to pursue a personal agenda''

Furthermore, individuals may tamper with information to intentionally affect the governmental agenda. Furthermore, interviewee (MOI_4) stated that

''there is no guarantee that KSA will have a safe e-government system that cannot be hacked, and that the probability of infringements on safety and security of e-government is a critical issue that may jeopardise information trust''

Other interviewees (KACST_8, and MCIT_9) expressed a common opinion that:

''issues of information trustworthiness and security are interrelated and dependent on the risks associated with e-government, such as hacking or other forms of intrusion and malpractice in the domain of e-processes''.

These interviewees is inclined to think that e-government as a new means of interaction on the one hand, and national government on the other hand, does not encourage the same feelings of trust that have developed toward more traditional means of manual government. This implies that e-government will be

considered an inherently less trustworthy means of interaction between citizens and governmental agencies, compared with manual government.

In addition, (MCIT_3, and MOI_2) argued that:

''*information trustworthiness in terms of e-government can be ensured only if the government of KSA formulated a clear agreement, or pact, between the government and citizens, whereby citizens would be informed about what personal data is handed over to government and what happens when that personal data is lost, or other incidents occur*''.

6.5   The Outcome of analysis based on Citizens' perspectives

This section relates to data collected from citizens perspectives, and is divided into sub-sections according to the theme of responds of the citizen's qualitative questionnaire.

6.5.1 Perception of e-government

The theme is aimed to get an idea of citizen's perceptions of government websites and online government information systems.

According to (C_15, C_8-10, C_15, C_17, C_20 and C_25-30), their first impression when using the government website was good

The respondent C_15 claim that "*it is very convenient and contains all essential information about the governmental products and services*".

By contrast, (C_6-7, C_11-14, 16, C_18-19 and C_21-24) expressed the opinion that government websites are not as convenient as they expected or wished them to be.

The respondent C6 said that ''*the main shortcomings of the government websites are the multiplicity of headlines, the lack of logical division between various sections of the site*''

The respondent C16 argue that: ''*Some of government website has small text font, absence of an easily identified search option, and the lack of an easily identified description of citizens' rights*''

The respondent C18 said that ''*government websites do not have the government's obligations with regard to e-processes and e-government functions*''.

There are various perception of e-government from citizens' perspectives.

6.5.2 Trust in KSA government

An important aspect of citizens' trust in e-government is their general attitude toward the KSA Government, as a lack of trust in government will lead to distrust of e-government. Thus, it was essential to include a question on citizens' general level of trust in local government. The majority of respondents, specifically (C_1-8, C_10, C_15, C_20-24, C_26, C_28-30), said they have some trust in the Saudi Government and the delivery of its services.

For example respondent C1 said that ''*yes I do have some trust in government to deliver its services to its people*''

Furthermore, both of respondent (C_9, C_11) said that'' *we have absolute trust in the Saudi Government and its service delivery*''.

However, (C_12-14, C_16-19, C_25 and C_27) said that *'' we trust Saudi government and its service delivery only under certain conditions: if the government provides services transparently, professionally and in accordance with citizen expectations''.*

This shows that there is some variance in the level of trust; however, nearly all citizens' said that they trust the Government's ability and service credibility to at least some extent.

6.5.3 Competency of the KSA government

The theme was designed to elicit citizens' opinions in respect to the capability of the government website to present information in a simple and direct manner.

The theme responses revealed that (C_6-7, C_11-14, C_16, C_18-19) and 21-24) do not believe that the Government website displays information in a simple and direct manner, and that they consider the structure of the website to be not very convenient.

The respondent C7 revealed that *'' well, I do not like the way of government website when they display information, it difficult to fellow and it not easy as well as the structure of the government website is not very convenient''*

They claimed that the website consists of many templates, which display different blocks of information. According to Respondent C_11, *'because of the multiplicity of headlines, which are not always in a logical order or systemised, it is difficult to search for the necessary information''.*

In criticising the Government website, respondent (C_6) pointed out that *''a tag for 'News' is not provided, which makes it difficult for first time visitors to find headlines and other news''*. In addition, it was reported by respondent (C_7) *''it is very difficult to find the tag 'Search''.*

The existence of the search option is justified that visitors to the Government website are usually looking for certain information, and are not there to merely surf online. Therefore, it would be appropriate to make the search option more visible.

However, respondent (C_1-5, C_8-10, C_15, C_17, C_20, and C_25-30) took a more lenient position, acknowledging that the Government website is not perfect but contains all the information necessary for the effective delivery of services.

Respondent C5 said: *''Government website is not perfect but I can find any information I need ''*

These citizens argue that it might be appropriate to make the tag 'Terms of Use' more visible, by placing it at the top of the webpage.

In their evaluation of the Government website, C.1-5, 8-10, 15, 17, 20 and 25-30 all concluded that it contains all essential data and necessary information; among different benefits, they highlighted the existence of a government agencies directory, government services directory, acts and bylaws, projects and initiatives directory, e-Payment directory, news, FAQ, and other useful pages.

6.5.4 Quality of Information on government websites

This themes was designed to find out how citizens rate the quality of information published on the government website.

Respondent (C_6-7, C_11-14, C_16, and C_18-19) reported that the information published on the Government website is simple and clear, but not always qualitative. According to these respondents the main advantages of the information published on the Government website are:

a) Supplementation of information with photographs and relevant images; and

b) The possibility to listen to some posts. The simplicity and accuracy of posts are considered by these respondents to be the two underlying criteria of information quality.

On the other hand, Respondents (C_1-5, C_8-10, C_15, C_17, C_20, C_25-30) expressed the opinion that the quality of the information published on the Government website should be measured not through an evaluation of the structure of text and existence of complimentary functions, such as listening options, but rather through the existence and nature of the sources upon which the information is based, in other words, the authenticity of the information provided. On that point, these respondents claimed that many posts on the Government website are substantiated with good quality sources.

For instance, Respondent (C_17) observed *that ''the environmental and wildlife directory contains vital information about the preservation of wildlife in KSA, environmental legislation, the Saudi Wildlife Fund, and environmental health in the KSA''*. According to Respondent (C_17), all of this information is substantiated and can be confirmed by reliable sources, such as the Saudi Wildlife Commission, the Ministry of Municipal and Rural Affairs, the Intergovernmental Panel on Climate Change, and the United Nations Framework Convention on Climate Change, amongst others. He asserted that this information could be considered good quality source because it is based on official sources, and links to the aforementioned sources are also provided.

6.5.5 Measures for improvement

This theme concerned any measures that could be taken to improve the presentation style, content quality, and authenticity of the information provided on the government website.

Respondents (C_1-8, C_12, and C_7-30) indicated that the most effective measure to improve the Government websites would be "*to increase information trustworthiness through means of professional ethics*".

Respondent (C_03) asserted that the information provided is very formal and no communication mode is provided on the majority of the sites, via which citizens can interact with the administration to obtain further assistance and support.

Moreover, Respondent (C_05) claimed, "*it is necessary to enhance the transparency of the e-services provided in the framework of the Government website*". According to Respondent 5, the best way to augment transparency is through clarification and public control of various operations conducted within the process of service delivery.

On the other hand, Respondent (C_12) said that ''*the current format of the government website makes it impossible to evaluate the honesty and respectfulness of the managers who operate the delivery of services online*''.

According to Respondent (C_12), ''*all communications with citizens must use very careful wording and phrases, which may foster the feeling that managers are aware of citizens' wishes and expectations, and that they respect the citizens s' opinions and positions*''.

6.5.6 Surveillance systems for monitoring citizens

The theme of surveillance systems to monitoring citizens was an indirect effort to understand citizens' opinions about the morality level of the government and the level of trust they have on the activities of their government. So, it was asked whether they think that the government uses surveillance systems to monitor all their activities and what are their opinions about this.

According to respondents (C_1-10, C_15-20 and C_23-24) were inclined to think that the Saudi government uses surveillance systems to monitor the activities of its citizens.

Respondent C10 said: '*'I do not think KSA use surveillance system to monitor us*''

Surely, the respondents do not provide direct evidence of such activities. Nevertheless, they are confident that government is interested to possess information about the trends and patterns of the citizens' activities.

However, respondents (C_11-14, C_21-22) do not think that Saudi government utilizes surveillance systems to monitor the activities of its citizens. They argue that it is impossible for Saudi government to make practical use of surveillance systems everywhere. Thus, at least the government does not monitor some places.

Respondent C14 said: ''*Saudi government do not use this system* ''

From this theme, it was observed that people believe that their government has high moral standards. Many citizens, who believe that the government uses surveillance systems for monitoring their activities were not offended by it and deemed it in the better interest of the country.

6.5.7 Sharing of personal data

An important aspect of information trustworthiness and data security was touched upon in this theme, where participants were asked if they are reluctant to share their personal information with government officials via online mediums.

In response, (C_1-4, C_8-12, C_15-20 and C_22-30) said that they are reluctant to share their personal information, but consider it to be a necessary precondition of access to government products and services. Also, these respondents stated that though they do not feel comfortable when sharing personal information, they justify this discomfort with certain arguments. In their

common opinion, the main drawback of sharing personal data is the potential that the data will be lost, hacked, stolen or leaked.

Respondent (C_16) said that ''*we believe it is impossible to control what data is shared with consent and what data is shared without consent''*. They believe that sharing personal data may lead to security concerns, as well as the invasion of privacy.

Other respondent (C_2) said'' *we are afraid of inaccurate and incorrect collection of personal information as a result of data sharing''*

They believe that when data is incorrectly or inaccurately shared, it will be very difficult to undo or correct that action.

Respondents (C_23) said that ''*I am unwilling to share personal data because I am afraid of potential discrimination, particularly where there is a chance that the data could fall into the hands of prospective employers''*.

In contrast to respondents (C_22-24, C.5-7, C_13-14, and C_22) reported that they do not feel uneasy about sharing personal information. Also, they maintained that the sharing of personal information is useful for the identification of social trends and statistics.

In addition, respondents (C.7 and 22) said that they believe personal information sharing facilitates the detection and prevention of criminal offences, such as fraud and terrorism.

Thus, two trends are evident in the citizens' responses; almost all citizens believe that personal data sharing serves a number of purposes and is important for the security of the country, yet almost all citizens also fear that their data could be leaked, hacked, or used for immoral purposes without their knowledge.

6.5.8 Improving methods of communication

Theme of improving methods of communication was intended to invite citizens' suggestions for ways to improve current government methods of communication with citizens.

Respondent (C_1-12 and C_16-30) expressed confidence that communications between government and citizens are essential for state development; however, they also said that, under the conditions of e-government, it is essential to establish new means for such communications. In their share opinion, in order to make contact with citizens in the modern world, government should use technology as much as possible. Thus, the integration of different internet-based tools is expected to facilitate access to services and valuable information.

These respondents also agreed that online instruments of communication are vital for citizens' interaction with government, and that active encouragement of an integrated approach to dealing with digital channels is effective in promoting communication and the engagement of citizens in e-government.

However, respondents (C_13-15) asserted that the current methods used by the government to communicate with citizens are already sufficient, and

require no substantial improvements. These respondents asserted that the main problem is with the quality of public information, and not with the means by which this information is communicated to citizens.

Thus, according to respondent (C_13-15) the quality of public information must be improved; specifically, the information must be as simple as possible. These respondents asserted that the main problem is that Government does not always seek to satisfy the needs of citizens through the effective delivery of public services.

The lack of knowledge and political will were suggested by (C_13-15) to be two major factors that undermine the quality of public information.

Even the Government utilises the most advanced and effective channels of communication with residents, maximum effectiveness of such communication will not be achieved until the public information that is conveyed is of a high quality.

6.5.9 Expectations from e-government implementation

This theme addressed people's expectations and beliefs with regard to the possibility of e-government implementation KSA.

According to respondents (C_1, C_4, C_10, C_12-18 and C_20-30) expressed their faith in the success of a complete implementation of e-government in KSA, but only if certain conditions are fulfilled. Among other things, these respondents argued that the complete implementation of e-government in KSA would require a particular state of mind, in which government data and

information is deemed a 'national treasure' and not merely the object of transactions and interactions between government and citizens. In addition, these respondents highlighted that a full implementation of e-government in KSA is possible only if all government entities play an active role in this process.

To clarify, Respondent (C_04) stated that it is incumbent on every government entity to adhere to unified guidelines with regard to the maintenance of data and documents in electronic formats. Similarly, Respondent (C_21) asserted that government agencies must refrain from repetition and duplication in their common databases, as complete e-government implementation in KSA will be achieved only if strict coordination among all government agencies is maintained.

