Deconstructing the Information and Technology Adoption Process for the NGO Sector in Saudi Arabia.

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Abstract:

Despite the lack of scholarly attention given to the voluntary sector in Saudi Arabia, the need for a deeper understanding of the dynamics of the NGO landscape in KSA has never been greater. Given Saudi Arabia's global leadership i n humanitarian and developmental aid and the growing scrutiny over the management of its non-governmental organizations (NGOs), especially post 9/11, the Saudi voluntary sector finds itself at an important crossroads. Calls for introspection, renewed management, and improved mechanisms for evaluation, control and monitoring have steadily been growing. This study argues that Information and Communication Technology (ICT) has a central role to play in harnessing the NGO landscape of KSA. There are many benefits in the integration of ICT within the landscape of the Saudi NGO in providing better coordination and communication within and between stakeholders, knowledge and information transfer and sharing, the education and training for its staff and more rigorous evaluation, and the control and monitoring of initiatives. However, in order to advance the ICT agenda within the voluntary sector in KSA, a knowledge base regarding the sector's attitude towards ICT adoption is essential. The aim of this study therefore, is to understand the dynamics of the technology adoption process in Saudi NGOs based on the experiences of Saudi NGO managers. Critically, the nature, i.e. whether technology adoption is based on personal, organizational or environmental and external factors, or a combination of these predictors forms the primary aim of this study. Second, the structure of technology adoption, in terms of determining which of these aforementioned factors generate a greater willingness to adopt new technologies forms a secondary objective. A third study objective seeks to deduce the managerial and public policy implications of a greater understanding of the nature and structure of technology adoption in Saudi NGOs.

Post-positivist critical realist ontology is adopted to guide the mixed methods implementation of the research. An initial series of interviews with 12 Saudi managers is conducted to determine the key factors that influence technology adoption followed by the main element of the study, a survey of 287 NGO managers to test the conceptualization of technology adoption, and accompanying hypotheses, derived from the extant literature review and qualitative phase. Multi-variate, bivariate analysis and moderation analysis were used to test the proposed relationships. The initial interviews identified a modified version of the commonly applied technology acceptance model, the UTAUT framework, accurately reflected technology adoption in the Saudi NGO context and specifically proposed that the key predictors were a combination of personal factors (performance expectancy, effort expectancy, social influence, perceived risk), external or environmental factors (government support and competitive pressure) and finally organizational factors (facilitating conditions and compatibility). Multi-variate analysis validated this multi-dimensional nature of technology adoption in Saudi NGOs, but did not find statistical support for perceived risk, government support and compatibility, and with the exception of social influence, nor for any moderating role of gender and age on the personal predictive factors. The study contributes to theory since previous studies exploring technology adoption have adopted unitary approaches whereas the current study validates a multi-dimensional perspective as more reflective of technology adoption in Saudi NGOs. The implications of this finding, and for the inclusion and exclusion of predictive factors, are discussed. Specifically, the implications for managers and public policy are also overviewed. Finally, this study concludes with limitations and recommendations for further research.

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CHAPTER ONE: INTRODUCTION

This chapter of the study provides a background to Saudi Arabia in relation to its engagement as a global leader in Non-Governmental Organization (NGO) sector and therefore in its efforts of targeting humanitarian and relief efforts across the globe. Against this backdrop, an argument is made that greater integration of Information and Communication Technologies (ICT) within the sector, could resolve some of its existing existential problems. Subsequently, the case for strengthening an understanding of technology adoption generally within the NGO context is made, thus further strengthening the rationale of the study. A series of research objectives are developed which serve to guide the structure of the investigation. Consequently, an outline of the key theoretical contributions of the study, are made and an outline of the thesis is presented.

1.1. Background

Saudi Arabia is one of the undisputed leaders of global assistance for humanitarian and relief efforts (Montagu, 2011). In many instances, its global humanitarian efforts have far exceeded its Western counterparts and other nation members of the Organization for Economic Cooperation and Development's (OECD) Development Assistance Committee (DAC). In Cyclone Sidr in 2007 in Bangladesh for instance, KSA gave $158 million compared to $20 million from the United States (Smith, 2010a). In Haiti, in 2010, KSA was second only to the United States, contributing over $50 million to the Emergency Response Fund set up by the United Nations (UN). For the floods that savaged Pakistan in 2010, $220 million was given by KSA, which exceeded the pledges made by all the European nations together ($209 million) (Smith, 2010a). The largest contribution to the World Food

Program was the $500 million offered by KSA in 2008. From 1975 to 2005, KSA gave a total of $90 billion in humanitarian and development aid globally or 3.7 percent of the annual gross domestic product (GDP). The UN target for developmental assistance for countries worldwide is 0.7 percent and Saudi Arabia's 3.7 percent is four times higher than the average of OECD nations (Al-Yahya and Fustier 2011). Indeed, the Saudi voluntary sector pervades all aspects of society, and it is not uncommon to find small benevolent societies in the villages and small towns to some of the world's largest national and global level specialized NGOs in the capital. As Montagu (2011, p. 69), the "*voluntary sector is everywhere in Saudi Arabia".*

Despite this global commitment of giving, the management of its funding structures and frameworks have come under global scrutiny, especially post 9/11. The lack of central agencies to coordinate efforts being made by NGOs often working in the same field has been cited as a major problem (Al-Yahya and Fustier 2011). The lack of professionally trained staff in fundraising management means that evaluation and control of campaigns and programs remains weak, inefficient, and often non-existent. The lack of coordination between NGO actors inside Saudi Arabia is further exacerbated by a lack of coordination and communication with actors at the global humanitarian network level. Some have suggested that a technology revolution, currently taking place in other sectors of the country, also has the potential to mitigate the aforementioned problems within the NGO sector (Montagu, 2011; Al-Yahya and Fustier 2011).

One of the key reasons for conducting this study is the deficiency in the scholarly literature relevant to the functioning of the voluntary sector in the Kingdom. Neither Saudi scholars nor members of the global academic community have given adequate attention to the the NGO sector in Saudi Arabia (Montagu,

2011). Indeed, there is an assumption commonly found in the literature that Saudi NGO activity and humanitarian relief efforts tend to focus exclusively on the Arab world and a failure to recognize the enormous contribution made by the KSA to the global humanitarian relief effort (Smith, 2010a). This creates what amounts to a problem of some significance because it presents a skewed view of Saudi participation in concerns that are relevant to the larger global community. Therefore, despite being one of the major contributors in the world for humanitarian aid, its role in managing this aid does not reflect its financial contributing role.

Al-Yahya and Fustier (2011) argue that as a result of these problems KSA has failed to adequately promote its humanitarian goodwill to the rest of world and this remains a source of "*formidable source of 'soft power' – a means of winning hearts and minds – that would be the envy of any other country"* (p. 5). Indeed, despite the lack of scholarly attention given to the voluntary sector in KSA, both from Saudi scholars and the wider global, in particular 'Western' academic communities, developing a deeper understanding of the Saudi voluntary sector has therefore never been greater (Montagu, 2011). On the one hand, a popular, largely orientalist in nature, global perception is that KSA is a "*hegemonic and primitive monarchy*" which could not "*entertain neither civility nor an associational society*" (Montagu, 2011, p. 68). Given the fact that Saudis contribute more to humanitarian relief operations, as a percentage of their GDP, than any other nation in the world (Smith, 2010a) this misperception could not be further from the truth. However, the growing global scrutiny on Saudi NGOs and machinery post 9/11 has meant that the Saudi civil and voluntary sector faces an important cross roads, one which deems urgent introspection and analysis, and one which will have to open up to modern management to improve existing mechanisms of control, evaluation and monitoring. As Kroessin (2007, p. 4) argues the image of the voluntary sector in KSA has

suffered drastically from the blanket vilification of all Saudi charities and the international community must do more to help Saudi NGOs to "*better engage with the mainstream humanitarian community, since their contribution to relief and development is considerable.*"

Given the above, this study suggests one solution to propel the Saudi NGO sector in the light that it deserves, is the greater facilitation that ICT could bring to it.

1.2. Introduction

Numerous solutions have been proposed to resolve the problems currently being faced by the Saudi NGO sector. Matic et al (2012) for instance suggest changing attitudes and perceptions of the sector at the public relations level. Gallarotti and Al-Filali (2013) suggest better governance of the sector from the state. Others have suggested that a key problem with the Saudi voluntary sector is the notable absence of an umbrella organization (Al-Yahya and Fustier, 2011), which has the regulatory influence and power to hold individual NGOs to account. As Al-Yahya and Fustier (2011) clarify, this absence has led to a vacuum of non-accountability and a serious lack of transparency and therefore, there is a clear need to unite the complex and diverse variety of NGOs that exist in the kingdom. A common thread in all studies is the need, to further integrate ICT to engineer the aforementioned propositions.

Although the technology acceptance literature is extensive and albeit largely applied in Western organisational contexts (e.g. Venkatesh et al. 2003; Davis et al. 1992; Thompson et al. 1991; Park et al. 2007, Anderson et al. 2006, Neufeld et al. 2007) fewer studies have applied technology acceptance to voluntary sector contexts, such as in NGOs (Sargeant and Shang, 2015; Lee et al. 2001). The importance of ICT in moving organizations of all kinds forward has been emphasized by any number of analysts (Basamh et al. 2014). The kind of data made available through

ICT can be used to improve communication as noted above and also to demonstrate progress on achieving humanitarian goals and objectives. Compounding this problem, from the perspective of the current study, is that the largely Western orientation of technology acceptance studies has resulted in less focus on developing and emerging economy contexts (Gupta et al. 2008). Moreover, the few studies that have adopted the Saudi context, have done so in corporate profit making contexts, and have utilized a unitary approach to technology acceptance, largely focusing on personal predictive factors (e.g. Al-Gahtani et al. 2007; Baker et al. 2008). These combined, the lack of research on ICT within the NGO sector, and within the Saudi context in general, represent two key knowledge gaps that this study seeks to fulfil.

Indeed, although as far back as 2001, Lee et al (2001) demonstrated that those Not for Profits (NPs) that integrated ICT were deemed to command greater competitive advantages, few studies have explored the dynamics of ICT within the NP sector. This is despite the fact that the NP sector has seen immense growth in recent years partly because of the induction of ICT in their routine functions (Sargeant and Shang, 2015). From office communication to field staff co-ordination, ICT has taken centre stage in the voluntary sector (Al-Yahya and Fustier, 2011). In Te'eni and Young's (2003) comprehensive review of the impact of ICT on the for-profit sector, numerous recommendations are made but primarily the need to better understand the processes and factors that contribute to technology acceptance within the sector. Indeed, Te'eni and Young (2003) predicted that NGOs, as one key type of NP organisation, could accelerate their service provision role in supplying public goods and engineering positive social change through integrating ICT better but despite this *"our knowledge of the processes behind this adoption remains lacking"* (p. 23). Indeed, Te'eni and Young (2003) propose embracing the internet as the fundamental primary step in integrating ICT within the culture of NPs.

Others such as Al-Yahya and Fustier (2011) argue that online transactions through better databases can help to revolutionise the sector. Alexander (2000) focus on web presence as helping to create fusion between workers on the ground, the organisation and its supporters from its publics as integral for shifting operational efficiency for NGOs. Others have also focused on online and digitization as essential to move the sector forward. As Gallarottie (2013) and Kroessin (2008) argued, the most important impact, which can be attributed with the implementation of ICT in NP sector is employee's training through greater access of the internet. Respondents from not for profits within these studies, stated that the internet was critical in offering training modules in management and in an organisational culture where funding is typically tight for sending staff for paid courses this becomes even more important. These cost reduction measures allow greater liberty to NGOs to spend already scarce money on other aspects of their business processes (Poole et al, 2001). Moreover, given that the donations for charities from different countries and institutions are two of the biggest sources used to fulfil their financial needs and requirements, improving technology facilitation could allow for greater processing of this transaction (Gallarotti, 2013). Clearly, multiple benefits can arise form ICT for the NPs in general and therefore for Saudi NGOs.

This study proposes that at the heart of the professionalization and assistance needed for the Saudi NGO sector, is the role of ICT integration. Indeed, only with an ICT enhanced modernization of its voluntary sector, can it take up its rightful role as an important "*driver for social reform and modernization of the civil society*" (Montagu, 2011, p 68). The modernization of the voluntary sector has implications far wider than just making the sector alone more efficient. Citizens depend on the voluntary sector as it allows cutting across tribal affiliations, ethnic and cultural origins and an important catalyst for women rights in the country. The voluntary

services sector has a direct significance for those people who are in dire situations as far as their economic and social situations are concerned. These NGOs work to more deprived sections of the society; they provide variety of services to sections of society such as rehabilitation, planning marriages, and technical training to sustain themselves and live more respectable and independent life (Finn et al. 2006). The empowerment of women in Saudi society has been debated on for many years now and these NGOs have a major part to play in making the women part of active society and give them more rights than ever before. The Khadija bin Khuwalid Centre, the female section of the Jeddah Chamber of Commerce and Industry for instance has spearhead confidence building classes for women. Mayadin, a private NGO consultancy set up by established women in powerful positions in NGOs seeks to engender courses in management for women.

In conclusion, this study argues that ICT has a central role to play in harnessing the NGO landscape of KSA. There are many benefits such an integration of ICT within the landscape of the Saudi NGO may offer including better co-ordination and communication with each other, knowledge and information transfer and sharing, education and training for its staff and more rigorous evaluation, control and monitoring of initiatives. Against this backdrop, the following key research aim and its component research objectives have been developed to serve as the roadmap for the current investigation.

1.3 Research Aim and Objectives:

The key aim of this study is *to investigate the antecedents of technology acceptance amongst Saudi NGOs.* As a result of this, this study seeks to determine the key influences, positive and negative, that may affect independent NGOs in the Kingdom of Saudi Arabia, to adopt new technology. In fulfilling this aim, a series of research

objectives have been developed to deconstruct this aim further. These are summarized below with a brief explanation of their implication.

Research Objective One:

To determine the nature of the technology adoption process for NGOs in Saudi Arabia.

Research Objective Two:

To determine the structural composition of the technology adoption process for NGOs in Saudi Arabia by identifying which predictive factors have a positive, negative or no effect on intentions to adopt ICT.

Research Objective Three:

In light of objectives one and two, to provide managerial and public policy implications, for managing more effectively technology adoption by the Saudi NGO sector.

1.4 Theoretical Contribution

Unlike previous studies exploring organizational technology adoption in the Saudi context (Al-Gahtani et al. 2007; Baker et al. 2008), this study adopts as its primary sampling frame, managers of organizations. Moreover, and consistent with calls to integrate qualitative responses to guide the conceptualization of technology acceptance to local contexts (e.g. Hardgreave and Johnson, 2003), this study expects that given the greater representation of the organizational philosophy and strategic intent that managers can bring to understanding the use, or lack thereof, of technology (Rockart et al. 1994; Bassellier and Reich, 2001) a more multi-

dimensional perspective will be generated for understanding technology acceptance in a Saudi context. Indeed, previous studies in a Saudi context, have further adopted a unitary lens to mapping technology adoption by focusing only on personal predictive factors such as social influence or performance expectancy, thus omitting potentially important external and environmental influences such as competitive pressure or organizational factors such as facilitating conditions. As such, this study represents a first derivation of a multi-dimensional perspective towards technology adoption in the Saudi context but also given the lack of scholarly applications exploring the NGO sector, also a first application within this study domain.

1.5 Outline of Study

This is an eight-chapter thesis, with each sequentially developing onto the subsequent chapters. The design of this chapter sequence is adapted from classical post-positivist study structures with the main survey findings comprising the main results chapter preceded by methodological and conceptual overview chapters. An overall structure of the thesis is presented below for parsimony and clarity purposes.

Chapter 1: **Introduction:** The purpose of this chapter has been to set the context and background of the study and provide the reader with the main research objectives. The need for investigating ICT within the Saudi NGO context is introduced here, thus serving as the initial thrust for this investigation.

Chapter 2: Literature Review: The purpose of this chapter is to provide an overview first of the socio-economy of the Kingdom of Saudi Arabia, followed by summary of technology acceptance and the characteristics of NGOs. In doing so, the context of ICT adoption within Saudi NGOS becomes more evident. Moreover, this

chapter then reviews the extant frameworks and theories underpinning existing technology acceptance research and a series of such models are investigated.

Chapter 3: The conceptual development and hypotheses formulation serves as a useful retrospective section, highlighting the conceptual model developed from the extant literature and exploratory interviews with Saudi NGO managers, and to be tested by the study part, via the quantitative survey.

Chapter 4: The methodology chapter outlines the rationale for the critical realist post-positivist ontology adopted for this investigation and provides the operational details, which underpin the implementation of the mixed methods research design. Dedicated sub-sections for the exploratory inductive phase and its subsequent deductive survey phase are detailed.

Chapter 5 and 6: Whereas chapter 5 focused on the preparation of the data for purposes of analysis and therefore findings of for instance the factor analysis conducted for this purpose, chapter 6 provides the results which validate the conceptual model and hypotheses. Chapter 6 generates the outputs from the regression and moderator analysis conducted for this purposes.

Chapter 7: The purpose of this chapter is to reflect on the findings based on the extant literature. It does so by adopting a discussion based on each of the original study objectives and therefore also discussed the managerial and public policy implications of the key findings.

Chapter 8: This chapter serves as a synopsis of the investigation by reviewing its theoretical contribution, limitations and recommendations for further research.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter provides an in-depth review of the relevant literature. It covers various sections which combined provide an overview of the nature of ICT in the NGO sector in Saudi Arabia but also providing an in-depth review of the relevant theoretical frameworks and models that conceptualise technology acceptance or adoption. A basic structure of the chapter is provided below for clarity:

2.2 Overview of Kingdom of Saudi Arabia (KSA):

An overview of KSA, mainly its economic preowess and its prograns to properl itself forwards into the 21st century as a global powerhouse are highlighted. This section therefore provides a summary of the overall country context being investigated.

2.3 Information and Communication Technology (ICT).

An overview of the nature of ICT and in particular how it can shape societies thus posing as challenges to the hegemony of individual nation states is first examined.

2.4 Non-Govermnetal Organisations (NGOs)

An introducction to NGOs is provided, providing insights into their key characteristics and the challenges these provided for operating and managing NGOs. NGOs are placed within their overall context of not for profit organisations but are also differentiated from these by their own unique features.

2.5 ICT in Saudi Society

The concept of ICT adoption is examined in more details in terms of application within Saudi society, this comprising a review of the current ICT status quo in Saudi Arabia, and namely the rise of ‘new media’ at a social level. This review is then used to argue that new media can comprise any lack of usage of a partocular technology by a nation or any of its sub-sectors.

2.6 The NGO sector in KSA

The unique features and practice of NGOs in Saudi Arabia is reviewed in this section thus provided insights in to the current challenges they face, thus strengthening the case to integrate technology as a mean to overcome these challenges.

2.7 ICT challenges for the NGO sector

Specific challenges currently being faced by in integrating ICT by the NGO sector are investigad in this section, thus providing a further context and rationale to investigate the technology adoption process by Saudi NGOs.

2.8 Review of Technology Acceptance Frameworks

This section reviews the current underlying frameworks and theories which underpin current conceptualisations of technology acceptance or adoption. In doing so, several streams of literarure are reviewed ranging from diffusion of innovation, theory of reasoned action and planned bahaviours as well as specific technology acceptance frameworks which have emerged from these such as Technology Acceptance Models, and various models which and integrate either personal, organisational and environmental factors, or a combination of these, within their technology accpetance conceptualisations.

2.9 Summary

An overview of the chapter is provided providing context to the need to investigate technology acceptance within Saudi NGOs.

2.2 Overview of Kingdom of Saudi Arabia (KSA)

Since its establishment as an autonomous, independent nation-state, Saudi Arabia has benefited from its enormous oil wealth and developmental efforts and programs targeting other industrial sectors. Niblock (2015) has characterized Saudi Arabia as a developed country with many of the same social and economic issues confronted in less developed countries; while the country has created a viable economic infrastructure that is based largely on oil, added immensely to its health and education system via governmental agencies and activities, and encouraged entrepreneurial business development, its overall economy is relatively undiversified (Ramady and Mansour, 2006). Saudi Arabia is however overly dependent upon oil and gas as a source of revenues and employment and the (Niblock, 2015) also notes that employment within the Kingdom is limited because of the large number of "guest workers" from other states (mainly Arab or Islamic states) that form the largest group within the blue collar labour sector.

What these comments suggest is, once again, that the Kingdom is excessively dependent upon oil as a source of revenues. These resources, though substantial, are finite. Saudi Arabia, as it moves into the WTO structure, will need to respond to a number of initiatives focused on free trade and reduction in all types of protective tariff structures. Internal as well as external influences affect the degree to which a particular country in the Middle East can be participative in globalization. Recently, Bahgat (2004) has stated that 9/11 created a challenge to the long-term partnership between Washington and Riyadh. The Saudi-U.S. oil partnership

remains significant despite the fact that the Saudis have increased oil prices and have made it clear that continued American support for Israel threatens the relationship that the two countries have enjoyed. The stability of the Al-Sauds is nowhere near as great as that enjoyed by the Al-Sabah family in Kuwait. Though both countries are confronting threats from militant Islam, Kuwait appears to be less vulnerable than Saudi Arabia. The U.S.-led invasion of Iraq in 2003 has also complicated the relationship between the U.S. and Saudi Arabia. This has not occurred with respect to the relationship between the U.S. and Kuwait, which has rejoiced in the demise of Saddam Hussein (Bahgat, 2004).

Saudi Arabia can be characterized as a country in which mechanisms for democracy are limited and in which there are sharp divisions of opinion regarding the Kingdom's relationship with the West and with the United States in particular (Bahgat, 2004). Anti-American sentiment led the Saudi government to refrain from participation in the 2003 Iraq invasion and terrorist attacks against American interests in the Kingdom have been ongoing. Conflict over oil is an important determinant of the stability of U.S.-Saudi relationships. Nevertheless, O'Sullivan (2005) has reported that in the spring of 2005, Saudi Arabia's crown prince Abdullah agreed with President Bush to invest more heavily in oil production capacity, to extend a heartier welcome to American corporations, and to deal more effectively with violent Islamists at home. In return, the U.S. has agreed to stop criticizing Riyadh about terrorism and to listen to Saudi views about the region's future. Here, oil and power politics rather than the promotion of democracy seem to be at work.

In discussing Saudi Arabia as a developing country, Sodaro (2004) has commented that it had an economy that contracted significantly in the 1990s but which has subsequently expanded due to rising oil prices. In addition, Sodaro (2004)

stated that Saudi Arabia is, like other traditional and conservative Islamic countries, possessed of a legal system that is based on *Shariah*, Islamic law that is in many ways very different from the kinds of legal structures that are found outside of Islamic countries. This may also have an impact not only upon the relationship between Saudi Arabia and Washington, but also on the relationship between the Saudis and the Americans in general.

Sodaro (2004) also discussed the fact that Wahhabism as practiced in the Kingdom conveys an anti-Western message through many of the schools or madrassas that are diametrically opposed to the Saudi government's policy of cooperation with the United States. It is certainly worth noting that 15 of the 19 hijackers who participated in the events of September 11, 2001 came from Saudi Arabia. Sodaro (2004, p.287) argue that "*this is a fact that some observers attribute to the doctrinal influences of Wahhabism*." This alone does not bode well for the ongoing political engagement between the United States and Saudi Arabia. Nor does it bode well for the globalization project in which Saudi Arabia is clearly involved, as evident in its WTO accession. The western myths surrounding Wahhabism, with its roots in colonial history (Grosfoguel, 2010), have affected the public and global image of Saudi Arabia. This has further been compounded by the illusionary correlation created by Western anti-terrorism industry promoting the Salafi-extremist myth (Rafiq, 2016).

From the Saudi perspective, as explained by Loeffler et al (2006, p. 24), the Kingdom has "*significantly liberalized its markets and, at the same time, restructured its legal regimes and expanded fundamental economic goals."* Furthermore, this is designed so that the resulting liberalization of many business activities in the Kingdom will increase transparency and predictability and demonstrate a fundamental shift within Saudi Arabia. According to Loeffler et al

(2006), the kingdom has for instance relaxed laws concerning commercial activities, foreign direct investment, tariffs, intellectual property rights, and WTO requirements. These are important concessions, which have been greeted with enthusiasm, particularly among those businesses and industrial sectors seeking the opportunity to acquire partnerships or joint ventures with Saudi businesses and by NGO donors. These are concessions indicating that globalization is viewed positively in Saudi Arabia and that leaders in the Kingdom are working to achieve this objective through WTO membership and other mechanisms. Central to achieving this vision is the ICT revolution in the kingdom (Loeffler et al. 2006).

Clearly, Saudi Arabia is facing numerous macro level challenges, whether economic or related to its global image. Against this backdrop, the NGO sector has found itself with heightened scrutiny and attention, both nationally and moreover at a global level. Although this has not affected the good work this sector has and is currently doing with other global NGOs, it does demand that the sector must embrace change and furthermore, show that it is embracing this change towards greater professionalism. Embracing ICT represents one such potential 'glove fits all' approach to embracing this change.

2.3. Information and Communication Technology (ICT)

Information and Communication Technology (ICT) adoption has been shown to have a profound effect for leveraging organizational productivity and performance, both profit and not for profit making organizations (Venkatesh et al. 2003). The consensus in the management and organizational studies literatures is that those organizations and indeed managers that embark on integrating greater ICT initiatives generate greater performance gains (e.g. Cash et al. 1992; Swanson, 1988; Nickerson, 1981). Hirschheim's (1986) seminal study is often cited to articulate this

proposition since he proved that organizational integration of ICT could generate anything between 15 to 340 percent in relation to productivity gains. The initial high start up costs of new technology integration are often offset by longer term gains in terms of better performance and ultimately productively gains. Indeed, an OECD Information Technology Outlook (2000) report indicated that the rate of ICT growth globally (i.e. hardware, software and services) since the 1980 had grown at an annual rate of 8 percent, exceeding a revenue of $735 billion by 2000. Furthermore, this amounted to almost 10 percent of the GDP for OECD member nations in 2001. The OECD report also found that the rate and growth of adoption was lower in developing countries compared to developed countries, but emergent economies had shown a proportionally faster growth rate.

One of the most comprehensive reviews of the role of Information and Communication Technologies (ICT) on the functioning of business practices was the report by Te'eni and Young (2003) in which the authors advanced the notion of the centrality of ICT to generate competitive advantage for businesses. The speed with which businesses communicate with each other and the nature of buyer-seller relationship has been revolutionised by internet. Te'eni and Young (2003), for instance, pointed to the internet as facilitating information supply to a wider global audience (or reach), generating greater expectations from consumers in information type and content (or richness) and changing the nature of trusting information to fulfil needs (affiliation). ICT also heavily influences the market structure. Consumers can now be reached without a middle men or agent by organizations and the distribution channel has been shortened drastically via online booking. People are less dependent on physical visits to super market to shop; rather they prefer purchasing it from their drawing rooms. This remarkable trend of E-commerce truly reshaped the world's very business conduction practices (Ashrafi and Murtaza,

2010). Logistics have benefitted from lean "computer aided" systems and databases have revolutionised the management of the marketplace. ICT integration not only impacts on for-profits; it shapes the ways in which NPs and NGOs attract and retain donors and raise funds for their activities.

Although ICT adoption studies are much fewer than those investigating in developed contexts, there are a number of studies, which have analyzed ICT growth in developing economies. Odedra and Kluzer (1988), in one of the first such studies, found that ICT adoption in developing countries is affected by a multitude of factors, but Abdul-Gader (1999) indicated that these factors face greater resistance than in developed countries due to social and cultural barriers. Malek and Al-Shoaibi (1998) summarized these barriers as a lack of ICT infrastructure, expertise, government support, performance expectancy or the perceived benefits of ICT as a strategic asset to the organization and poor national ICT enabling policies. Given the greater and adoption of ICT in emergent and developing nations since these initial studies, more knowledge of the adoption process in these nations has become evident. (e.g. Al-Gahtani, 2004; Anandarajan et al. 2002). Straub et al. (2001) still perceives that the main barrier lies in the enabling or disabling role of national policy on ICT but that local cultural and social factors may compound this problem further. It is believed that national enabling policies facilitate any negative influence that specific cultural and social factors might have on technology adoption in developing countries (Malek and Al-Shoaibi, 1998). Several studies for instance have found that national enabling policies can mitigate the effects of education, age or gender on technology adoption (e.g. Ahuja, 2002; Ford et al. 1996; Rhodes, 1983; Woodfield, 2002). Gefen and Straubb (1997) for instance find that although gender roles play an important role in influencing technology adoption, with females adopting at slower rates compared to males, this effect is strengthened when national policy in

developing nations is controlled for. When national policy is re-introduced, then this effect diminished, suggesting the critical role of government support for ICT adoption in developing nations.

To understand further the theoretical processes behind technology diffusion into a society, such as Saudi Arabia for instance, it is important to look at the seminal work of Everard (2000) who viewed the internet, as a society transforming medium with the ability to change the very fabric of socio-cultural values. He argued that the internet was ultimately a social process and these processes inter wine but can be summarised as: "*the disaggregation of the state as actor; Self/Other divide in the constitution of identity; and the operation of these processes in the maintenance of social and economic inequalities"* (ibid. p. 10). Therefore, he argued the Internet brings in other external global actors and agents ultimately whereas previously the state was the sole legitimate actor in social affairs. Everard's (2000) three processes highlight the role the state has in identity formation of its public and the challenge of social identity formation that the internet poses to its public. Critical to Everard's (2000) observations is that the internet offers society an avenue to challenge top down state lead inequalities for people through bridging divides between communities which otherwise would not be possible. This does not mean we are seeing the disappearance of states in its role on society but rather that the mechanisms given to the public for their identity formation are different from the role that the internet plays such that as Everard (2000, p. 9) states: "*Such ideas allow the domestic polity of states to subscribe to the idea of a national identity in ways similar to those that draw people together in online discussion lists in virtual communities"* and as Lull (2001, p. 21) expands: *"This is where the similarity ends. States and virtual communities engage in identity formations in quite different ways. In respects of states, identity formation is historically situated within geopolitical*

structures while that of virtual communities is characterised by the power of flows that is not bounded by political and geographical spaces".

The role of states therefore traditionally has been to control and manage cultural expression within society by providing exchange and values within society that is consistent with the status quo, historical or political. The internet therefore diminishes this exclusive control of state over society on the generation of cultural identity formation and expression. The monopoly that states once had in the control of freedom of expression and generation of cultural expression and identity has been counteracted by the advert of the internet. Despite the different roles of the state and the Internet in cultural identity formation, the state is a legally recognised body tasked with sovereign rule and management within its territorial boundaries (Walker, 1993) whereas the virtual and boundary less world of the internet does not confer any such legal status to the internet. Camilleri and Falk (1992) argued that this infers political identity to states that become charged of governing their societies through rules and regulations with the aim of maintaining their cultural identity. Even according to the UN Charter Article 2, states are not allowed to intervene in the domestic affairs of other states, i.e., states are responsible for managing the identity within their own sovereign territories.