Another respondents (C_2, C_11 and C_19) expressed their confidence that e-government can be fully implemented in KSA without controversy. These respondents said they have no doubts concerning the successful implementation of e-government in Saudi Arabia; their opinions are based on that the world is becoming increasingly globalised, and thus it is impossible for the government to prevent global changes and the proliferation of electronic technologies in the territory of KSA. In other words, these respondents believe that global trends dictate what the government of KSA should do and that therefore the Saudi Government has the necessary guidelines for a complete implementation of e-government.

Another respondents (C_2 and C_5-9) expressed strong doubts that e-government can be implemented in KSA to its full capacity; they highlighted

several major factors preventing the Government of KSA from fully adopting e-government, including:

 a) Insufficient technological advances in KSA.

 b) Lack of necessary technological knowledge of those entrusted to operate e-government

(c) Lack of necessary technological knowledge among suggested users of e-government platforms

d) Safety and security issues

e) Lack of sufficient funds for the development and maintenance of e-government platforms

6.5.10 Possibility of a safe e-government
This theme was design to see citizens' thinking about safe and risk-free e-government is possible.

The results obtained in response to this regards are quite intriguing; despite the lack of trust people have shown in the current ability of the government to ensure data security, respondents share in common that formulating a safe e-government is quite possible. Respondents (C_1-15, C_19, C_21, and C_24-30) expressed their confidence in a safe e-government and stated that other countries are already operating this kind of system, which shows that it is not impossible. Therefore, by implementing appropriate anti-corruption and anti-hacking measures, a secure and safe e-government system can be ensured. Firewalls, antivirus software, security locks, and emergency databases are just some of the tools that can be used to enhance the security of the system.

Unlike (C_1-15, C_19, C_21, and C_24-30), Respondents (C_16-18, C_20, and C_22-23) suggested that in their opinion e-government platforms could never be absolutely safe. They pointed out that, despite being beneficial for providing common interfaces between various information systems, thus enabling government services to share information with citizens and vice versa, e-government platforms still are likely to encounter many safety problems.

According to these respondents, the implementation of e-government architectures inevitably leads to various errors and inaccuracies. However, the biggest challenge to e-government is hacking. It is possible to create systems of control and protection within the framework of e-government; however, it is impossible to stop hackers from breaching the system.

6.5.11 Government capability to build a safe system

This theme is concern how Saudi government capability to build a safe system; as such respondents (C_1-15, C_19, 21, C_24-30) all expressed a belief that the Government of KSA has the capability to build a safe system of e-government in its territory.

The main arguments are that KSA can accumulate international experience in this field and allocate necessary finances for the implementation of e-government.

On the other hand, respondents (C_16-18, C_20, and C_22-23) do not reject the Saudi government's ability to implement e-government as a whole, but have doubts regarding the possibility of ensuring the safety of e-government, taking into account the technological gaps in KSA.

6.5.12 Risks of transition from old manual system to e-government

The Theme of risk was designed to reveal the trends among citizens with regard to the major risks of transitioning from old system of government to e-government.

In additions, Respondents (C_1-6, C_12-24, C_27-30) pointed out that the first and foremost risk in this regard is the risk of wasting finances, expressing a belief that the transition from old manual system of government to e-government would consume vast amounts of public money, which may negatively affect other aspects of life in KSA.

Other respondents (C_12, C_16, C_28, and C_30) warned that moving public services online could negatively affect the quality of these services, taking into consideration the fact that overly bureaucratic Internet resources are often ignored by the public.

Another risk of shifting from the old system of government to e-government relates to public confidence.

According to respondents (C_1-4, C_7-10), there is a risk that the new paradigm of government may fail to elicit confidence that citizens can conduct transactions via e-government in a secure virtual environment, and that their privacy will be protected. This risk stems from the fact that citizens typically have high expectations with regard to the timeliness and quality of public services.

Consequently, it should be expected that the failure of e-government to provide citizens with services of the same or better quality than those provided

under the framework of old government would inevitably lead to citizens' dissatisfaction with e-government platforms.

However, respondents (C_04, C_6-8) indicated that this risk could be mitigated, or even eliminated, if the managers of e-government took active steps toward the development of action plans and measures to achieve the strategic goals of e-government.

A third risk of replacing the old system of government with e-government relates to managing change. According to respondents (C_08-11, C_14-16) the shift from old system of government to e-government inevitably results in a shift of managerial skills, responsibilities, obligations, and collaborations.

In this sense, it could be argued that the overall success of managerial change depends on the adequacy of communication, collaboration and coaching of managers.

In addition, respondents (C_7-11, C_25-26) stated that the biggest risks with regard to e-government originate not from the internal specificities of e-government as an up-to-date system of government, but rather from the external conditions in which e-government is actualised. In other words, these respondents expressed the common opinion that the major risks of e-government as a substitution for the old government system lie in the technological, financial, social and economic limitations of KSA as a country.

Moreover, respondents (C_7-11, C_25-26) expressed their confidence that a successful implementation of e-government may not be risky at all, if those entrusted with its adoption and operation are provided with sufficient financial resources, technological tools and social experience in order to carry out this task.

According to the common opinion of respondents (C.7-11, C_25-26), the transition from an old system of government to e-government can mitigate and safeguard against external risks when the implementers take into consideration possible problems in communicating with citizens, due to the lack of direct contact between a citizen and manager.

To sum up, citizens are concerned about the risks involved in the transition phase, but also believe that these will only be present for a finite period of time, and that the government will endeavour to reduce those risks as the system becomes more mature and stable.

6.5.13 Opinion of people working behind the e-government

This theme was designed to see the attitudes of citizens regarding their opinions of people who work within e-government.

Respondents (C_1-12, C_14, C_16, C_20, C_24-30) said that they were not aware of what the opinions of individuals working on e-government are. They have no awareness of how the managers of e-government think or what their opinions of the provision of public services under the framework of e-government are. They also pointed out that it is impossible to guess the opinions of people

who work within e-government without having direct communication with these people.

Thus, these respondents acknowledged that the biggest limitation of e-government is the lack of direct interaction between the citizens and providers of public services; that is, citizens are not able to see the people who work behind e-government and, thus, cannot comprehend their emotions or verify the truthfulness of their words.

By contrast, respondents (C_13, C_15, C_17-19, C_21-23) were inclined to think that it is possible to understand the opinions of people who work within e-government; according to these citizens, the best way to comprehend these opinions is to analyse the language, manners, style of work and other behaviours exhibited by those working within e-government, as these are indicators of their professional ethics.

Regarding Respondents (C_13,C_15, C_17-19, C_21-23), it follows that elements of professional ethics, such as transparency, honesty, confidentiality, respectfulness, obedience to the law, accountability, integrity, and honesty, can be easily detected in the communications between citizens and providers of e-government services.

These respondents acknowledged that the people who work within e-government are more skilled than those people who work within traditional government.

6.5.14 Existent level of technological development in KSA

Theme of existent level of technological development in KSA was designed to see citizens' beliefs with regard to the current level of technological development in KSA.

According to respondents (C_1, C_3, C_8, C_12-18, and C_27-30) pointed out that KSA has a sufficient level of technological development, which can facilitate the adoption of e-government. According to these respondents, the salient feature of KSA's technological domain is that the Internet is perfectly integrated with computers and telephones. This means that the citizens of KSA are able to make practical use of these services via e-government platforms.

Other respondents (C_2, C_4-7, C_9, C_20, C_23, and C_25-26) do not think that the current level of technological development of KSA is sufficient for a perfect operation of e-government platforms. These citizens argued that more advanced computer-based technologies are required to enable uninterrupted and safeguarded functioning of e-government in Saudi Arabia. This implies that e-government can be implemented in KSA, but that technological issues may hinder perfect operation of this system.

In addition, this means that KSA must not cease its technological development, in order to ensure a firm grounding for e-processes.

Respondents (C.10, 11, 19, 21, 22 and 24) claimed that technological development in KSA is not yet advanced enough to allow for a swift and seamless transition from manual government to e-government.

As such, these respondents asserted that KSA must improve its technological development before commencing the shift from old government systems to electronic-based government.

6.6 Emergent Themes from the study

By carrying out a general thematic analysis, relevant themes from the primary data were identified and extracted. As earlier stated, one of the advantages of thematic analysis is that it helps to identify core themes within the results that are relevant to the study themes and objectives. A number of themes were identified in the results of this study that were excluded in the data reduction process, as they were not strictly related to the core study objectives. For example, the theme of data presentation on government websites. This theme was necessary to acquire a comprehensive understanding of the readiness of citizens to adopt the e-government, but is not directly related to the study topics of trust, security, and risks factors in e-government. Table 6-1 below shows the results of the thematic analysis, which have been derived from the combined data obtained from employees and citizens. In the chapter that follows, the emergent themes will be further discussed.

Codes	Participant Quotes	Keywords	Emergent Themes
Deprivation in e-government	E-government is deprived of those essential characteristics that dominate in the framework of the normal process… e-government must be accessible and useful for every individual without exceptions	i- Manual versus normal process; ii- e-government for all	Citizenry Gap
Withdrawal in e-government	One obstacle to information trust within e-government is the technological gap… Technological development and protection of data impedes the proper, professional and ethical operation of e-government…	i- Protection of data ii- Confidentiality iii- Information trust	Technological Gap
Security issues in e-government	Transitioning from the manual closed system to an online open system for service delivery can have serious security issues… Large amounts of information are accumulated in the framework of e-government and, thus, it is impossible to be sure that some information could leak out.	i- Open data transitioning ii- Security issues iii- Closed versus online communication	Privacy and Confidentiality
	It is not possible to guarantee information trust in terms of e-government unless the managers of e-processes are objective and understand their level of accountability.	i- Information trust ii- Accountability and responsibilities	

		iii- Communication procedures	
Uncertainty in e-government	The procedures followed for taking and giving information to the public needs to be authentic and recorded so that the administration can monitor what has been communicated and how.		Information Trust
Complications in e-government	E-government employs a virtual environment. All data is stored in bits and often it becomes difficult to track any fake data, or desecration or loss. People can create fake identity and cheat with other's privacy. The new government will require investing more of its revenues to support its e-government objectives and processes, thus, incurring higher risks.	i- Virtual environment ii- Data desecration and loss iii- Fake identity iv- Financial dependence	Prevalent Risks
Uncertainty in e-government	The lack of necessary technological knowledge of those entrusted to operate e-government can cause risks in implementation and execution. True accountability can only be achieved if the government officials are true and loyal to themselves and to the public.	i- True accountability can only be achieved if the government officials are true and loyal to themselves and to the public.	Professional Ethics

Dispossession in e-government	E-government will be beneficial only if it is as effective as the normal process. E-government will be effective and useful for Saudi Arabia people only if it provides the citizens with the real possibilities to monitor government undertakings and policies.	i- Normal process ii- Monitoring government undertakings iii- Adaptability	Condition for Benefits
Dispossession in e-government	Adoption of e-government across the entire KSA would inevitably stimulate other functions, which relate to the system of government. E-government a universal phenomenon which covers not only all aspects of government in KSA, but also the whole complete territory of KSA.	i- Stimulating other functions. ii- Universal phenomenon iii- Relating to government system	Universality of e-government

Table 6-1 Emergent Themes of the study

6.6.1 Conclusion:

The result indicates that the lack of e-government adoption is due to numerous factors, inclusive of the citizenry gap, technological gap, privacy and confidentiality, trustworthiness, professional ethics, and the universality of e-government. Thus, to boost the adoption of e-government it is essential that first the preventive security measure must be taken to ensure data privacy so that people's trust is built on it.

Chapter 7: Discussion

7.1   Introduction

The following chapter presents a discussion with facts on the research findings and outcomes of the fieldwork presented in the previous chapter. The emphasis of this chapter will be on answering the research questions based on the outcomes. The chapter presents a deep understanding of the research's findings by applying institutional theory. The opted approach will provide a theoretical explanation for the findings and will aid in developing an integrated model to support e-government implementation in KSA.

7.2   Citizenry gap

It has been highlighted that both employees and citizens perceive a prevalent gap in the implementation of e-government, including its output and the benefits afforded to citizens. One of the interviewees in the current study noted that:

Citizens are not aware of what benefits e-government will bring to them and what difference will it be from the normal government… (MOI_05)

It was also observed that the key phrase 'normal process' was repeated a number of times in the interviews with organisations.

E-government is deprived of those essential characteristics that dominate in the framework of the normal process… (MOI_04)

E-government will be beneficial only if it is as effective as the normal process. (KAUST_05)

The phrase 'normal process' serves to characterise traditional (i.e. manual) government. This indicates the existence of a persistent belief (or fear) that citizens will be unable to adapt to the new e-system, and that the aim of government to improve its communication and services will not be achieved while the current societal and government outlook persists. This is a highly significant perspective in relation to the implementation, maintenance and future development of an e-government system. Should the design of e-government be unable to close the gap between government and the citizens, this may lead to questions concerning the funding of the e-government project, thus jeopardising its future development (Yaghobi and Shakeri, 2010).