Given the above, any nation therefore in adopting all forms of new technology, in particular the World Wide Web, has to face the new challenge that it no longer is solely in control of identity formation within its own territory but rather through knowledge exchange between communities, is allowing the people to govern and generate this self-expression through the medium of the Internet. The realist school of thought, or perspective, which argues that power is solely generated from state directives within the territorial boundaries has become the mainstream philosophy to understand international relations and law (Youngs, 1999), as evident

by the UN Charter to recognise state power as sovereign control within territorial boundaries. However, the internet challenges this realist logic in international relations since outside actors through the internet can also now have an important role to affect identity construction within territorial boundaries as well as the state such that Everard (2000, p. 5) concludes: "*the realist perspective is under strain due to the role of other actors* outside the state and the challenge of location of identity in an increasingly globalised and wired world". Therefore, the diffusion of power is changing from state rule and management to a globally connected and digital community. As Walker and Mendlovitz (1990, p.1) argue: "the most important forces that affect people's lives are global in scale and consequence. Therefore, in spite of the strong arguments put forward to justify the primacy of the state in international affairs and appeals to national identity and the principle of non-intervention, questions about both the meaning and significance of state sovereignty are again firmly on political and scholarly agendas". The role of the Internet has made this issue even more challenging.

Young (2000) suggested that multiple sovereignties may operate within territorial boundaries and this "territorialisation" or territorial division within a territory has become more enhanced, unpredictable and unregulated with the advent of the worldwide web. In a similar vein, Strange (1996, p. 4) wrote that the postmodern global world is witnessing a "diffusion of power" where "*the territorial boundaries of states no longer coincide with the extent or limits of political authority over economy and society".* Walker (1993) points out that there are three layers of sovereignty affected by globalisation. The first layer is that at the domestic level, the second operates at the state level, and finally the third layer operates at the international institutional level. The domestic layer is the one which can be extended when considering the effects of the internet since this layer leads to what Lull (2001)

refers to a process of "deterritorialisation" which is effectively when citizens generate through symbolisation and its transfer new cultural meaning or meaning to strengthen existing cultural identity. Effectively this means that states can face challenges where state lead hegemony is being challenged through citizen generated content or citizen leadership platforms provided by the internet for instance. Agnew (2002) supports this view and states that the post-modern world is eroding our traditional concept of the state-centric view since the world is becoming like "*a giant pinhead in which where you are counts for nothing, connectivity, interdependence, global culture, and cyberspace are displacing the bounded territorial spaces and grounded places...."* (ibid. p.181). This struggle of traditional state-centric sovereignty is now being eroded completely since as Hirst and Thompson (1999, p. 257) argue *"although the nation state's capacities for governance have weakened, it remains a pivotal institution".* Further, *"the state is still essential to the process of "suturing" power upwards to the international level and downwards to sub-national agencies'* (ibid*. p.262).*

Moreover, the state remains the *"source of legitimacy in transferring power or sanctioning new powers both above it and below it"* (Hirst and Thompson, 1999, p. 259), but it this legitimacy, which can become challenged by citizenship cultural change created by technology adoption. The role of the state as its associative network as an "*interlocking network of public powers that regulate and guide action in a relatively consistent way, providing minimum standards of conduct and relief from harm"* (ibid. p. 260) shifts its loci of focus from state to citizen with for instance the widespread diffusion of the internet and currently new media usage. In many ways, is can therefore be argued that given the widespread adoption of social and new media, the state-centric perspective remains as important as it has been cannot be accepted in the current postmodernist global environment. Rather it is

important to recognise that a combination of perspectives and therefore appreciating the fluidity of the effects on citizenship, between citizen generated and state generated is more likely to reflect the environment that characterises states which embrace the worldwide web (Everard, 2000).

In conclusion, it must be recognised that efforts to regulate the digitally enabling initiatives, in particular the internet, are an effort from the state to control and manage cultural identity and thus the state fulfilling its traditional state-centric sovereign role and on the other. This is done to counter the challenge of the greater ICT enabled independence which the internet for instance, leaves for citizens and the drivers for its adoption, whether private or at the institutional level, is a shift towards citizen orientated generation of cultural identity. Technology adoption can therefore be seen as a challenge for states, in regulating and therefore in controlling its citizens and maintaining its own hegemony over societies.

This study specifically focuses on the integration of technology within a nations NGO sector. A basic review of the nature of the sector is provided subsequently in order to contextualize this focus further.

2.4. The NGO sector.

Non-governmental organisations (NGOs) as part of the wider world of the not-for-profit (NFP) or non-profit (NP) sectors, also known as the third or voluntary sectors, represent, a significant proportion of both developed and emergent economies (Samuel et al., 2008; Smith, 2010b). Although there is no agreed definition of an NGO, one provided by Gray et al. (2006, p. 324) provides a commonly cited one, as an "*autonomous, non-profit-making, self governing and campaigning organisations with a focus on the well-being of others*". In a similar vein, a United Nation's definition (Teegen *et al.* (2004, p.466) proposes that an NGO is an *"NGOs are*

private, not-for-profit organizations that aim to serve particular societal interests by focusing advocacy and/or operational efforts on social, political and economic goals, including equity, education, health, environmental protection and human rights". Indeed, much of the work on NGO's in relation to its management of its multi-stakeholders emerges from the wider non-profit management literature (Sargeant, 2011). This is since like NFPs, NGOs are also bound a not for profit motive based, the critical differentiator of NP organisations. A key characteristic of all NPs and indeed of NGOs, is their greater multi-stakeholder orientation since often, unlike the corporate-customer relationship, these organisations as socially and publically driven change agents face greater scrutiny (Sargeant, 2011; Weimar, 2010). Globally, there appears two key challenges being faced by NGOs, growing competition from each other but paradoxically more intense collaboration (Ebrahim, 2003) and greater calls for accountability and transparency (Kaplan, 2001). Kaplan (2003) also suggests that NGOs are much more prone to economic cycles than their corporate partners given that under these conditions public support may become more limited due to savings and budgetary pressures from stakeholders.

Given these challenges faced by NGOs, there is concurrently a greater need for efficiency and effectiveness in the way an NGO utilizes its resources and conducts its operations (Jegers and Lapsley, 2001). This greater need can also be related to the much more complex relationship between NGOs and their stakeholders, than the one existing for corporate organisations, i.e. the multi-stakeholder nature for NGOs. As Gray et al. (2006, p. 335) explain, *"Matters such as trust, emotion, conscience, social contracts, mutuality etc. all enter into the relationship and to reduce such complexity to monotonic performance measures is to demean the complexity of the relationship".* Whereas profit making organisations enjoy "one privileged interest group" (Speckbacher, 2003, p. 3), primarily the

consumer groups, NGOs often are more strongly characterised as serving a *"multitude of stakeholders, including donors, staff, volunteers and the beneficiaries of the services being provided, whose goals and needs may be heterogeneous"* (ibid, p. 3). Given the conflicting interests more likely with multiple stakeholders, the pressure to maintain legitimacy for all stakeholders equally becomes more difficult for NGOs. leading to greater pressure on both upward and downward accountability (O'Dwyer and Unerman, 2008). This becomes particularly compounded when multiple voices from multiple stakeholders become in conflict and this situation is more common in NGOs whose vision and mission is designed to serve multiple purposes, such as humanitarian and international development NGOs (Roche, 2009). A further complexity characterising NGOs is the unique typology under which they can fall, under.

Korten (1990) offers a typology to study NGOs identifying three main types, or phases through which NGOs may undergo. In the first type, an NGO may focus on welfare and relief by dealing with relief services to beneficiaries. Those who are suffering because of famine, hunger, storm, war, earthquake, or any natural phenomenon consider NGOs to be there for them to provide them relief along with government's efforts. Then comes the social responsibility aspect of non-profit organizations; where they work with social elements of the society to educate them and training them to sustain themselves and improve the overall condition of their livings (Epner, 2004). The second type of NGO phase, deals with those NGOs who are occupied with small-scale local efforts and focusing on short to medium term needs within those communities. Within the third type generation of "sustainable systems development" NGOs attempt to employ a sustainable model and serve to engineer policy changes at the local level for long-term effects. The third aspect of their functionality earns them most respect than for any other function. People feel

more connected when they feel that some activity of any non-profit organization would help improve their overall system and they support the idea of working in close collaboration with NGOs.

In conclusion, and in accordance to Korten (1990), the first type of NGO, or macro NGOs, are often faced with the multitude of conflicting stakeholder interests highlighted previously since the type of service they will be offering involves engagement with multiple stakeholders. These types also tend to be larger in size and therefore the levels of scrutiny and calls for accountability may also be greater. A trickledown effect from these, macro sized NGOs spills over into the smaller scale second and third types, such that national policy often will have to be buffered or adapted by these first degree NGOs. This then consequently becomes a benchmark and knowledge sharing foundation for the smaller scale NGOs. Any national policy on ICT therefore is more likely to affect this type first. The role of ICT integration within NGOs will be discussed in a subsequent sub-section but to understand ICT adoption in Saudi NGOs, it is also vital to map out the social environment in relation to ICT currently existing in the country, with its trends and challenges, and hence the subsequent sub-section deals with this issue.

2.5. ICT and Saudi Society

The purpose of this section is to review the current status quo of ICT usage in Saudi society, especially the recent growth of new media adoption. This is vital to understand how organizations eventually adopt ICT. As the wider socio-cultural environment is the most immediate external environment of Saudi NGOs, what is taking place within this environment impacts the internal need for adapting and integrating in relation to ICT practices. Therefore, the current trends in ICT usage,

regulation and key challenges being faced by the Saudi government n this regard are essential to uncover a macro perspective to ICT adoption in Saudi Arabia.

ICT and new media consisting of online and mobile digital media such as the Internet itself, various social networking sites like Linked In and Facebook, Twitter, Flickr, etc, have become a more trusted source of news in the global community but also that region of the world known as MENA – the countries of the Middle East and North Africa. Indeed, a recent survey conducted by YouGov, which involved a sample of 30,000 adults in the MENA region revealed that 70 percent of these subjects acknowledged watching television while simultaneously surfing the Web often with a tablet computer. A total of 45 percent of the respondents acknowledged accessing digital media via mobile phones, suggesting that new media is an important source of news and communication in this region. Equally significant is the fact that the survey revealed that 87 percent of respondents have Facebook accounts while in Egypt alone 42 percent are active Twitter users (TradeArabia, 2012).

Mobile media are therefore a vital addition to communications platforms throughout the region. A report by Booz and Company (2013) found that although the business case in the region for new media has yet to materialize for most organizations of all kinds, the market scene is changing rapidly which might facilitate internal adoption of any new technologies. At a social level, technologies are converging, youth users and female socialites are becoming new media champions, and traditional lines of demarcation separating Internet players, media companies, and telecom operators are blurring. New Media, according to this company, represents both an opportunity and a challenge in that there are literally millions of users seeking expanded use opportunities, hundreds or even thousands of businesses anxious to capitalize on new strategies for market penetration, and

concerned governments that are anxious to prevent new media from becoming an even more powerful tool in the hands of opposition groups.

Many of the highly conservative, traditional, entrenched governments of the region (including dynastic monarchies that are highly resistant in many cases to what is perceived as "Westernization" potentially leading to political dissent) have attempted to implement laws, regulatory regimes and policies that inhibit or attempt to inhibit use of various new media within MENA societies (Sreberny, 2012). Nevertheless, in selected countries such as Saudi Arabia, Egypt and the United Arab Emirates, these new media are enjoying enormous popularity, particularly among younger users. It is this phenomenon and its ramifications impacting upon business, government functions, social relationships, and politics that will serve as the focus of this independent study.

Socha and Eber-Schmid (2013, p. 1) state that 'new media' is a twenty-first century catchall term "*used to define all that is related to the Internet and the interplay between technology, images, and sound*". It is a broad term, which suggests that to be new, a medium must be capable of facilitating on demand access to content at any time, in any place, and via any digital device. It is also suggestive of the need for interactive user feedback, creative participation, and community formation around media content. It also holds out the promise, of what can be thought of the democratization of creating, publishing, distributing, and consuming media content made possible by the digitization of content into bits (Socha and Eber-Schmid, 2013). Technologies described as falling under the new media umbrella are digital and have characteristics of being manipulated, networkable, dense, interactive, and compressible (Socha and Eber-Schmid, 2013). Examples include the Internet itself, Web sites, computer multimedia, computer games, DVDs, and CD-ROMs. More specifically herein, the new media term is used to refer to the use of digitized

communication tools, techniques, platforms, and devices in an effort to create a network society which is itself fluid and dynamic and capable of facilitating interaction between groups and individuals who may be separated by both time and space.

In attempting to define the term New Media, Socha and Eber-Schmid (2013, p. 1) state that:

"*The term "new media" seems to escape its very definition. Loosely, new media is a way of organizing a cloud of technology, skills, and processes that change so quickly that it is impossible to fully define just what those tools and processes are. The very prospect of being new denotes an event just beyond the horizon, something that has only just arrived and which we are just beginning to get our hands on. Perhaps in searching for a suitable characterization for this network of tools and ideas is the idea of limitless possibility. Limitless possibility for communication, for innovation, and education, is certainly a fundamental element that shapes our conceptions of new media usage from now on".*

Here, again, the suggestion is that what constitutes new media at any given time will not necessarily be "new" in fairly short order. However, as Campbell and Kwak (2010) note, this is further influenced by geography: new media in one locale may be well-established media in another local. What is "new" today, therefore, may be matter-of-fact by tomorrow or in a country across the globe. By default, any new technology not adopted previously can therefore be categorized as new media for that organization or individual (Campbell and Kwak, 2010).

Social networks are not new even on the Internet. Socha and Eber-Schmid (2013) pointed out that when the Internet was commercialized, it resulted not merely in the development of private and competitive network services; it also fostered the development of commercial products that implement Internet technology. Not only did businesses and government entities rush to create rudimentary home pages describing their activities or offerings; in the 1990s, other individuals and groups began to explore options beyond e-commerce or simple data exchange. Internet Service Providers (ISPs) such as America Online (AOL) began hosting user groups

and chat rooms which were available to subscribers who are willing to pay monthly fees for the right to log onto the World Wide Web and seek out activities, likeminded people, research materials, job offerings, sales sites, and a plethora of different materials.

Horrigan (2007) say that the new media and particularly social networking sites with the addition of Twitter are becoming an important marketing and sales locus for many organizations, including NGOs. Many of the sites that were initially designed as communication hubs are ideal places and spaces for sales and marketing activities. Of course, it is important said Lull (2002), to recognize that driving the development of these new media and ICT in general is easy access to affordable computers and other mobile devices as well as access to Internet connections. This level of affordability and access, said Lull (2002), can reduce the control that the individuals and groups who themselves manage, organize, disseminate, and ultimately shape mainstream media. Certainly, one of the biggest opportunities offered by new media is that every individual, regardless of education or age or experience or geography can become a reporter and can determine what news will be disseminated by means of Twitter, YouTube videos, Facebook and its competitors, or simply by streaming live media via WiFi. Again, in a society, which has not yet harnessed the web space then for this society this would be the new media space first in its technology diffusion (Campbell and Kwak, 2010).

There were 13 million Internet users in Saudi Arabia as of June 2012, a figure representing 49 percent of the population (Mabon, 2013). In Saudi Arabia, about 39 percent of adult Internet users (3.1million individuals or 12.0 percent of the total population of the Kingdom purchased one or more items online in 2010, spending an estimated U.S. $3 billion in ecommerce. This suggests quite clearly that Saudis have embraced new media as a shopping venue. Equally significant is the

fact that the Saudi government has invested heavily in telecommunications infrastructure as is evident in the figure below. In January of 2011, the Kingdom's Ministry of Culture and Information, acting in response to mandates of the Al-Sauds, issued a new law restricting online expression and addressing other electronic means of communication and news dissemination as well. The regulation subjected virtually all news and commentary distributed electronically to the country's press law; this law requires any individual posting content of this kind to obtain a press license and to abide by very broad content limitations. These include bans on "offending" others, insulting members of government and the religious establishment, or compromising the nation's economy or security as well as a requirement to abide by Islamic law (Mabon, 2013).

The new legislation was issued within the guise of anti-terror legislative efforts and allows for classification of acts of peaceful dissent as terrorist crimes. Mabon (2013) stated that the relevant articles are Article 1, Article 29, and Article 45. Article 1 allows for definition by the authorities of content as harming the reputation of the state and therefore as terrorism. Article 29 stipulates that even the act of questioning the integrity of the king or the crown prince can be punished by a minimum of 10 years in prison. Article 45 states *"anyone who intentionally broadcasts, for the purpose of permitting a terrorist crime by any means – a news item, a statement or a false or tendentious rumor likely to stir up people or spread panic among them or shake the confidence of citizens in the state or the King or Crown Prince (shall be) punished with a prison term of no less than three years"* (Mabon, 2013, p.1).

The new Executive Regulation for Electronic Publishing Activity covers: Internet sites publishing news or serving as discussion groups; any entity that broadcasts news through blogs, mobile phone text messages, and email groups; it

requires all electronic publishing activity to comply with the Law of Press and Publications of 2000. Further, print newspapers that maintain an Internet presence, Internet news sites, and Internet sites such as YouTube or Flickr that contain visual and/or audio materials will require a government license. People using mobile phones to broadcast messages, news, advertisements, images, and other content will also require a license from the government. Only Saudis will be allowed to obtain such a license. This requirement is expanded to reflect the demand that any license holder must be 20 years old and have the minimum of a high school degree. Article 7 of the law also mandates that an editor in chief for Internet or new media activities must be approved by the Ministry of Culture and Information, as are editors for the Kingdom's print and broadcast media. Even bloggers who write about any subject at all must register with the Ministry and all publishing outlet must include a call to the religion of Islam and must not violate Islamic Shari'a law. Within Saudi Arabia,

To summarise, ICT adoption is clearly here to stay globally, but also within Saudi society, Indeed, regulatory efforts to manage its unprecedented growth and proliferation are already under way within Saudi society and largely as a reaction, to what Everard (2000) maintained, as a challenge to national hegemony. Critically, the concept of new media should now only be seen as applying to social media sites, but rather any new technology can be understood as new media. Moreover, what may be new for society and culture therefore may not be for the organisational sector, and vice versa. Before, the challenges of this new technology adoption are discussed for the NGO sector specifically, the social wide challenges are explored in more depth.

2.5.1 ICT Adoption Challenges in KSA

According to Sagi et al (2004) ICT is being used globally as a central component of marketing and management strategies. Generally the extent to which a

nation adopts ICT is heavily dependent on its current ICT infrastructure. The Saudi Kingdom is slowly but surely moving towards the modern age of Information and Communication Technology. Continuously growing trends of ICT in the region have made them stood alongside world's leading nations, which have acquired these technologies to support and benefit their societies in every domain of services. In last five years the Kingdom saw tremendous enhancement in its technology domain. According to Al-Ghamdi et al. (2011), cell phone users in Saudi Arabia reached about 311 million as of 2011 and this trend will continue to increase as more and more state of the art cell phone devices.

Despite the adoption of new 'digital' and social media in private life, the usage of the Internet has shown much more dismal trends in the country and only limited number of people are using the internet in the Kingdom. It is estimated that around 30% of the total population have access to Internet services. This grim fact has to do with restrictive legislation, which hinders the ability of companies around the world to invest in Internet services in the region (Al-Hosni, et al. 2010). The absence of liberal approach from the government has discouraged people and companies to move online. Wireless broadband is scarce in the region. The Saudi government impose limitation on its people by restricting the population from accessing and sharing the data available on the Internet (Ashrafi and Murtaza, 2010). Hu et al. (2010) noted that developing an ICT infra-structure and eventually a digital economy was an important economic goal for many GCC (Gulf Cooperation Council). It was also noted that the uptake of ICT within GCC countries have had little scholarly attention as a whole or even as individual countries. The GCC was established in 1981 to unite Saudi Arabia, Bahrain, Kuwait, Oman, Qatar, and the United Arab Emirates (UAE) as a culturally unified group of countries (Shalhoub 2006). If we focus on Saudi Arabia's approach to ICT development we come to

know that The Communications and Information Technology Commission (CITC) is responsible for regulating and handling all the ICT related activities in Saudi Kingdom. Broadband internet, digital broadcasting, and open source software legislation is core responsibility of The Communications and Information Technology Commission (CITC). The cyber security domain lies with Computer Emergency Response Team (CERT-SA). In Saudi Arabia, the fixed phone services are provided by two main telecom giants, STC and GO. The penetration rate of telephone in Saudi Kingdom is around 15%, which is at least 3% higher than world's average (Ashrafi and Murtaza, 2010). The total fixed line subscribers are around 4 million as of the statistics by the end of 2011 and this trend is going to continue for many more years to come.

Ashrafi and Murtaza (2010) report that the Middle East as a whole has spent $50 billion in 2009 in ICT enhancements in its infrastructure – the highest expenditure of any regional bloc globally on ICT enhancement. Advanced e-commerce systems operate throughout the larger multi nationals. As an example, Saudi Arabian Aramco pioneered Internet Petroleum Products Sales (IPPS) for Liquefied Petroleum Gas (LPG). Arab consumer expenditure on the internet in 2005 was more than $1 billion and B to B transactions exceeded $3 billion. Despite promising e-commerce growth many people in the Middle East countries fear the internet for privacy concerns (Al-Hosni et al. 2010; Khasawneh 2009). This very fear has its roots deep into the absolute monarchy in the region where people are kept less than liberal in their real meanings. The internet usage goes under severe restrictions from government authorities and they have restricted their population from accessing certain websites and people have limited access to social media such as twitter, and face book (Al-Ghamdi et al. 2011). People are kept in check while using social

media and they are often held responsible for any wrong doings against the government such as inciting other people to protest or oppose any policy.

Hill et al. (1998) argued that the traditional Arab consumer preferred face to face contact, “haggling” on prices and building trust through informal cues and exchanges, all of which are absent on the internet. Al Hosni et al (2010) go further and argue that the typical Arab consumer would prefer a consolidation on the internet for culture, religious beliefs and greater use of the Arabic language. This trend comes from social settings of the region where people live in tribes and have closer understanding of each other's culture and language. This bonding helps to promote the Arabic language usage even on the internet. People like to communicate in their local language; which forces internet providers and websites to develop language contents, which are easily readable to most of the Arab population in the region (Niblock, 2015).

The ICT sector in clearly KSA is clearly growing at a rapid pace with massive investment from the government (Hamede, 2009). The government has recognized the need for a digitally operating economy. The reason for their realization is the pace with which world have travelled towards digital arena. The realization came in early 20th century when World Wide Web and wireless technologies became worldwide phenomenon and people started to realize the importance of ICT (Niblock, 2015). The government, after recognizing the need for a digitally operating economy, is very keen on launching e-government programs and is also actively promoting them. The younger cohort of the population of Saudi Arabia opened their eyes in this digital world where kids play with their cell phones and PlayStation games. This trend in people's approach to technology forced governments all across GCC countries to focus and encourage the development of

ICT infrastructure. Only universities can operate using independent service providers in KSA.

Moores (2002) notes that the larger population of KSA must be taken into consideration when judging KSA and given its massive recent ICT investments, the change is only a question of time. A study by King Abdul Aziz City of Science and Technology (2010) found that 77% of businesses had web access, but 47% did not use the internet at all and only 20% have a web presence. The trust building on web based business processes could not be fortified in the region mainly due to social and religious precepts. In spite of heavy investment in technology in recent years, the fruits of these investments could not reach the society, as they should have (Kim et al. 2009). One of the reasons it is thought the use of ICT might be slower than in neighbouring countries is the country's lower usage of credit cards and the fear of fraud as well as an acute shortage of IT professionals (Al-Furaih et al. 2007). The trust building measures have been shattered by level of fraudulent activities, which are reported around the world with the use of plastic money or otherwise known as credit cards. In Western countries such as US and Europe these frauds are reported in their thousands on daily bases and so far governments are helpless in preventing these illegal activities. People suffered losses of billions of dollars due to unauthorized usage of their credit cards in recent years yet authorities are unable to cope with this situation (Kim et al., 2009). We have all the cyber laws and cyber securities in place but criminal minded people always find one way or the other to do their fraudulent acts. This trend of low credit usage, according to Al-Furaih et al. (2007), is due to Islam's prohibition on interest on which most credit card schemes operate, the widespread use of debit cards instead, and, finally, current regulatory practices beneficial to credit card companies and banks and not on the consumer.

Perhaps of most concern is the lack of government regulation and legislation to push through ICT reform. For instance, in 2000 the government initiated a committee to oversee online transactions but no directives have been issues. This requires the strong backing of government on legislations and then their implementation at every level of online transactions and should have close monitoring of these activities. Legislation concerning cyberspace has generally not been a priority of the courts in KSA (Albur, 2008). Furthermore, there are no conflict resolution directives for online transactions and the complaining consumer to have his case considered must pay first for it to be entered into the courts. The Cyber Crime Law Act of 2006 is one base which if developed could open up consumer rights on the internet. At the very core of this act is the preservation of user rights from fraudulent transactions and authorized purchases. This act not only covers the rights of users but also of companies, which are part of the any transaction online. This act covers mainly hacking and online fraud and currently does not deal with online conflict resolution between company and consumer (Albur, 2008). Albur (2008) also suggests that improvements in the country's postal and mail delivery system might assist in the e-infrastructure. Centuries old postal system have lost the faith of the people as it does not provide the level of services which people demand in today's fast pace world. The letters and other postal transactions take longer than expected to reach its target. It might take couple of days to post a letter to some remote area or a place which is far away from its source (Al-Ghamdi, et al. 2011). Conversely, emails, pagers, text messages, voice calls, or any other ICT communication media can do the same thing in matter of seconds without having to wait for extra time. Currently the postal services do not cover individual homes and a postal regional house is used for collection of mail or items but generally people do not use the mailing system because it is so slow and inefficient. Recent efforts or the

new service of “Wasel” to deliver on time to an address using latest technology P.O box addresses might encourage more people to have confidence in transactions at a distance and thus prepare people more for online transactions.

One thing is clear from this short review of the adoption of what we can refer to broadly as “e-commerce” in KSA is that some strides are being made but much improvement has to take place. The e-adaptation in KSA is not going to be as simple as it might seem (Al-Ghamdi et al. 2011). The indicators of the near past shows a significant improvement in overall structure of ICT in the region but these enhancing trends are still falling behind the fast moving world. The situation in the private sector is not healthy for e-adoption let alone the challenges that must exist in the volunteer sector where people are usually more unsure of exchanges given the higher levels of uncertainty and credence in donations (Sargeant, 2001). There is no documented evidence of the situation of ICT adoption in the Saudi volunteer sector and yet we know that ICT in any stream of social development leads to a positive development in terms of efficiency and performance (Te'eni and Young, 2003). The availability of experienced technology professionals of the field and focus of government is lacking in getting the real picture out to the public. The country does not currently have well trained people in this domain who could they could keep records of every activity taking place in voluntary sector of the country (Matic et al. 2012).

The use of social media in the Middle East has been credited with the emergence of powerful political movements and the fall of autocratic governments for example in Egypt and Tunisia. Because of the potential political power of social media, many Muslim countries in the Middle East have attempted to limit internet access and censor social media sites (Bertot et al. 2010). As the aforementioned authors report, Saudi Arabia limits its citizen’s access to the internet and censors

social media sites. However, Kuzma (2010) reports in the same year that Saudi Arabia does not censor social media. Moreover, she even reports that the Saudi Arabian government uses social media such as Facebook, Twitter, and YouTube to disseminate information to its citizens and to improve government transparency. Kuzma's (2010) assessment of government involvement in social media has been confirmed by Samin (2012). Samin (2012) argues that social media do in fact not create political unrest but rather that political unrest that was already brewing in pre-internet times is being accelerated by the affordances of social media in disseminating information of protest groups. Moreover, as Samin (2012, p. 3) states, *"Turning to Saudi Arabia, we see how an over-investment in social media's progressive promise can grossly distort the collective sentiment of society. […] Had he or she visited older social media platforms, like the internet discussion forums, particularly some of the prominent tribal forums, they would have observed widespread sympathy for the king and antipathy toward would-be demonstrators"*

Given that the Saudi government apparently does not seem excessively to fear political unrest due to the emergence of social media, the Saudi government has embraced social media not only as a tool of e-government but also as a social reality that can promote progress and economic growths in the kingdom. Franke et al. (2015) have furthermore suggested that the Saudi government may use social media and other e-government tools to slowly increase citizen participation and promote democratic reform in the country. Another major area of e-government pertains to the role of government in e-commerce. Research suggests that governments play a critical role in establishing regulatory frameworks and infrastructures required to promote e-commerce (Thomas and Streib, 2005). Several researchers have suggested that Saudi Arabia is lagging behind other nations in the region and internationally in adopting e-commerce (Al-Ghamdi et al. 2011). The role of the government in

promoting e-commerce and the obstacles and challenges it faces will be discussed later in this paper.

Although Saudi Arabia has made substantial gains over the last five years in the implementation of its e-government initiatives, Saudi Arabia still faces a number of substantial challenges in fully implementing its information communication initiatives to meet the requirements of good e-governance. In the following section this paper will identify and discuss these challenges. In May 2014 for instance, the 5th Kingdom e-Government Summit took place in Riyadh. The summit featured a number of panel discussions about Saudi Arabia's status quo, future plans, and challenges in expanding its e-government portfolio. During one of the panel discussions, the Advisor to the Director General of the National Information Centre at the Ministry of the Interior identified the need to build a stronger IT infrastructure as one of the most pressing challenges for the Saudi government (Niblock, 2015). The Saudi Arabian government increasingly uses Big Data and Cloud Computing to serve its citizens; however, this requires Big Data centres that require appropriate infrastructure. Specifically, Saudi Arabia currently lacks Big Data centres and a workforce that is able to maintain and manage 'Big Data' centres.

Big Data centres are huge facilities that host servers (and data). The initial cost of creating such data centres is rather high and requires continued maintenance through qualified staff (Greenberg et al. 2008). While Saudi Arabia has been very generous with providing funds to build its IT infrastructure, Niblock (2015) maintains that the government has thus far failed to provide sustained funding beyond the initial investment phase. Big data centres require extremely high amounts of energy, for example, for cooling. Furthermore, thus far, Saudi Arabia does not have enough Big Data centres to meet the requirements of extensive cloud computing capabilities. Some of the practical challenges Saudi Arabia currently

faces with regards to Big Data centres are related to 24/7 availability of services, loss and recovery, and cyber security. Solving these problems depends on Saudi Arabia's willingness to make massive investments into the IT sector and to continue to provide financial support for the maintenance of IT infrastructure.