A number of gaps in both knowledge and trust have been identified within citizens. Each citizens has a different outlook on current government activities, along with the credibility of their future endeavours, resulting in the need for the gaps experienced by citizens to be treated as a starting point for a discussion of information trustworthiness and professional ethics. Furthermore, Al-Azri, et al (2010) highlight end-users of technology (i.e. the public) should be brought into line with government officials, technology experts, and other participants, engaged in implementing technological change. It is only when both the public and employees become aware of the potential advantages of this new system of interacting with government (along with its ease of adoption) that they will be able to participate in, rather than resist, the process of change.

One employee stated that:

E-government is deprived of those essential characteristics, which dominate in the framework of the normal process… (MOI_04)

It is thus vital for government officials and policy makers to first understand the characteristics of traditional government, including the ways in which citizens: (1) engage; (2) register their complaints; (3) deliver feedback; (4) ensure that all these characteristics also become an aspect of the new e-government system. It can thus be inferred from the employee's statement that the inability to comply with the framework of the normal process can lead to a failure of e-government.

7.3   Technological gap

The interviews extensively highlight the existence of a technological gap, leading to the conclusion that this is one of the fundamental issues in the framework design and implementation process of e-government. The fundamental significance of the technological gap is clarified by its close relationship to information security and confidentiality checks on shared and received data. Thus, a minor lapse of technology can have a serious impact on the stability and sustainability of an e-government system.

According to (MCIT_6) and (MCIT_28) in the employees' interviews, and C.1-4, 17-29 in the citizens' qualitative questionnaire, reveal that the information gap

forms a major impediment to the implementation of e-government, as well as being a crucial obstacle to information trustworthiness within e-government.

This is highlighted in a number of the interviews:

The KSA has a substantial technological gap, which prevents the e-government function to fulfil its full potential. (MCIT_6)

The gap in technological development and the protection of data impedes the proper, professional and ethical operation of e-government, particularly because sensitive data cannot be protected within this system. (MCIT_2)

At the commencement of the current study, the issue of a lack of knowledge being related to technology and information management was highlighted in the studies undertaken by Ndou (2008) and Reddick (2005). The results comply with the findings of previous studies, indicating that a lack of technical knowledge and expertise can prove a major obstacle to the reliable implementation of e-government.

A number of citizens have expressed the view that government officials do not possess adequate technological skills required for ensuring the smooth transaction of data, data security, and other pertinent procedures. It is notable that it can be inferred from comparing these results with the study findings of Sarrayrih and Sriram (2015), that the level of trust in online government services has decreased as the infrastructure of IT has developed. Thus, some in KSA (or at least some

groups within KSA) have increased their reluctance to use the IT system, even though it has become more advanced.

Rosa et al (2013) study of hacking activities and cybercrimes can provide a solution to this conflicting scenario. As the IT structure has evolved, so have hacking and cybercrime, and the level of internet security crime has increased considerably over the previous decade, affecting the population's faith in online data security. This clarifies the fact that those in KSA experience anxiety concerning their data security, viewing the officials operating the e-government system as being incapable (or insufficiently competent) to provide complete data security and delivery of the service to the population.

Thus, it will be impossible to ensure that the population has complete faith in e-government, unless there is:

(1) An increase in the technological skills of those in charge in accordance with the current challenges to data security;

(2) An increased awareness of the level of the competency of managers and executives involved in the process of change.

In addition, identifying a lack of technology following the implementation of e-government would have a serious impact on the sustainability of the system. Thus, there needs to be recognition of the issue of a technological gap, which needs addressing prior to the full and final implementation of the system.

7.4   Privacy and confidentiality

The issue of privacy and confidentiality is viewed as the most important challenge in the implementation of e-government. The greatest concerns relate to the government's inability to secure and safeguard information and data (including financial or personal data), which can have serious implications if lost or leaked. Clearly, this relates not to a single organisation, federal bank, or a network of organisations, but to the entire network of a state or country.

There will thus be a considerable amount of data shared and received in comparison to that undertaken by a single dedicated network, or open networks, along with multiple data types rather than simply bank or credit card details.

As highlighted by some of the citizens responds, this will also lead to a number of issues related to data security and management:

Large amounts of information are accumulated in the framework of e-government and, thus it is impossible to be sure that some information could not leak out. (C.29)

There are real humans who will monitor and manage the e-government system. So, there can always be a chance of human error, fraud, intentional or unintentional data leaks, and other issues that can risk our confidentiality. (C_5)

The theme of privacy and confidentiality appears to be an extension of the technology gap, as the majority of the population are not concerned with the way in which the system will be managed and sustained, but the ways in which the privacy and confidentiality of their personal data can be ensured. The lack of an appropriate legal and security framework will give rise to issues of the digital divide and uncertainty in relation to privacy, which can raise questions concerning the credibility and effectiveness of the e-government model (Wayne and Timothy 2011).

Therefore, privacy and confidentiality need be the primary components of the e-government system model, as any inadequacy related to data privacy and confidentiality can create an unavoidable loophole in the e-government network.

In addition, it is pivotal to consider the implications for improving e-government's approach to privacy and confidentiality. As noted in the organisational employees (MOI_3, KACST_8), and the citizens of (C_1-4, C_17-29), organisations that adhere to clear and stringent rules for professional ethics are able to ensure a high level of data security. The adoption of practical guidelines and instructions for the framework of e-government has been asserted to guarantee data privacy and confidentiality.

This has also been highlighted in the literature. Morgan (2007) and Saleh and Alfantookh (2011) note that a written account (including persuasive arguments) should be presented, along with a comprehensive evaluation of the ways in which the results can be widely disseminated.

This can be achieved by including a detailed account of all threats to citizens' privacy and confidentiality, including its contributors, managers, and reformers. A correctly documented framework would easily identify any loophole in the system with the potential to lead to a loss of privacy. Additionally, sophisticated models and protocols must be used to secure the database containing the information. Access right policies shall be placed to ensure data privacy, while audit trials must be carried out periodically to monitor any suspicious threat or vulnerability in the e-government database and system. The access roles can also be defined allowing privileged access to the higher authorities only (Wayne and Timothy, 2012).

7.5   Information trust

The theme of information trustworthiness relates to two separate dimensions; firstly, general faith in the trustworthiness and credibility of government websites; and secondly, the ability of government to provide authentic information and maintain a record of all communications. Incidents of the public being misled, along with fraudulent acts undertaken by internal government departments, and further acts of immorality, tend to be related to these two dimensions of trust within the sphere of government.

In the current study, the citizens revealed a certain degree of belief in the trustworthiness of government officials, but a lesser degree of trust when it comes to their ability to provide authentic information at all times, and keep an effective record of all information being shared (e.g. conversations; financial information; photographs; and other data shared and received within the government network).

Tolbert and Mossberger (2006) have established that the percentage of those using government websites has decreased, due to a loss of trust in local government. The results obtained in the current study contradict these findings, observing that, although the number of government website users has decreased, this cannot be simply attributed to a decline of trust in government online information sources.

The results of the study reveal that a number of citizens found the information provided on the websites to be unappealing and difficult to follow. Moreover, the missing tags of the News and Search bar also leads to difficulties for new users in finding relevant information and news on these websites. Therefore, it can be concluded that the issue is not a lack of trust in government information sources, but rather the inappropriate manner in which the information is presented to target citizens (Welch and Feeney, 2014). When it comes to the second dimension of information trust, the following response has been received:

The procedures followed for taking and giving information to the public needs to be authentic and recorded so that the administration can monitor what has been communicated and how. (C_14)

This clarifies the fact that the missing element consists of an effective framework and system to record and secure all citizen information. Therefore, the theme of information trustworthiness also relates to the issue (as discussed above) of the technological gap.

A number of studies (Arduini et al, 2013; Welch and Feeney 2014) have clarified that information trustworthiness can only be achieved by designing strategic models and systems to increase the efficiency of the e-government process. Saleh and Alfantookh (2011) further clarify this process as a guided framework, in which each step lists all possible sources and causes of information security loss, along with hacking. The network is comprised of different networking layers, leading to a unique form of security threat at each level. Therefore, the design of the e-government system must identify the nature of the risk at each networking layer, and plan its prevention and contingency accordingly, in order to enhance information security and information trust.

7.6 Prevalent risks

One of the primary objectives of the current study is to identify the major risks in transitioning from the manual system of government to the e-government system. Both technical and perceptual risks have been identified in the literature, with many also being highlighted in the current study.

For example, Rabai et al. (2013) identify the existence of a number of prevalent external risks with the potential to compromise security of data would (i.e. hacking and theft of data). On the other hand, there are a number of internal threats related to a potential malfunction of the system, including improper data handling, and illegal acts by departmental officials compromising data security.

In general, risk is perceived as a whole (i.e. including both internal and external risks), and therefore, even if all data links are completely secured from any external threat, a number of concerns regarding internal risk will remain (Wayne and Timothy, 2012).

The current study has also established new dimensions of risk, which have not been explicitly defined in previous studies. Thus, (MOI_8 and C_5-10, C_15, C_16, C_30) were of the opinion that e-government would require a larger budget for supporting its activities and processes, leading to the credibility and efficiency of the new form of the government being highly dependent on its financial resources. In consequence, should these resources not be available, the new system would not be able to maintain the same level of efficiency, leading to a number of serious implications, i.e. ranging from service delay and network collapse, to a loss of data security measures. Moreover, the virtual nature of e-government was also highlighted as a core risk factor. One of interviewee stated:

E-government employs a virtual environment. All data is stored in bits and often it becomes difficult to track any fake data, or desecration, or loss. (MOI_5)

Feeney and Welch (2012) have also identified that a single programming error can result in zero flag (i.e. no indicator), even in the presence of a loss or destruction of data. Due to the entire system being managed through computers and

programmes, any failure to identify minute errors during the programming phase can subsequently cause serious problems.

This is one of the internal risk factors pertinent to e-government, and it is clear that (as many errors are identified following the commencement of the system) there can never be complete assurance at any given time that the computing system and designed network contains zero errors. However, it can be argued that both internal and external risks in the implementation of e-government can be reduced by the employment of experienced professionals (Davide et al., 2014).

7.7 Professional ethics

The theme of professional ethics includes two distinct factors: (1) professionalism and (2) corporate ethics. This study has identified that the factor of professionalism is linked to that of corporate ethics, and is therefore grouped within the same theme.

The citizen point of view have identified that professionalism forms a core element of professional ethics, as a designated employee lacking in the appropriate skill set or competence, could lead to an increase in the probability of errors, placing the privacy and confidentiality of citizen data in jeopardy.

For this reason, professionalism is linked with implementation risks in e-government. One citizen stated:

The lack of necessary technological knowledge of those entrusted to operate e-government can cause risks in implementation and execution. (C.2)

Gilbert and Lopez (2012) are also of the opinion that complete surety of error-free and secure procedures cannot be given if government employees are not competent professionals, or are unfamiliar with advanced knowledge related to networking, data security, or the transition from the manual system to that of e-government. This then raises doubts over the effectiveness of e-government, while a lack of technical knowledge will also hinder the framework design, implementation, and improvement procedures.

Therefore, the most important aspect is to ensure that government verifies the competence level of all professionals who are involved directly, or indirectly, in the design, or management procedures, of the KSA system of e-government. The following aspect concerns corporate ethics, including the traits of loyalty, trustworthiness, transparency, and accountability. These traits are highly pertinent in the context of internal risks for a KSA e-government system, as the absence of these traits would lead to the implemented level of transparency and accountability being lower than that of the desired level.

Arduini et al. (2013) assert that each individual linked to the operation of e-government needs to understand his/her responsibility to both the government and the public. Furthermore, individuals need to behave in an honest manner, and

understand the consequences of any mistakes or adverse behaviours, and accept responsibility for their actions. The report by IFIP (2008) notes that that the issue of accountability is one advantage of the e-government system, as it is easier to trace records, errors, and cases of fraud when working in a closed network, in comparison to working manually, when error tracking is a far lengthier and intricate procedure. Government officials will therefore need to be more cautious in their dealings and proceedings, bearing in mind their high levels of responsibility, and the high levels of transparency within the e-government system, leading to greater ease in tracing the sources of fraud, etc.

7.8   Condition for benefits

As is general during the design phase of a new system, a number of issues have arisen in relation to the implementation of e-government. The current study has raised a number of issues concerning:

(1) The adoption level of the e-system for governmental departments;

(2) The level of access given to different authorities; and

 (3) Target citizens to use the new system.