The second problem, i.e., building and retaining a qualified workforce is related to the lack of human capital and educational opportunities. Although the Saudi government made significant investments in education, the country still lacks a skilled IT workforce. This problem is further complicated by the fact that Saudi Arabia is pursuing a policy of "Saudization" (Abouraia, 2014). What this means is that the Saudi government wants to build a local workforce to meet the labour needs within the country. Hiring immigrants to meet the need for a qualified IT workforce therefore would go against the policy of Saudization. The use of Big Data in government operations also brings a number of risks. Because Saudi Arabia lacks a sufficient workforce and IT economy that could provide services to the government, the Saudi e-government remains particularly vulnerable to cyber-attacks and security breaches (Basamh et al. 2014). Big data has a number of affordances such as the ability to correlate large data sets from various government sources. However, since this data is often not anonymous and highly sensitive, privacy concerns over cyber security are warranted. The Saudi government frames its efforts to build good e-governance as a stepping stone in becoming a knowledge economy (Gallarotti, 2013). Consequently, Big Data and e-governance capabilities must be understood as a national asset that requires special protection. This is particularly urgent since Saudi Arabia is the 11th most targeted country for cyber-attacks internationally (Niblock, 2015).

One recurring theme in the panel discussions at the 5th Kingdom e-Government Summit was the perception that the Saudi government needs to expand

its e-governance portfolio. Thus far, the government's information communication strategy and agency offerings only include e-transactions (Niblock, 2015). However, the Saudi government needs to continue to invest in this sector so that it will be able to offer mobile apps and cloud services to stakeholders. Another important aspect in need of improvement pertains to the government's use of social media to deliver services to stakeholders and open up channels of communication. Social media are particularly suitable to address individual citizen concerns and to connect with stakeholders on a personal level. The effective use of social media as part of the e-government portfolio requires, however, a cultural change in the way government agencies deliver services and view themselves in relation to stakeholders (Rowley, 2011). For example, government agencies must not only be willing to view their services as customer-service but they must also acknowledge that the use of social media invites increased citizen participation and democratic participation. Social media communication is far less asymmetric than traditional administration-citizen communication. To reap the benefits of the affordances of social media, government agencies must be willing to incorporate citizen input in the way they conduct business.

Among the many barriers to effective e-governance identified by Al-Shehri et al. (2012), lack of acceptance of e-government initiatives by users stands out as one of the most pressing obstacles. Al-Shehri et al. (2012) surveyed users – both citizens and employees of government agencies – of e-government services and they found that 67% of citizens cited "*lack of technical support from government websites*" as the major barrier to using such services. More importantly, no less than 93.3% of government employees indicated that lack of technical support kept them from making full use of their agencies e-government capabilities when delivering services to citizens. This means that lack of staff training and lack of technical support for

end-users is a significant barrier to effective use that must be addressed through increased funding for technical support and education of both employees and citizens. Another problem identified by Al-Shehri et al. (2012) is that 66.7% of citizens and 81.7% of government employees were unaware of the government's e-governance initiatives and services. This again indicates that the government must do a better job in spreading the word about its offerings, educating the public and training staff. Given that the Saudi population is very young and very engaged in the use of technology including social media in daily life, the government should be able to be successful when implementing an education/public relations campaign to promote e-governance.

Many of the problems identified in the previous section also apply to the government's role in promoting ICT in Saudi Arabia. The lack of reliable infrastructure and qualified workforce also hinder the development of the e-commerce sector in Saudi Arabia. To address these problems many of the same strategies (funding for education and infrastructure) that are required to promote the meaningful use of e-government will have to be used to promote the development of an ICT sector. Overall, Saudi Arabia has thus far demonstrated a strong commitment to make meaningful use of modern technologies in improving its governance. Saudi Arabia's information communication initiatives are part of the larger attempt of creating a knowledge economy. To address the challenges identified in this paper it will be necessary that the Saudi government not only provides substantial funding for the creation of infrastructure and new services but also for the maintenance of the infrastructure, the development of a qualified workforce, and the continued education of the population.

Clearly there are numerous challenges facing the business community in the kingdom related to these changes but its effect on the third sector or the NGOs

currently operating within the kingdom is also affected (Shearing, 2013) and yet the knowledge base surrounding this is much more limited. From an untested and burgeoning ICT national policy, public uncertainties concerning the security of online transactions to a lack of ICT trained staff and best practice leadership to benchmark against in the kingdom, clearly Saudi Arabia has some way in truly actualising its intended national ICT and digital 'framework'. We review the role of the Saudi NGO environment next before explaining the role that information and communication technologies may provide or not for this sector.

2.6. The Saudi NGO Environment

Saudi Arabia is globally the largest supporter of humanitarian aid outside the West (Al- Yahya and Fustier, 2011). The Western world has always been seen as source of global donations in case of emergency situations around the world. The donations and other financial assistance from the west have made them prominent in world's order but this trend is seems to be changing as Saudi Arabia is biggest contributor to humanitarian assistances in Asia. It is the biggest donor in Muslim world. According to a survey by Al-Yahya and Fustier (2011) Saudi Arabia spent more than $90 Billion in humanitarian aid worldwide till 2005 (Smith, 2010a). This amount is extremely substantive when we compare this with UN's official aid guidelines annually (Saudi Embassy in Washington, 2010b). Recent humanitarian disasters such as Haiti, Japan and Pakistan disasters have proved Saudi Arabia's commitment to lead the world in humanitarian aid. Giving averages account for 1.5% to 2.0% of GDP relative to 0.5% to 1.0% in most Western nations (CAF, 2012) clearly making it into one of the most generous nations in the world. These statistics suggest that the pace of social development, with this level of financial support, must be vibrant and thriving. Its own people should have unrestricted access to

information and should have more liberties in the society. The social developmental section has been neglected by the regime over the past century now, partly because of the fear that awareness among people would make them demand more and will jeopardize the monarchy as a whole (Finn et al. 2006). The amount of money, which is spent in global humanitarian activities, is far more than what Saudi Arabia spent locally for its own people. The situation of social activities and other social impact domains should have been dynamic and should have more social cohesion (Matic et al. 2012)

Al-Yahya and Fustier (2011) reviewed the dynamics of the Saudi humanitarian system and some of the challenges that it faces. They noted a number of important shortcomings in the Saudi system. The Saudi NGO landscape is fragmented and incoherent. We see lack of coordination and absence of magnetic force which keeps all the activities from different Non-governmental organizations on one page (Ashrafi and Murtaza, 2010). The goals and objectives become clearer if we have an organized effort to tackle one or more problems of the society through social reforms and voluntary services. There are multiple organisations attempting to do the same thing and information sharing amongst organisations is weak. A lack of centralisation means a lack of coordination, knowledge transfer and skills pooling. Development NGOs are in a better position since the Saudi Development fund has assumed a central role but humanitarian NGO's for instance do not benefit from a centralised coordinated system but as Al-Yayha and Fustier (2011) recommend the Red Crescent would provide one feasible option to centralise efforts and knowledge transfer throughout the humanitarian NGO sector.

A lack of professionalization is considered to be a major problem within the Saudi NGO landscape. This very obstacle has damaging impact on the effectiveness of NGO services throughout the country and people are fewer confidants than ever.

The importance of social reforms and other voluntary services cannot be denied but these sectors are not getting the level of attention as they might be getting by the government in terms of facilitating NGOs to have technology available to them to conduct their operations effectively. NGOs have undergone acute changes all over the world partly because of the changing world orders and requirements. These changes have brought about deviations from their routine functions and activities (Nelson and Murphy, 2012). As a result, they demand more professional resources in their backyard so that they can perform better and keep pace with ever changing environment. Recent years has seen an increase in the demand for professional services in the NGO sector but the supply of professionals in the sector hasn't matched. Due to lack of education and training in the respective field a lot of NGOs are managed by religious or military personnel's as opposed to properly trained staff in the respective field.

The lack of availability of true professionals in Saudi Arabia has to do with lack of proper training to the people who could serve distinctive tasks. The focus of Royal family has been towards the consolidation of their reign with very little attention on education and training for specific tasks and jobs (Nelson and Murphy, 2012). Although the recent move by the King's Higher Education fund to send Saudi nationals abroad for specialised training in post docs for instance is a step in the right direction, this has been overseen in previous years. Saudi's have also traditionally engaged in what De Mooij (2004) refers to as modesty bias, where even strengths are played down. Saudi is one of the largest humanitarian contributors in the world but it has not promoted this adequately on the world public relations scene.

The conservative behaviour from authorities has kept distant from rest of the world, especially in terms of social reforms and educational activities (Shalhoub, 2006). In spite of heavy spending on global donation activities the Kingdom hardly

spent any money on its own social reforms. Al-Yahya and Fustier (2011, p. 18) quote a UN official as saying "*since the 1970s, the Kingdom spent over US $90 billion in humanitarian aid in more than 80 countries with little records or disclosure."* The lack of record keeping also stems from a modesty bias and the nature of Islamic giving of not to "follow what the hand donates", i.e. to ensure that giving is for purely altruistic reasons as opposed to the typical egotistical giving displayed by Western forms of giving patterns. The solution to the problems mentioned in the preceding section lies in a greater integration of ICT in the NGO sector. The need of improved and most technologically advanced version of infrastructure has never been felt before partly because of the fact that world was far away due to lack of communication means and sources (Shalhoub, 2006).

As discussed in previous section, the need of effective communication among NGOs is essential to stay on the same page and work more effectively and efficiently for the society (Hamade, 2009). To make this effective communication possible among NGOs we need to avail all the available technologies to carry out routine functions and tasks. For instance email and teleconferencing exchanges within and between NGOs provides improved communications, integrated database systems provide better management and tracking of donations and expenditures, better training and education through online resources and better public relations and marketing through web based interventions all are some examples of the benefits ICT integration could have in directly tackling the problems noted earlier (Al-Yayha and Fustier 2011).

2.7 ICT challenges for the NGO sector

Numerous challenges arise for applying ICT within the NGO sector, largely as a result of the sector's unique characteristics. A number of differences for

instance, in how for profit and not for profit organizations adopt or allow integration of ICT exist. For instance, Sheh (1993) found that not for profits traditionally invest fewer resources in ICT than their profit making counterparts. Spending less in ICT keeps them at competitors disadvantage and hinders their performance and achievement of predefined goals. NGOs are always reluctant to spend more on ICT projects because they are under the impression that things which can be saved should be saved for better facilitation of other activities which makes core operations (Gallarotti, 2013). The major reason for this is not lack of commitment towards improved skills but a constraint financial budget (Te'eni and Speltz 1993). Others are factors ranging from donor commitment, workforce size, and technology expertise to government funding and management demographic characteristics (Corder, 2001). It was found that not for profit organizations tend to have older managers with background primarily in social sciences, social care or family care services. As such they are not sensitised as much to business aptitude and often view business philosophy with cynicism. Upper management of these NGOs often hesitates from adapting new technologies because of their older believes and practices. They want to keep their focus on actions in hand rather than going more sophisticated with their approach towards their routine work (Corder, 2001).

Another aspect which they look towards is the commitment from their donors, which essentially means they have to plan their finances according to the commitments from their donors. To make realistic and practical financial schedules in the NGO industry is very tricky considering their dependence on donors. A lack of donor commitment will result in lower need for database management for instance and decreasing government funding of NPs means they have less resources to invest and budget for ICT integration. However, the smaller the size of the organization, the greater the trend towards adoption of technology as they had low budget and

resources for training but a greater need for a proficient management allowing them to turn towards the low budget courses and training available online (Natsios, 1995). The number of employees an NGO might have is directly proportional to their financial needs; as we add up more employees to the section the need for their training and other facilities keeps on raising and it makes the job of management doubly difficult. Often it results in hiring very limited human resources and they avoid hiring unnecessary staff to their ship so that they can sail smooth even in most testing times and situations (Natsios, 1995).

Scholars around the world have also been fascinated and studied the impact of ICT adaptation in NGO sector but spending good amount of time in gathering relevant data on these NGOs performance enhancements post ICT adaptation (Gallarotti and Al-Filali 2013). The not for profit organizations used the websites for three basic functions: as a platform for interaction, information and fundraising (Hooper and Stobbart 2003). In today's competitive world these features of any NGO's website are very critical to their effectiveness. Online chatting systems, notifications, and live chat features in website makes interaction much easier with the outside world (Hooper and Stobbart, 2003). A well-illustrated and written website of an NGO makes it more effective in spreading its objectives and missions to other people around the world and hence, draws more attention. Earlier work has focused on the uptake of the web and email by not for profits (Olsen et al. 2001; Sargeant and Jay 2003; Saxton 2007) and generally the consensus is that the Internet offers an important source of strategic and competitive advantage for not for profits (Lee et al. 2001). This competitive advantage is thought to be harnessed primarily by the ability of the web to offer a two way interaction with supporters and the public (Taylor et al. 2001).

The lack of adoption by many not for profits however could be a reflection of a general cynicism toward the integration of marketing management (Sargeant and Jay, 2003). It also shows the reluctance on the part of the managers to get connected with most advanced versions of ICT and it results in ultimate loss in terms of their ability to communicate without side world and add more people to their donation list. Wenham et al. (2003) found that many not for profits also perceived the websites and a wider information technology integration to be a waste of money. Because of their traditional practices they do not consider it viable to invest in these irrelevant subjects. Hooper et al. (2003), on the other hand, found that not for profits simply lacked the time and resources to develop websites or databases. The lack of availability of technical staff and professionals inhabit their efforts to get abreast with the modern world and keep them walking with the rest of the world. Many feel that lower budget options such as freely available features provided by third parties such as site statistics or forums can be more effective given their constrained budgets (Wenham et al. 2003).

Examples of online fundraising include placing links to donate on websites; collecting email addresses to enter into a database for use in future campaigns and targeting, accepting credit and debit card payments. These options prove helpful in fulfilling the financial requirements of these NGOs and these measures also are helpful in earning them good names and making them more familiar with the world population (Sargeant, 2001). Fundraising using, for instance, SMS appeals are also gaining in popularity. Handy (2001) also offered caution and argued that people donate due to emotional reasons and unless not for profits could create that emotional leverage, whether online or offline, donors would not be willing to engage with websites and also the efficiency of these websites depend on how many times these are viewed and due to that only those not for profit organizations that offer a

highly specialised knowledge benefit from it (Sargeant, 2001). The number of clicks on the website is not dependent on the non-profit organization's core message, but it also depends on how that message is conveyed to the viewer. The emotional attachment is hard to acquire especially in today's ever more diverse world. NGOs make use of images and videos on their website to appeal to people to donate more and this tactic proves successful by every stretch of imagination. This is how non-profit organizations are so much successful when going online with their specific website.

There is growing recognition that ICT is enabling and enhancing fundraising practices of NGOs and NPs in general (Sargeant and Shang, 2015). The traditional way of fundraising now often are complemented by ICT, for instance raising awareness of emergencies or events through social media to mention one option. In many ways, ICT has brought cost efficiencies to those NGOs that have utilised it. Financially speaking, the traditional fundraising methods have low return on investments. As compared to the traditional form of fundraising, online fundraising is gaining more attention due to its increased return on investment and as it is being realized by not for profit organizations a growing number of not for profit organizations are following this path (Epner, 2004). Despite the long term benefits the initial start-up cost of accepting online payments from credit cards may counteract many not for profits to engage with online fundraising from the start. To reduce that start-up costs a growing number of third party brokers have emerged who accept online payments on behalf of the charity so they don’t have to invest in the extensive online payment system which encourages new and upcoming not for profits to adopt ICT even more readily.

Clearly if the NGO sector is to understand the full potential of ICT it must endure first a knowledge based strategy which takes into consideration how and why

technology is being adopted, or not, in the sector. Only this way can the sector understand what are the most important influences, as well as barriers to ICT adoption and therefore leverage these accordingly. This section has highlighted that the sector already has numerous unique challenges in its adoption of ICT and by its very nature, the NGO sector is much more sensitive, given budgetary constraints and a multi-stakeholder orientation, to adopting new innovations.

2.8 *Review of Technology Acceptance Frameworks*

This section of the study identifies the fundamental theoretical lenses used to examine technology acceptance. These theories include the Diffusion of Innovation Theory, the Theory of Reasoned Action, the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology Model (UTUAT), and the Technology, Organization, and Environment Models. These theories are useful in exploring aspects of ICT adoption and linking adoption to the actual behaviours of NGOs.

2.8.1 Diffusion of Innovation Theory

The diffusion of innovation theory as described by Rogers (1995) can be used to understand the determinants of individuals' acceptance and use of information technology. Technology diffusion has entirely separate meaning to other traditional theories; where people accept or reject the new concepts in their lives (Oliveira and Martins, 2011). It goes deep into the instincts of human where people are making to believe that technology diffusion would certainly make some positive changes to their lives. It essentially implies that people should take technology diffusion as something, which is not new to them but simply another way around of doing the same things. People should believe that there is no basic difference with

regard to earlier processes but new technologies are able to make things more efficient, productive, and sophisticated (Oliveira and Martins, 2011).

It is a common practice for people to either reject or accept technology diffusion because people have different minds sets and believes about something. The acceptance or rejection depends primarily on advantage or disadvantage of certain technology, level of comfort one would have after induction of technology, and ease of understanding and use of technology (Chong et al. 2009). A number of reasons have been put forward that may affect consumer's willingness to adopt or reject the innovation (Rogers 1995, 2003). These are summarised below:

Relative Advantage: This is a measure which determines if an innovation is perceived to offer improved advantage over the product that is currently being utilised by individuals. If an innovation measure in terms of more gained advantages as compared to disadvantages then chances are fairly high that this technology would be adapted by the people. It then becomes important to gauge the importance of innovation by measuring it against multiple elements. The degree of relative advantage is measured by several factors including economic profitability, time, social prestige, low usage cost, and decrease in discomfort, or other benefits. For example, for some people technology diffusion might make their routine working more complex while for others it might prove more effective in conducting their routine tasks.

Compatibility: This is the degree of consistency to which a new innovation is consistent with the potential adopter's previous experiences, prevailing values, and needs. The compatibility measures are far wider in their domain as initially thought; comparing it with older practices and culture of an organization might prevent user group to welcome such innovation and diffusion (Oliveira and Martins, 2011). People show resistance to change and it is a natural phenomenon but if this

resistance is coupled with any other social norms or values then innovation acceptance becomes very slow. In addition, the compatibility determines if the innovation is in accordance and supports the current organisation and surrounding environment. Consideration should be given to include socio-cultural values and beliefs of specific environments and careful thought compared with previous introduced ideas and with client's need for innovation.

Complexity: This is the degree of difficulty or comprehension in utilising the innovation. Human nature runs away from complex things and people find it difficult to adapt to complex technologies and innovation partly because they do not want to spend time on understanding an entirely new concept or new idea (Wang et al. 2010). By putting the extra burden of training on employees for getting familiar with complex technology would defiantly going to hinder their interest in new adoptions (Wang et al. 2010).

Trialability or the extent to which an innovation is launched for a pre-test or trial phase so that full costs can be avoided... In software industry, it is common practice to launch beta versions of the product just to see how people would respond to their trail version (Wang et al. 2010). An extensive amount of data and feedback is collected from the users and then changes are made as per the feedback into the software. People usually do not pay that much attention to trail products, which makes their immediate acceptance difficult. An innovation that is trial able represents less uncertainty to the individual who is considering it (Wang et al. 2010).

Observability or the extent to which outcomes of utilising any innovation that is visible to society. In other words this is simply the feedback from user group along with their suggestions in case of any improvement to the product itself (Wang, et al. 2010). The reason of all of this practice is to make sure that people are comfortable with the product and they are willing to use it as part of the innovative technology.

The potential adoption of decision-making process is seen to be effected by the Roger's (1995) characteristics. In addition, constructs of communicability, divisibility, profitability and social approval is added to their study (Tornatzky and Klein, 1982). It is recognised that communicability is closely related to observability, and divisibility is related to triability constructs as defined by Rogers (1995). Further, a study by Moore and Benbasat (1991) includes the "image" construct as a major determinant. People draw conclusions about technology after spending time with that technology or having feedback from their peers. A good feedback from these peers make technology adaptation highly likely to take effect whereas, negative feedback hinders the implementation of the technology at work place. Social values of the society can also prohibit the implementation of any innovative technology in non-profit organization (Wang et al. 2010). These characteristics have become the basis for further development of theories in technology acceptance. An important development to the above was the theory of innovation diffusion.

The diffusion of innovation is defined as "*the process by which an innovation is communicated through certain channels over time among members of a social system" (*Rogers 1995, p.10). Given the relative high levels of uncertainty avoidance it might be more difficult for some cultures to accept innovations (Mooij, 2004). In some cultures it is considered an excitement to get and use new and latest technologies in their routine work. In Western culture where people are more open to outside change and they like to work with latest technologies; the innovative technologies make their way quite easily (Zhu et al. 2006). However, in Arab culture, where change is hard to come by, people are always reluctant to implement any of the new technologies unless they are absolutely certain. So the induction strategies for some innovative technologies are different in different cultures.

Something which is true in Western culture might be totally wrong in Arab culture and vice versa. Even if the innovation offers relative advantages it might be perceived to be a threat to social norms and values in which socio cultural influences become dominant in determining the adoption of innovation (Rogers, 2003). When introducing innovation in the developing countries and cultures with high level of uncertainty the key to it being successful is to portray it as facilitating the existing norms and not posing a threat to it or changing it (Bharadwaj and Menon, 2000).

The technology adaptation in some societies is not a smooth transition; people use all kinds of responsive and satisfying measures before finally deciding to adopt a new technology. There are people who tend to take risks by adopting the innovative products as early as they possibly can and their feedback and their suggestions to other peers prove to be important in later adoption of technology (Zhu et al. 2003). At that point, peers, who have heard good words about some product, would start to use that innovative product or service. Rogers (1995) classified adopters of innovations into five types: “innovators”, or those who initially adopt the innovation and therefore those who tend to be more risk accepting; “early adopters”, those that follow innovators but who do not accept initially but rather wait to see if anybody else has accepted and tend to be socially integrated than innovators and as a role model image for others in society; the “early majority” tends to contemplate more than early adopters and represents the large majority of the mass market; “late majority” are more sceptical than the early majority and therefore take longer to accept the innovation and may have accepted due to social and normative pressure and finally “laggards” who the last group to accept due to their traditional values and reluctance to chance. The "laggards" are more conscious and more reluctant for change. They study and analyse the previous usage of technology and then compare it within their own social settings. They form the majority of old people because they

tend to take everything for their own satisfaction and safety (Zhu et al. 2003). Colby and Parasuraman (2003) further described “Technology Acceptance” into segments using Roger’s classifications as summarised below:

Explorers: They are the most prepared to accept technology. They tend to be young, male individuals who are driven professionally and often work in technology or are exposed to it. These young people are very brave and have more understanding of the technology itself as they have grown up in technology era. The explorers often prove to be long term users of technology because if product servers their aim of usage then they would not move away from it (Colby et al., 2003). The predefined objectives of technology usage make them spend less time with the product and acquire more information out of that.

Pioneers: these individuals do have a very high enthusiasm towards technology but they also have high reservations over the risk in using the technology. Apprehension and excitement go side by side and they like to weigh more for excitement.

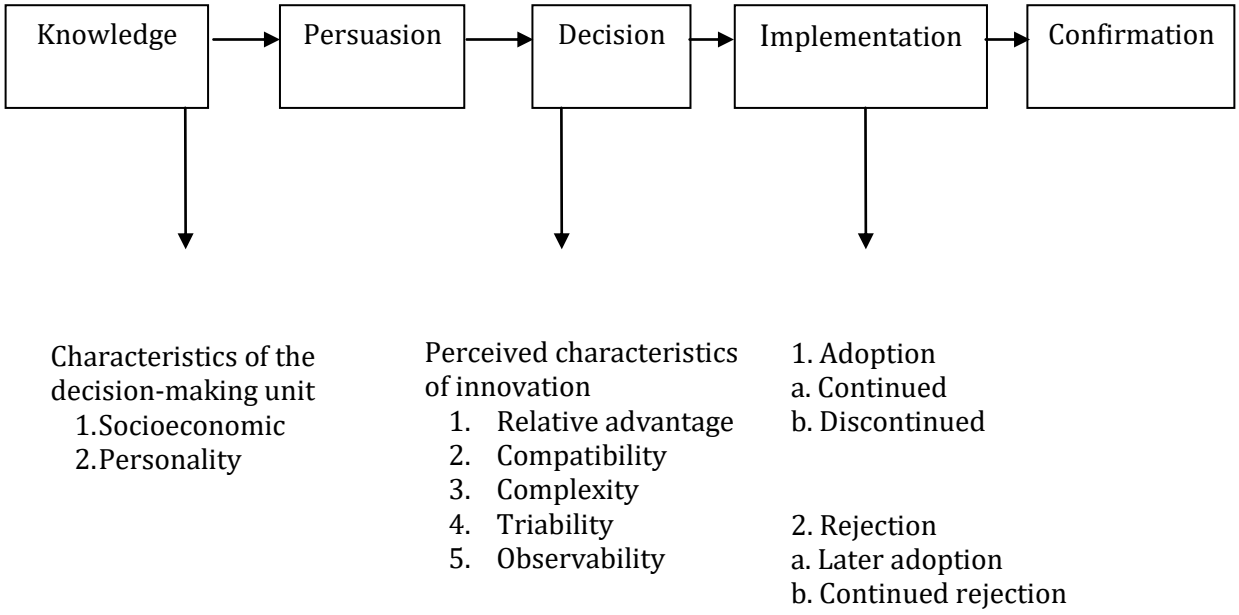
Sceptics: these people are inclined towards technology. They are not highly motivated but also have fewer restrictions about technology adoption. They doubt everything no matter if that is good or bad for them, their first expression about any new be cynic and they would like to spend more time collecting information about that product rather than spending time and using themselves.

Paranoids: This group realises the relative advantages of new technology but has concerns over its security and thus is anxious towards it. They also tend to be females and from lower income groups (Colby et al. 2003). The male section of society are least bothered about the safety features of some innovative technology adaption mechanism. They would rather not think at all about the safety aspect of technology (Colby et al. 2003).

Laggards: This segment consists of the least technologically prepared individuals as compared with all of the above, mentioned groups. They listen from others about some product and then they make up their own mind. If information is transmitted to such people they would be happier to use that technology (Lee, et al., 2013). Risk taking activities are not most favourite to such people because of their belongings with lower class and also their age element. There exists little or no incentive to adopt the technology and are resistant towards adoption. Tend to be older age group and from lower incomes also.

It is also possible to apply these typologies to organisational actors, such that some organisations and sectors are more active in adopting innovation than others, thus its relevance to the current study also. Clearly knowing the composition of the marketplace based on the above will assist in the marketing of technological innovations but also understanding values and cultural influences on each segment will help appreciate that there are substantial cross cultural and country differences in the rate at technology diffuses throughout society. Indeed the "Innovation diffusion process" – operates along a continuum (Rogers, 1995) which is summarised in the diagram below as shown in Figure 2.1.

Figure 2.1: The Innovation-Decision Process (Adapted from Rogers (1985, p. 163).



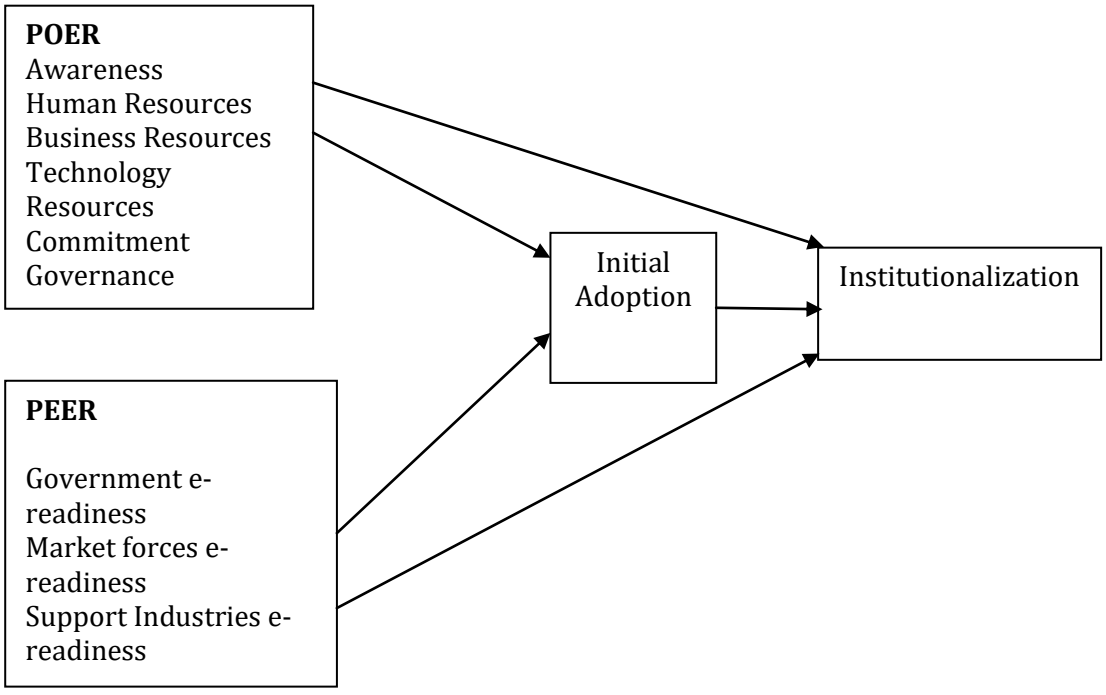
The social-cultural norms and values of any society are most important in determining their willingness to adapt, embrace and work with some innovative technology (Leidner and Kayworth, 2006). If some technology has nothing to do with their social cultural values then it might become very difficult for that company to launch its product in the region. The Arab culture is mostly tribal in nature where people live in tribes and follow the centuries old traditions. Rogers (1985) found that many developing nations are likely to have strong favourable attitudes towards the innovation, built through having extensive knowledge of the benefits of the innovation but not actually making the decision to adopt the innovation usually because it goes against or does not facilitate socio-cultural norms. He termed this gap between attitude and behaviour the "KAP-gap". Rogers also defined adoption as a "decision to make full use of an innovation as the best course of action available" (Rogers, 1985, p.171). Therefore adoption is both attitudinal and behavioural; one must have a positive attitude or liking towards it and be willing to pursue any course

of action to consume it (unless there is a lack of availability). Positive attitudes are drawn by individuals, age group, social experiences, social culture, income level, and education standard. In societies where people are more educated and have open social cultural values will accept new technology as part of their usual activity but more conservative societies are more reluctant to such changes (Leidner and Kayworth, 2006).