Each of these issues has experienced different responses and implications in relation to the scenario in which the system is implemented. Therefore, the method of acquiring maximum benefits from the new system will change according to the situation, the target audience, and other related factors. It has been observed that, when it come to the implementation of a of a country-wide e-government system, the

majority of the organisational employees were of the opinion that e-government should be implemented in all departments and units of the KSA government:

Adoption of e-government across the entire of KSA would inevitably stimulate other functions that relate to the system of government. (KACST_3)

It is impossible to guarantee the benefits to both citizens and the government from the omnipresent adoption of e-government platforms, if the system lacks an adequate mechanism of control. (MCIT6)

This is required to maintain uniformity, along with smooth communication and data transition between different departments. Thus, it would be impossible to effectively undertake communication, data transfer, and control procedures should the legal affairs departments be transferred to the new online service system, but civil affairs departments continue working with the old model. Therefore, the conclusion as a result of the current study indicate that benefits can be realised when uniformity is maintained throughout all government systems, through the implementation of an e-government system for each government department and unit. Initially, this should be tested in a small number of departments, followed by rigorous implementation throughout all government sectors, once promising service results have been observed. However, it is important to ensure that all sectors embrace the new form of service delivery (Voutinioti, 2013). The responses from interviewees and citizens acknowledge that one significant benefit from

implementing e-government is that it can help in eliminating a wide range of previous manual processes, and along with red-tape, all of which have prevailed within the framework of the traditional government without and making any significant difference to the lives of citizens. This finding is supported by the study of Ramadhan, et al (2011) as they note that one condition for incurring benefits from e-government is to use a systematic procedure in order to reduce redundancy in documentation and reporting. This would eliminate the need to maintain a large number of reports, and reduce red tape.

7.9   Universality of e-government

Although the universality of e-government is not the primary subject of this current research, it has the ability to strengthen the grounds for justifying the implementation of e-government. Universality of e-government refers to a system of communication connected, and integral, to all government sectors. It is also possible to observe the tenet of universality, i.e. from the global perspective.

Velicogna, et al (2011) note that e-government has already been adopted in a number of states in France, which is now planning to fully adopt this system. Denmark, England, and Germany are further examples that have transformed a conventional government system to one of e-government. It can therefore be asserted that adopting the e-government system throughout all government sectors (or at least all major government sectors would be a progressive step for the

government of KSA, and will also improve communication with government sectors of other countries.

The responds of both organisations and citizens are in favour of the universal adoption of e-government, and believe that if the system can be successfully implemented in one department, it can correspondingly be implemented in all departments.

One citizen noted that:

E-government a universal phenomenon that covers not only all aspects of government in KSA, but also the complete territory of KSA. (C_17)

Further interviewees also support this opinion, claiming that advance in the government sector will also result in positive change, and progress in related corporate and societal sectors of KSA.

Therefore, the adoption of e-government cannot be simply confined to an advance in the service approach of a government department, but can be accredited for the advance of the entire country.

7.10   Using Institutional Theory for e-government implementation in KSA

After understanding institutional theory, and how to apply it into IS research including e-government in previous section, the following section outline how researcher apply this theory for the current study.

7.10.1   Normative Isomorphism

Normative isomorphism is related to the themes of a technological gap, along with risks related to privacy and confidentiality and information trust. During the implementation phase of e-government, it will be essential for the KSA government to employ qualified, trained, and experienced personnel, in order to comply with international standards. These state that those employed in the government sector and operating online need to be highly qualified in the relevant profession of public administration or finance, etc. and should also be trained and experienced in the entering of computer data, along with storing, securing, and networking procedures. This ensures that, IT cannot be an isolated unit within e-government (as it is in other organisations), but an integral aspect, as all departments need to have a good command of IT skills.

For example, in the e-government infrastructure of the Seoul Metropolitan Government (SMG), the normative pressure of the need for transparency has served as the basis for the reform of 'War against Corruption'. The mayor demanded that each department to report on the level of service given, which was then analysed, along with citizen complaints, and other loopholes in the system. This assisted in the setting of higher transparency and corruption free system standards for the

government. Kim et al (2009) note that ambiguous (or ill-defined) employment role and hierarchical models have been replaced with well-defined job descriptions and a hierarchy of accountability for each individual.

Similarly, the government of KSA will also need to set parameters to define the level of transparency, service quality, and corruption-free service it is willing to provide to its citizens. Thus if the level of transparency is at 100%, the flaws in the system need to be made public, along with the process of dealing with complaints and requests and the individuals accountable for each job.

Moreover, Capurro and Britz (2010) note that it is possible to delay a number of procedures to resolve complaints, either intentionally or unintentionally. When government demands a high level of transparency in the system, the public needs to be informed about the delays, along with their causes. Government will not wish its citizens to consider the system flawed, or that its employees delay certain procedures, leading to a need to work with greater rigor on improving its operations and service management procedures.

7.10.2   Coercive Isomorphism

One implication of regulatory or coercive pressure is to emphasise correct, timely, and rapid reporting. If the government aims to transfer its work online, any delays and errors existing in the manual system need to be eradicated, as the e-government system will lead to these becoming transparent. However, there are also a number of drawbacks. Employees in Indonesia have reported that their system of

e-government has increased the workload of government officials, due to the expectation that they will respond almost instantly to each enquiry, as well as having to record the response for further use. Similar inquiries can often be made at different times, thus duplicating the inquiry, making the reporting redundant.

One solution is to improve the infrastructure of the IT system deployed, to enable similar inquiries made from a specific user (or on a specific theme) to be grouped and reported together. Kim, et al (2009) have revealed that a similar problem was reported by e-government officials in Seoul, for which the SMG government implemented an OPEN network system, which assisted in categorising inquiries, complaints, and service requests made of different departments, or at different times. The OPEN system was responsible for automatically assigning a specific code to the inquiry, relevant to the service department, and also creating connected links to identify similar complaints, so enabling all similar inquiries to be looped together for easy reporting. This greatly reduced the reporting redundancy in the e-government system.

7.10.3   Mimetic Isomorphism

As noted previously, the mimetic procedure enables a route towards the new service delivery mode, as initial procedures often have uncertainties and ambiguities. The Saudi government can therefore mimic the legal framework practiced by other successful e-governments, simultaneously imitating the technological framework of private organisations in the country of KSA. It will not be beneficial for KSA to adopt a technology model from a Western county, due to the

variance in the levels of technological expertise and infrastructure. Institutional Theory stresses societal structure, values, and attributes, and it is therefore important to bear in mind the technological familiarity and expertise of the Saudi population when implementing the technological model and structure of e-government.

Private organisations and Non-Government Organisations (NGOs) operating within KSA will be able to provide a reference in this regard, as many have adopted the e-system mode for communication and service delivery. Moreover, the Saudi government is not required to implement identical legal frameworks and IT strategies for all of its government departments, i.e. a pilot project could be initiated in one or two departments, and the same structure (with appropriate modifications) can be applied to all other departments following the successful completion of the pilot phase.

7.10.4   Sociological Isomorphism

It will be necessary for the government to address the socio-cultural barriers and perceptions in relation to the implementation of e-government. This study has established that, despite the population having faith in the morality of their government, they have a lack of trust in its credibility and professionalism. It is therefore important that the government takes measures to publicise government interventions, including the benefits to individuals, and an assurance of the ability of government officials to implement the proposed system model. It is only when the

perceptual barriers are eradicated that there will be a true willingness to adopt the e-government system.

7.11 Integrated Model for embracing e-government in KSA

This study has designed an integrated model for the adoption of an e-government system in KSA, based on the foundations of thematic-analysis and Institutional Theory framework (see Figure 7.1). The adoption is based on:

(1) The readiness of citizens to adopt the model; and

(2) The capability of government to put the e-system model in place.

The lack of either of these entities would hinder the adoption process (Al-Khouri, 2013). As presented in the model, the readiness of citizens to adopt the model is based on the following factors:

(i)   Service expectations;

(ii)   Accessibility;

(iii)   IT literacy;

(iv)   Security concerns.

These are the four dimensions on which the e-government service model needs to be grounded. It is apparent that if the terminologies or structure employed in the e-government framework does not accord with the IT literacy of citizens, it will not be readily accepted, due to the mismatch between their capabilities and design. The same is true for all other components, ensuring that all government efforts for drawing up e-government objectives need to be based on the level of citizens' expectations and adaptability.

Thus, the most essential element in grounding framework objectives for e-government will consist of socio-cultural norms. As identified in Section 7.4, the issues of the technological gap and risks are interconnected. It has been established that the technological gap is the primary cause of the risk of security threats and loss of data confidentiality within the e-system. For this reason, government and its officials will need to be aware that any lapse in technology (in both the system and professional expertise) will give rise to the associated and perceived risks of e-government.

The theme of 'technological gap' is connected to the government service framework of credibility, while the theme of 'risk' is connected to that of Professionalism. Thus, it will be possible to identify any pertinent technological gaps by ensuring that all professionals engaged within the e-government system have sufficient expertise to execute the new system, along with the ability to analyse any missing components, enabling the system to be subsequently improved. Timely improvements in the system will ensure increased security, and enable it to be less prone to errors and security threats. Moreover, Professionalism will allow the government to create information trustworthiness and citizen trust. Therefore, the issues of technological gap and risks can only be addressed when professionalism is fused with credibility.

The e-government framework should not greatly deviate from the normal system and process (Voutinioti, 2013). It has been highlighted in Section 7.1.1 that

the true adaptability of the new system (both for citizens and employees) will be based on whether the new system complies with the normal process. Thus, the process of inquiry in e-government (including answering an inquiry, the conversation process, complaints process, etc.) should be similar to that of manual government. This will enable the same procedural steps to remain, with only the need to transfer the transaction from the manual procedure to the online procedure.

The adoption would be more complex and time consuming for both citizens and employees if the procedural steps (along with the ways in which citizens communicate with public officials) are also changed. The current Framework (as clarified in the model) is guided by 'mimetic isomorphism', related to the theme of 'benefits', and therefore the government will initially need to identify and adopt basic procedures from other successfully implemented e-government models. The second step will be to modify these steps according to the specific needs of KSA, i.e. bearing in mind the previous procedures of the manual service, and the adaptability of both citizens and officials.

A balance will need to be maintained to ensure the system is neither too complex for the citizens and employees to adopt, nor so simple that it will become prone to error and risk (Yaghobi and Shakeri, 2010).

The government framework component of Relationship Building is guided by 'socio-cultural isomorphism,' i.e. the sociological aspect of Institutional Theory. This component sheds light on government efforts to understand the needs of an e-

government system from the perspective of citizens, along with an endeavour to maximise the benefits citizens will gain from the system (Kim et al, 2009). Thus, there is a need for the elements of transparency, accountability, and information security to be addressed from the standpoint of citizens, i.e. the level of transparency demanded by the citizens, and the level of government accountability to its citizens. It is therefore only by designing a cu citizen's -centric framework for relationship building that the government of KSA will be able to align its efforts with citizens' expectations, and enhance their readiness to adopt the new system.
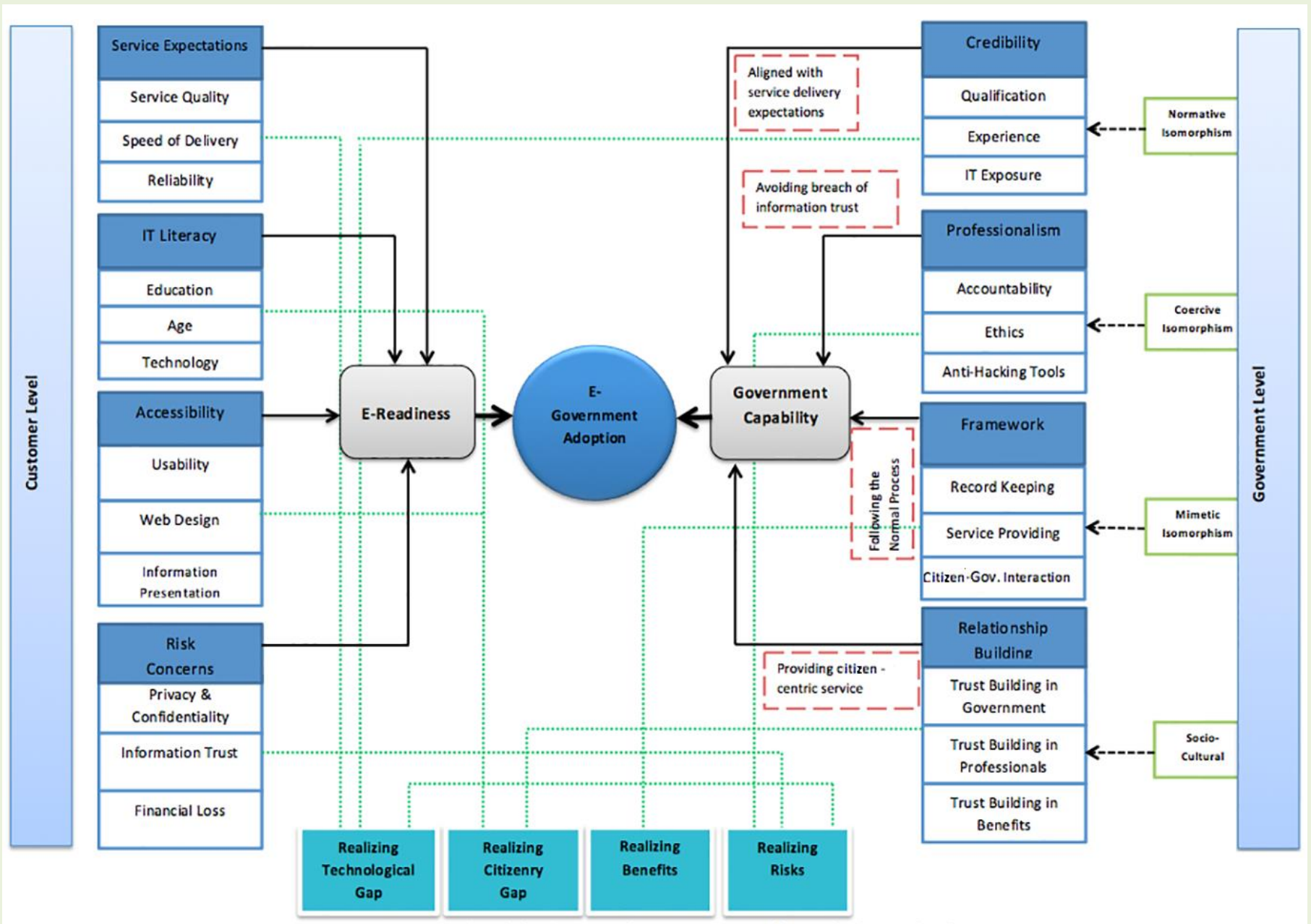
Figure 0-1 Integrated Model to Support Information trust, Professional ethics and Risk when embracing e-government in KSA

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7.12 Validation of the integrated model of e-government

In order for a research to be considered satisfactory in terms of contribution to knowledge, the conclusions reached must be examined and validated using standard criteria as basis for such validation (Amaratunga, Baldry et al. 2002). Confirmation of validity of a research outcome is vital because it dictates the reliability, effectiveness and generalisability of the research (Easterbrook, et al. 2008). The criteria through which the validity of a research is ascertained depend on the philosophical stance it adopted. Validity can be ascertained based on four criteria (Kumar, 2014; Knight and Cross, 2012; Easterbrook, et al. 2008; Amaratunga, et al. 2002):

(1)   Construct validity that measures the accuracy of the theoretical basis of the work under consideration. This can be determined by the extent to which the data collection strategies is accurate in order to be able to address the research questions.

(2)   Internal validity is used to determine if the findings obtained exhibit similarities with the data used. It can highlight the cause and effect in which a given condition can lead to other conditions

 (3)   External validity shed light on the extent to which the claims from the research can be justified. It provides evidence of the extent to which the research findings can be generalised.

(4)   Reliability entails the repeatability of the results if similar procedures is followed by another researcher.

Given that validation involves the formation of documented evidence giving a high degree of satisfaction and assurance that a specific procedure or process will consistently yield results that meet its predetermined quality attributes and functional specifications (Huber 2002), a validity check comparing outputs or results from a model to experimental data (i.e. real data) is pertinent. However, for this type of model developed based on social constructivism (i.e. interpretivism), such approach to research validation is not possible. Rather, the overall model was validated based on subjective assessment by carrying out expert interviews with professionals who are familiar with the overall mode of operation of e-government. The aim of the interviews whose details are already provided in Chapter six was to provide invaluable insight into the relevance, usefulness, completeness and robustness among other validation criteria of a model driven by qualitative data. The interviews aimed to not only provide the qualitative primary data required to evaluate the model, but also disseminate the final findings of the overall research outputs.

Through the expert interviews carried out, it was gathered that the overall e-government model met their expectations to a very large extent especially as it pertains to its overall workability in the context of Saudi Arabia. Some of the experts suggested areas of improvement for the overall model. For instance, one of the experts expressed the following views about the model:

"*the model come across fairly robust as it takes into account key issues that are inhibiting the implementation of e-government in Saudi Arabia, namely information trust, professional ethics and associated risk*"

Another expert has this to said: "*I like the way the variables are interlinked together within your overall e-government model. It is easy to follow and it can start as a basis for future expansion on the current infrastructure of e-government in Saudi Arabia*"

The comments that emerged from the experts during the evaluation process of the model contributed to its overall success in terms of understanding and potential future implementation. A better way to validate the model would be to conduct another set of interview assuming the model was implemented, however, such endeavours were simply out of scope of the current research.

Chapter 8: Conclusion and Recommendations

8.1   Introduction

This is the concluding chapter of the research, and provides an overall summary of the research, recommendations for future studies, as well as outlining the limitations. In addition, this chapter briefly discusses the primary research contributions made by the study, and explains how the study met the established research criteria.

8.2   Research contribution

This section explains how the current research contributed to theory and to knowledge as follows:

8.2.1 Contribution to theory

Societal ethos has been discussed in the implementation framework for e-government; however, to date there has been no prior study presenting an integrated model for connecting the government online services with the societal values and expectations of the citizens (Section 7.4). Such a model was achieved by employing Institutional Theory, which provided the basis from which to analyse relevant societal values, norms, and beliefs when implementing a new e-government model, to ensure that it would be in accordance with the expectations of the public and associated technological expertise.

The use of the Institutional Theory has brought to attention the fact that various serious mental blocks prevail in the minds of e-government citizens acting

as a barrier to the acceptance of online services. Therefore, not only does the government need to take care of real security and data theft issues, it also needs to address the perception of issues affecting security in the minds of the Saudi people.

8.2.2 Contribution to knowledge

The study raised awareness of the slow technology acceptance rate in the KSA, although internet access is greater in the KSA than in several other Middle Eastern countries where there is a higher technology acceptance rate. This indicates that people in the KSA distrust online services in general. As a result, the implementation of the e-government system was unable to attain a high acceptance rate due to this prevailing citizen's distrust. Thus, the Saudi government needs to work up from the grass-roots level to improve the overall online services of the country, as well as to educate people about the security and anti-theft measures that have been taken by the government in order to secure their data. This finding emanates from a theoretical perspective, since it asserts that the efforts required to make e-government a success in the KSA will be greater than in other countries, where there is less distrust amongst people concerning the internet service providers, online buying, and data sharing systems.

A further important contribution made by the study is that it provides a comprehensive understanding of the risks involved with the e-government system. It has established that threats to privacy, loss of confidentiality, and data theft were the primary risks associated with e-government. Correspondingly, both citizens and

organizational employees remarked that government officers do not possess the relevant skills set and expertise to provide data security and to safeguard against cyber-crimes.

This falls under the umbrella of the technological gap (Section 7.2). The first domain of the technological gap concerns the lack of capacity within the system to combat external threats, and the second domain deals with lack of personnel expertise. Therefore, only when the government, public organizational heads, and policy makers address both the domains associated with the technological gap, will the prevailing level of distrust and hesitancy in adopting e-government services be eradicated. This leads to a need to engage in the formation, or re-formation, of those HR and IT standards required for designing and maintaining e-government, in which not only the system is efficient, but officials are also technical experts, able to combat system breakdowns and external threats.

8.3   Limitations and Personal reflection
8.3.1 Limitations

The methodology and scope adopted in this research is prone to limitations; some of the more prominent of these are listed below:

1. The data collection and analysis procedures were conducted in the context of the KSA. This limits the generalisability of the study beyond the KSA. The cultural norms and barriers discussed in the study are also confined to the KSA and may or may not be applicable to other regions or countries.

2. Three Saudi government organisations were selected for the current study, which, although it provides an indication of the prevailing trends and problems in

the e-government system, does not provide a holistic view of the research area. Thus, omitting a number of public sectors operating in the country is one potential limitation of the study, because it reduces the feasibility of generalizing the results of the study for all public sectors across the country.

3. Institutional Theory was employed in the current study in order to establish the relationship between socio-cultural values and the e-government system. However, there are other pertinent theories, such as System Theory, Organisational Theory, and Technology Acceptance Theory, all of which have their own distinct standpoint concerning how one system of government should move towards a new one, bearing in mind the cultural context. These theories were not included in the discussion or integrated model formation.

4. Other issues other than information trust, professional ethics and risk in e-government, which could prevent e-government success in developing countries such as Saudi Arabia have not been covered. Such issues are beyond the scope of the current study.

8.3.2 Personal reflection

Critical reflection pertains to the experiences and issues the researcher encountered during the course of the PhD program. In the course of this PhD pursuit, I have garnered several useful and transferrable skills such as research methods and writing skills; planning and managing research; literature searching and reference management. I have gained valuable skills on how to organise my thought process from initiation to fruition of the overall PhD program. An understanding of literature searching and reference management assisted in searching for relevant

journals and books which shaped my overall understanding of my work. Additionally, managing my time during this project was essential and I learnt a lot from planning and managing research course which exposed me to how to use effective time management tools such as t Gantt chart which can help put both long-term and short-term goals into perspective. Concerning research methodology, the current work adopted qualitative method with the view to identify themes and drivers of e-government implementation in Saudi Arabia. In doing so, I was able to improve my analytical and interpersonal skills. Overall the PhD journey was a difficult one but in the end after realising all the objectives of the project, it came with a feeling of fulfilment and accomplishment.

8.4   Suggestions for future research

There are various recommendations for future research that arose from the results of the study:

1. The proposed integrated model could be tested by future researchers; analysing whether taking care of the socio-cultural factors in designing the e-government model of service affects the acceptance and adoption rates for e-government by the public.

2. A quantitative study could be carried out in order to determine the significance of each societal variable on the decision-making and policy formation of the e-government. Furthermore, conducting a Regression Analysis could help to determine the level of dependency of the e-government system on individual citizens -related factors.

3. Future researchers could also conduct a qualitative study, as in the current study, but cover other issues other than information trust, professional ethics and risk, which are the focus of the current research.

4. Future researchers could also conduct a qualitative study, as in the current study, by employing different other than institutional theory. Some useful theories which could be employed include System Theory, Organisational Theory, and Technology Acceptance Theory.

5. Another area that was only slightly touched upon in the current study was that of government marketing and promotional tactics used to educate the citizens about the use and benefits of the e-government system, and to address the perceptual risks in the minds of the people. Therefore, future researchers could conduct an in-depth analysis of the different government interventions intended to promote e-government to the Saudi citizens, and the success rate of each intervention.

8.5   Recommendation for Decision-Makers

It is recommended that the decision-makers adopt a universal process in designing the accessibility of the e-government system, in hiring credible and expert IT professionals, in implementing a stringent code of conduct for professional ethics, and in educating the citizens about e-government procedures and benefits, which will enhance the success of the implementation of the new e-government system.

8.6   Research evaluation

   8.6.1 Contributory

Tracy (2010) asserted that no study is a good study unless it adds something to the current literature. Thus, the current study endeavours to make several useful contributions to the current literature.

Using the Institutional Theory to link cultural factors with e-government services is one of the primary contributions of the study to the existing literature concerning the implementation strategies for e-government in KSA.

In addition to this, the study found that it is not the lack of access to, or the lack of knowledge of, the internet, but the prevailing distrust amongst the Saudi citizens towards online services that appears to be responsible for the low technology acceptance rate in the country.

8.6.2 Transparency

In order to maintain data transparency, an entire research protocol was designed, as expounded in Section 5.3. Moreover, by following the steps defined in the protocol, a very similar study could be conducted and similar results could be obtained.

Thus, the data collection procedure is not ambiguous, because each of the steps and the organisations selected for the study have been clearly defined in the study. In addition to this, all of the questions that were asked to the employees and the citizens have also been presented in the study.

8.6.3 Defensibility

Alvesson and Skoldberg (2009) stated that the primary and secondary data of the study should be able to defend and answer the study questions. This means that there should be harmony between the primary research questions and the core responses generated. The research questions of the study inquired about the major challenges in implementing e-government in the KSA and the perceived risks amongst the public concerning information trust, professional ethics, and risks.