2.8.2 Perceived E-Readiness Model

Molla and Licker (2005a; 2005b) added organisational readiness and environmental support as integral features that influence e-readiness at the organisational level as well as individual characteristics. Therefore, perceived organisational e-readiness (POER) and perceived environmental e-readiness (PEER) can be seen to affect e-readiness at the organisational level as well as the developmental pathway originally proposed by Rogers (1985) above. Figure 2.2 shows their framework.

Figure 2.2: Perceived E-Readiness Model (Molla and Licker, 2005b, p. 87).



Clearly, from the discussion already taking place concerning the situation of ICT in KSA it would appear that government e-readiness has an important effect on e-readiness within KSA. Now, the government in KSA is happily spending billions of dollars in its ICT infrastructure and helping its own people to get the best available technologies available. However, what is unknown at this time is the relative influence of other interacting factors such as organisational level and individual characteristics. An understanding of all the factors together will give an insight into the KAP gap, i.e. whether attitudinal and behavioural scores are different and if so which factor is influencing the gap the most. POER at the organisational level may give insights into the lack of trained professionals, or financial constraints or ICT infrastructure as key influences. Furthermore, Molla and Licker (2005b, p.88) explain that "*the human, technological, cultural and structural readiness may become crucial to either facilitating or hampering initial adoption and subsequent institutionalisation of e-commerce*." Finally, the amount of support and set priorities from the top management to commit towards e-commerce services will greatly affect the initial and continuous utilisation of e-commerce as an alternative medium of business.

Two important factors in implementing effective ICT adaptation is the Internet availability to employees and their training. Organizations working for social development and human resource empowerment lack the access to high speed Internet for their employees (Molla and Licker, 2005a). The limited and sometimes restricted access to the Internet undermines their ability to carry out their objectives in timely manner. These issues are closely monitored by the management and they devise policies and procedure to cope with such situations.

The perceived external e-readiness variable includes government support for the private and public sectors to encourage adoption and use of e-commerce and indication of market forces of which organisations are using e-commerce. In recent years there has been an increased bonding of public and private sector because private sector has more dynamic work force and they are well informed and trained with latest technologies in the market (Chui and Kwok, 2008). The government examines the external variables, which can affect the adaptation of electronic revolution by working in close collaboration with private sector. The managers in the private sectors work closely with authorities so that we are able to implement an acceptable solution in terms of innovative technology implementation (Leidner and Kayworth, 2006). Thus, if managers of organisations are in agreement that the marketplace and various institutions were ready to implement e-commerce, this would greatly influence the decision making process. Business resources also may indicate managerial support in KSA and this may in turn be affected by patronage from Al-Saud for institutes. Therefore for KSA the POER and PEER might be closely linked. Indeed, Molla and Licker (2005b) emphasise this complex relationship for developing countries as they found a similar situation in South Africa. Roger's theory of innovation and those that have developed their own frameworks from it such as Molla and Licker (2005a; 2005b) have been criticised for taking a linear approach to understanding technology acceptance especially at the organisational level.

Critics such as Abrahamson (1991) and Lundblad (2003) have argued that organisations operate as living systems and influences can be much more varied that these simple linear models have shown. They further argued about the relationship between organizational structure and its willingness to accept technological change. The top-down approach is best suited in making both the leaders and subordinates

work on the same page (Leidner and Kayworth, 2006). Indeed, the attitude-behaviour link was recognised by Rogers (1995) as important and yet did not form centre stage of his work. The Theory of Reasoned Action which has its basis the attitude behaviour link has been used extensively to explain technology adoption and is therefore reviewed below. This theory provides overall working environment guidelines to implement and exercise technology at workplaces and make best out of these innovative technologies. Indeed the Theory of Reasoned Action is the underling theoretical framework this study adopts since it forms the basis of most of the recent work done on explaining technology readiness and adoption.

2.8.3. The Theory of Reasoned Action (TRA)

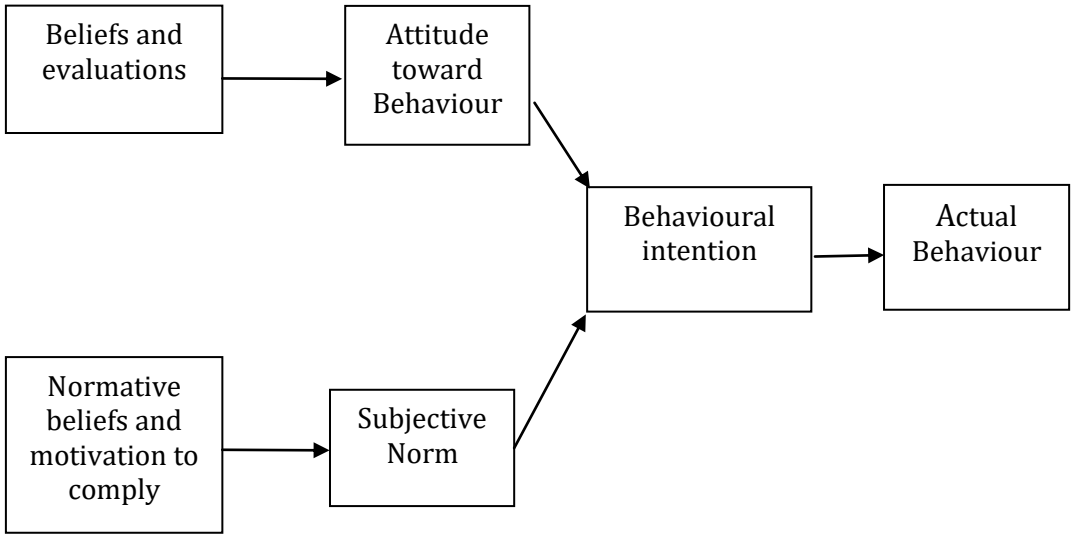
The Theory of Reasoned Action or TRA (Ajzen and Fishbein, 1969, 1980) is one of the most common theories to link intentions to behaviour in the domain of social psychology, based on attitudinal and normative beliefs. The inclusion of planned control or self-efficacy in the model lead to it evolving into the theory of planned behaviour (Ajzen, 1991). The prime intension of this model implement was the study and analysis of consumer's changing behaviours towards the adaptation of new products and trends. The consumer behaviours and attitudes are dependent on multiple factors such as social background, economic situations, age factor, education backgrounds, and change acceptance level (Oliveira and Martins, 2011). Many thoughts were given at implementing the same theory to study the behaviour and attitude of employees to accept the change in their workplace and it has been successful to that extent where people share their feedback and suggest proposed changes. Although the models have been applied widely to a variety of contexts, Thompson and Panayiotopolous (1999, p. 8) argue that given the "*intricate multiphase, multi-person, multi-departmental and multi objective nature of the*

decision processes in organisation" their suitability for organisational research may be more limited. Therefore, to evaluate the consumer behaviour with decision making processes in organizations is not an easy task due to contrasting attitude at workplaces and employees (Oliveira and Martins, 2011).

The TRA proposes that the individual beliefs that may comprise overall attitude might be complex and are individual specific. If the overall attitude is strong he/she will likely engage more in it whilst if a person has a negative attitude towards behaviour it is likely he or she will stay away from attaining it. However, it is the actual individual beliefs, or rather their combined effect or the sum of individual beliefs, and how they are evaluated that determines overall attitude and the composition of these and the order with which they are evaluated (one belief might be more important to one than another and so might have more importance and thus influence in affecting overall attitude) which determines overall attitude.

Subjective norms also affect behavioural intentions and operate along with individual attitudes and could influence overall attitude. Subjective norms reflect influence from social surroundings such as from ones cultural group, family and friends. Generally, referent groups can have a strong influence in determining some behaviour to the extent even if the individual has a negative attitude towards behaviour the influence from subjective norms may change this attitude to make the behaviour seem more positive. An example of this may be smoking behaviour and peer pressure to make it look more appealing and "cool." These theories provide the framework for evaluation and helping people to make resolutions about their behaviours and accepting or rejecting change. TRA is shown in Figure 2.3.

Figure 2.3: Theory of Reasoned Action (TRA) (Source: Ajzen and Fishbein, 1969, 1980)



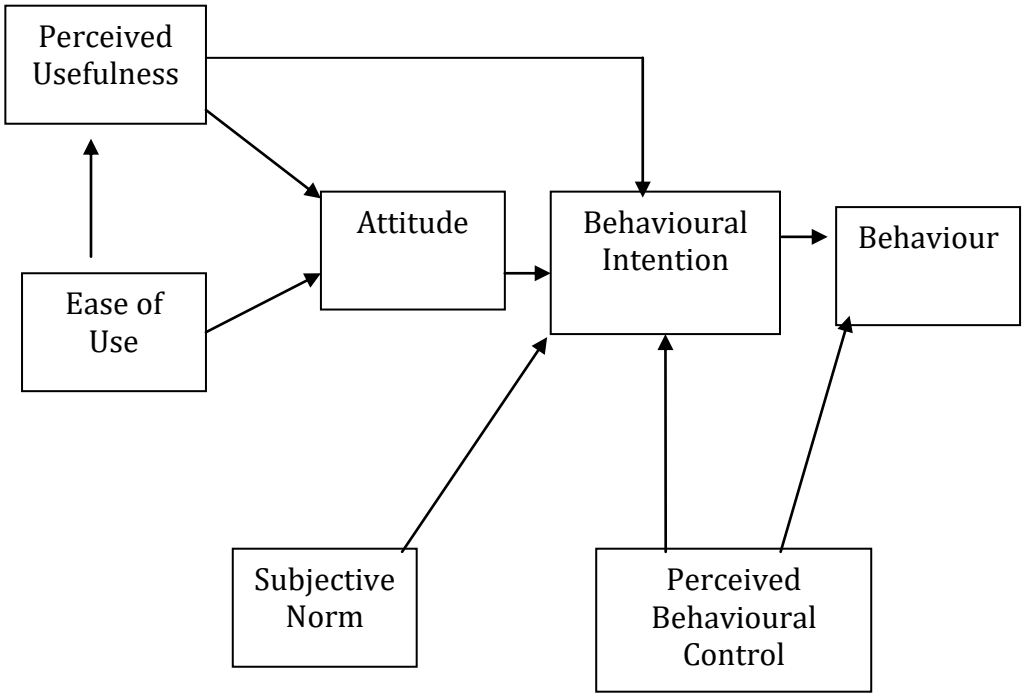
A major development in consumer psychology was when Azjen (1991) developed the original Fishbein and Azjen (1975) TRA model to include perceived behavioural control (PBC) as a moderator affecting behavioural intention. This was included since a major criticism of TRA was that it did not take into consideration contexts when the individual did not have full control over the behaviour. The criticism evolved after analysing the TRA's effectiveness in combating and exercising guidelines for behavioural change in individual's buying patterns. People do lack the grip on their predefined behaviours and they often deviate from their habits and affiliations. There are many variables, which play their part in behavioural deviations. There are external factors such as political situations, environmental hazards, marketing effect, product feedback, and other similar elements. The internal variables include customer's individual set of believes, social back ground, level of education, age, sex, geographical location, and current economic condition. These all elements have deviating effect on behavioural patterns and TRA model is unable to

cope with such elements, which undermine its ability to fully associate things with customer's behaviour (Oliveira and Martins, 2011). The resultant Planned Behavioural Control model, or Theory of Planned Behaviour (TPB), assesses the internal and external limitations on an individual desire to pursue behaviour or the "*reflects individuals' beliefs about the availability of opportunities and resources to achieve behaviour without any limitations*" (Ajzen, 1991, p. 64).

The TPM framework sought to extend the explanation of the TRA by arguing that perceived behavioural control moderates the relationship between attitude and subjective norms with intentions. An individual may for instance have a positive attitude and be encouraged by close peers to adopt a specific behaviour but what ultimately shapes his or her intentions will be a belief in the ability to conduct the behaviour, the self-confidence or self-efficacy to engage with the intended action. This has evolved and been applied in the context of technology acceptance namely by the Taylor and Todd's (1995) Theory of Decomposed Behaviour, which combines the theory of planned behaviour and technology acceptance key variables.

This combined model argued that the original attitudinal beliefs should be split into component elements of perceived usefulness and ease of use as originally proposed in the Technology Acceptance Model (Davis, 1989). The reason of their split is to have a better understanding and acute analysis of behaviours on unique grounds. This would allow us to have distinctive prospect on each section of set of behaviours. Taylor and Todd (1995) also suggested that perceived control should be formed from self-efficacy, resource-facilitating conditions and technology facilitating conditions. Figure 2.4 shows this decomposed model.

Figure 2.4. Decomposed model or the Combined Theory of Planned Behaviour and Technology Acceptance Model (Source: Taylor and Todd, 1995, p. 43)



2.8.4 The Technology Acceptance Model (TAM) and Its Evolution

With the advent of internet technologies and with the invention of personal computers in early 1970s, world saw an opportunity to acquire and utilize the technology phenomenon and gain the competitive advantage by employing teaching at work place. This was a huge shift from linear to totally digital arena. The barriers to early adaptation were huge especially when we consider the limited finances and limited technical human resources available at that time (Oliveira and Martins, 2010). The organizations with large budgets and adopted the technology shift but there were others which lacked interest in innovation adaption partly because they could not trust on new things and prefer it to their centuries old practices. With growing needs of technology in 1970s and increasing failures of system adoption in

organization, predicting the system use became an area of interest. There were many studies carried out but they failed to produce reliable measures to explain system acceptance or failure (Davis, 1989). Davis (1989) further argued in his Technology Acceptance Mode (TAM), that important elements, which influence the rejection of technology adoptions, come from external environment and can have severe effects on efforts to move with the world after acquiring latest technology trends.

The main objective of the TAM is to "*provide an explanation of the determinants of computer acceptance that is generally capable of explaining the user behaviour across a broad range of end-users computer technologies and user populations, while at the same time being both parsimonious and theoretically justified*" (Davis et. al. 1989, p.985). The model has been validated using different information systems analysed in various contexts (Davis et al. 1989; Venkatesh and Davis, 2000; Venkatesh et al. 2000; Venkatesh et al. 2003).

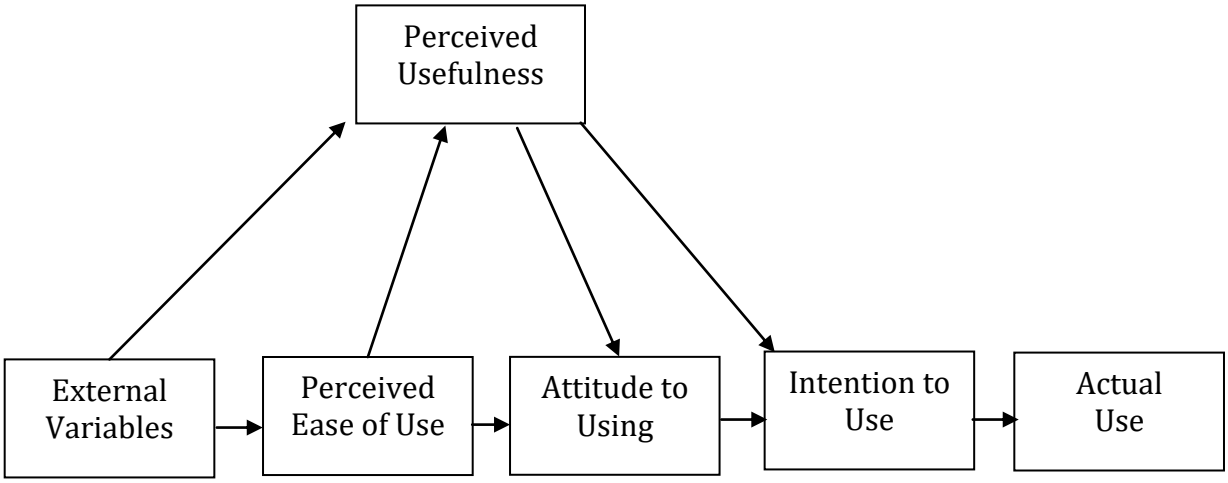
The major goal of TAM was to discover the influence of external factors affecting internal beliefs, attitudes and intentions of adopting technology. TAM studies the most tangible factors, which will affect the behavioural determination of acceptance. The external effects have direct correlation and have a great influence on internal variables (Venkatesh et al. 2003). The computer acceptance model is greatly influenced by external effects because of their direct relationship with internal behaviour patterns. The overall economic and political situation of the society would have its impact when some organization comes closer to selecting computer technology as part of their business process tool (Venkatesh et al. 2003). The management of organization would think deep about the prospects and reliability of any technology and they would also take into consideration the overall political and economic situation of the country before finalising going ahead and accepting technology change (Oliveira and Martins, 2011).

TAM is able to achieve this by allocating crucial variables suggested by previous research related to cognitive and affective determinants of computer acceptance depending on behavioural intention theories for the development of relationships between these variables. User motivation can be explained by the following factors: *Perceived Ease of Use (PEOU), Perceived Usefulness (PU) and Attitude towards Using (ATU).* He hypothesized that the last factor was the most important in determining whether the user would actually use or reject the system. The attitude of the user was then in turn influenced by *perceived usefulness* and *perceived ease of use* with the later having a direct influence on the former. Perceived usefulness comes from the feedback from others and then the attitude towards using comes into place. The perception is created by multiple variables with the time. These variables might be the external to the organization or it can also have some internal mix in the form of peer suggestions (Lee, 2009; Lee et al. 2009). The perception takes time to build and once it is totally in place then it determines the success or failure of any technology. Any technology with good perception would have long term impact on the adaptations of the technology. After that people start thing about the ease of use and change their attitudes towards technology (Lee, 2009; Lee et al. 2009).

The terms PU and PEOU must be clearly defined to illustrate the factors that cause people to accept or reject information technologies. Hence, PU is identified as "*the degree to which a person believed that using a particular system would enhance his or her job performance*" while, PEOU is defined as "*the degree to which a person believes that using a particular system would be free of effort*" (Davis, 1989, p.320). People think from all angels before adapting to new technologies. The importance of some technology becomes evident after gauging its effectiveness in terms of it cost benefit ratio (May, 2001). The technology utilization is of prime

concern for any user to be able to accept it and it should also have positive outcome after its deployment. To summarise, usefulness and ease of use of technology determines the number of adoption and utilisation of users. The PU variable is concerned with the expected overall impact of system use on job performance, process and outcome, whereas PEOU stresses the relation on the use of the system itself (Davis, et al. 1989). Figure 2.5 below shows the TAM model and arrows indicate the probable causality.

Figure 2.5: Technology Acceptance Model (TAM) (Source: Davis et al. (1989, p. 985).



It is interesting that the TAM model and the deconstructed or combined model have some similarities in that Rogers' (1985; 1995) relative advantage construct and TAM's perceived usefulness overlap. Similarly Roger's complexity variable has overlaps with perceived ease of use. The key difference however is that TAM proposes two variables and Rogers (1985; 1995) has five characteristics of innovations that influence its adoption. Also, TAM conceptualises technological innovation in terms of actual usage whereas Roger (1995) restricts the definition to perceptions only. TAM has been tested in many contexts including banking, education, and tourism sector to investigate technology adoption. Some variations also exist to TAM for instance Pavlou (2003) added perceived risk as a third

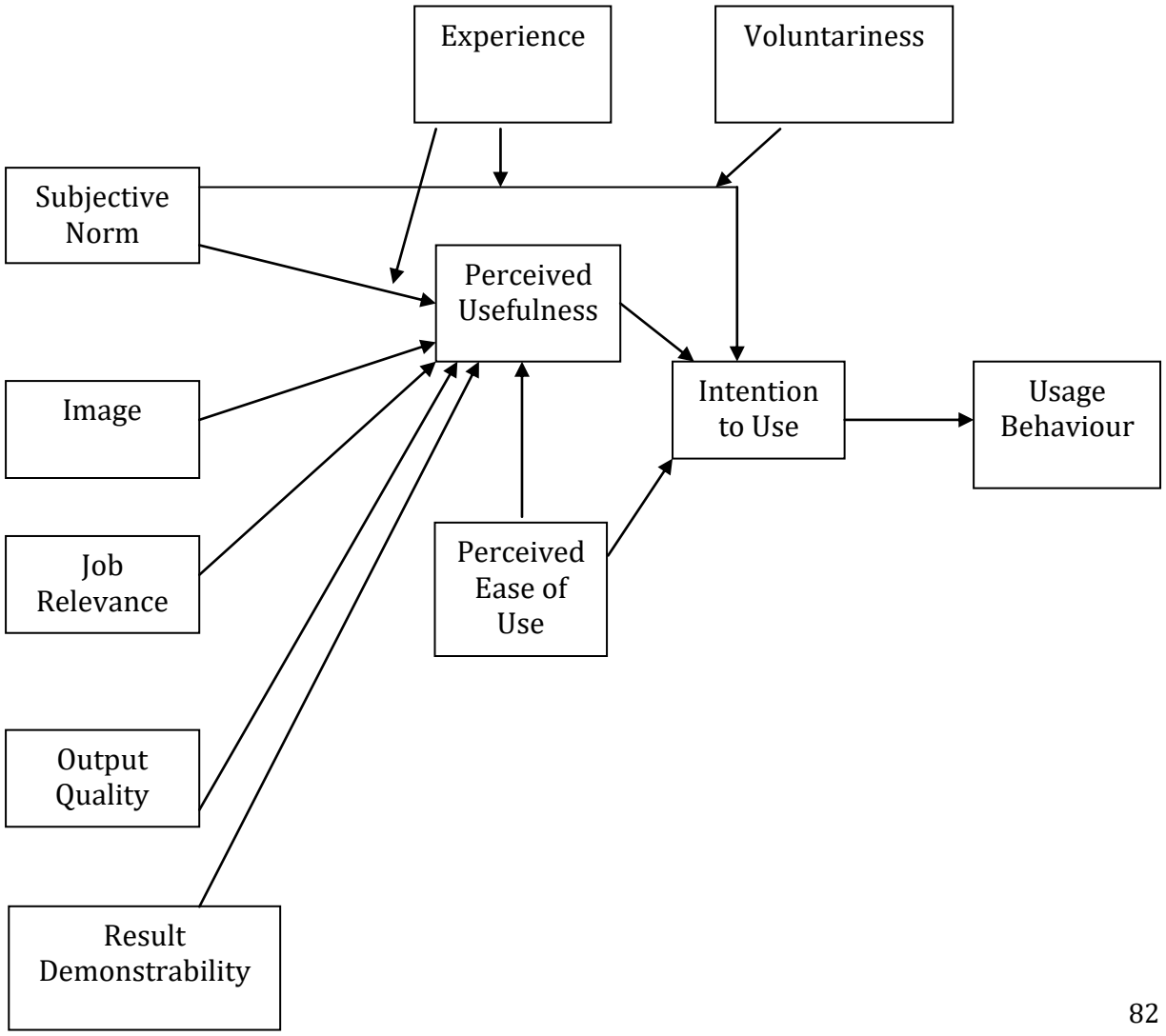
influencer. Kim et al. (2009) integrated trust in their model investigating airline business to consumer e-commerce websites.

Venkatesh and Davis (2000) updated the TAM considerably based on cognitive and social factors that could restrict attitude development, i.e. perceived behavioural control issues. The PU and PEOU run on external and internal variables at their very core of operation and implementation (Lin and Lin, 2008). The PU has some social mix to it dynamics and PEOU have primitive elements to its construction. The concept of adapting the technology is to determine the PU in its complete breath and then focus on PEOU to integrate the impacts to layout a favourable outcome (Lin and Lin, 2008). They integrated drivers of PEOU and PU as social influences (Subjective norms, voluntariness, and image) and cognitive variables (job relevance, output quality, result demonstrability and perceived ease of use). Perceived usefulness is central to their model as they argue that ultimately if there is perceived benefit in using the technology then attitude will not develop favourably.

They also conceptualise PU, as a complex construct, influenced by both social and cognitive-factors (Lin and Lin, 2008). Social factors have been observed to have positive impact on perception of technology as they are the driving force behind acceptance of technology. The idea of involving social factors is to make sure that no aspect remains to be untouched. It would enable the people to trust the technology at first place and then use it to satisfy their needs and requirements. The cognitive factors are greatly influenced by social norms and attitudes. Human psychology revolves around the amount of external absorption it takes to reshape human's own ideas and thoughts Venkatesh and Davis (2000). The cognitive factors which are influenced by social factors include, attention, perception, thinking pattern, set of beliefs, and problem solving skills. The TAM Model discovers this

relationship and implicates the mixture to produce acceptable challenge for innovative technology adaptation (Venkatesh and Davis, 2000). The extension of original TAM to TAM2 (see Figure 2.6) was extended in theoretical construct with putting social influence process (subjective norm, voluntariness and image) and cognitive instrumental process (job relevance, output quality, result demonstrability and perceived ease of use). TAM2 was proposed to better understanding the determinants of perceived usefulness with organizational intervention and how is it influence changes over time with increasing experience using the system. Venkatesh and Bala (2008) combined TAM2 and the determinants of perceived ease of use (Venkatesh and Davis, 2000).

Figure 2.6: TAM 2 (Source: Venkatesh and Davis (2000, p. 188)



Davis et al. (1992) originally incorporated motivational theory to investigate technology acceptance and had argued that a combination of external and internal factors influence an individual's desire to behave in relation to technology adoption. The extrinsic or external motivation in motivational model implies that humans are greatly influenced in their decision making after analysing the external factors for favourable outcome. The external motivation has many dynamics to it especially when technology adaptation is put in proposition and people are made to evolve with technology. These external elements can include, but are not limited to, perception of technology, the track record of technology at some other place, cost of adaption and then its cost benefit ratio, the reliability and durability of technology, and level of after deployment support. Another importance factor, which has great impact on technology adaption at organizations levels is the perceived benefit in job promotion and job conduction after the technology have been in place (Roger, 1995). Extrinsic motivation can be viewed as *"the perception that users want to perform an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotions" (*Davis et al. 1992, p. 1112*).* Vallerand (1997) further differentiates between the two types of motivation in defining them as *"Perceived usefulness, perceived ease of use, and subjective norm are examples of extrinsic motivation. Intrinsic motivation relates to perceptions of pleasure and satisfaction from performing the behaviour" (*Vallerand, 1997, p. 12).

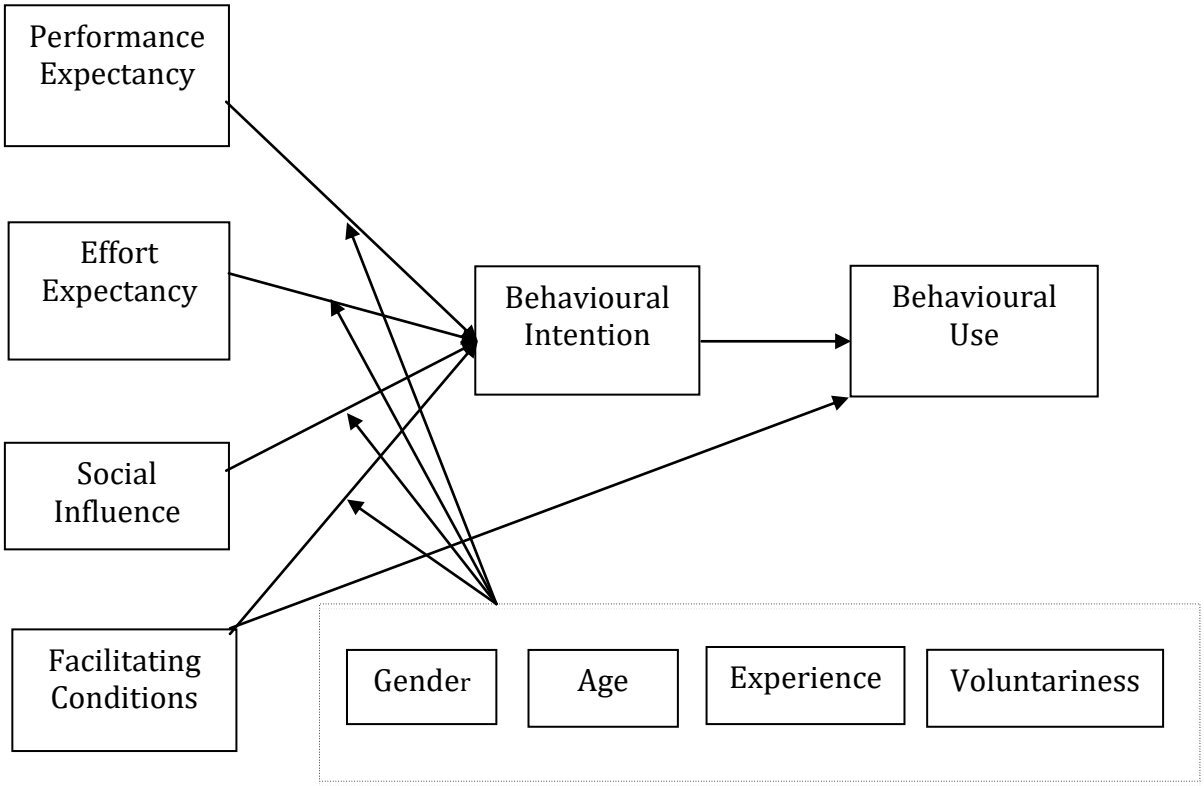
This perception of pleasure and satisfaction comes after the positive grounds of adaption, which essentially means that external motivations have to combine together to create the effect of internal motivation level. So, the internal motivation is based upon the solid grounds of external motivation (Oliveira and Martins, 2010). Once technology has been placed to order then internal motivation will continue to

strengthen itself after playing and using the technology. Users want to perform an activity *"for no apparent reinforcement other than the process of performing the activity per se"* (Davis et al. 1992, p. 1112). Computer playfulness and enjoyment are examples of intrinsic motivation (Davis et al. 1992; Venkatesh, 2002).

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

The final example of technology acceptance frameworks is that developed by Venkatesh et al. (2003) called the Unified Theory of Acceptance and Use of technology (UTAUT), shown in Figure 2.8. With the rise of TAM2's relevant studies, more specific personal influences have been proposed in affecting technology acceptance. Venkatesh (2012) has sought to integrate these additional variables into one overarching framework.

Figure 2.7: The Unified Theory of Acceptance and Use of Technology Source: Venkatesh et al. (2003, p. 447).



The UTAUT model therefore harmonises the issues mentioned in previous models and categorises key drivers into four main types: Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions. These four elements have their core function towards affecting the behaviour to accept or reject the technology in question and are summarised below.

Performance Expectancy is defined as "*the degree to which an individual believes that using the system will help him or her to attain gains in job performance"* (Venkatesh. et al. 2003, p. 447). This is what individual is deemed to accept from technology and how its implementation is really going to make the difference. This overlaps with job fit and job relevance from TAM2 and the PC model use framework (Venkatesh and Davis, 2000).

Effort Expectancy is clarified as the level of easiness experienced when using the information systems. The Perceived Ease of User (PEOU) what makes technology adaption a real success and it also promotes trust in the technology and makes its adaption easier than originally thought. This has overlaps with PEOU in TAM and TAM2.

Social Influence is the extent to which individuals believe that important people in their society believe that they should make use of the new information systems. In conservative societies such as KSA these considerations are of special importance because people are so strongly woven in their social norms that it becomes very difficult to ignore this aspect of acceptance. This has overlaps with social normative influence from TRA and TPB.

Facilitating Conditions is defined as "*the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system"* (Venkatesh, et al. 2003, p. 453). This has to do with the availability of technical staff in the organizations and the lack of their presence makes technology acceptance difficult. The upper management of organizations strive to have a focused and targeted

training of their employees to brace new technologies in this ever-changing era of high end technology (Venkatesh, et al. 2003). An extensive amount of budgets are allocated for staff training at first place then after the implementation they try to utilize the technology to empower their employees through online training courses. Again this is borrowed from the Thompson et al. (1991) Model of PC use.

Venkatesh et al. (2003) argue that the UTAUT framework allows managers to predict technology acceptance using a myriad of driver variables. They further argued that hedonic motivation comes from factors such as age, pervious experience, geographical location, social and economic background, and level of education. Managers are encouraged to use market segmentation policy to facilitate the technology use at workplace with some added advantage of ATAUT model. Venkatesh et al. (2003) excluded attitude and self-efficacy from the model since they showed that earlier studies had shown that attitude and self-efficacy did not have direct effects on behavioural intention. The individual's own ability to accomplish task and goals prohibits them from realizing the other impacts of technology use because this approach makes them self-centred and makes them avoid other important elements such as external factors and internal factors. So this is discouraged in the literature to allow people with self-efficacy attitude to attain the technology use model.

The most comprehensive review of the role of culture in ICT adoption is Leidner and Kayworth's (2006) meta-analysis of culture and Information Technology adoption and diffusion. According to Tong et al. (2013) the organizational culture is the norm, values, and practices which are employed within an organization. The role of organizational culture, towards ICT adaptation, has been studied extensively, by the scholars over the years and they have common believe that culture has an elusive impact on ICT adaption at work place. The level of knowledge sharing within an organization is directly proportional to ICT implementation within an organization. It

includes sharing of ideas, problems, suggestions, and perceptions. The information transmits throughout the organization if their culture allows them to do so. The information sharing not only makes ICT adaptation easier and acceptable, it also increase the productivity of individuals (Tong et al. 2013). The authors conducted numerous studies to assess the cultural influences on ICT adoption and two key conclusions were drawn. First, the general consensus seems to be that the use of technology is rejected due to people trying to avoid uncertainty (e.g., Brenner, 1997; Jarvenpaa and Leidner 1998; Hasan and Ditsa, 1999) found a similar observation in a study exploring ICT adoption in Middle East and African countries. Findings related to power distance have been more mixed with DeVreedeet et al. (1998) finding that ICT adoption increases with power distance whereas Hasan and Ditsa (1999) finding the opposite results.

Leidner and Kayworth (2006) conclude that it might be better to explore the full adoption process from awareness to actual use rather than focusing on linking cultural values to the rate of adoption. Instead of using factors like time of adoption, and diffusion of adoption using the cultural values to explain the adoption process better. We do not see any uniformity in literature over adapting the same ICT technology in all the organizational cultures. These trends needs not have the same impact as they once had. An organization may acquire the same technology as that of their rivals inspired of the fact that both have different cultures with them. Leidner and Kayworth (2005) suggested that if we have two manufacturing organizations with different cultures but still they might use the same technology for their business enhancement but for different reasons. It is no more the culture alone which dictates the ICT deployments but know the reasons of ICT deployment are more important now. Two cultures may adopt the same technology but for very different reasons and it is these reasons which can be best explained through cultural values (Mooij, 2004). As Mooij (2004) explains

a mobile phone might be used to enhance relationships for collectivist cultures but to enhance individuality and physical distance with people for individualistic people. Hill et al. (1998) found that a match between the values embedded in the technology and the cultural segment is the key to understanding adoption. He conducted a study of five Arab countries found Arab consumers were most affected by their values of preference for face to face interaction, family allegiance, concept of time and religious values.

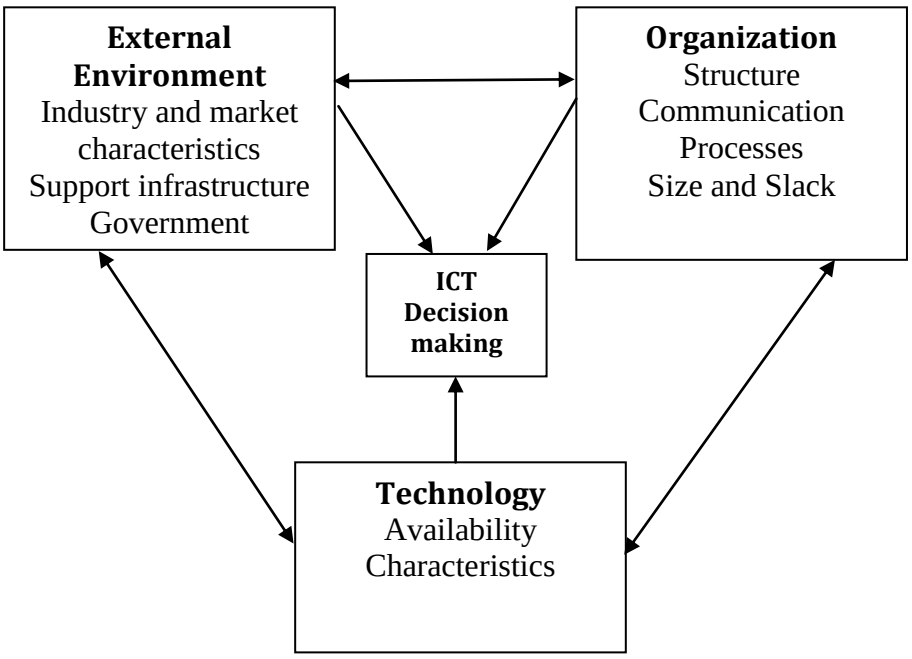
Others such as Cabrera et al. (2001) have explored organisational culture and found a fit between organisational culture and technology to be an important predictor of the adoption of technology in a nation (Hoffman and Klepper 2000). Kitchell (1995) previously found that flexible or open cultural structures in organisations had greater adoption rates. Flexibility and innovation in organisational culture have also been found to be important predictors of technological adoption (Quinn et al. 1985; Quinn and Rohrbaugh, 1983; Ruppel and Harrington, 2001). A flexible organizational culture creates more options for managers to think in terms of technology deployment. The rigid organizational cultures limit the ability of their manager to experiment with technology deployment. Cultural norms are only flexible if they allow people to suggest their point of views and thinking and then the upper management would use their suggestions to make changes in organizational process (Hoffman and Klepper, 2000). The democracy of ideas and thoughts and their propagation within an organization makes it more flexible and it promotes a sense of ownership among their employees and other staff members.

2.8.6. Technology, Organization, and Environment (TOE) Model

The TOE model derived by DePietro et al. (1990), often inaccurately ascribed to Tornatzky and Fleischer (1990), highlights that rather than a purely personal factor approach, organisational and environmental or external factors should also be central in

understanding technology acceptance. As such it represents in many ways more of a multi-dimensional approach to conceptualising technology acceptance. The technology, organization, and environment model (TOE) studies three facets of any organization through which the technology is adopted and implemented at workplace (Oliveira and Martins, 2011). These aspects include *technological context, environmental context, and organizational context.* The Technological context considers external and internal aspects of technology such as availability of equipment, and current practices within an organization. The Environmental context takes into account the factors such as, organizational nature of operation, its relationship with government sector, and range of its competitors. The Organizational context takes into account factors such as organizational structure, organizational culture, size of its employees, and scope of its operations (Oliveira and Martins, 2011). The model is summarised in Figure 2.9.

Figure 2.8: The Technology, Organization, and Environment (TOE) Model (DePietro et al, 1990, p. 56).



The key variables are explained in more detail below.

Technological context refers to both external and internal technologies within an organisation. Internal and external elements, which are of paramount importance to the organization, include variables that keep on changing with passage of time. The external elements, which we need to consider, are the social environment, political and economic situations. The internal factors favouring the ICT deployment include availability to technical staff, equipment, organizational culture and available resources (Venkatesh, et al. 2003).

Organizational context highlights measures such as size and managerial structure and their effect on technology acceptance. Larger organizations and geographically dispersed organizations require more time effort to accept the deployment of technology. Future predication and perception from managers plays important part towards ICT usage because if they perceive the organization to grow at certain rate after certain period of time then they might move towards that factor where they could finally think about technology adaption. It depends on the structure of an organization, which liberates people from the feel of being unheard. If we have more democratic management structure in place then decision-making become more sound and easier.

Environmental context refers to the social surroundings facing an organisation namely its industry and the various stakeholders within it (DePietro et al. 1990). We cannot expect to have stable environment all the time, it is ever changing phenomenon. Organizations spend time and money to analyse their working environment and then device their objectives and policies in accordance of their findings. The political environment is especially important to get the technology adapted. More stable the government is more chances are that organizations in that country would spend and

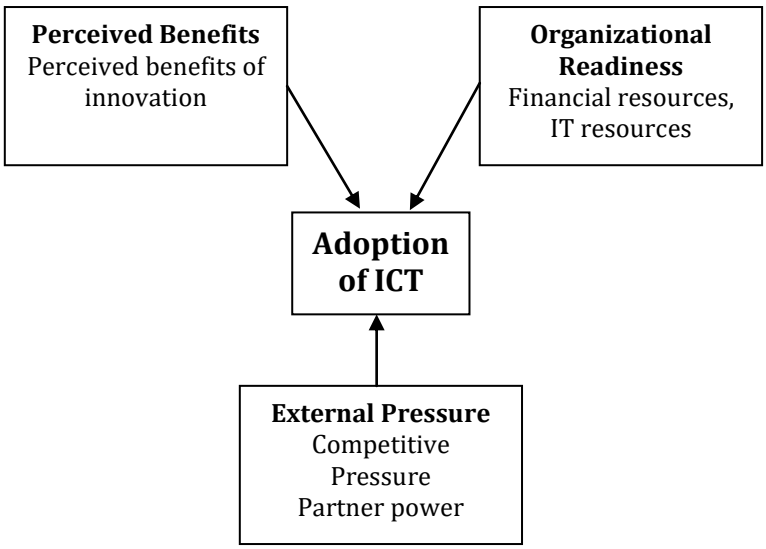
invest more on technology. Politically destabilized countries rarely see any enhancement in technology investment.

The TOE model can be compared with the Diffusion of Innovation (DOI) model from Rogers (1995) as both are analytical frameworks for providing insight into the implementation of IT infrastructure. But people prefer TOE model over DOI as former does not include the Environmental context. This model corroborates the Diffusion of Innovation theory (Rogers, 1995) and focuses on individual characteristics, whether internal or external, as key forces behind organizational innovativeness. Therefore these can be viewed as similar to the organisational and technological factors within the TOE model but the new context being environmental also. Environmental context emphasizes the constraints an organization may face despite being ready internally. In understanding the adoption of Information Technology within organization several studies combining the theory of diffusion of innovation and TOE framework were formulated. Chong, et al (2009) incorporate innovation attributes such as compatibility, complexity and competitive advantage from the DOI but also information sharing cultural features to the TOI model. Zhu, et al (2006) further integrated security concern as a construct.

In *institutional theory***,** firm level decision-making is heavily influenced by concerns for legitimacy as well as goals, social and cultural factors. Institutional theory argues that institutional environments are critical in defining and influencing the structure and implementation (Scott, 2001). Coercive pressures are indirectly tactical arising from rival companies to maintain and hold their positions. Whereas, the normative institutional stress come from within the organization and it has its direct relationship with organizational culture (Oliveira and Martins, 2011). Therefore, organisations in the same field tend to copy the practices of the industry leaders due to industry competitiveness and pressures of the customers, which make them more

similar than different. For instance, as opposed to internally driven decision making as being or primary importance, organisations are more likely to adopt decisions based on technology acceptance based on externally driven processes and pressures arising stakeholders which may include suppliers, distributers customers, competitors and critically the government too, i.e. inter-organisational forces. There are numerous studies, which adopt an institutional perspective to e-diffusion (e.g. Chatterjee, et al. 2002; Teo, et al. 1998). It is commonly established that coercive, normative, and mimetic forces at the organizational level can influence the technology acceptance decision-making process (Teo, et al. 1998). Mimetic forces refer to when organisations adopt technology based on competitors, coercive pressures refer to pressure from other critical partners or stakeholders to comply with their requests and normative pressure refers to dyadic pressure from inter partner pressure often arising from knowledge exchange of some kind. Based on this view, Iacovou, et al. (1995) model assesses the characteristics of inter-organizational systems (IOSs), which shape technology acceptance by organisations. Perceived benefits, external pressure and readiness by the organization are the key driving forces behind adoption and this adapted second Technology-Organisation-Environment (TOE 2) model is shown in Figure 2.10.

Figure 2.9: Adapted Technology-Organisation-Environment Model (TOE 2) (Source: Iacovou et al.1995, p. 78)



Oliveira and Martins (2010b) apply the TOE model and the Iacovou, et al (1995) framework to rationalize e-business adoption by EU firms. Perceived benefits and organizational readiness is derived from the Iacovou, et al (1995) framework and organizational and technological readiness from the TOE model. Environmental and external drivers are also added.

2.9. Summary

This chapter first provided an overview of Saudi Arabia, ICT and the NGO sector. The review of Saudi Arabia indicated that clearly there are many changes taking place at the level of the Saudi society but at the same time the government is committed to propel the economy and therefore its society into the 21st century as a global power house. Reviewing ICT suggested the many benefits and indeed also challenges of integrating ICT at the social level, which have a direct bearing for organizational technology adoption. The chapter indicated that NGOs are a unique environment with their own challenges but in particular they lag behind the corporate sector in performance management and included within this the embracing of new technologies is generally slower for this sector. The unique challenges facing ICT adoption in the Saudi NGO sector also suggested that this sector has particular challenges especially in light of the events of 9/11 in placing the spotlight on Saudi NGOs and therefore the need to embrace ICT to modernize.

The second half of the chapter sought to review the key theories and frameworks, which underpin technology acceptance as a study domain. Clearly a myriad of models and frameworks exist to conceptualise the process of technology acceptance. The theory of reasoned action and planned behaviour now function as the main underpinnings of many of the revolved technology acceptance models. The

UTAUT model for instance (Venkatesh et al. 2003) comprises mainly personal factors, operating at the human decision making level whereas the Technology, Organisation and Environment models (i.e. DePietro et al. 1990; Iacovou et al.1995) extend this approach, towards more a multi-dimensional perspective incorporating external or environmental factors and organisational factors. It is therefore clear that for any future study the UTUAT model represents the most feasible option in order to conduct the most comprehensive assessment of ICT acceptance within KSA. On this basis it is used as the foundation on which to build in the subsequent chapters and for the remainder of this investigation. Indeed, Scheper and Wetzel's (2007) meta-analysis study argued that the UTUAT model was the most comprehensive of the frameworks as it evolved integrating key elements from preceding frameworks, suggesting its robustness and applicability across a wide variety of contexts.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

The present chapter outlines the methodology used to conduct this research and therefore to serves as a pre-amble to the subsequent qualitative or conceptual development and quantitative finding chapters. It provides details in relation to the research philosophy, research design, research setting and the phases of the study, namely the exploratory inductive and quantitative main survey phases, including the latter's operational details and analytical approaches adopted to test the hypotheses. It also summarizes the ethical considerations pertinent to the execution of the study. The chapter has the following organizational structure:

3.2 Research Philosophy: Outlines various research philosophies and justifies the critical realism post-positivist ontology adopted to guide this investigation. This section is therefore central as it justifies the researcher's own ontological and epistemological position and therefore explains the structure, design, implementation and analysis of the investigation.

3.3 Research Design: Outlines the stages of the mixed-methods research design adopted emphasizing the exploratory nature of the inductive phase, and providing a summary of the key phase involved in the investigation.

3.4 The Research Setting: Outlines the details of sampling of the Saudi NGOs.

3.5 Phases of the Study: Outlines the key phases of the methodology consisting of:

3.5.1 Phase One: Overviews details of the qualitative phase and summarizes the open ended nature of the exploratory interviews. It also emphasizes the exploratory nature of this inductive phase and therefore links this back to the ontological position of the researcher.

3.5.2 Phase Two: Provides details on the survey instrument used, how the research constructs are operationalized and procedures to implement the pre-test phase in order to generate the final multi-item instrument to be used.

3.5.3 Phase Three: Overviews details on sample selection and implementation of survey, including operational aspects involved.

3.5.4 Phase Four: The analytical techniques uses to test the dataset and therefore validate the conceptual model and its associated hypotheses are summarized in this section. Consequently, a discussion of validity and reliability follows including the procedures adopted for this purpose. Statistical methods used for the main analysis, such as regression, analysis are discussed in conjunction with other options available.

3.6 Ethical Considerations: Ethical issues relevant for the research are summarized in this section and details provided in ensuring the highest standards were complied.

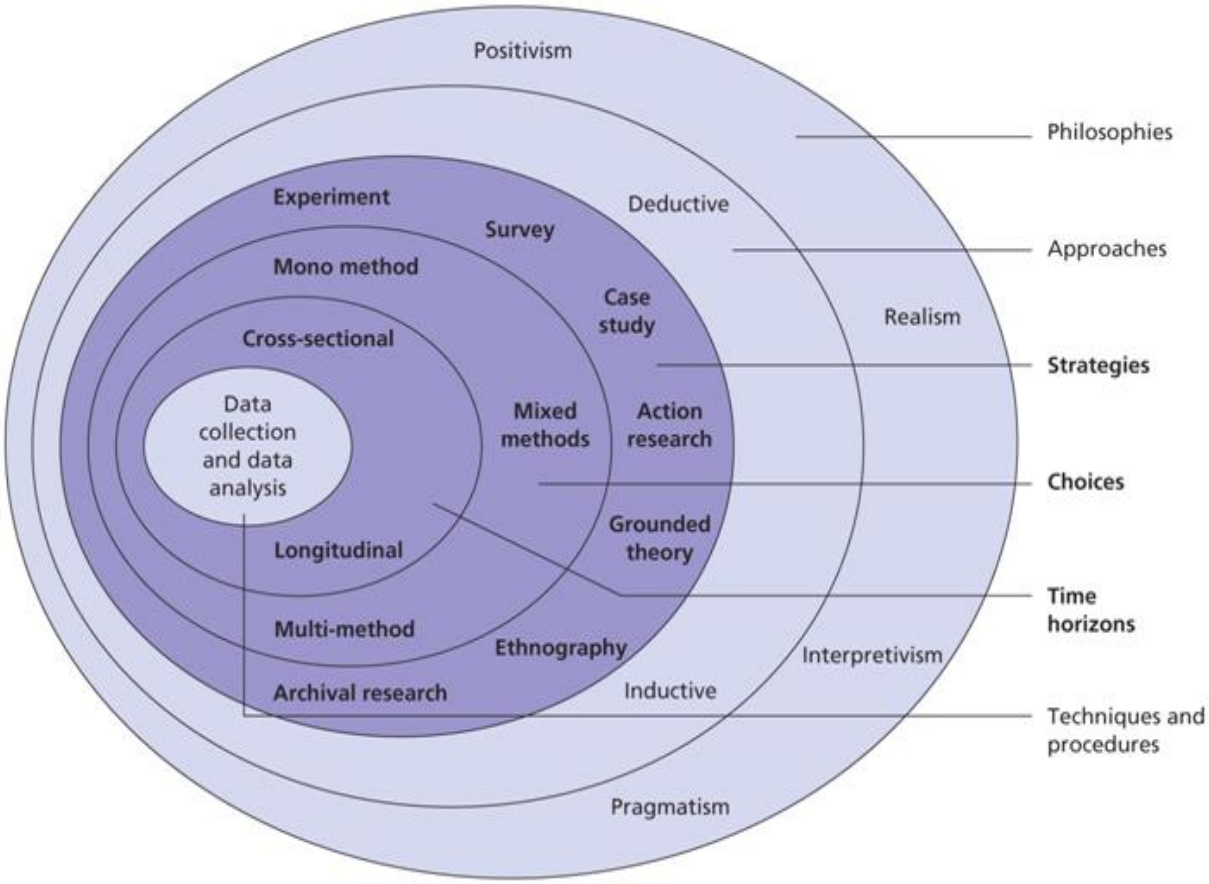
3.7 Summary: This section provides an overall summary to the methodology chapter.

3.2 The Research Philosophy and Approach

Saunder et al's (2012) "Research Onion" provides a standard and established framework to guide researchers through the various research processes central to

executing any social science research. This is displayed below in Figure 3.1. It is commonly employed in the structure of PhD methodology to describe the organisation of the methodology since it allows for a 'funnel' approach, tackling the broader philosophical issues first before detailing the operational design aspects.

Figure: 3.1. The "Research Onion" Guide to Social Science Research (Source: Saunders et al, (2012, p. 160).



Underpinning this research is the concept of the research philosophy which according to Bryman (1988, p. 4) deals with the "*cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, [and] how results should be interpreted*'. Effectively the philosophical position guides the researcher's underlying assumptions in terms of the nature of

reality, and therefore subsequent approaches to make sense of this reality (Denzin and Lincoln, 2000). Research philosophy is critical because individual researchers understand the world and it functions in different ways and therefore the selection of a research philosophical position provides guidance on how to execute this set of beliefs concerning nature and how it functions "*by providing lenses, frames and processes through which investigation can be accomplished"* (Weaver and Olson, 2006, p.460). Often referred to as the ontological position, research philosophy can therefore be broadly summarized as how we structure reality (Lincoln and Guba, 1994). Fundamentally two ontological positions dominate in the social sciences (Saunders et al. 2012) as either based on subjective internally derived reality or through an objective externally derived reality of the phenomenon under investigation.

A subjective position, assumes that that the experience of humans is paramount for constructing social reality, and therefore the interactions and perceptions of social actors defines the nature of reality. In this position therefore the central aim is to understand the perceptions, attitudes and experiences of social actors as the central determinants of social reality. In contrast, an objective philosophy, assumes that '*social phenomena and their meanings have an existence that is independent of social actors*' (Bryman and Bell, 2011, p.19). Once the nature of reality is defined, the subsequent question in philosophy is related to "what can we know about the world?" or the epistemology which focuses the parameters of the ontological position adopted by defining the '*acceptable knowledge in a discipline*' (Bryman and Bell, 2011).

The interpretivist epistemology parallels most closely with the internally derived subjective ontological position since it argues that that the same methods and principles used in the natural sciences are inappropriate to investigating social sciences. The focus should therefore by to attempting to understand, rather than to explain, human behaviours (Yanow, 1998). As Saunders et al. (2012) clarify the emphasis here

is on uncovering differences in perceptions, attitudes, feelings, emotions and even relationships. The interpretivist philosophy therefore posits that the subjective social interactions are present in the world and it is the researcher who is a part of the social world. For an interpretivist, it is essential to have a thorough understanding of the world in order to understand behaviour. The inductive research approach is usually used to help assess the phenomenon from the viewpoint of the participant. The inductive or qualitative methodological approach is adopted to instigate interpretivism since, most typically inductive techniques such as interviews, allow for the generation of words from social actors which can then be interpreted by the researcher as a reflection of the social reality.

A contrasting position is positivism which adopts the view that social science research should adopt the norms of the natural sciences, since "*social reality doesn't exist in a concrete sense*" (Morgan, 2007) and therefore the focus here in on the real world existing independent to our knowledge and the researcher must thus observe the subject in an independent manner within the surrounding (Remenyi, et al. 1998). Universal and fixed laws are observed by positivists, which help control behaviour (Bryman and Bell, 2011; Saunders et al, 2012). The quantitative or deductive research approach is typically used with a highly constructed methodology to carry out replication since through numerical abstraction; the validity of proposed inter-relationships between observable parameters can be investigated. The vast majority of studies in technology adoption adopt a positivist lens, since through testing establishing measurement scales, conceptualised frameworks and accompanying hypotheses, the focus is on fact gathering to validate these propositions (Remenyi et al. 1998; Bryman and Bell, 2011). Interpretivists often criticize this approach since for them, positivist simplifies and reduces humans to numerical units, thus seemingly avoiding the richness of interpretivist datasets which claim to uncover the "why" much more than the causal

or "what" and "how" based logic of positivists. In summary, "*Quantitative research usually emphasises quantification in the collection and analysis of data*" (Bryman and Bell, 2007, p.154) with the focus on generating generalisations about the sample under investigation using statistical measures whereas qualitative research emphasises meaning generation from the flexibility and richness of words generated from social actors.

The division between objective positivist and subjective interpretivism, each with their own relative advantages and disadvantages, has lead to an intense debate surrounding which one to adopt to generate 'acceptable knowledge'. Some such as Burrel and Morgan (1979) have been insistent that "*a synthesis between the paradigms cannot be achieved"* (Jackson and Carter, 1991, p110). However, more recently there is growing acceptability of the emergence of a "paradigm soup" (Buchanan and Bryman, 2007) given the "*epistemological diversity within business and organisational research"* (Bryman and Bell, 2011, p. 26). This has given rise to critical realism and pragmatist approaches as catering for combined or mixed methods approaches. Mixed methods approaches integrate both elements of quantitative and qualitative procedures, and therefore also in the context of technology acceptance studies, enable insights into "*phenomena of interest that cannot be fully understood using only a quantitative or a qualitative method"* (Venkatesh et al., 2013. p. 13). Critically however both critical realism and pragmatism allow for this approach.

In critical realism (Bhaskar, 1989), the "*social phenomena are produced by mechanisms that are real, but that are not directly accessible to observation and are discernible only through their effects…*' and also that '*…the scientist's conceptualisation is simply a way of knowing reality"* (Bryman and Bell, 2011, p. 17). Critical realists assume that the conceptualisations proposed by social scientists will always have subjective roots and therefore any claim to reality has to be critically

assessed. The falsification of existing theory is central to critical realism, such that often a deductive phase of hypotheses testing may be preceded by an inductive phase which assesses the suitability of any underlying proposed theory to be subsequently tested in an empirical phase (Pawson and Tilley, 1997). Critical multiplism therefore posits that mix methods are used to justify the theoretical underpinnings of the intended phenomenon under investigation (Pawson and Tilley, 1997). The focus of critical realism therefore is not to position with one research philosophy, but rather to understand why things are the way they are, and how their underlying mechanisms affect this nature. As Zachariadis et al. (2013, p. 4) argue, critical realism, is often "*seen as a middle way between positivism and interpretivism….Critical realism simultaneously confronts the central concerns of both natural and social science regimes"*.

Pragmatism, on the other hand does way with the two main philosophies of interpretivism and positivism altogether in the sense that it *"sidesteps the contentious issue of truth and reality"* (Feilzer, 2010, p. 110) and "focuses instead on 'what works' as the truth regarding the research questions under investigation" (Tashakkori and Teddlie, 2010, p. 713). Moreover, for pragmatists, *"…committed to the study of a research problem, method is secondary to the research question itself, and the underlying worldview hardly enters the picture, except in the most abstract sense*" (Tashakkori, and Teddlie, 2010, p. 21). Central to pragmatism has always been the consequences for the researcher, rather than the ontology or nature of reality itself, such that pragmatists such that it "emphasizes the practical application of ideas by acting on them to actually test them in human experiences" (Gutek, 2013, p. 76). The maxim of "whatever works" has become central to justifying pragmatism (Dewey, 1920/2008). Critically, however given the growing equation of pragmatism with mixed methods studies and advanced by research textbooks, numerous pragmatism scholars and

ontology scholars have clarified this misconception. Denzin (2012, p. 81) for instance suggests that, "*pragmatism is not a methodology per se. It is a doctrine of meaning, a theory of truth. It rests on the argument that the meaning of an event cannot be given in advance of experience. The focus is on the consequences and meanings of an action or event in a social situation. This concern goes beyond any given methodology or any problem-solving activity"*. Reiterating this, Morgan (2014; 2007) argues, therefore that pragmatism can be used for purely quantitative or qualitative studies if the aim is the action-orientated consequences of the research questions. Indeed, Morgan (2014; 2007) explains that central to pragmatism, is not as is often assumed, the use of mixed methods, but rather the underling connection of pragmatism with its political implications since as Denzin (2010, p. 420) asserts, turning pragmatism into a discussion of procedures only, *"leaves little space for issues connected to empowerment, social justice, and a politics of hope"*.

The central assertion in pragmatism which according to its strongest advocate (Dewey, 1925/2008) was the freedom of research inquiry, "*in which individuals and social communities are able to define the issues that matter most to them and pursue those issues in the ways that are the most meaningful to them. His version of inquiry as the revision of beliefs places a central emphasis on the capacity for growth. In particular, he was opposed to any use of force or economic domination that would limit the possibilities for growth of other social groups. This leads to a natural fit between pragmatism and many versions of transformative or emancipatory research through a shared emphasis on openness, fairness, and freedom from oppression"* (Morgan, 2014, p. 1050). As such, given action orientated research, feminist, post colonial studies or any other emancipatory orientation is best defined as rooted in pragmatism, rather than the misconception that it is defined by mixed methods procedures only as has become the understanding (Morgan, 2014).

This study therefore asserts that a critical realism ontology best defines the researcher's own understanding of the subject under investigation. The consequences of the research questions do not guide the research aims rather the other way round which is more typical of critical realist ontology. Here the researcher is trying to understand technology adoption by Saudi NGOs using an accepted framework, the Unified framework, and therefore any qualitative phase preceding testing the proposed hypotheses are rooted in assessing the feasibility of an established truth as perceived by the researcher through exploratory interviews, rather than re-inventing it through in-depth interviews, in which case a pragmatist approach may have been more appropriate.

Specifically, post-positivist critical realist ontology is adopted, since the researcher believes the researcher and researched are on the one hand independent from each other, but also acknowledges that the researchers own experience, values and knowledge may have an impact on the observations derived from the study. Post-positivist critical realists recognize that these biases can occur and can shape the derived reality but that the focus is, unlike in pragmatism, not orientated towards consequences that will benefit the researcher such that an established frame of reference, in this case existing theory as technology adoption, assumed priority in guiding the process of data generation.

Against the backdrop of the research philosophy already explicated in the previous sub-section, this study the post-positivism critical realist ontology guides the decision to adopt a mixed methods study design. Since post-positivist critical realists, unlike post-positivist pragmatists, believe that the researcher and the subject under investigation are independent of each other, but recognizing that interpretation of the data could be affected by the researcher's own knowledge and experience. Moreover, the critical realist ontology adopted for this study allows for the fusion of positivist and

social constructionist epistemologies via mixed methods research design. Before the research design is digressed in more depth, it can be summarized first as comprising two phases. The initial phase employs elements from the constructivist approach in that it uses interviews to guide and enable theory construction and provide justification for the validation of hypotheses. Given that the critical realist approach has a broad spectrum such an epistemology caters also for exploratory interviews. The second and main phase of the investigation rests on the implementation of a survey as part of the post-positivist principle to validate the conceptualization derived from the first phase.