All of the responses generated from the primary study dealt exclusively with these research areas. Information trust was linked with professionalism and the technological gap. Professional ethics was linked with a standard code of conduct for government officials, and risks were linked to the loss of data security.

Thus, it can be argued that there was complete harmony between the research question posed at the beginning of the research and the primary and secondary data gathered during the course of the study.

8.6.4 Credibility

The credibility of the study results can be justified from two evidences. Firstly, the scope of the study was confined to the KSA, and the primary data was also generated only from the KSA. This infers that there were no assumptions made in applying the responses, because there was no geographical or societal conflict or difference between the intended and the interviewed population. Secondly, the research topic was e-government, which is closely related to Information Communication Technology and networking.

The interviewers selected for the study were IT professionals and, thus, had a greater understanding of the implication of the benefits and challenges than an average layperson in the KSA. This fulfils the second area of credibility for the study, by employing purposive sampling for data collection rather than random sampling.

8.7   Conclusion

In summary, this study has revealed that the Saudi public, both employees and citizens, have very low perceptions with regard to information trust, professional ethics and risk in terms of the use of e-government in the KSA. However, it also found that the e-government citizens acknowledge the necessity of implementing e-government. They only disagree with each other concerning the details of such implementation and the subsequent operation of e-government in the KSA. In terms of the universality of e-government, it was found that both employees and the citizens agree that e-government is a universally applicable system and that its true benefits can only be achieved when it is applied to all the government systems around the country.

In general, the primary research question was answered completely. As far as the secondary research question is concerned, it is necessary to state that the most sustainable and effective model of e-government for the KSA must be based on the common perceptions of both the employees and the citizens of e-government. In order to answer the second and third questions of this study, it is essential to point out viable recommendations regarding how to improve information trust,

professional ethics and risk issues in order to ensure the effective operation of e-government in the KSA.

The following recommendations should be taken into consideration:

i- **E-government platforms must meet the interests and expectations of the citizens.**

It should be anticipated that a design that meets the needs of the government would fail if it does not also fulfil the needs of the end-user. Maintaining a balance between these two objectives requires an understanding of both the external and internal uses of the website. It is essential for the government of KSA to stick to the paradigm of a 'user-centred website.' It is essential for the implementers of e-government to create sites that are not difficult for any users to understand, read, navigate, and to perform tasks within.

ii- **E-government platforms must be equal, or superior to the quality and standards of private company websites.**

The continuing growth of electronic technologies can stimulate the Saudi e-government to provide strong competition between private businesses, as well as with other government web sources. Thus, for the government, the ancient rule that the client is king has never been truer. Similar to private business, it is incumbent on e-government to allocate funds prudently towards the perfection of its e-services.

When e-government captivates the attention of its users, time resources and money can be saved for both the government and its citizens. When a website

powered by government provides good feedback, citizens feel overall satisfaction regarding how their money is spent. The efficiencies that comes with a well-designed, interactive website can be enhanced through the use of human resources and capital. That is why the success of e-government should be verified by examining the experience of the end users with a view to achieving citizens' satisfaction. A beautiful web design is not enough. The website must be robust and easy to navigate. To attain this goal, each step of a redesign must be made by taking the views of the end users into consideration. The Saudi government requires expert to analyse the experiences of end-users via competitive research, which together can increase the information trust of the citizens.

iii- **The design of e-government platforms must be informative, uncluttered and easy to navigate.**

People of all cultural and educational backgrounds need to be able to read and understand the content of a web page. Smooth navigation of the web site is also important because it can improve the experience of the end users. If the end-users of a website include the majority of the citizens, like e-government, the design must obviously be universal. The design must be attractive without becoming too complicated. The only way to improve the accessibility and usability of a website is to ensure that the views of the users are taken into consideration. Information must be easily accessible, and the tasks that users are able to complete must be straightforward. Moreover, the programming flow should follow the normal process of administration, so that the users simply have to follow the same procedures that

they are accustomed to, making the transference from manual to e-government easier.

iv- <u>**Up-to-date practices and the latest technological advances must be monitored and implemented when the need arises.**</u>

It is incumbent on the Saudi government to ensure the website is in utmost working condition. This requires constant usability testing-an activity that is essential for e-government sites given the amount of data traffic it generates. Mechanism for regular maintenance must be put in place to ensure longevity and accessibility. Citizens see e-government as the port of first contact with the government. Therefore, each government website should incorporate long-term maintenance plans. A government website cannot afford to remain static in the face of changing market situations, population demographics, and levels of user familiarity with the internet. It is widely acknowledged that through continuous improvement of usability can e-government hope to fulfil its mission of efficiently serving the citizenry and, thus, maintain a high level of information trust.

Overall, making long-term e-government commitments involves conducting training (especially in the domain of professional ethics), creating internal capabilities, and establishing an understanding of change management. Indeed, the people entrusted to operate e-government must keep track of the latest trends in ICT development.

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Appendix

Appendix A: Research ethics form

DE MONTFORT UNIVERSITY

APPLICATION FORM TO GAIN APPROVAL FOR ACTIVITIES INVOLVING

HUMAN RESEARCH ETHICS

Notice to Staff and Students

If your research involves using human tissue or fluid samples please **DO NOT** use this application form. You will find the application form for approval of activities involving the use of human tissue at:

intranet.dmu.ac.uk/training_development/dmu/Support_for_you_in_your_role/HTA.htm

Alternatively please approach the Research and Commercial Office, Faculty of Health and Life Sciences, 2.25L Hawthorn Building, Phone: 7891 / 7777

The University requires that approval is obtained by members of staff of the University and by students of the University who wish to engage in research detailed below. Please use this form for an application if your research involves:

1. Gathering information about human beings (and organisations) through:

   - interviewing
   - surveying
   - questionnaires
   - observation of human behaviour
   - modify/disturbing human behaviour

- interfering in normal physiological and/or psychological processes

2. Using archived data in which individuals are identifiable.

3. Researching into illegal activities, activities at the margin of the law or activities that have a risk of personal injury.

   [It should be noted that in regard to research into illegal activities there are no exclusions or blanket permissions and the University Insurance cover may not apply if the research activity has not been cleared by the University or, in certain cases with delegated authority, the appropriate Faculty Committee.

4. Supporting innovation that might impact on human behaviour e.g. Behavioural Studies

Guidance and support will be given by your supervisor (for student research), your line manager or an appropriate designated officer/ Faculty Research Office. Queries arising out of this should be directed to:

> **FAILURE TO GAIN FREC APPROVAL FOR YOUR RESEARCH MEANS THAT YOUR PROJECT MAY BE FAILED OR THAT YOU ARE SUBJECT TO DISCIPLINARY ACTION.**

You are also advised to contact the Faculty Health, Safety and Operations Coordinator (Andrea Jones ext. 8779, or email aljones@dmu.ac.uk) to ensure a valid risk assessment is in place for the research activity stated above.

DE MONTFORT UNIVERSITY

APPLICATION FORM FOR RESEARCH ACTIVITY REQUIRING HUMAN RESEARCH ETHICS CONSIDERATION OR APPROVAL

Staff/Student Name	**Programme (if relevant)**
Saad Alammar	Information Society Doctoral Programme (ISDP)

Title of Research Project

Information trust, Professional ethics and risk when embracing e-government

Brief description of proposed activity and its objectives:

The main aim of the project is to investigate the perceptions of the public in regards to the trust that the public has in e-government. This will be achieved by:-

1. Recommend a model by which trust in the Internet (TII), trust in government (TIG) and perception Internet risk (PIR) can be achieved in the e-government services.

Ethical issues identified:	**How these will be addressed:**
Gathering information through interviewing government employees and qualitative questionnaires with citizens.	Participants must be adults who understand what research is all about. Potential respondents will have informed consent and realise they can withdraw their participation at any time. The participants will be aware that the collected data would be appropriately recorded and their acknowledgement signed on that.

To which ethical codes of conduct have you referred? These are specific to each Faculty.

Please follow the links below for the humanities ethical code and tick the box to confirm you have read the details. Please add any others, which may be relevant to you.

BCS Code of Conduct and Code of Good Practice

Checklist for applicant:

Has the research proposal identified any of the following research procedures?

1. Gathering information about human beings through: Interviewing, Surveying, Questionnaires, Observation of human behaviour

2. Using archived data in which individuals are identifiable

3. Researching into illegal activities, activities at the margins of the law or activities that have a risk of personal injury

4. Supporting innovation that might impact on human behaviour e.g. Behavioural Studies

Have you considered the following? (tick boxes beneath for "YES"):

☒ Providing participants with full details of the objectives of the research

☒ Providing information appropriate for those whose first language is not English

☒ Voluntary participation with informed consent

☒ Written description of involvement

☒ Freedom to withdraw

☒ Keeping appropriate records

☒ Signed acknowledgement and understanding by participants

☒ Consideration of relevant codes of conduct/guidelines

Are there other/additional factors that could/will give rise to ethical concerns? E.g. language difficulties

n/a

List of accompanying documentation to support the application:

(1) A copy of the research proposal

(2) The details of arrangements for participation of human subjects (including recruitment, consent and confidentiality procedures and documentation as appropriate)

(3) A copy of all the documentation provided to the volunteer to ensure the clarity of information provided

(4) Copies of appropriate other ethical committee permissions (internal or external) or supporting documentation

(5) If appropriate: a list of proprietary drugs or commercial drugs to be used in the proposed investigation including formulation, dosage and route of administration and known adverse side effects

(6) A statement of your competence to carry out this research as a student or a brief one page curriculum vitae for each applicant, including recent publications (staff only)

(7) Other documentation as advised necessary:

There are four possible outcomes from reviewing the activity against the procedures in place:

1. no ethical issues

2. **minor ethical issues which have been addressed and concerns resolved**

3. major ethical issues which have been addressed and concerns resolved

4. ethical issues that have not been resolved/addressed Authorisation

- The reviewer advises the SAB/REC of those activities in the first three outcomes.
- Activities in the fourth outcome are submitted to the Faculty REC for resolution

Signature of researcher / student Saad Alammar   Date: 13-10-2011

Signature of supervisor: Dr Ben Fairweather   Date: 13 -10-2011

Appropriate authorising signature   Date

This form complies with the DMU policy statement on Human Research Ethics, a full copy of which can be found in the General Regulations and Procedures Affecting Students.

A separate form is required for each project.

ADVANCE APPROVAL OF RESEARCH ACTIVITY INVOLVING HUMAN RESEARCH ETHICS

1   Respondents' co-operation in a research project is entirely voluntary at all stages. They must not be misled when being asked for co-operation.

2   Respondents' anonymity must be strictly preserved. If the Respondent on request from the Researcher has given permission for data to be passed on in a form which allows that Respondent to be identified personally:

(a) the Respondent must first have been told to whom the information would be supplied and the purpose for which it will be used, and also

(b) the Researcher must ensure that the information will not be used for any non-research purpose and that the recipient of the information has agreed to conform to the requirements of the Code.

3   The Researcher must take all reasonable precautions to ensure that Respondents are in no way directly harmed or adversely affected as a result of their participation in a marketing research project.

4   The Researcher must take special care when interviewing children and young people. The Faculty REC will give advice on gaining consent for studies involving children or young people.

5   Respondents must be told (normally at the beginning of the interview) if observation techniques or recording equipment are used, except where these are used in a public place. If a respondent so wishes, the record or relevant section of it must be destroyed or deleted. Respondents' anonymity must not be infringed by the use of such methods.

6   Respondents must be enabled to check without difficulty the identity and bona fides of the Researcher.

Appendix B: Ethical approval

Ethics Application Approval Saad ALAMMAR 1011/075   Inbox   x

Anne Smith <AmSmith@dmu.ac.uk>   22/03/2012
to me, Research, Ben

Dear Saad

Research Ethics Application Approval: 1011/075 - Information trust, professional ethics and risk in embracing e-government

Your application to gain ethical approval for research degree activities has been considered and APPROVED by Prof Bernd Stahl.

Please be aware that changes to the project plan or unforeseen circumstances may raise ethical issues. If this is the case it is the researcher's duty to repeat the ethics approval process.

Kind regards

Anne

Anne Smith
Research Co-ordinator
Research & Innovation Office
Faculty of Technology

DE MONTFORT UNIVERSITY
T: +44 (0) 116 250 6519
E: amsmith@dmu.ac.uk
W: dmu.ac.uk

Appendix C: Consent Letter (Interviewers)

Consent letter

PhD Research at De Montfort University

Information trust, Professional Ethics and risk in embracing E-government

Dear Participant,

This letter is to provide you with information in the hope that you will agree to take part in my project as part of my PhD research course at Centre for Computing and Social Responsibility CCSR at De Montfort University, Leicester, England.