3.3 Research Design

According to Creswell and Clark (2011, p. 53) "*Once the researcher has identified that the research problem calls for a mixed methods approach and reflected on the philosophical and theoretical foundations of the study, the next step is to choose a specific design that best fits the problem and the research questions in the study".* Research design can be understood as the specific systematic plan of how a research problem will be investigated and therefore the research design guides data collection, analysis and reporting of any findings (Bryman and Bell, 2007). Indeed, to conduct social science research, which is sound, a research design is essential (Malhotra, 2004). Distinctive research designs are utilized to fulfil diverse rationale and its outcome can be used in one another. For post-positivists, the research issue and hypothesis testing is carried out through typically a survey or experimental design. First however, within such a research design, the researcher typically conducts a thorough literature review, collects initial quantitative data, conceptualises the problem further typically through hypotheses construction, commits to questionnaire design, to test the proposed hypotheses and conducts a measurement scaling procedure to validate them. This approach is consistent with an exploratory sequential research study design, since the approach enables the 'mixing' of data, theory, and inference making throughout the

process (Creswell and Clark, 2011). This section therefore takes the reader through these steps as a summary of the subsequent sections.

The initial stage involved pre-understanding of the phenomenon under investigation. This was done and has been described already in the form of a literature review. The review of the literature, not only of technology adoption theories but also of the nature and issues being faced within Saudi Arabia in relation to ICT adoption, the nature of the NGO sector and in relation to ICT adoption also, have helped to formulate an understanding which is critical to take into the subsequent phase of interviews with managers.

This second qualitative phase, involved exploratory interviews with Saudi NGO managers, to identify the nature and structure of ICT adoption. Central to this phase, is the use of responses, to be used in conjunction with pre-existing theory from the extant literature, and constantly comparing and contrasting emergent themes through additional validation with a second moderator, in this case the investigator's study supervisor. The outcome of this phase is the development of a conceptual framework with accompanying hypotheses to map the ICT adoption process. It is important to note at this point, the exploratory nature of this phase due to time constraints with the respondents limiting more in-depth probing of respondents. As such, the purpose here is not to conduct a detailed thematic analysis with the aim of understanding the meaning behind the words used, their interaction with the respondents values and beliefs or indeed with that of the researcher as is typical in in-depth interview study designs adopting a pragmatic perspective wherein reflexivity, or the insights and interactions of the researcher with the researched, may also be investigated in data interpretation.

The third phase, the main part of this investigation, is based on conducting a survey questionnaire to test the conceptualized framework and its accompanying

hypotheses. As such, the framework's reliability and validity are tested. It can therefore be concluded that the current study, fits with Bryman's (2006) typology of reasons for mixed methods studies since the researcher is not uncomfortable only with the pre-existing theories, and therefore has opted not to rely on a purely positivist research study design. Rather, the researcher feels that an initial exploratory interview phase may add useful insights to guide towards a particular conceptualization of ICT adoption amongst Saudi NGOs. This is also consistent with triangulation since this perspective suggests one approach to data collection and inference-making is considered inadequate and therefore multiple approaches may be used in tandem (Creswell and Clark, 2011). Another consideration in mixed methods designs is the degree to which qualitative and quantitative phases will interact or remain independent to each other (Creswell and Clark, 2011). Given that the initial exploratory interview phase is directly being used to facilitate the development of hypotheses, an interactive logic is adopted. This interaction however is not as strong as would be expected in a pure post-positivist context whereby the inductive interview phase may be the only foundation or the development of hypotheses. Rather an exploratory interview phase is suggestive of using these responses in conjunction with the extant literature for the purpose of hypotheses development, in merely identifying key constructs and their directional pathways. In a completely interactive relationship, the interview data would be used to generate new theory in relation to the nature of individual constructs for instance, and in therefore testing new constructs for the first time.

The study design is therefore consistent with an exploratory research design (Churchill, 1995; Malhotra, 2004). This is since, ideas and insights are being extracted for a research issue using limited information (Churchill, 1995, Malhotra, 2004). According to Malhotra (2004), exploratory study designs can employ the type of sequential design highlighted above, i.e. initial exploratory interviews to guide the

construction of hypotheses which can then be validated through a quantitative descriptive survey design. The descriptive quantitative phase is based on a cross-sectional design since the sample used is not being used again in a repetitive approach, common in longitudinal designs or bound by an artificial environment created by the researcher as is the case in causal experimental study designs (Mahlotra, 2004). Saudi NGOs were therefore, selected for the questionnaires' distribution, embracing descriptive information regarding the NGO and the technology utilized. The cross-sectional approach was found appropriate for data collection in this research and the data analysis segment includes all the descriptive discussion of the findings.

3.4 Research Setting

According to a United Nations Development Programme report (UNDP, 2016) there are up to 13,000 NGOS in the country. The sample for this research is taken by considering 95% level of confidence from the minimum sample size acquired from various populations, with 1% error margin (Saunders et al., 2012). Saunders et al (2012) further observe that the analysis requires 291 participants for research as the minimum sample size attained from the population of 13,000 so that 1% error margin and 95% certainty level can be attained. In the view of Churchill (1984), Saunders et al. (2012), and Malhotra (2004), a large sample is selected for a precise data evaluation that increases the applicability of the outcomes. Furthermore, the analyst took permission from the Ministry of Development prior to engage in the fieldwork to convene the sample of various listed NGOs. This was considered important the post 9/11 climate of Saudi NGOs and the need therefore for the government ministry to be fully aware of the nature of the researcher's activities, aims and operations.

3.5. Operational Details of Phases

The research design used by the study phases are already discussed in the earlier segments. A questionnaire was structured and tested on the sample of various travel agencies with the preliminary exploratory interviews. The next step was to dispense the questionnaires to the NGOs which had to be evaluated in the subsequent step. Given the exploratory nature of phase one, this is only summarised below to attach greater importance to the main philosophical stance of this study, namely its positivist design.

3.5.1 Phase One: Initial Exploratory Interviews

The study adopted a qualitative phase involving exploratory interviews to gain some insights on technology adoption from Saudi NGO managers. The purpose of this phase was to add to face validity to any conceptualization and concurrently to generate insights for its generation. The primary objective of this phase was to understand what NGO managers considered pertinent in technology adoption, as its main influences and therefore its nature. In doing so, it also sought to gain face validity towards the use of the UTAUT model, since if any factors are cited from this model it indicates retention of the model, and vice versa, if new factors are mentioned as critical then it indicates its adoption. As a consequence to the exploratory interviews, and integrating the literature especially on the UTUAT model, a series of hypotheses and the final conceptualization was developed.

3.5.1.1 Sample Selection

Based on recommendations from Malhotra (2004), a snowballing approach was used from NGO managers whom the researcher knew from his job to gain more contacts. A judgment sample thus was engineered with those NGO managers with experience in decision-making and operational experience being the criterion for

selection. Consistent with Malhotra (2004), expert interviews should be conducted with people with at least 10 years' experience; although this criterion differs with some scholars arguing an "expert interviewee" should have at least 15-20 years' experience, Malhotra's (2004) criterion of at least 10 years was used. In total twelve such managers were found (9 male and 3 female) and interviewed in face to face meetings from the two major cities of Saudi Arabia: Riyadh and Jeddah. The average level of experience of respondents was fifteen years, and the average revenue of the NGOs, was 800 million Saudi Riyal (SR). Given, the high profile of the respondents, the researcher was advised not to ascertain the demographic information (i.e. in particular their age) of the respondents since probing for personal questions may arouse some internal barriers from the perspective of the respondents. Indeed, the researcher's own contact at the Ministry of Civil affairs, also a diplomat and attaché to the Saudi United National diplomatic corps, advised on this matter as someone with ample experience in conversing with senior representatives from the NGO sector in Saudi Arabia. The comments presented in previous chapters of this study are from those interviews.

3.5.1.2 The Interviews

All interviews took place between June and October of 2013 and lasted on average of 30 minutes, thus pre-empting any scope for in-depth interviewing or analysis. However, this is also consistent with the exploratory nature of the interviews and therefore the epistemology of the researcher as not conducting the interviews for purpose of constructing hypotheses, but rather in facilitating their construction in lieu of the extant literature. The purpose of the study was explained at the start of the sessions. Then a series of open-ended questions were asked regarding the general adoption of technology within their NGOS, who is in charge of this decision and what affects it. Subsequently, each respondent was to comment on a summary of their

responses generated by the researcher to add face validity to any inferences made from the responses and to aid further validity to any subsequent analysis. At this stage the researcher couldn't gain permission from eight of the respondents to record the interviews so extensive written notes were made instead for this sample. Respondents were not comfortable with discussing publically or officially information regarding the strategic decision making of their NGOs especially given the pressures on them after 9/11 for accountability and transparency of their operations. Reassurances had to be given by the researcher that he was not a member of the government investigating secretly their operations. A second friend of the researchers, a senior NGO director and a respected figure amongst the community in Jeddah had to serve as a reference for at least four respondents to provide additional reassurance whilst the primary contact, the diplomatic friend, generated eight contacts.

The questioning style was open ended and non-directive to provide extra ease for respondents and they were reassured that this was a preliminary investigation to gain their expert insights and not an in-depth interview of any kind. An informal approach was adopted during the interviews again for providing additional reassurance and developing the necessary rapport needed to generate trust. Where, a tape recorder had been allowed, in the case of four respondents, the notes were subsequently transcribed and kept in the original language of the interviews, Arabic with only important terminological English terms transcribed into English since several respondents requested their interviews never to be transcribed into English language because of an irrational fear that they could be used by "outside forces" for a negative purpose. Laddering techniques were employed to gain deeper insights where necessary. Open ended interview guides often have fewer questions than semi or structured interview guides since the focus is on allowing the respondents to auto-drive the interview, thus the emphasis here was on less intrusion with questions and more

flexibility for the respondents given the potential sensitivities of the subject under investigation. Consistent with open ended interviews, only a few questions represented the interview protocol: what influenced ICT adoption and what are the main challenges in implementing ICT in their NGOs. These effectively formed the basis of any concurrent questions arising from the responses to these 'acchors'. Where time permitted, respondents were asked to add any other thoughts they found relevant to the discussion.

4.5.1.3 Analysis

Thematic analysis was used as a process to enable encoding of data by "*categorizing or the comparing and contrasting of units and categories of the field texts to produce conceptual understandings of experiences and/or phenomena that are ultimately constructed into larger themes*" (Butler-Kisber, 2010, p. 47). Deriving "some" level of patterned response *"is central to thematic analysis"* (ibid, p. 47) whilst at the same time, "*Through its theoretical freedom, thematic analysis provides a flexible and useful research tool"* (ibid, 47) which can used to facilitate existing conceptualisations rather than only being used for construction of new theory (Braun and Clarke, 2006). This freedom and flexibility fits well with critical realist ontology since it allows the researcher to explore, reflect and introspect the data as it emerges but also opens it to exploratory interview designs since the level of data abstraction is orientated here towards generalizing a patterned response rather than deriving deep rooted meaning which may be the case in in-depth interviews for instance or in pure interpretivism or pragmatic study designs.

Based on Crabtree and Miller's (1999) approach of template analysis a series of steps were followed. First, *a priori* themes from the literature were identified in the dataset and categorized accordingly as comprising, performance expectancy, effort

expectancy, social factors, perceived risk, competitive pressure, government support, facilitating conditions and compatibility. Secondly, insights on the exact nature of these constructs, in terms of how they were described by the respondents by analyzing line by line the transcripts. Thus sub themes were beginning to emerge in some instances. Third, after 5 interviews a summary of the template generated was discussed with the study supervisor as recommended by Crabtree and Miller (1999) to iteratively discuss with a joint researcher for further insights and to add credence to the researchers own conclusions. This also avoids researcher bias in interpretation.

Coding involves constantly reviewing the dataset and any corresponding notes, to label sub-sections, which appear relevant to the research questions. In more depth interview analysis coding can be a vital tool in generating new theories. Even for exploratory interview datasets, coding is essential to verify whether response data corresponds to pre-existing literature identified themes (Bryman and Bell, 2011). Open coding involves broadly breaking down the dataset into major categories whereas axial coding is "*relating categories to their sub-categories'*, therefore '*reassembling or disaggregating data in a way that draws attention to the relationships between and within categories*" (Wicks, 2010, p. 154). This can become a complex process if there are multiple dependent outputs or for a complex conceptualization of the phenomenon under investigation. As such, given the simplicity of the UTAIT model, with effectively intentions and actual behaviours as the central outcomes, the process became much easier to validate with the data response. A manual approach was used, by highlighting each note form from each interview, and then placing the key categories and sub-categories into an excel spreadsheet. Numerous scholars such as Guba and Lincoln (1994) have suggested that a manual approach allows for greater flexibility in the constant comparison between data responses as they emerge with existing theory, and secondary verifiers such as supervisors. The main findings from this phase are

presented in the conceptual chapter subsequently along with a summary of the responses.

In summary however, the results also indicated that the website, database and email were the most common applications of technology by the NGOs. Databases were used to classify supporter information for purposes of marketing, specifically for donor relationship management purposes and calculating lifetime value of donors. Websites were mainly used for educational and awareness purposes traditionally but recently the NGOs were being encouraged to use them for transaction purposes and to move away from purely cash gifts to e-commerce based transactions. The reason why the government was encouraging this was to be able to record all donations in the future of Saudi NGOs in order to improve the sector's transparency in the light of the post 9/11 restrictions. All the NGOs interviewed have established websites and over half of them had transaction facilities to encourage e-commerce (donations) from them. Typically websites contained information on the NGO, news stories about the work of the NGO, and contact details etc. In three instances supporters could fill in an enquiry form and the NGO would email a transaction form to them to complete where the NGO processed the card details manually. In other instances this service was available by the ling on the NGO website itself. Critically, the key categories of the unified model were also evident in the response derived and in the expected direction as impacting technology adoption.

3.5.1.4. Validity and Reliability.

Evaluating qualitative research often involves establishing reliability and validity. According to Masan (1996), unlike quantitative validity and reliability, there is less emphasis on measurement issues in assessing validity and reliability of qualitative outputs. According to Hammersley (1992, p. 69), validity in qualitative research holds

that, ‘an *account is valid or true if it represents accurately those features of the phenomena that it is intended to describe, explain or theorise*’ and moreover according to King and Horrocks (2010, p. 160), ‘*it takes context seriously and grounds its development of concepts in close, detailed attention to the data’.* Internal validity deals with whether there is sufficient congruency or synergy between the underlying theoretical underpinnings and the researcher’s own derivation from responses (Bryman and Bell, 2011). Internal validity is often established through matching as closely as possible responses with existing literature and critically verifying this with an independent or second ‘moderator’. In this case internal validity was established therefore since the independent moderator, the study supervisor, validated any assertions made by the primary researcher. External validity however deals with whether the findings can be generalized other research settings and populations. Given the small sample sizes of typically qualitative contexts this is more difficult to achieve than in quantitative settings and therefore transferability is often used to infer validity. This was achieved by describing the assumptions and context of the study in the preceding literature review chapter in as much detail as possible as well as providing an in-depth account on the nature of information and communications technology challenges and issues specific to the Kingdom of Saudi Arabia. As such, transferability is the responsibility of the one doing the transference using this study but in terms of following its criterion the researcher has followed the basic demand for providing an in-depth account. As for issues of trustworthiness and authenticity, also linked to external validity (Bryman and Bell, 2011), then the selection of industry experts or practitioners, note taking and transcription of responses, putting respondents at easy through an open ended interview, and emphasizing and reassuring confidentiality and anonymity to them to allow for more open responses all contribute to establishing trustworthiness and authenticity.

Reliability in qualitative research implies whether another researcher would generate the same or similar findings and again in contrast to quantitative reliability no hard measures are available to establish this. Therefore, in qualitative research the term reliability is often referring to whether not the same results, but rather if a different researcher would consider paying the results attention, as a reflection of the phenomenon under investigation, subject to changes with time (Baker et al. 1992). A useful tool to establish reliability in qualitative contexts is to provide other researchers with the "thick descriptions" or verbatim quotations form respondents, this adding credibility the research by allowing independent researchers to make the same inferences from the same dataset. According to Lincoln and Guba (1985) this is the single most indicator of providing qualitative credibility or helping in establishing the study's reliability. Moreover, using an independent moderator to validate the inferences being made is also according to Lincoln and Guba (1985) central to establishing this further, a process done in this study by using the study's academic supervisor. Moreover, if the moderator has an established track record of qualitative research this is further heightened. The study academic supervisor has a special issue in the Psychology & Marketing journal (Shabbir et al. 2011) on qualitative research and has trained and instructed over fifty other academics in qualitative techniques, this adding to this study's own reliability measure. Finally, the respondents themselves provide face validity to the response, since the researcher had created a summary of the findings, arising from an immediate view based on the interview, and asked the respondents if they felt comfortable in the key themes being identified as their response summary. In no case, was disagreement expressed by the respondents. According to Lincoln and Guba (1985) seeking face validity from interview respondents is often more possible for exploratory interviews, compared to in-depth ones, since the objective is not to deconstruct the language and its associated meaning of the

responses, and therefore often a summary can be generated and presented during the interview.

3.5.2 Phase Two: Survey Implementation

The questionnaire was structured with the selection of the appropriate methodology utilised for the model constructs' measurement once the exploratory study has been carried out. Chapter 4 will summarise the conceptual framework arising with the aid of the interviews, and its associated hypothesis. The purpose of the quantitative main part of the study was to employ a survey instrument, to tap into the constructs hypothesised, and therefore use the dataset generated to empirically validate the model.

3.5.2.1 Operationalization of Constructs

Operationalization of constructs refers to the identification of a particular method through which a construct can be calculated. Constructs are thoughts that help the analysts to configure the world appropriately, and the researchers of the social science are willing to compute these abstractions by means of creating a link in the abstract conceptions for the analyst along with the empirical indicators that assist in comprehending the world and its activities occurred (Bagozzi, 1984). As a result, the social science analysts face problems in the recognition of appropriate indicators through which they can denote particular constructs' field.

A wide range of literature has been considered for deriving these constructs, whereas the field interviews (refer to phase one) were important for the researcher in the recognition of suitable indicators estimating specific constructs. For convenience in this research, the majority of measures for the constructs of this model can be utilised. Further, these variables are utilised by a coalition of specialists in the multi-lingual and multi-cultural situations and evaluated on the basis of their aptness and precision. As this measurement is implemented in a Saudi context but with managers fluent in

English there was no need to translate the survey into Arabic such that this avoids item bias and construct bias that are curtailed by this procedure of cross cultural translation of items (Geisinger, 1994).

3.5.2.2 Questionnaire Design

When the measures were decided as per the suitability of the cultural conditions, a questionnaire with four principal elements has been established for Saudi NGOs.

- ➔ The foremost principal element refers to the cover letter comprising of the research objectives, instructions for attempting answers and the ethical research facets.
- ➔ The subsequent principal element embraces certain queries in relation to the general utilisation of internet with the NGO.
- ➔ The third element principal deals with the queries linked with research problems.
- ➔ The last section embraces demographic queries like educational level, sex, age and queries linked with quality of respondents.

This particularly developed questionnaire attained specified response options suitable for measurement scales of Likert that comprises of seven categorized answers, initializing from strongly agree to strongly disagree. A direct positive correlation is present among the options for participants and the scale reliability (Churchill, 1995) and as these response options elevate, it gives room for differentiating among participants, further resulting in consistency enhancement (Nunnally and Bernstein, 1994). Moreover, it has been realized that the participants may face problems in providing answers in 9 point scales because of cognitive weaknesses, so Weiers (1988) advised to espouse the 7-point Likert scale format.

As described by Malhotra (2004) and Malhotra and Birks (2003), the questionnaire design holds great significance in the context of marketing research. The structuring of a questionnaire is a fine art for which the analyst has to undergo certain check lists sooner than the allocation of the questionnaires at the decided places.

In the first step, collection and particularizing of the information required for conducting the research is done. Then, an apparent decipherment of the research obstruction and research queries is developed so that the tabulating of the earlier formed research constructions (mentioned in the table) and research hypotheses could be done. Subsequently, the information is separately gathered for every construct and hypotheses so that appropriate and active individuals could be identified, like managers of the NGOs from whom useful information could be collected. For the purpose of quality evaluation and suitability of participants, four questions were summed up in the questionnaire (Skarmeas et al. 2002).

The consequent step deals with the discovery of questionnaire type and the administration methodology. Churchill (1995) believes that this step is essential as the gathered data along with the country's culture highly influences the questionnaire type and the administration procedure. Churchill (1995) determined different ways of conducting interviews and interrogating like telephone interviews, face-to-face interviews, and self-administered questionnaires that could be delivered and restored via mail. Face-to-face interviews were found to be the finest way for this phase and its reasons are as follows:

i) Telephone interviews and emailed questionnaire cannot allow prolonged interviews.
ii) Face-to-face interviews grant the analysts with face expressions and interrogating in an interest-developing way, are cheap and offer better response rate if contrasted with emailing and telephone interviewing.

iii) Face-to-face interviews are more favourable due to confidentiality issues and fear of strangers and they broaden the chances of receiving more explanations when the queries seem unclear to respondents especially within the Saudi cultural and workplace context where trust and rapport are facilitated through this.

The next step deals with the matter used for every particularized query as every model has structured a complete set of questions to embrace all the required information for this construct. Therefore, the questionnaire has embraced every matter of information proportioned in different questions.

Afterwards, the response from for every question was figured out and it was concluded that each question is close-ended that enables the participant to answer merely from the given options. However, there were certain questions with multichotomous feature i.e. the participants had to select the most compatible option with their subject while the other queries proved to be dichotomous i.e. participants had to answer with the most related option in two given alternatives, for example the question, “Do you have a website?”. The responses were transformed into a seven-point Likert scale, as it is found to be the most consistent methodology in computing the attitude trends in marketing research (Churchill, 1995; Malhotra and Birks, 2003).

Questionnaires were advised to be quite simple in language to evade any perplexity that further makes them double-meaning questions (Churchill, 1995; Malhotra and Birks, 2003). Thereupon, a questionnaire with simple language was structured that requires less time and effort of respondents in filling them. It was necessary to keep proper array of questions in the questionnaire, so the questionnaire initialized with uncomplicated, broad-spectrum and appealing queries that motivated the participants to answer them. Afterwards, an array of sensitive questions was found at the concluding point of the questionnaire (Churchill, 1995; Malhotra, 2004).

Likewise, questions were categorized as per their content correspondence so that the logical flow could be increased while ultimately giving a specific design to the questionnaire.

When it comes to the physical features and layout of the questionnaire, it can be said that the questionnaires hold a completely professional layout, which motivates participants to collaborate and recognize the relevance of the critique (Churchill, 1995; Malhotra, 2004). It had a professional cover letter inclusive of research project title, its purpose, graphic artwork, concise preamble of the questionnaire, critique sponsors, responses' privacy and the significance of responses.

Malhotra and Birks (2003) indicated that the questionnaire was kept concise so that the response rate can be elevated. The complete length of the questionnaire was seven pages inclusive of the cover page. Furthermore, the questionnaire comprised of four main sections i.e. cover letter, general questions over the context of e-commerce utilised by the travel agencies and its extent, questions linked with the study constructs, and questions linked with the background of the respondents. Churchill (1995) affirmed the revision and re-evaluation of the questionnaire to ascertain that the questions are not perplex, unclear, leading or odious. At first, a primary draft was structured and distributed to four senior academics for evaluation as they comprise far-reaching expertise in marketing research. These academicians were requested to provide with comments so that further enhancements could be made with respect to the design, precision of questions and the complete layout. Additionally, three more senior academics (known as the expert judges with the knowhow of the fields of marketing) were concerned to endow their comments and examine the particulars of the questionnaire of every construct present in the conceptual model. Mitchell (1996) stated that such procedure helped in gaining the content validity with transformations prior to pretesting in the field. Zaichkowsky (1985) ensured the consistency of this

methodology along with the provision of suggestions to enhance the questionnaires' content validity. However, each of the academic came up with the same problem with one particular that was found unrepresentative and so, that had to be eradicated. Lastly, this revised questionnaire was pre-tested by representing it in personal face-to-face interviews conducted with thirty-five, senior managers of Saudi NGOs, as they held sound experience in this particular field. These were distributed at a Saudi NGO workshop in Geneva, during a UN NGO training session. During this session, the researcher had time to engage in conversations with the respondents about the clarity of the draft survey instrument. These respondents were asked to comment on these questions and express their views along with answering the questions. The comments and views were noted and assessed as the interviews finished. Respondents were also requested to provide with any issues they dealt while answering questions. This way, the analyst got an awareness of the research consistency, making sure that the words, phrases and instructions were developed in appropriate language (Saunders et al. 2012).

The trustworthiness of the questionnaire was ascertained with an internal consistency test as it estimates the reliability of the responses in a sub-group or in all questions in the context of surveys (Bernstein and Nunnally, 1994). Moreover, the Cronbach's alpha was utilised for estimating the relevancy of internal consistency. As per the outcomes delivered, the constructs encompass adequate reliability scores in the fields of management and general marketing as the reliability coefficients were found to be 0.60 or greater than this (Bernstein and Nunnally, 1994). The values ranged from a highest observed for performance expectancy of 0.778 to a lowest observed for government support of 0.621 (see Appendix A for complete breakdown). Moreover, since the final survey sample is expected to substantially higher than the one used for the pre-test, it is expected that any low scoring items will become amplified with a higher sample as suggested by Bernstein and Nunnally (1994).

3.5.3 Phase Three: Questionnaire Administration

A total of 600 Saudi NGOs were contacted for the survey once the process of pretesting and refining questionnaires had been completed. The NGOs were placed alphabetically encompassing the operating manager's names and their contact addresses. Afterwards, every NGO was allotted a number whereas their information was entered into Excel spreadsheet unsystematically. The information of 600 NGOs was entered by means of utilizing simple random sample technique and these NGOs were approached by means of a mailed letter with the survey included. A total of 291 returned the survey and of that number only 287 were considered complete and therefore useful in the data analysis.

3.5.4 Data Analysis for Quantitative Phase

This phase deals with the analytical procedures considered for conducting tests on the gathered data. The commencement was made with the validity evaluation and reliability measures, further elaborating distinctive analytical techniques for testing the gathered data. To assess the theories of this study and to attain its purpose, several numerical procedures were employed. The foremost step of the data analysis emphasized the frequency distribution for the demographic objects deliberated in this study. Obtaining an explanation regarding the applicants and observing the level of variation in the reactions was the initial intention. Creating an association medium to inspect the relationship constants amongst the hypothesis and confirming its authenticity with the help of a testimony was the successive step in the analysis. Exploratory factor analysis was organized to purify and diminish the objects that are manipulated to calculate the concepts afterwards. The confirmation of authenticity of actions was specified by this technique too. Also, the dependability of the inner

consistency of the obtained balances was evaluated by the processed Cronbach's alphas, while the impact of numerous independent variables on the negotiating and contingent variables was assessed by multiple regression analyses. The outcome from the theories verified by the regression analyses demonstrated how intensely every factor, by the size and sign of the constant, influenced their purpose of using e-commerce. The explanation to operating the considered arithmetical technique with The Unified Theory of Acceptance and Use of Technology (UTAUT) is given underneath.

3.5.4.1 Data Analysis

Regarding technology adoption studies that exercised the use of the of UTAUT model, an evaluation of the existing information signified that a collection of data analysis procedures were employed. But the procedures in reports that use survey system are slightly different than the reports that use experimental techniques. For instance, in the recognition of online stock trade adoption, multiple regressions and hierarchical regressions were exercised by Wang and Yang (2005). To scrutinize, the aspects influencing the acceptance of mobile gadgets and facilities, multiple regressions were used by Carlsson et al. (2006). To decide the features that impact the purpose of the conduct and the practice of desktop computer functions, Al-Gahtani et al. (2007) operated multiple regressions. Knutsen (2005) and Anderson et al. (2006) applied Partial Least Squared (PLS) assessment.

Moreover, in the experimental design study, the UTAUT model and several diagnostic practices like t-tests and Wilcoxon-Mann-Whitney test were used. For instance, t-test was used by Biemans et al. (2005) to contrast regulation and handling unit with their approval of UTAUT model being used by the medical teleconferencing function. Also, the Mann-Whitney methods were used by Saini et al. (2005) in their

study, while for determining the impact of mobile running time on the perception of mobile gadgets.

Structural calculation modelling using AMOS and PLS was also exercised by some analysts. For example, the impact of performance expectancy, effort expectancy and social influence on their behavioural intent to employ an information technology grounded revolution in India known as the Prepayment Metering System, was surveyed by applying the UTAUT model by Bandyopadhyay and Fraccastoro (2007). But their study was confined due to many reasons. First of all, even though the overall magnitudes of every concept have been used, the full amount of concept that comprises the initial model has been decreased by the analysts, without providing any explanation. Hence, the structural calculation modelling was permitted to be utilized by simplifying their representation, but their donation to the composition was endangered by doing this. Secondly, the legitimacy of the discriminant in their representation was insufficient amongst the performance expectancy and effort expectancy. It needs to be mentioned that in this study, using AMOS in the structural calculation modelling was pondered. After this process being applied in the confirmatory factor evaluation phase, with the intension of enhancing the overall chi-squared, the analyst had to ascertain within-construct fault covariance and between construct fault covariance. Due to this process displaying a shortfall of legitimacy of the discriminant, it is not advocated (Hair et al. 2010).

Moreover, there were a few restraints in the balances of the analysts exercised PLS, a structural calculation modelling process. For example, for each concept employed in Venkatesh et al.'s (2003) original UTAUT model, four magnitudes were utilized by Anderson et al. (2006), and three magnitudes for each concept were exploited by Neufeld et al. (2007) with no explanation as to why the fourth magnitude was eradicated. However, regarding the balance consumed to appraise the concept in

their representation, a few constraints were stated by Venkatesh et al. (2003). Each concept was operated by the analysts by consuming the greatest loading objects from every balance. As a few of the objects from the equipment approval representation were not encompassed in their own concepts, the legality of the substance was disturbed. Thus, it was proposed by Venkatesh et al. (2003, p. 468) that "*for UTAUT the calculations should be regarded as primary and for each of the concepts, with stress being laid on legality of the substance. Future exploration should be pursued with the intention of thoroughly formulating and authenticating suitable balances and then reconfirming the representation or prolonging it with new measures".* Based on the above justification factor analysis was used to add to validating the structure of the underlying items in the multi-item scales used for this study. Factor analysis is briefly overviewed therefore below.

Factor analysis refers to a generic name, representative of multiple statistical techniques, which contribute to the reduction and the summarization of multiple observable variables in relation to common underlying dimensions of the various factors (Pallant, 2007). It also contributes primarily towards providing a means of summarizing information and data stated in multiple variables by reducing the quantum of the same into smaller factors, with a minimal loss of data. Correspondingly, factor analysis also contributes to bringing down multiple related variables into more manageable scales prior to utilizing the same in associated analysis, including various regressions or multivariate analysis related to aspects of variance (Pallant, 2007).

Factor analysis is related with multiple techniques, with the first of them referred to as principal components analysis (PCA), followed by factor analysis (FA). Even though both the approaches seem to work, it ultimately depends upon the researcher to decide on the exact methodology to use. Correspondingly, Stevens (1996) indicated a desire to utilize principal components analysis in consideration of it being

psychometrically sound and simpler from a mathematical viewpoint, skirting the issues commonly observed with regard to factor analysis. On the other hand, Tabachnick and Fidell (1996) are of the conviction that FA is preferable since it is more compatible as it provides theoretical solutions which are not influenced by unique and error variability. Nevertheless, the researchers are also of the opinion that should an empirical summary be desired from within the data set, PCA remains a better choice. Stevens (1996) recommends multiple benefits associated with utilizing PCA, highlighting the associated robust psychometrical resolutions and its ease from a mathematical perspective. In consideration of all the aforementioned, the current initiative draws upon principal components analysis (PCA).

Factor analysis conducted was dependent on multiple aspects and processes, with foremost the data being determined to be compatible with regard to factor analysis. Later, it is also important to determine the methodology to be used to extract the factors and how the various factors could be most efficiently utilized to interrelate amongst the multiple variables. In conclusion, an orthogonal or oblique rotation was required to be decided upon to interpret the conclusions drawn, all of which is explained.

3.5.4.2 Validity

Here, the phrase of validity implies the scope of presenting the truth through variables of how much they reflect the incidents taking place in the practical world. In the perspective of Malhotra (2004) and also Churchill (1995), validity refers to the scale or measuring instrument that can estimate the real purpose. This is why the constructs' relevant area is required to be put into light by the indicators so that the actual scenario can be presented through empirical findings and further profits are

made by business specialists (Churchill, 1995; Hair et. al. 2010). Distinctive validity kinds are taken into account prior to testing the hypotheses of research.

I) *Content Validity:* Content validity deals with the rate of measurement covering a significant portion of the construct, as indicated by Bernstein and Nunnally (1994), and Malhotra (2004). A wide range of literature is studied along with carrying out a detailed assessment describing the way that other people utilise to elucidate the constructs' domain present in the research model (refer chapter 2 and 3). The next step is to represent a wide range of items presenting the attitudes' range linked with the formed constructs (Churchill, 1995). Subsequently, the constructs' measures were put in front of senior academicians with wide knowledge and expertise in the relevant areas of e-commerce, research marketing and marketing, along with Saudi NGO managers as they proved to be expert judges in this context and put their consent in the measurement and constructs of this research. In the outlooks of Malhotra (2004) and Zaichkowsky (1985), the content validity is increased by the involvement of judges and experienced academics in marketing research.

II) *Convergent Validity:* This type of validity demonstrates the maximum limit of diverse independent measurement procedures that were utilised for similar construct and depict a correlation (Churchill, 1995; Malhotra, 2004).). For convergent validity, the exploratory factor evaluation was carried out in accordance with the suggestions given by Roberts and Premkumar (1999). Particulars demonstrating the significant factor loading of 0.50 or more are said to be convergent validity (Roberts and Premkumar, 1999). Chapter six of this critique paper deals with the outcomes of the exploratory factor evaluation found suitable for model constructs as they showed huge and significant loading of every particular in their constructs. This indication proved

the construct to be of convergent validity. A dedicated sub-section will overview factor analysis subsequently, given its wide coverage and salience in being the first quantitative phase of the analysis.

III) Discriminant Validity: This kind of validity refers to the extent of discrimination of constructs from each other. It also endows with the fact that a measure is distinct from the other as it does not link with each other to a significant degree (Churchill, 1995; Bernstein and Nunnally, 1994). The discriminant validity is evaluated through the correlation matrix and this methodology allows links covering from low to moderate amid every construct and the other study's constructs one by one. This condition ensures the existence of discriminant validity. Chapter six encompasses the correlation matrix depicting that the relationship of particulars of the similar construct are greater than those of the other constructs, ensuring the presence of discriminant validity. In chapter six, construct validity is elaborated deeply and discriminant validity is also ascertained with the outcomes of the exploratory factor analysis.

3.5.4.3 *Reliability*

Reliability theory is described as "*the degree up till steady outcome is generated when dimensions on the traits are reiterated"* (Malhotra, 2004, p. 267). The inner regularity is generally measured by a reliability constant known as Cronbach's alpha. The rate of this alpha is a sign of the connection between a series of items that are utilized when measuring a concept. The denominations of alpha can span from 0 to 1 and the marketing exploration acknowledges the denominations that are 70 or bigger than that (Bernstein and Nunnally, 1994, Peterson 1994).

The inner regularity was analysed after assessing the two alpha denominations of Cronbach for every concept as well as the connection between the quantities of items by the analyst (Nunnaly and Bernstein, 1994). Chapter five provides further explanation of the outcomes.

3.6 Ethical Considerations

Ethical considerations are vital to structuring a research project (Bryman and Bell, 2011) since these links directly to our worldview, and therefore our ontological and epistemological positions we adopt as researchers. Numerous steps were taken to ensure that the research conducted followed the guidelines of the University of Hull ethics committee but also complied with the Market Research Society's (MRS) code of conduct for good ethical practice for marketing research.

First, the context of the study itself can be considered as a topic rooted in ethical business practice, since NGO function to emancipate the welfare of others and therefore determining issues, which may help NGOs develop their performance and practice is in itself a pro-social and therefore ethically grounded topic to investigate. Second, all respondents, interviews and survey respondents, were informed about the purpose of the research, their expected involvement, an opt out option, how their response will be used for data analysis and academic purposes only, and how their data will be held confidently and with anonymity, thus fulfilling a Kantian deontological approach to ethics to be honest despite the consequences (Driver, 2007). Moreover, pseudonyms are used for interview respondents in presenting the data results in this thesis, as promised to the interview respondents. Additionally, advice was taken from a contact who knew some of the respondents and had experience in dealing with high profile directors and managers of NGOs, often who are multi-millionaires in their own right, the need to avoid asking any personal even demographically based questions.

Where respondents did not want the researcher to record interviews, this was complied with and indeed, transcription was avoided in two of these cases where recording were made at the request of the respondents.

The actual survey instrument was cleared form the Ethics Committee of Hull University Business School, this adding further compliance and finally the researcher had attended a research seminar at the University of Riyadh's Department of Management Studies, on 'interviewing Saudi managers' in order to ensure that any nuances within this sample did not affect the operationalization of the interviews. Training with this module, had instructed the researcher for the need and attention to complying with any anonymity and confidentiality requests but also in avoiding questions which are not directly essential to the study objectives but which if asked, can create a negative 'halo' effect on the sequencing of the questions.

3.7 Summary

A post-positivist critical realist ontology defines the research philosophy and underpinnings of this investigation. This is subsequently the foundation and rationale for the mixed methods study design adopted, namely the use of inductive exploratory interviews first followed by the main part of the investigation or a survey instrument distributed to NGO managers in Saudi Arabia. This chapter has in addition justified the operational context and details of the two study phase, and provided details on measures used to add to the study's validity and reliability. Moreover, the ethical pre-requisite of this investigation as one the one limiting some inference making, such as taking down notes on demographics or recording interviews, but on the hand liberating and emancipating the research since ultimately the psychological satisfaction of respondents is what is paramount to any research, grounded in ethics.

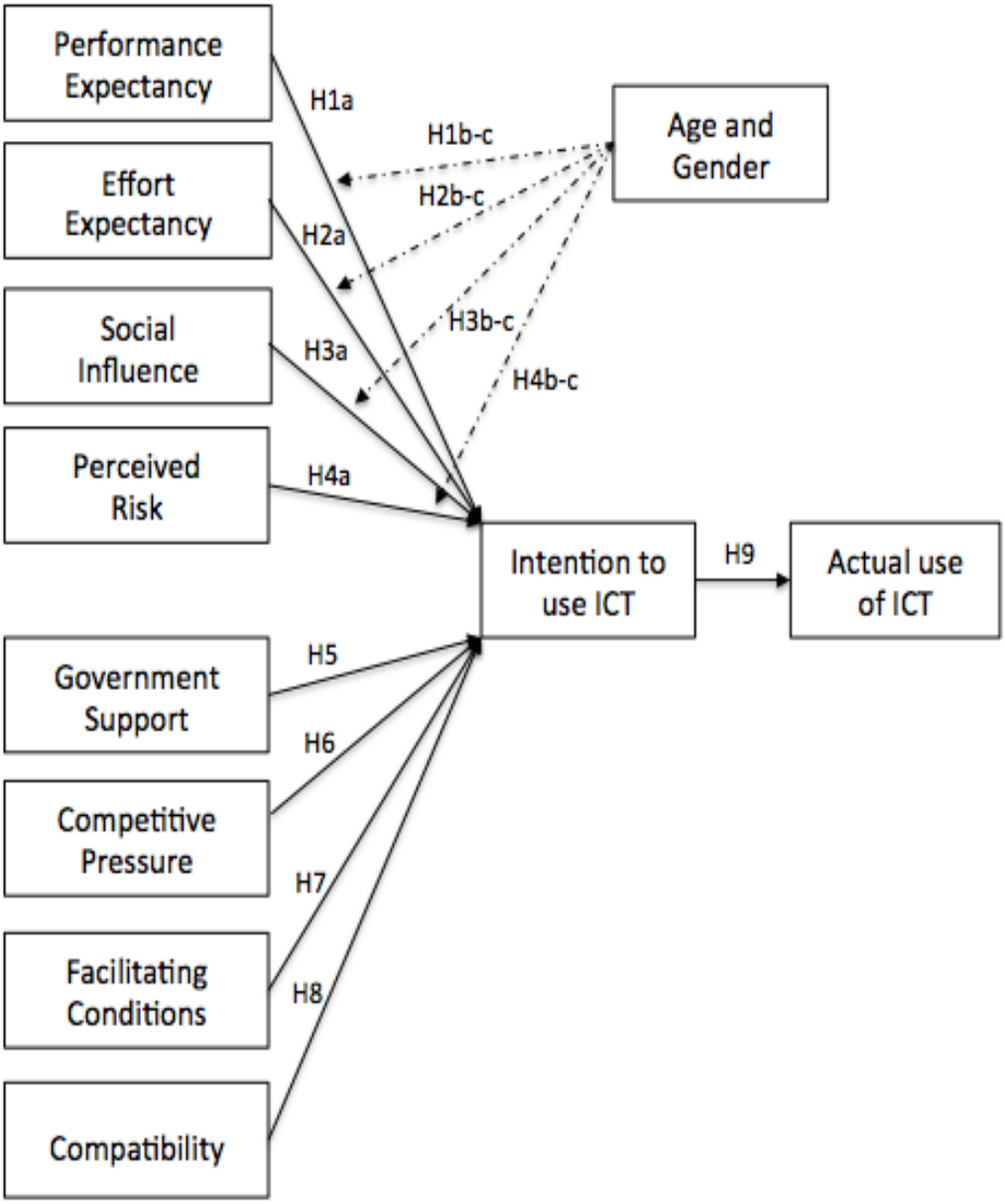
CHAPTER FOUR: CONCEPTUAL DEVELOPMENT AND HYPOTHESES FORMULATION.

The basic objective of this chapter is to provide the suggested research model or framework, which can capture the key factors, which may influence ICT adoption by Saudi NGOs. The framework developed as a guide for fulfilling the primary aim of this study, namely to determine the nature of ICT adoption in Saudi NGOs, is derived from both the extant literature and from a preliminary qualitative study. This initial qualitative phase comprises a series of exploratory interviews with managers from Saudi NGOs in order to further understand which factors may, or may not, influence NGO adoption of ICT. This chapter therefore provides an outline of the main findings derived from this phase, with any additional supporting evidence from the literature review. As a result, the main study hypotheses are also provided with an explanation and supportive evidence from the interviews as verbatim quotations. Note that the methodological underpinnings behind the qualitative phase are highlighted in the subsequent methodology chapter.

4.1. Conceptual Model

For clarity, the main conceptual model is presented in Figure 4.1 to provide an illustrative overview of the output of the literature review and qualitative phase. Note that all arrows in the framework are hypothesised as positive pathways with the exception of perceived risk.

Figure: 4.1. Proposed Conceptual Model



Before each individual hypothesis is overviewed a brief summary of the framework is provided here to provide additional context to the model and hypotheses derivation but also to understand its relevance in terms of theory contribution. Critically, the central part of the framework parallels the UTAUT model by Venkatesh et al. (2003). Indeed, the personal factors of performance expectancy, effort expectancy, social influence and personal risk leading to behavioural intention with moderating roles of age and gender on their effects closely mirrors the UTAUT

framework, itself indicating the robustness of the UTAUT in diverse ICT adoption contexts.

Moreover, this is also consistent with propositions by Venkatesh et al. (2003) that their framework should be used in conjunction with other related frameworks to generate a context specific framework. This is also consistent with the use of interview data to guide in this process of adapting established theoretical frameworks (Craig and Douglas, 2005). Furthermore, as Fowler (1993) contends, research frameworks and models must be adapted to fit local contexts as much as possible and using qualitative interview data to achieve this is one feasible option. Furthermore, Hardgreave and Johnson (2003) note that no ICT adoption framework on its own can explain the complexities of influencing factors and therefore modification and integration of frameworks is more likely to create congruence with local and cultural applications. This view is also consistent with Taylor and Todd (1995) who go as far as suggesting that integrating personal, organisational and external factors is likely to be more predictive than relying on only one set of factors. The framework proposed in this study, fulfils Taylor and Todd's (1995) proposition of integration since it adds competitive, pressure and government support as external factors and facilitating conditions and compatibility as organisational factors to the traditional UTAUT's personal factors. The implications, of this integration are reviewed in the discussion chapter of this study since this issue relates to theoretical and managerial contributions. Individual constructs, which form the foundation of the framework, are the main focus of this chapter and their corresponding hypotheses which comprise the subsequent and main of the subsequent section. Note verbatim quotes are used throughout to support any inferences but in order to comply with data confidentiality and anonymity terms with the respondents, pseudonyms are used throughout.

4.2 Research Constructs and Research Hypotheses

The next section will provide an explanation regarding each of the major constructs. With the intention of justifying the suggested conceptualisation, a number of supporting quotes from the exploratory interviews have been given for each concept. Consistent with Lincoln and Guba (1994), providing verbatim quotations from respondents to justify the development of themes, provides the strongest evidence of qualitative interview analysis. Unlike, in-depth interview data analysis, or a purely social constructionist approach, the responses from the interviews are not used to determine the internal structure of individual emergent themes, rather only in identifying themes which support pre-existing predictive influences of technology adoption. It is important to clarity this from the onset so that the researcher's epistemology can be understood. The previous methodology chapter provide insights into this logic, but at this stage the researcher points to this to understand the logic of the presentation of the conceptual chapter, and in particular the way the verbatim quotations are being used to facilitate, not construct, the development of the proposed hypotheses.

4.2.1 Performance Expectancy

One of the most central components in technology acceptance theory, according to Venkatesh et al. (2003, p. 447), performance expectancy relates to the "*the extent to which an individual considers that using the system will abet him or her to achieve advantages in job performance.*" The prevalence of this construct in the technology adoption literature arises from its conceptual overlap with several constructs paramount in other theoretical frameworks, aside the UTAUT. For instance, it closely parallels perceived usefulness from the TAM model, extrinsic motivation, job-fit in the Model of PC utilization and relative advantage in the diffusion of innovation theories. Take for

instance, perceived usefulness, defined by Davis (1989, p. 320) as the "*the extent to which an individual considers the usage of system will have a positive impact on his or her job act*". The overlap between its definition and performance expectancy needs no further extrapolation as the overlap is self-evident. The centrality of this construct in determining technology adoption has been validated by its strong predictive effects (see for e.g. Venkatesh et al. 2003). Others have similarly found positive predictive effects on intention to adopt technology using overlapping constructs such as Davis (1989) who found a strong correlation between perceived usefulness and intention to adopt technology.

Performance expectancy is thought to have a strong influence on intention to adopt technology because it relates strongly to the belief or faith of that particular individual that employment of any information will affect their performance in a positive way, irrespective of their behaviour towards it, i.e. providing self-efficacy or self-confidence in using the technology. Similarly, adopting an extrinsic motivation perspective, Davis et al. (1992) argue that individuals feel greater confidence in expecting maximum advantages from adopting the technology. Therefore, people aim to execute a task because it is assumed to be influential and helpful in attaining positive results that are different from the actual action itself.

Moreover, Thompson et al (1991, p. 129) using the corollary of job fit, or in the context of PC usage, *"the degree to which an individual trusts that using a PC can have a positive impact on the performance of his job or her job",* also found a strong positive influence with behavioural intentions. This effect is thought to exist since the adoption of technology facilitates an expectation with congruence with one's job role. Similarly, in the diffusion of innovation theories (e.g. Rogers, 1995), relative advantage, described as the *"extent to which an innovation is supposed as better than the alternative of non-usage"* has been found to positive influence intention to adopt

technologies given the expectation that inaction or non-use will result in a loss or reduction in advantage or outcomes. Compeau and Higgins (1995ab) suggest that any of these corollary constructs can be used to map performance expectancy or a combination of them used as underlying components of performance expectancy as the optimal choice for study designs investigating performance expectancy effects on technology acceptance. Indeed, for instance Venkatesh et al. (2003) follow on this proposition and our study respondents also, strongly expressed each of these individual parameters of performance expectancy.

Indeed, all respondents cited performance expectancy, as either extrinsic motivation, relative advantage and job fit central in their evaluation of whether to adopt ICT or not. Abdul, a manager with over fifteen years experience and responsible for an NGO with revenue of over 45 million Saudi Riyals (SR) suggests that:

For me the main issue is whether using internet and other technologies will help us in our jobs, how will it make us better, will it generate more positive outcomes for us if we adopt or not.

Maryam, a director of one of a GCC wide NGO, responsible for over 2000 staff with revenue of over 100 million SR, states that:

As an NGO of course we can benefit more by bringing in better brand building for our NGO using the internet by increasing our reach to the public but also improving access to our services and helping in our jobs.

Similarly, Malik, a director of a Saudi based NGO with revenue of over 100 million SR also indicates that:

NGOs can benefit in many ways from using the internet or other technology enabled systems such as databases. Our public can reach us more efficiently and with a database we have been more able to store and use supporter information to create a donor relationship system for instance for more effective targeting and for retention purposes.

Often, as in Abdul's comments earlier, a combination of extrinsic motivation, job fit and relative advantage, are used together, to explain performance expectancy by several respondents.

Salim, a senior manager of an NGO, with revenue of over 200million SR, comments that:

I found it very challenging when I had to introduce the new database and IT systems in our organisation. I had to communicate the outcomes or benefits of using the systems for our jobs, and part of this meant aligning the job descriptions to using the systems in the first place to create a better job fit with IT adoption….we had to articulate to our staff that they should feel confident in using the systems and that the systems were there to make their roles and outputs easier and more efficient for them. They should expect many positive things if they used the systems. This was key in encouraging their motivation to use. Given the above, it is evident that one can predict that:

Hypothesis 1a: Performance expectancy will have a positive influence on behavioural intention to adopt ICT.

According to Venkatesh et al. (2003), it was concluded that the connection between performance expectancy and behaviour intention is also moderated by age and gender. For instance, Minton et al. (1980) originally explained that in comparison to women, men are more highly task-oriented and possesses the tendency to attain more benefits from technologies. Venkatesh and Morris (2000) established that higher insight of technology's practicality affects men's choices to use technology. Moreover, as compared to women, men are more eager to use the Internet for shopping (Burke, 2002; Li et al. 1999). Nevertheless, it was recommended by some analysts that achievement dissimilarities originate from the gender roles that persons are socialized to, instead of being biologically established (Lynott and McCandless, 2000; Lubinski et al. 1983). This suggests that the adoption behaviour of people is also influenced by their culture, i.e. environmental influences. Consequently, it is projected that men will be more likely to use the Internet for performance and achievements in a male culture. This is consistent with the conclusions of Hofstede and Hofstede (2005) and De Mooij (2004) that performance and achievement are important values in masculine culture. Support for this moderating effect for gender was also found from respondents. As Jamil, a director of an NGO with revenue of over 500million SR explains:

Men tend to be more open to our systems in technology more too; maybe this is a natural response as female workers prefer inter personal contact usually through the phone with our supporters but male workers have been preferring email communications we have found in the past few years.

Similarly, Hakim, a manager of an NGO, with revenue of over 50milion SR, suggests that:

For me when it comes to technology adoption then men are the first ones to use then the women see the men adopt it and follow. Maybe the men are more open to risk I don't know but in my experience the men always are more keen and eager to use new technologies.

In the similar manner, the connection between performance expectancy and behavioural intention is also controlled by age. As a matter of fact, young people have more potential and thus, they possess the tendency to achieve more in relation to technologies in general (Hall and Mansfield, 1980). Moreover, Andrisani et al. (1978) and Rabinowitz and Hall (1981) recommended that young employees are much interested in task-related consequences, job accomplishments, and extrinsic prizes at organizations. Venkatesh and Morris (2000) stated that younger people not only show acceptance to the employment of technology as compared to older people but also prefer the use of technology. Thus, both age and gender moderate the effect of performance expectancy. The following example quotes illustrate evidence to further support the moderating role of age on technology acceptance within Saudi NGOs. As Abdul-Aziz, a manager with over twenty years experience working in an NGO with revenue of 100 million SR explains:

We definitely found that younger staffs were more open to using technology based applications. Older generation workers needed more training and reassurance in using the internet and databases.

Similarly, Mustafa, a manager of an NGO with revenue of 200 million SR and responsible for over 1000 employees, explains further that for him:

I always found that younger people were more open to using new technologies for us. Last year when we introduced palm pads the younger people were the only ones using them and they had no problems with them but the older staff, our majority staff, were not too keen on them and unfortunately we had to pull the plug on the palm pad project because the older staff, both men and women, were just not willing to use them in our field. They will still coming back to base with their field notes on paper and this created much confusion as we needed online notes to enter into the central database.

Given the above, it is evident that one can predict that:

Hypothes1b: Gender will moderate the effects of performance expectancy on intention to adopt ICT such that the effect will be more positive in males than in females.

Hypothes1c: Age will moderate the effects of performance expectancy on intention to adopt ICT such that the effect will be more positive in younger managers than in older ones.

4.2.2 Effort Expectancy

Effort expectancy can be understood as "*the extent of effortlessness linked with the employment of the system"* (Venkatesh et al. 2003, p. 450*)* or similarly as "*the extent to which an individual have confidence in the fact that employment of a specific system would be effortless"* (Davis 1989, p. 320). This theme is the second most prevalent construct in technology acceptance theories since it overlaps considerably and indeed is comprised of perceived each of use (e.g. in TAM models), the complexity construct (in Model of PC utilization), ease of use (in Decomposed theory of planned behaviour and UTAUT models). Therefore, it is paramount in explaining adoption of technologies but

was also a prevalent theme in the study respondents.

Pavlou (2003, p. 108) explained that the very essence of web and internet usage is linked to ease of use, since "*a web interface that is supposed to be assisting the transaction method and simple to contro*l". This perceived ease of use creates optimism towards effort to use the system and therefore greater inclination towards willingness to adopt. Others (e.g. McCloskey, 2004; Monsuwe et al. 2004) suggest that it creates ease for customers by reducing effort for engaging in transactions, whereas for employees it creates ease in dealing and processing transactions.

A related construct complexity, refers to the "*the extent to which an innovation is supposed to be complicated to comprehend and utilize"* (Rogers, 1995, p. 16). This construct is the reverse itemed construct for ease of use or effort expectancy and has been used in the PC utilization, theory of diffusion of innovation models and the decomposed theory of planned behaviour (Thompson et al. 1991; Rogers, 1995; Taylor and Todd, 1995). As Rogers (1995) contends the expected difficulty in usage of a product leads to a lack of willingness to try it out. Taylor and Todd (1995) contend that complexity negatively affects adoption to use technologies given that it creates an expectancy of difficulty in comprehending, learning and using the technology in question. Both perceived ease of use and complexity have been as positive predictors of technology adoption in these studies. Moreover, the challenges in communicating to employees effort expectancy as either complexity or ease of use, was cited by respondents as a central management problem when introducing new technologies. As Mohammad, a senior manager of an NGO, with revenue of 300 million SR, explained:

Last year we introduced a new web page with all the modicums, we had hired an American firm to give us the best linking the new web interface to a new database. As soon as our staff heard about it they panicked! Everybody started saying it will be

difficult to use so we arranged various training workshops to calm their fears and explain to them that it was quite user friendly. The problem was that it was a new system and when things are new, you know people find them strange and complex so their fears and concerns should be addressed. Once they feel it's not as bad as they think, then they become more confident and optimistic in their ability to use the systems.

Similarly, Majid, a director of an NGO, with revenue of 250 million SR, explains that:

For me when introducing new technologies its vital to send the managers on training on how to use the system. Once the managers come out of their comfort zones and find it easier to use then the rest of the staff can learn in a more relaxed way too. Otherwise, if the managers think it's going to be difficult to use then this will spill over onto the rest of the staff.

Salima, in fact uses the term perceived ease of use in her comments, for instance:

Traditionally NGO staff were used to stay in the field all the time and used to dealing with people physically but now more of our work is done remotely from the offices so technology has enabled ease of use for us more by allowing more mobile access to data and communications. Using the internet we think also makes it easier for our supporters to deal with us in terms of transactions and processing.

Similarly, Abdul also directly relates to ease of use:

For us the ease of accessing data on our supporters has been revolutionised with our new database and this has made targeting our donor base much more easier than ever.

Given the above, it is evident that one can predict that:

Hypothesis 2a: Effort expectancy will have a positive influence on behavioural intention to adopt ICT.

Venkatesh and Morris (2000) and Venkatesh et al. (2000) recommended that as compared to men, women tend to be strongly affected by the viewpoint of ease of use. This again may be linked to task orientation of males compared to females as was the case for performance expectancy. Moreover, Morris and Venkatesh (2000) argued that as compared to older people, younger people can more easily use technology as they more naturally prefer the employment of such systems. Jones and Hubona (2005) furthermore, established that age is unconstructively linked with users' perceived ease of use of email and word processor. Consequently, it is valid and acceptable to suppose that younger people, relative to older ones, will find new technology adoption more, easier. The following example quotations further justify these expected moderator effects of age and gender on effort expectancy from the respondents. As Jamil and Abdul-Aziz respectively comment, the dual moderating role of age and gender in their comments.

Male workers are used to technology using games more etc. in their private lives and therefore find it much easier to navigate the website or use databases. Similarly this is the case for younger workers and supporters in general.

I always find that younger staff are not as scared of new technologies we have introduced in the past and men in general, maybe not to show their fear or perhaps

because they use more in their private lives, I'm not sure, but men also seem to find it much easier than women to use new technologies.

Given the above, it is evident that one can predict that:

Hypothesis 2b: Gender will moderate the effects of effort expectancy on intention to adopt ICT such that the effect will be more positive in males than in females.

Hypothesis 2c: Age will moderate the effects of effort expectancy on intention to adopt ICT such that the effect will be more positive in younger managers than in older ones.

4.2.3 Social Influence

Social influence can be understood as "*the extent to which a person perceives this important that others consider he or she should go for the new system"* (Venkatesh et al. 2003, p. 451). Central to understanding social influence, is social identity theory (Triandis, 1980) or the theory that our self-identities are intrinsically linked to our social identities, or in other words, people around us and our social influences can shape our own self-identities. This is illustrated in Triandis's (1980, p. 210) definition of social influence as *"the person's internalization of the reference groups' subjective way of life, and particular interpersonal dealings that the individual has dealt with others, in certain social conditions".* Social influence has also been a common theme in the majority of technology adoption theories, since subjective norms are integral in the theories of reasoned action, planned behaviour and decomposed models as well as in the TAM models. Subjective norms have been described as the *"person's view that most of the people who possess significant value in his or her life think he should or should not execute the behaviour in question"* (Fishbein and Ajzen, 1975, p. 302).

Underlying social influence or subjective norms is the concept of normative beliefs or the belief systems of others, often close to the self, i.e. family, friends, peers, etc. Taylor and Todd (1995a) for instance, reorganized these normative beliefs in particular categories like as colleagues, seniors and subordinates at the organizational level and found all types had a positive influence on technology acceptance by employees. Moreover, in the same study, it was found that this effect however varies with inexpert users compared to skilled users, with inexpert users being more influenced by normative beliefs. Venkatesh and Davis (2000) however found also that skilled users were more influenced by superiors such as senior managers than inexpert users. Hartwick and Barki (1994) however suggest that a longitudinal study design is needed to truly assess the impact of social influences on technology users since this is linked to experience. Some have suggested that social influence is linked to levels of knowledge with social impact stronger in the initial stages as people have less knowledge about the information system them (Agarwal and Prasad, 1997; Taylor and Todd, 1995; Venkatesh and Davis, 2000).

Others such as Thompson et al (1991) and Moore and Benbasat (1991) support tan opposing view, with for instance both studies finding a strong correlation between social influence and PC utilization and innovations in general, respectively. In many ways also, social influence, mirrors the concept of image in organisational theory (Moor and Benbasat, 1991) since here image refers to *"the extent to which employment of an innovation is assumed to improve one's reflection or position in one's social system"* (Moore and Benbasat, 1991, p. 195). Thus, one basic reason behind the employment of new information systems is to enhance the image of the organisation. Numerous respondents explained the role of social influence in technology adoption within their NGOS. Abdul and Jamil, explained how non use of technology was linked to image problems globally especially in light of 9/11. As Abdul and Jamil respectively

state:

Everybody in the world has more sophisticated ICT systems than our NGOs and we are the biggest in the world! It doesn't make sense to us in the sector especially the pressure after 9/11 to comply more with technology transparency in tracking our donations. If we don't step up the mark….it's going to look really bad on us a sector. We are going to look really lazy and this image we can't afford anymore in our sector. Even our friends in the GCC have invested more in their NGO systems than we have, if they can do it we can do it too.

It's like this, everybody else is improving their systems so why are we not. Even our supporters and stakeholders, the people most important to us are begging us to change. Integrating better ICT systems is part of this new image we need. Technology usage amongst Saudi NGOs was non-existent only ten years ago but now it's different. Those who don't use will remain behind.