The study will form my project on the investigation of the Information trust, Professional Ethics and risk in embracing e-government. Specifically, it will analyse the perception of the public in regards to trust in the e-government adoption.

The research is being carried out in order to:

1) To investigate the perceptions of both government organisations employees and citizens regarding information trust, professional ethics and risk in relation to the use of e-government in KSA.

2) To identify and recommend a sustainable and effective model to be adopted and implemented, in order to promote information trust, professional ethics, along with risk prevention and mitigation in the implementation of e-government in KSA.

3) To provide recommendations to assist the Saudi government in dealing with information trust, professional ethics and issues related to risk concerning the

implementation and management of its e-government, along with the delivery of e-services.

Participation in this study is entirely voluntary. The study will involve an interview of an estimate of 45-60 minutes in length.

At the end of the interview, your contribution to this research project will be completed. Your interview responses will be replayed, coded and placed in thematic consequences by Saad Alammar before forwarding for analysis and drawing of research findings.

This is to inform you that the choice on whether and how to participate is yours. If you wish, you may decide not to answer any interview questions. You may also decide to withdraw from the study at any time by advising Saad Alammar, through the email address (sa_alammar@hotmail.com). Clarifications of some points may be required after the interview but you will not be obliged in any way to clarify or participate further your comfort. Beyond that I will not seek any more interviews or make any further contact with you as a participant about this study, after the interview is completed unless it is your preference.

This is also to assure you that the information you provide is considered highly confidential, and anonymous quotations will be used unless with your permission to provide the real identity. If you request confidentiality beyond anonymous identity, the information you provide will be treated only as a source of background research. This is alongside the secondary researches such as book and web-based researches as well as interviews with others.

Also on request, your name or any other information that could lead to personal identification will not appear in the course project paper that will result from this study. Neither will there be anything to identify your place of work, employment, or business.

Notes collected during this study will be retained for a period of ten years after completion of the PhD in a very secure location and then can be destroyed on request. The information collected from this interview will only be applied for the stated objectives, and will neither used for any other purpose nor recorded in excess of what is required.

Even though I may present the study findings to the journals, conferences, and *Information Society Doctoral programme Committees, e-governance conferences,* it is only my supervisors and examiners, and I that will have access to the interview information itself. There are no known or anticipated risks to you as a participant in this procedure unless of sensitive issues such as illegality.

If you have any questions in regards to this study, or would like additional information, please feel free to ask me during or after the interview.

Finally, your assistance in this project is highly appreciated.

Yours Sincerely,

Saad Alammar.

I have read the information presented in the information letter about a study being conducted by Saad Alammar.

I have had the opportunity to ask any questions related to this study, and received satisfactory answers to my questions, and any additional details I wanted.

I am also aware that excerpts from the interview may be included in the course project paper to come from this research. Quotations may or may not be kept anonymous and I do/do not give permission for my identity to be revealed in the research reports.

I was informed that I may withdraw my consent at any time by advising Saad Alammar

With the full knowledge of all the requirements, I agree to participate in this study.

Participant Name: _____

Participant Signature: _____

Interviewer Name: _____

Interviewer Signature   _____

خطاب الموافقة للمشاركة في البحث

دراسة لمرحلة الدكتوراه في جامعة دي منت فورد في بريطانيا

عنوان الدراسة ثقة المعلومات، الأخلاق المهنية والمخاطر في تبني الحكومة الإلكترونية

عزيزي المشارك،

هذه الرسالة هي من اجل ان توفر لك المعلومات على أمل أن توافق على المشاركة في مشروعي البحثي كجزء من دراستي لمرحلة الدكتوراه في مركز الحاسبات والمسؤولية الاجتماعية في جامعة دي مونتفورت، ليستر، انكلترا.

وستشكل الدراسة مشروعي الخاص بالتحقيق في ثقة المعلومات والأخلاقيات المهنية والمخاطر في تبني الحكومة الإلكترونية. على وجه التحديد، فإنه سيتم تحليل تصور المشاركين فيما يتعلق بالثقة في اعتماد الحكومة الإلكترونية.

ويجري البحث من أجل:

١) التحقيق في تصورات كل من موظفي المنظمات الحكومية والموطنين فيما يتعلق بثقة المعلومات والأخلاقيات المهنية والمخاطر فيما يتعلق باستخدام الحكومة الإلكترونية في المملكة العربية السعودية.

٢) تحديد وتوصية نموذج مستدام وفعال يتم اعتماده وتنفيذه، من أجل تعزيز الثقة بالمعلومات، والأخلاقيات المهنية، جنبا إلى جنب مع الوقاية من المخاطر والتخفيف من آثارها في تنفيذ الحكومة الإلكترونية في المملكة العربية السعودية.

٣) تقديم توصيات لمساعدة الحكومة السعودية في التعامل مع الثقة في المعلومات والأخلاقيات المهنية والقضايا المتعلقة بالمخاطر المتعلقة بتنفيذ وإدارة حكومتها الإلكترونية، جنبا إلى جنب مع تقديم الخدمات الإلكترونية.

المشاركة في هذه الدراسة طوعية تماما. وستتضمن الدراسة مقابلة مع تقدير من ٤٥-٦٠ دقيقة في الطول.

في نهاية المقابلة، سيتم الانتهاء من مساهمتك في هذا المشروع البحثي. سيتم رد ردودك على المقابلات، وترميزها ووضعها في عواقب مواضيعية من قبل الباحث سعد العمار قبل تقديمها للتحليل ورسم نتائج البحوث.

هذا هو لإعلامكم أن الاختيار على ما إذا كان وكيفية المشاركة هو لك. إذا كنت ترغب في ذلك، يمكنك أن تقرر عدم الإجابة على أي أسئلة المقابلة. يمكنك أيضا أن تقرر الانسحاب من الدراسة في أي وقت من خلال تقديم المشورة لسعد ، قد تكون هناك حاجة لتوضيحات بعض (.sa_alammar@hotmail.com) من خلال عنوان البريد الإلكتروني النقاط بعد المقابلة ولكنك لن تكون ملزمة بأي شكل من الأشكال لتوضيح أو المشاركة مزيد من راحتك. أبعد من ذلك لن أسعى إلى إجراء المزيد من المقابلات أو إجراء أي اتصال آخر معك كمشارك في هذه الدراسة، بعد الانتهاء من المقابلة ما لم يكن ذلك هو تفضيلك.

هذا أيضا للتأكد من أن المعلومات التي تقدمها تعتبر سرية للغاية، وسيتم استخدام الاقتباسات المجهولة إلا إذا كان لديك إذن لتقديم الهوية الحقيقية. إذا طلبت السرية دون هوية مجهولة الهوية، فلن يتم التعامل مع المعلومات التي تقدمها إلا كمصدر للبحث في الخلفية. هذا جنبا إلى جنب مع البحوث الثانوية مثل الكتب والبحوث على شبكة الإنترنت، فضلا عن مقابلات مع الآخرين.

أيضا عند الطلب، اسمك أو أي معلومات أخرى يمكن أن تؤدي إلى الهوية الشخصية لن تظهر في ورقة مشروع الدورة سيتم الاحتفاظ التي ستنتج عن هذه الدراسة. ولن يكون هناك أي شيء لتحديد مكان عملك أو عملك أو نشاطك التجاري الملاحظات التي تم جمعها خلال هذه الدراسة لمدة عشر سنوات بعد الانتهاء من الدكتوراه في مكان آمن جدا ومن ثم يمكن تدميرها عند الطلب. لن يتم تطبيق المعلومات التي تم جمعها من هذه المقابلة إلا للأهداف المعلنة، ولن تستخدم لأي غرض آخر ولا تسجل ما يزيد عن المطلوب.

على الرغم من أنني قد تقدم نتائج الدراسة إلى المجلات والمؤتمرات ولجان برنامج الدكتوراه مجتمع المعلومات،

مؤتمرات الإدارة الإلكترونية، هو فقط المشرفين والفاحصين، وأنا سوف يكون الوصول إلى معلومات المقابلة نفسها. لا

توجد مخاطر معروفة أو متوقعة لك كمشارك في هذا الإجراء ما لم تكن هناك قضايا حساسة مثل عدم الشرعية.

إذا كان لديك أي أسئلة في ما يتعلق بهذه الدراسة، أو ترغب في معلومات إضافية، لا تتردد في تسألني أثناء أو بعد

المقابلة.

وأخيرا، مساعدتكم في هذا المشروع هو محل تقدير كبير.

تفضلوا بقبول فائق الاحترام،

سعد العمار.

لقد قرأت المعلومات الواردة في رسالة الموافقة علي الدراسة التي سوف يجريها الباحث سعد العمار..

لقد أتيحت لي الفرصة لطرح أي أسئلة تتعلق بهذه الدراسة، وتلقت إجابات مرضية على أسئلتي، وأية تفاصيل إضافية.

وأنا أدرك أيضا أنه يمكن إدراج مقتطفات من المقابلة في ورقة مشروع الدورة القادمة من هذا البحث. قد تكون

الاقتباسات أو قد لا تكون مجهولة الهوية وأفعل / لا تعطي الإذن لهويتي ليتم الكشف عنها في تقارير البحوث.

وقد أبلغت أنني قد سحب موافقتي في أي وقت من خلال تقديم المشورة لسعد ألمار

مع معرفة كاملة من جميع المتطلبات، وأنا أوافق على المشاركة في هذه الدراسة.

اسم المشترك :

توقيع المشترك

Appendix D: Interview questions guide Employee (English Version)

Do you mind if I can record this interview?

Please feel free to ask me to clarify ambiguous things during the interview.

General Information:

1- Does your organization have e-government system? If not what administrative system do you use?

2- How do you perceive e-government system?

3- Does your engagement with e-government system has provided you a better capability to fulfil your professional responsibility? Please explain your answer.

4- What are the effects of transition from manual government system to e-government systems?

5- Would you recommend e-governments for adoption in the entire Saudi government system? Why, and why not?

6- What would you say are the major professional ethics issues involved in dealing with e-government system?

7- How your organization dispenses its responsibilities in regard of professional ethics to publics?

8- What is the specific law/policy that serves as a basis for the conduct of e-government at your organization?

9- Do you trust the personal information that you enter in your organization website will be handled securely? Please explain

10- What are ways that you find to improve the trustworthiness of the transactions and application of your organization website?

11- What degree of information trust can you attribute to the use of e-government service?

12- What degree of information trust can you attribute to the use of e-government service? What are some of your security concerns?

13- Which risks are likely to result from the adoption of e-government in Saudi Arabia based on your experiences here?

14- What is your organization is doing to address security concerns?

Arabic Version

أسئلة المقابلة دليل الموظف

هل تمانع إذا كان بإمكاني تسجيل هذه المقابلة؟

لا تتردد في طلب مني توضيح الأمور الغامضة أثناء المقابلة.

١- هل لدى لدي دائرتكم الحكومية نظام الحكومة الإلكترونية؟ إن لم يكن ما هو النظام الإداري الذي تستخدمه؟

٢- كيف تنظرون إلى نظام الحكومة الإلكترونية؟

٣- هل انخراطك في نظام الحكومة الإلكترونية قد وفر لك قدرة أفضل على الوفاء بمسؤوليتك المهنية؟ يرجى توضيح إجابتك.

٤- ما هي آثار الانتقال من النظام الحكومي اليدوي إلى نظم الحكومة الإلكترونية؟

٥- هل تنصح بالحكومات الإلكترونية لاعتمادها في النظام الحكومي السعودي برمته؟ لماذا، ولماذا لا؟

٦- ما الذي ستقوله عن قضايا الأخلاقيات المهنية الرئيسية التي ينطوي عليها التعامل مع نظام الحكومة الإلكترونية؟

٧- كيف تتولى مؤسستك مسؤولياتها فيما يتعلق بالأخلاقيات المهنية للجمهور؟

٨- ما هو القانون / السياسة المحددة التي تستخدم كأساس لسلوك الحكومة الإلكترونية في الدائرة الحكومية؟

٩- هل تثق في أن المعلومات الشخصية التي تدخلها في موقع مؤسستك سيتم التعامل معها بشكل آمن؟ يرجى توضيح

١٠- ما هي الطرق التي تجدونها لتحسين موثوقية المعاملات والتطبيقات في موقع الدائرة الحكومية الالكتروني؟

١١ـما درجة ثقة المعلومات التي يمكن أن تعزوها لاستخدام خدمة الحكومة الإلكترونية؟

١٢ـما درجة الثقة في المعلومات التي يمكن أن تعزوها لاستخدام خدمة الحكومة الإلكترونية؟ ما هي بعض مخاوفك

الأمنية؟

١٣ـما هي المخاطر التي يحتمل أن تنجم عن تبني الحكومة الإلكترونية في المملكة العربية السعودية بناء على

خبراتكم هنا؟

١٤ـ ما الذي تقوم به منظمتكم لمعالجة المخاوف الأمنية؟

Appendix E Qualitative questionnaire questions guide (citizens) (English version)

Dear Participant,

This Qualitative questionnaire is a part of a research project that I am conducting regarding to information trust professional ethics and risk in embracing e-government. The main tool of the data collection of this research project is Qualitative questionnaire. I want to reassure you that your responses will be anonymised and completely confidential.

This part of the Qualitative questionnaire is directed to citizens of Saudi Arabia.

This part shall focus on the questions that were given to the respondents through questionnaires.

1. Have you ever used a government website to obtain information or services? If yes what is your opinion?

2. Do you trust Saudi government in its service delivery? Why? Why not?

3. Do you believe the Saudi government has the capability to present their information in a simple and direct manner?

4. How can you rate the quality of information or services on the government sites?

5. What do you think the government should do to improve their websites?

6.　Do you believe that Saudi Government uses surveillance systems to monitor the activities of its citizens?

7.　What is your view of sharing your personal information with other government agency?

8.　What improvements would you suggest to the current government methods of communicating to its citizens?

9.　Do you believe is it possible for Saudi government to fully adopt e-government in this country?

10.　Do you believe that it is possible for Saudi government to have a safe e-government system that cannot be hacked?

11.　Do you think the government of this country has the capability to have such a system, why, why not?

12.　What do you think are the greatest risks to shifting the system of government from the old system to e-government?

13.　What is your opinion of people who works behind e-government?

14.　Comment on the current level of technological development in the country.

عزيزي المشارك،

هذا الاستبيان النوعي هو جزء من مشروع بحثي في دراسة الدكتوراه من اجل إجراء بحث بشأن المعلومات الثقة الأخلاق المهنية والمخاطر في تبني الحكومة الإلكترونية. الأداة الرئيسية لجمع البيانات من هذا المشروع البحثي هو الاستبيان النوعي. وأود أن أؤكد لكم أن إجاباتكم ستكون مجهولة الهوية وسرية تماما.

هذا الجزء من الاستبيان النوعي موجه إلى مواطني المملكة العربية السعودية.

ويركز هذا الجزء على الأسئلة التي أعطيت للمستجيبين من خلال الاستبيانات.

١- هل سبق لك أن استخدمت موقعا حكوميا على الويب للحصول على معلومات أو خدمات؟ إذا كانت الإجابة بنعم ما هو رأيك؟

٢- هل تثق بالحكومة السعودية في تقديم الخدمات؟ لماذا ا؟ لما لا؟

٣-هل تعتقد أن الحكومة السعودية لديها القدرة على تقديم معلوماتها بطريقة بسيطة ومباشرة؟

٤- كيف يمكنك تقييم جودة المعلومات أو الخدمات على المواقع الحكومية؟

٥- ما هو رأيكم الذي يجب على الحكومة القيام به لتحسين مواقعهم الإلكترونية؟

٦- هل تعتقد أن الحكومة السعودية تستخدم أنظمة المراقبة لمراقبة أنشطة مواطنيها؟

٧- ما هي وجهة نظركم لتقاسم معلوماتكم الشخصية مع وكالة حكومية أخرى؟

٨- ما هي التحسينات التي تقترحونها على وسائل الحكومة الحالية للتواصل مع مواطنيها؟

٩- هل تعتقد أنه من الممكن للحكومة السعودية أن تعتمد الحكومة الإلكترونية بشكل كامل في هذا البلد؟

١٠- هل تعتقد أنه من الممكن للحكومة السعودية أن يكون لديها نظام الحكومة الإلكترونية الآمنة التي لا يمكن الاستيلاء عليها؟

١١- هل تعتقد أن حكومة هذا البلد لديها القدرة على الحصول على مثل هذا النظام، لماذا، لماذا لا؟

١٢- ما هي أكبر المخاطر التي تحول دون تحويل نظام الحكم من النظام القديم إلى الحكومة الإلكترونية؟

١٣ـ ما هو رأيك من الناس الذين يعملون وراء الحكومة الإلكترونية؟

١٤ـ التعليق على المستوى الحالي للتطور التكنولوجي في البلد.

١٤ـ التعليق على المستوى الحالي للتطور التكنولوجي في البلد.

Appendix F: Example of interviews with government employees in English and Arabic version, with extracted codes (concepts) and emergent themes.

Reference	Questions (English and Arabic version)	Phrase/Excerpt (English and Arabic Version)	Codes (Concept)	Emergent Themes
Q1, MOI_05	Does your organization have e-government system? If not what administrative system do you use? هل لدى لدي دائرتكم الحكومية نظام الحكومة الإلكترونية؟ إن لم يكن ما هو النظام الإداري الذي تستخدمه؟	Yes, we have government system called Absher system. نعم، لدينا نظام حكومي يسمى نظام أبشر	N/A (This is supportive question)	
Q2,MOI_05	How do you perceive e-government system? كيف تنظرون إلى نظام الحكومة الإلكترونية؟	At the moment, there is long way to go in terms of realising the full potential of e-government. You see, here in Saudi the <u>effectiveness</u> of e-government is not felt yet <u>because people find it difficult to adapt to change</u>.	Effectiveness. Difficulty	Technological Gap

		في الوقت الراهن، هناك طريق طويل لنقطعه من حيث تحقيق كامل إمكانات الحكومة الإلكترونية. ترى هنا، في المملكة العربية السعودية، لم يتم الشعور بفعالية الحكومة الإلكترونية بعد، لأن الناس يجدون صعوبة في التكيف مع التغيير.		And Level of adoption
Q3,MOI_05	Does your engagement with e-government system has provided you a better capability to fulfil your professional responsibility? Please explain your answer. هل انخراطك في نظام الحكومة الإلكترونية قد وفر لك قدرة أفضل على الوفاء بمسؤوليتك المهنية؟ يرجى توضيح إجابتك.	Yes, it does for example the system can easily monitor your activities in system, because you going to log in by user name. So that it make me <u>responsible for any procedures</u> that, I do in e-government system. نعم، فإنه على سبيل المثال النظام يمكن بسهولة رصد الأنشطة الخاصة بك في النظام، لأنك ذاهب لتسجيل الدخول عن طريق اسم المستخدم. بحيث يجعلني مسؤولا عن أي إجراءات أفعلها في نظام الحكومة الإلكترونية.	Responsibility	Professional ethics
Q4,MOI_04	What are the effects of transition from manual government system to e-government systems? ما هي آثار الانتقال من النظام الحكومي اليدوي إلى نظم الحكومة الإلكترونية؟	Transitioning from the manual closed system to an online open system for service delivery can have <u>serious security issues</u>… Large amounts of information are accumulated in the framework of e-government and, thus, it is impossible	*Security issues in e-government*	Privacy and Confidentiality

		to be sure that some information could leak out. الانتقال من نظام مغلق اليدوي إلى نظام مفتوح على الانترنت لتقديم الخدمات يمكن أن يكون <u>مشاكل أمنية خطيرة</u> ... وتتراكم كميات كبيرة من المعلومات في إطار الحكومة الإلكترونية، وبالتالي من المستحيل التأكد من أن بعض المعلومات يمكن أن تتسرب.		
Q5, MOI_05	Would you recommend e-governments for adoption in the entire Saudi government system? Why, and why not? هل تنصح بالحكومات الإلكترونية لاعتمادها في النظام الحكومي السعودي برمته؟ لماذا، ولماذا لا؟	Adoption of e-government across the entire KSA would inevitably <u>stimulate other functions</u>, which relate to the system of government. ومن شأن تبني الحكومة الإلكترونية في جميع أنحاء المملكة العربية السعودية أن <u>يحفز حتما وظائف أخرى</u> تتعلق بنظام الحكم.	Stimulating other functions.	Universality of e-government
Q6, MOI_05	What would you say are the major professional ethics issues involved in dealing with e-government system?	<u>True accountability</u> can only be achieved if the government officials are true and loyal to themselves and to the public.	True accountability	Professional ethics

	ما الذي ستقوله عن قضايا الأخلاقيات المهنية الرئيسية التي ينطوي عليها التعامل مع نظام الحكومة الإلكترونية؟	وقد يؤدي الافتقار إلى المعرفة التكنولوجية اللازمة لأولئك الذين يعهد إليهم بتشغيل الحكومة الإلكترونية إلى مخاطر في التنفيذ والتنفيذ. ولا يمكن تحقيق المساءلة الحقيقية إلا إذا كان المسؤولون الحكوميون حقيقيون ومخلصون لأنفسهم وللجمهور.		
Q7, MOI_05	How your organization dispenses its responsibilities in regard of professional ethics to publics? كيف تتولى مؤسستك مسؤولياتها فيما يتعلّق بالأخلاقيات المهنية للجمهور؟	In our organisation we have police related to specially our work as well as professional policy comes from Ministry of Civil Service. Therefore, we show to publics our policy. في منظمتنا لدينا الشرطة المتعلقة خاصة عملنا وكذلك السياسة المهنية تأتي من وزارة الخدمة المدنية. لذلك، نعرض للجمهور سياستنا.	Professional ethics policy	Professional ethics
Q8,MOI_05	Do you trust the personal information that you enter in your organization website will be handled securely? Please explain هل تثق في أن المعلومات الشخصية التي تدخلها في موقع مؤسستك سيتم التعامل معها بشكل آمن؟ يرجى توضيح	No I do not trust that personal information can be handle securely. Because level of security in our website is not up to the level that would any government organization would reach to…	Level of security	Information security

		لا أنا لا أثق بأن المعلومات الشخصية يمكن التعامل معها بشكل آمن. لأن مستوى الأمن في موقعنا لا يصل إلى المستوى الذي من شأنه أن تصل أي منظمة حكومية ..		
Q9, MOI_05	What are ways that you find to improve the trustworthiness of the transactions and application of your organization website?	It is not possible to guarantee <u>information trust</u> in terms of e-government unless the managers of e-processes are objective and understand their <u>level of accountability</u>.	Information trust Accountability and	Information Trust
Q10, MOI_05	What degree of information trust can you attribute to the use of e-government service? ما هي الطرق التي تجدونها لتحسين موثوقية المعاملات والتطبيقات في موقع الدائرة الحكومية الالكتروني؟	… The procedures followed for taking and giving information to the public needs to be authentic and recorded so that the administration can monitor what has been <u>communicated</u> and how. ومن غير الممكن ضمان الثقة بالمعلومات من حيث الحكومة الإلكترونية ما لم يكن مدراء العمليات الإلكترونية موضوعيين وفهم لمستوى المساءلة.	Communication procedures	Information Trust

			... يجب أن تكون الإجراءات المتبعة لأخذ المعلومات وإعطائها للجمهور صحيحة وتسجيلها حتى تتمكن الإدارة من رصد ما تم تبليغه وكيف يتم ذلك.		
Q11, MOI_04	What degree of information trust can you attribute to the use of e-government service? What are some of your security concerns? ما درجة ثقة المعلومات التي يمكن أن تعزوها لاستخدام خدمة الحكومة الإلكترونية؟	There is a certain <u>degree of information trust</u>. However, my security concerns is about the <u>leak of this information</u>. هناك درجة معينة من الثقة في المعلومات. لكن مخاوفنا الأمنية تتعلق <u>بتسريب هذه المعلومات</u>.	degree of information trust Leak of information	Information trust Security
Q12, MOI_06	Which risks are likely to result from the adoption of e-government in Saudi Arabia based on your experiences here? ما هي المخاطر التي يحتمل أن تنجم عن تبني الحكومة الإلكترونية في المملكة العربية السعودية بناء على خبراتكم هنا؟	The <u>lack of necessary technological</u> knowledge of those entrusted to operate e-government can cause risks in implementation and execution… وقد يؤدي الافتقار إلى المعرفة التكنولوجية اللازمة لمن يعهد إليهم بتشغيل الحكومة الإلكترونية إلى مخاطر في التنفيذ والتنفيذ ...	Lack of knowledge Technological skills	Professional ethics

Q13_MOI_4	What is your organization is doing to address security concerns? ما الذي تقوم به منظمتكم لمعالجة المخاوف الأمنية؟	there is no guarantee that our organisation will have a safe e-government system that cannot be hacked, and that the probability of <u>infringements on safety and security</u> of e-government … ليس هناك ما يضمن أن منظمتنا سيكون لديها نظام الحكومة الإلكترونية الآمنة التي لا يمكن الاستيلاء عليها، وأن احتمال التعديات على سلامة وأمن الحكومة الإلكترونية ...	infringements on safety and security	Information security