Maryam, comments that:

If we don't use the database or have a modern website our competitors will get ahead of us and our supporters will think why we don't have it. To stay ahead of the marketing game having a good website is definitely a must.

The role of social influence was also noted at the inter-personal subjective norm level by several respondents, as typified by Mohammad and Salima's comments:

I find if employees see others at work using the systems then they become encouraged

to do themselves more easily. So we have targeted the innovators in our workplace, and asked them to openly use and demonstrate the systems as much as possible or the team leaders. The rest of the teams seeing these people at work influence them to start using themselves.

Without a doubt, when our staff see that everyone else is using the systems then they become more encouraged to do the same. Of course this varies with types of people.

Salima's comment leads us to discuss what this variation is. The moderating roles of gender and age have also been found to hold in the literature for social influences in the context of technology adoption. Generally the prevailing view is that women are more easily affected by social norms when it comes to utilizing the information technologies (Venkatesh et al. 2000; Venkatesh and Morris, 2000). Furthermore, Rhodes (1983) and Venkatesh and Morris (2000) explained that older people have a tendency to be more affected by social norms than younger people. This is contrast to the direction of moderation for gender and age in performance and effort expectancy since in this case it is believed that women and older people, given higher levels of uncertainty, a greater inter-dependent social construal, or socially influenced self-identity, are more prone to influences from others. Moreover, for men and younger people to accept social influence effects on technology is contradictory to their more innate predisposition to technologies (Venkatesh et al. 2000; Venkatesh and Morris, 2000; Rhodes, 1983)

The following example quotes provide additional justification for the construction of this expected moderation effect from the study respondents, as Salim, Jamil and Hakim respectively state:

Of course if others are using it we want to use it more too, especially amongst workers. Females in my offices have said to me they want to use it as the male workers are using it more frequently.

As you know females can get more jealous if they don't have something that others have and we found this in implementing our database training. Our first workshop only attracted male workers but once the female group found out they requested an all female workshop and even asked for a an advanced workshop to stay ahead of the make workers.

Our older workers tend to feel more insecurity if they are not keeping up with the younger workers and will stay behind to work harder to catch up on IT training we have found. Older people generally get more influenced if others are doing something and they are not, it makes them feel more uncomfortable I think.

Given the above, it is evident that one can predict that:

Hypothesis 3b: Gender will moderate the effects of social influence on intention to adopt ICT such that the effect will be more positive in females than in males.

Hypothesis 3c: Age will moderate the effects of social influence on intention to adopt ICT such that the effect will be more positive in older managers than in younger ones.

4.2.4 Perceived Risk

When making decisions, the confidence level of the individuals is affected by the perceived risk. Situations where the outcome chances are unknown or not clear are

referred to as risky conditions and moreover it is asserted that risk is a multifaceted concept (Bettmann, 1973). The dimensions of risk have been identified through an approach originally developed by Cunningham (1967) and Bettman (1973). The consequences of an act and certainty have been defined as two risk factor dimensions, according to Cunningham (1967). Two types of risk have been brought forward by Bettman (1973), which include handled risk and inherent risk. The supporters of not for profits, like for profit making organisations, have had their risk type also divided into five dimensions which include functional, financial, social, physical and psychological risks (Moutinho, 1987). However, the NGO sector has greater risk and usually involves more complexity of the presence of time, satisfaction, psychological and financial risk (Sargeant and Shang, 2014). According to Sargeant and Shang (2014) this is because of the inherently higher levels of credence properties involved in the exchange processes often involved between supporters and NGOs.

Risk also has a rich tradition in technology adoption theories. According to Hassan et al. (2006) environmental risk is particularly an issue in internet usage since the internet or web presence represents an external unknown, something unfamiliar for novice users. This study also highlights behavioural risk as critical, which may develop as the user may make unethical use of the personal information that is present in the database. The intention of an individual to engage with electronic transactions is also is affected by these risks (Ring and Van de Ven, 1994). Both these forms of risk can culminate into psychological risk, which often in risk theory related to technology acceptance is an end stage of risk formation (Venkatesh et al. 2003; Turban et al. 2002).

Indeed, security issues have been found to be instrumental in creating this psychological risk further for technology adoption, certainly from the public's perspective to engage with organisational ICT initiatives. As Turban et al (2002) notes

these provide for numerous challenges for organisations in communicating to the potential users the safety of using their ICT initiatives ranging from ensuring potential users that their transactions will store in a secure manner and that third parties will not be privy to their information. If these reassurances are not evident from potential customers or users, then this will negatively affect technology adoption (Turban et al. 2002). Others have found the same conclusion (e.g. (Bellman et al. 1999; Han and Noh, 1999; Hoffman et al. 1999). McCloskey (2004) for instance found that people become reluctant to engage in online transactions when they perceive risk related to security issues to be greater. Interestingly, from a managerial perspective, much less has been studied in terms perceived risk linked to technology acceptance. As Remenyi (1999) argue generally this issue is not understood well by organisations. What has been done has focused on managerial and worker acceptance of projects in view of risk management. The literature that does exist suggests that numerous issues can contribute to managerial risk related to technology acceptance ranging from lack of experience (Yoon et al, 1994) and perceived lack of managerial support (Krasner, 1998) to issues linked to poor perceived performance expectancy and effort complexity also (Jones, 1993; Glass, 1998). Within the study sample, perceived risk for technology adoption revolved around financial and psychological risk issues linked to complexity, difficult in use and expected outcomes. As Ahmed, a senior manager of an NGO, with revenue of 345million SR explains:

Of course there is always risk for us in using these systems, will they work, will they generate the expected outcomes, the promised delivery specifications will do the job they are supposed to and this affects users. We have to convince our managers and their teams that look; these systems really will make a big difference to your daily work practice and will make you into better workers. Overcoming this psychological risk is

critical for managers and of course then you have the expense of the projects, some of these systems can run into millions of Riyals, will it be worth it?

Others such as Hakim and Abdulla also expressed concerns related to risk, for instance suggesting that:

Ultimately, for me it's been about managing the manager's perceptions of psychological risk related to using the new technologies. Many of them are so concerned about whether it will be difficult or not, will it function as expected and how will it change their own lives at work. This becomes a big problem if they perceive it as an expensive product and this makes them feel even more scared of the systems in case by not using them it is a reflection on their own abilities and skills. The more this risk builds up the worse they become and start avoiding the systems altogether so it's critical to give reassurance to mitigate against this risk.

So many times I have to give reassurance to staff that the technology will not bite them! They are scared! They are scared of the risk of failing in using the systems because they think it's too hard for them, or that it won't help them in their works. For us of course, the cost is a huge risk, and I'm not just saying this for us but also for managers on the ground and workers since for them if the product has been expensive to integrate into existing systems then this creates additional fears and expectations. Of course this building up of risk negatively will affect them in using it.

Given the above, it is evident that one can predict that:

Hypothesis 4a: Perceived risk will have a negative influence on behavioural intention

to adopt ICT.

Moreover, the moderating influence of gender and age also affects risk perceptions linked to technology acceptance, both in the literature and from the respondents. Rogers (1995) developed the diffusion of innovation theory where it was stated that the specific society segments, like innovators, are quite audacious and are willing to accept more risk than the rest of the society segments. Young males however, are usually technology-ready individuals and as compared to the females, they are more willing to adopt new technologies. The females are usually observed to be more scared or paranoid when using information technology due to the security concerns. Hence, young males as compared to females are ready to take greater risks and are also ready to provide their personal and financial information online (Colby and Parasuraman, 2003). Moreover, Rogers (1995) and Colby and Parasuraman (2003) also content that the same issue arises with age with younger people more inclined to take risks when faced with new technologies than older ones. The following example quotes further establish this proposition from the study respondents of this study. As Jamal and Mustafa commented:

Older managers definitely tend to be higher in their risk than younger ones and in fact in my experience it's the younger ones who train up older ones and give them the reassurance they need but this also works for men and women too. I have seen this too, where women tend to be more high on risk than men do.

I remember when we tried to set up our new database system an interesting thing happened. We actually asked our employees in the training sessions who felt more risk and all the older people and women put their hands up! It's a big problem but

definitely younger men tend to be the most favourable towards new technological systems simply because in my experience they are more open to new challenges and risk.

Given the above, it is evident that one can predict that:

Hypothesis 4b: Gender will moderate the effects of perceived risk on intention to adopt ICT such that the effect will be more positive in females than in males.

Hypothesis 4c: Age will moderate the effects of perceived risk on intention to adopt ICT such that the effect will be more positive in older managers than in younger ones.

4.2.5 Government Support

Numerous technological adoption theories have positioned the role of external factors as critical in predicting technology adoption (e.g. DePietro et al. 1990; Iacovou et al. 1995). Whereas DePietro et al. (1990), proposed an integrated model of organisational, personal and environmental factors it introduces government support and regulation as critical in shaping organisational technological adoption. Iacovou et al. (1995), also within an integrated context introduced the role that competitive pressures may have in organizational adoption. This perspective is not contradictory to the UTAUT, and decomposed models for instance since it suggests that external factors act in conjunction to personal factors and thus provide the socio-cultural leverage for technology adoption (Looi, 2005; Calantone, et al. 2006). We review the two common forms of external support from the extant literature and also arising from the respondents, government support and competitive pressure. Interestingly, it is important to note that these effects are more wider than personal factors and therefore,

there organisations are much more limited in their flexibility to mitigate their influence. Unlike personal factors, moderation effects were not reported by respondents as a result of this indiscriminate effect.

The facilitation provided by the government to adopt new and updated technologies is referred to as the government support (Looi, 2005; Calantone, et al. 2006). This facilitation would be in terms of low regulatory costs of making use of the Internet or establishing facilities which would help develop the e-commerce laws in various sectors, as well as in bringing forward the advantages of making use of e-commerce to enhance the sector wide changes (Looi, 2005; Calantone, et al. 2006). Government provides can provide support to the ICT though relaxing regulation, information service dissemination and encouraging adoption as part of national policy. sector business which is thriving as well as provides information and advice regarding e-commerce use (Castleman, et al. 2000; Tigre, 2003).

Indeed, numerous countries now have digital and ICT as integral to their national economical agendas and policies. Gob (1996) highlights the success of the ICT sector and its widespread adoption in Singapore to that government's early recognition of the relative competitive national advantage that ICT may provide to the national economy. Wong (2003) argues that a national ICT policy and agenda can have far reaching consequences across all national sectors, even those reluctant to adopt ICT may be forced to follow the national agenda. Saudi Arabia has in fact been particularly pro-active recently in encouraging a digital national imperative.

For several years, Saudi Arabia has made the adoption and implementation of e-government services a top national priority. The effectiveness of these efforts is demonstrated by the steady gains Saudi Arabia achieved in the United Nations (UN) e-government survey (UN, 2014). Not only has Saudi Arabia been included in the group of countries with a "High E-Government Development Index" (EGDI) but the country

also improved its international ranking from 41st place in 2012 to 36th place in 2014 (UN, 2014). In contrast, neighbouring countries in the region such as the United Arab Emirates lost ground in international comparison (UN, 2014). Despite this positive resume of Saudi Arabia's e-government policy, the country also faces a number of challenges in improving their e-government initiatives. E-government represents a fundamental change in how government agencies do business and deliver services to citizens and businesses. The Organization for Economic and Cooperation and Development (OECD) defines e-government as *"the use of information and communication technologies, and particularly the internet, as a tool to achieve better government*" (Field, 2003, p.1). Significantly, the notion of e-government not only focuses on technologies that facilitate communication and information exchange between the government and its citizens but also encompasses a paradigmatic shift in values and the relationship between government agencies and citizens.

E-government initiatives are frequently characterized by an increased focus on stakeholder needs and customer service (Rowley, 2011). Whereas older, more traditional bureaucratic structures created asymmetries in power and service experiences to the disadvantage of businesses and citizens, e-government initiatives thrive to improve the service experience of citizens and businesses when interacting with government agencies (Rowley, 2011). For example, e-government initiatives allow citizens to access services during all hours of the day and from remote locations via the internet. Especially in countries such as Saudi Arabia where long distance travel to physical locations of government agencies may be problematic for some citizens, or where gender roles require women to be accompanied by a male relative when travelling in public, e-government has significantly contributed to facilitating interactions with government agencies. In addition to the benefits citizens derive from e-government, these initiatives also create better government because they make

government more efficient. Computerized and internet mediated processes are faster and create less variation and room for human error than traditional paper and pen bureaucratic processes (Berntzen, 2014). Documentation of bureaucratic processes is instant and automatic and thus reduces the workload of government agencies.

Finally, e-government contributes to better government, and affiliated agencies and affected sectors, by allowing government agencies to collect data comprehensively and efficiently (Harrison, 2014). Using e-government applications, government agencies can collect data from a variety of sources and use Big Data tools to measures of the impact of various government policies. By correlating large data sets from a variety of government sources, governments can easily evaluate the quality and effectiveness of national educational systems, health care systems, etc. This, too, is one of the many affordances of e-government in the context of creating better government. Respondents frequently referred to the government's e-national imperative as effecting adoption in the NGO sector. Abdul, Salima and Yusuf, for instance explain that:

The Saudi government has been keen to push the IT agenda to NGOs especially in the wake of the post 9/11 world to increase transparency of transactions and accountability so we must comply with this. Even though our public is not used to it we must comply and push this agenda forward due to external pressure on our governments to push our sector.

In our country digital economy has been a major policy of our government with e governance et cans this makes the case for the NGO sector to embrace technology even more greater. Whether we like it or not we must adopt this digital economy into our sector to progress with other sectors.

We are now bound by the government's drive to push all sectors to grow their ICT capacity more and this includes especially the NGO sector because we became the embarrassment for our country after 9/11. The West blames us for allowing donation to go untracked and unmonitored, although I don't agree with this its affected us hugely now and the pressure is on to comply with new government policies on this.

Given the above, it can be predicted that:

Hypothesis 5: Government support will have a positive influence on behavioural intention to adopt ICT.

4.2.6 Competitive Pressure.

Competitive pressures have also been found to be critical drivers of technological adoption, certainly at the organisational level (Kimberley and Evanisko, 1981; Link and Bozeman 1991; Looi, 2005; Hsu, et al., 2006). According to Premkumar and Roberts (1999), the rate of ICT adoption by organisations is a direct function of competitive adoption and therefore ICT adoption has become integral in maintaining competitive advantage (Premkumar et al., 1994). According to Porter and Millar's (1985) seminal treatise, ICT can generate advantages across all of the "five forces" of competitive rivalry, i.e. it can bring efficiencies for bargaining over customers, suppliers as well as in reducing the threat of substitutes and entrants. Moreover, given that structural changes in the organisation can result from new ICT adoption this may in itself generate new opportunities for innovation and growth. Indeed, according to Porter and Millar (1985) new business opportunities often arise as a result of technology induced changes to the organisational structure.

Within the NGO sector, competition between agencies is much less than the much more aggressive corporate sector referred to by Porter and Millar (1985) but instead the focus of collaboration between agencies is what may drive innovation within this sector (Sargeant and Shang, 2015). Indeed, as Sargeant and Shang (2015) argue, the third sector is characterised and differentiated from the corporate sector by the greater need for collaboration between multiple agencies working towards a common social goal. Government agencies may for instance collaborate with humanitarian and environmental NGOs which themselves may collaborate with each other and with local businesses to achieve social goals. The greater multi-stakeholder nature of the third sector suggests that ICT changes may bring greater co-ordination within this multi-stakeholder structure of NGOs and as a result lead to innovation through this route. This does not mean however, that change within one NGO cannot be driven by competitive change in another, or that a dual effect is taking place, where competitive pressure from others to adopt ICT to avoid being left out of the multi-stakeholder structure of the third sector, as many respondents suggested. Abdul Aziz and Mohammad for instance explain this further.

Our competitors are using digital more and more so we must follow or be left behind. Our public now expects our most famous and national NGOs to have a web presence and embrace technology as other sectors and commercial organisations have been much faster in embracing this.

We are still behind the commercial sector many years in using databases or having good web presence but we must follow this path to keep our marketing and public relations ahead with public expectations. This is what our stakeholders expect they are using ICT so if we want to connect to them we should be too.

If we don't follow what everyone else is doing in our sector we won't be able to work together with the, anymore.

Given the above, it can be predicted that:

Hypothesis 6: Government support will have a positive influence on behavioural intention to adopt ICT.

4.2.7 Facilitating Conditions.

In terms of organizational factors, there are two major constructs, which could affect the use of ICT in the NGO sector and generally in organisations. These two factors are compatibility and facilitating conditions. Together these two factors encapsulate a multitude of organisational issues, ranging from organisational cultural elements, processes, structures, systems and skills of the workforce, hence their viability as predictors of ICT adoption in organisations (DePietro et al. 1990; Iacovou et al. 1995, Venkatesh et al. 2003). Whereas DePietro et al. (1990) suggests the role of organisational structures and processes as vital for ICT adoption, Iacovou et al. (1995) positions organizational factors as creating 'readiness' or a form of compatibility with new technological processes with existing organizational ones. Venketesh et al. (2003) argues that facilitating conditions arise from organizational systems, which allow compatibility with new technologies. Therefore, both of these factors are discussed in light of the literature and supporting evidence from respondents to justify further their inclusion in our framework. It is important to note, that like external factors, no respondents suggested a moderation effect for gender or age for organisational factors and this is also consistent with the nature of these factors since these issues run through

at the organisation level rather than the personal level. As a consequence, the effect observed for these factors, is organisation wide and not at the level of the individual.

Facilitating conditions refer to when an organizational structure already comprises relevant technological and financial resources for establishing a positive effect on the intention to make use of technological systems (Taylor and Todd, 1995). Venkatesh et al. (2003) similarly, argue it refers to the presence of the technical and organizational infrastructure to help support new technological systems and the belief of an organisation towards this are referred to as facilitating conditions (Venkatesh et al. (2003, p. 453). In an organization, the use of a new technological system is very much dependent upon the presence of these resources. Triandis (1980) referred to as organisational facilitating conditions as those already present in an organisation which make is easier for new systems and processes to become integrated into existing ones. Thompson et al. (1991) for instance in the context of PC utilization argues that facilitating conditions could comprise support and training for PC adoption already in place for new users.

Thompson et al. (1991) perspective also parallels with the role that behavioural control of individuals, can be affected by facilitating conditions since skills, opportunities and time needed to complete the task can have profound effects on individual's confidence to implement those tasks and hence Harrison et al. (1997) refers to these 'soft measures' as resource facilitating conditions. As such, facilitating conditions are thought to increase self-efficacy of individuals, consistent with external drivers of behavioural control in the theory of planned behaviour and therefore also the decomposed model of technology acceptance (Taylor and Todd 1995). Indeed, Azjen (1985; 1991) also recognised that the occurrence of actual behaviour and intentions is driven by internal and external facilitating resources. These resources provide assurance for adopting a particular behaviour or forming intentions towards the

behaviour, i.e. eventually leading to self-confidence or self-efficacy. According to Taylor and Todd (1995) for ICT use, the technology facilitating conditions construct would include the presence of time and money to use the technology and manage the compatibility issues which may hinder the use of this technology. As a consequence, Taylor and Todd (1995) found a positive influence of facilitating conditions on technology adoption. At a macro-level, facilitating conditions are also linked to government support, since resources available from the state to initiate, adopt and integrate ICT through policy and grants for adoption may serve as powerful facilitating conditions yet further (Molla and Licker, 2005b). Certainly, within the context of Saudi Arabia, resources are often not an issue for NGOs, which are supported through Royal patronage in many contexts. We would expect that facilitating conditions, therefore, to be a strong influence on ICT adoption by Saudi NGOs. Indeed, the study respondents confirmed this role. As Abdul, Malik and Salima attest:

Of *course we need the hard ware to support out soft systems applications and we had these in place years before. But also we need the training and staff who understand how to help new users to adopt the new technologies. Without this there is no point at all in introducing new technologies.*

Our IT training is on top of the game we bring in the best IT trainers to facilitate workshops and integrate IT into our systems. This is crucial to deal with concerns, risks and problems.

We have a robust IT hardware system integrated throughout the organisation now connecting HR to finance to marketing to management. This was needed before we could launch our online donation platform.

Given the above, it can be predicted that:

Hypothesis 7: Facilitating conditions will have a positive influence on behavioural intention to adopt ICT.

4.2.8 Compatibility.

No matter what resources are present in the organisation to serve as facilitating conditions, it also integral to have the necessary cultural apparatus, the right values for instance to create greater synergy with the values that are being introduced with new technologies. As Everard (2000) and Walker (1993) argue new technologies introduced into a society without the values to support them, produces mal-adaptive consequences such that the culture integrating the new systems will not generate the outcome expected. It was Roger's (1995) work, which however emphasizes the most the role of compatibility for fostering stronger diffusion of new innovations, including technologically based one, anchoring Tornatsky and Klien (1982) earlier contention that the adoption process is positively related to compatibility with the norms of its users.

Moor and Benbasat (1991) define compatibility in terms as the "extent to which new technology is in line with the individuals' past experience, needs and values" (p. 31). Others (e.g. Agarwal and Karahanna, 1998; Plouffe, et al. 2001) also focus on the role of values, previous experience and work styles of adopters. Taylor and Todd (1995) suggest that even perceived behavioural control can be considered as a component of compatibility, since if individuals or organizations feel more confident about using new technology, this represent a powerful synergising effect on its use. It is little wonder that, compatibility has been found, as a powerful influence, on new

technology adoption by studies (DePietro et al. 1990; Iacovou et al. 1995). These studies argue that if facilitating conditions are to take their effect, it is first necessary to have compatibility and indeed if the conditions are not compatible they cannot become facilitating in nature but may have a counterproductive effect. Several of the study respondents indicated the same contention. Jamil and Ahmed for instance comment that:

Belief in our systems and what they can do is critical to driving motivation to use them for both of our staff and supporters. If this value is not present first, then no matter how wonderful our systems or support structures are it just will not work. Everything depends on whether the users are mentally and emotionally ready to use the system.

Our supporters have to be educated to have the belief that our website is crucial for public education and to make our dream of educating the public alive more easily. If they are not educated in advance, then there will be clash between their values and beliefs and those represented with the new systems or products.

Given the above, it can be predicted that:

Hypothesis 8: Compatibility will have a positive influence on behavioural intention to adopt ICT.

4.2.9 Behaviour Intention

The final hypothesis focuses on the established and extensively documented relationship between behavioural intentions and actual behaviour. The measurement of

the strength of an individual's intention to carry out certain behaviour is classically referred to as behaviour intention (Fishbein and Ajzen, 1975). It is often used as a proxy or correlate of actual behaviour. Traditionally in consumer research, behavioural intention focuses on the intention to consume, purchase or on willingness to purchase (Blackwell et al. 2001). Within the technology adoption literature, it focuses on the intention to adopt the technology (e.g. Park, 2000; Venkatesh et al. 2003; Yen et al. 2009, etc).

The literature suggests a intention to behaviour gap, that the levels of correlation are not always consistent or high, such that "the predictive power of perceived behavioural control on actual behaviour can be significantly muted, and rendered unrealistic, when, as examples, a person has little information about the behaviour, when available resources and/or requirements have changed, or when emergent, new, and unfamiliar elements impinge on the situation" (Baker et al. 2007, p. 393). Despite this, within an ICT context, behavioural intentions remain the primary predictor of ICT adoption behaviours (Bhattacharjee and Sanford, 2009). Indeed, ICT adoption studies rooted in the Theory of Planned Behaviour or its predecessor the Theory of Reasoned Action for which the intention-behaviour relationship is central, show strong support for this relationship (e.g. Mathieson, 1991; Taylor and Todd, 1995). In meta-analytical studies exploring this relationship, 28-34 percent of the variance in actual behaviour can be explained by intentions (Godin and Kok, 1996; Albarracin et al. 2001). Given that, extraneous factors, which may affect the intention-behaviour gap, are not the focus of this study, behavioural intentions, is used as a predictor of behaviour. Moreover, respondents positively related to this relationship citing numerous cases where intentions were paramount in predicting actual behaviour. For instance, Mustafa, Maryam and Hakim explain:

Our intention is simple, using digital and IT will help us educate our public, help us develop our support and build our supporter base. We need to be committed to this goal, one day it will happen for us.

Our aim is to use IT to help us deliver our mission more effectively. We are hoping it support transactions and transactions for us is not financial by the way in the NGO world but interacting and engagement in anyway – this is our goal.

We have to start form somewhere but we have decided this is our plan, it is our mission, we want to be leaders in ICT in the NGO sector if we maintain this focus then we will make it happen.

Given the above, it can be predicted that:

Hypothesis 9: Behavioural intentions to adopt ICT will have a positive influence on actual behaviour to adopt ICT.

4.8 Summary

A conceptual model of the research has been presented in the current chapter. The literature review, as well as support from NGO interviews has also been included. The research constructs were also presented in detail and the research hypotheses were developed. Clearly, a myriad of factors may influence ICT adoption by NGOs in Saudi Arabia but what is clear that the framework is an integration of personal, organizational and external or environmental factors. As such, the study framework is consistent with numerous authors who suggest the need to integrate predictive factors for understanding ICT adoption in local contexts (e.g. Fowler, 1993; Hardgreave and

Johnson, 2003) but also corroborates the UTAUT framework as predominantly comprising of personal factors and yet at the same time with Taylor and Todd (1995) of some aspects of integration to complement these personal factors. In the subsequent section, the quantitative findings used to test the conceptual model in this chapter are overviewed.

CHAPTER FIVE: DATA ANALYSIS AND RESULTS

5.1 Introduction

Elements of how the research initiative was designed and the corresponding methodology were discussed in the earlier chapter, while the current text intends to conclude the descriptive analysis process. It also intends re-stating and revalidating the measurement scales utilizing exploratory factor and reliability analysis, steps executed before testing the hypothesis corresponding to the research initiative. Primarily, the current chapter consists of sections dedicated to:

5.2 Data Examination: It deals with the procedures implemented for screening and sorting the data before initiating the analysis of the same through reviewing the information for errors in data entry, ensuring the validity of the informants and reviewing the outliers.

5.3 Descriptive Analysis: This summarizes the conclusions derived from the descriptive statistics within the sample, reflecting how much respondents know about e-commerce, besides detailing the demographic characteristics corresponding to the sample.

5.4 Correlation Analysis: This section intends to determine how suitable the data is to be utilized for additional research and analysis, besides explaining the direction and the corresponding relationship between them in consideration of the diverse constructs within the model.

5.5 Exploratory Factor Analysis: It deals with analysing the aspects of the exploratory factor, along with the objectives of the initiative, reflecting on the key

aspects associated with factor analysis towards resolving the assumptions made. It also involves factor extraction, rotation and the interpretation of the conclusions so derived.

5.6 Reliability Assessment: Details the reliability and validity of the conclusions associated with the different aspects in the context of the research, including explaining why certain aspects were seemingly deducted from the model under consideration.

5.7 Summary: Summarizes the entire chapter.

5.2 Data Examination

It is important to screen and sort through the data set before initiating the analysis. The 287 questionnaires collected were tested to ensure that the data derived from them met the requirements to process them. Therefore, the data was initially checked for errors in compilation, which entailed checking the variables of the scores, which exceeded the range. Thus, where genders were classified in terms of 1 for male and 2 for female, it was verified that the respondents had followed this parameter (Pallant, 2007). Subsequently, a recount of the valid and missing cases was undertaken to ensure that missing cases were excluded from consideration towards ensuring that the information provided took into consideration their educational attainment, the number of years of practical experience they had, their overall knowledge levels, their confidence, sense of responsibility, familiarity with decision making processes in the context of e-commerce aspects etc. Scores summarized below a certain pre-set level were all deleted per the advice of Skarmeas et al. (2002). The entire exercise undertaken resulted in the exclusion of 4 cases, which reduced the overall population size to 287, with Section 5.2.1 detailing the process.

Later, the coding associated with the statements reflecting reversed scales was changed to ensure uniformity in the same. It was important to undertake this initiative towards ensuring that the dimensions associated with equal variables retained the same meaning, enabling it to be averaged (Pallant, 2007; Janssens, et al. 2008). Tests for the presence of outliers was also undertaken which showed there were no major issues which would adversely affect the regression analysis conducted in a major sample (Pallant, 2007; Janssens et al. 2008). Section 5.2 explains the process in significant detail, and the descriptive analysis process was conducted after a review for all errors within the context of the data file.

5.3 Descriptive Analyses

Frequency tables were used to reflect the various aspects of the respondents with regard to describing their categorized variables, while descriptive statistics provided input on the quality of the informants. Such statistical values also provided input regarding aspects of the demographics of the population responding to the survey, besides providing valuable input regarding how the Internet could be used.

5.3.2 Demographic Characteristics of Respondents

The demographic profile of the population responding to the questionnaire is reflected in Table 5.1. It can be seen that the majority of the respondents held senior management positions. The trend was expected in the Saudi context in consideration of the fact that: a) there are generally more males in the higher echelons of management in comparison to women; b) males are preferred in higher management positions since they often also function as partners in the agencies; c) Saudi Arabia is still very much a male dominated society where men are considered the breadwinners in the family. Most respondents were above the age of 41, and held a university degree, which was to

be expected, since the questionnaire was directed at senior level managers in the NGO sector.

Table 5.1: Demographic Characteristics of the Respondents

Percentage	Frequency	Demographic
Gender		
80.0	230	Male
20	57	Female
Age		
10	29	25-30
9	26	31-36
15	43	37-42
22	63	43-48
20	57	49-54
24	69	55 and more
Education Level		
9	26	High school
28	80	2 years college
52	149	4years college
10	28	Masters
1	3	Doctorate

5.3.3 Descriptive Analysis on Use of Internet

The respondents to the questionnaires circulated were enquired upon with regard to their Internet usage patterns within their respective NGOs, how frequently they accessed the Web at their workplaces, whether they accessed their NGO portals regularly, and how frequently they had to design websites if their NGO lacked a dedicated website for themselves. Considering that Saudi Arabia is actively connected to the Internet since the 1990s, the trend exhibited is reflective of the reality since the majority of NGOs are newly established bodies.

Table 5.2: Experience of usage

Percentage	Frequency	Use of Internet
		Years of Experience
5	12	<4
10	30	4-6
67	197	7-9
17	48	10+
100.0	287	Total
		Ownership of website
77	220	Yes
23	67	No
100.0	287	Total

5.4 Correlation Analysis

Correlation coefficient indicates the degree of association with regard to two variables. For the purposes of this study, Pearson's correlation coefficient was utilized in consideration of it being recognized as a fair indicator of the extent of the association between variables, recorded on taking measurements with regard to the interval or the ratio scale (Field, 2005). Coefficient of correlation could have values between -1 to +1. Therefore, if the correlation readings are nearer to +1, it is perceived that the values are more closely correlated. A correlation coefficient of zero is indicative of there being no relationship between the variables, while a negative reading in the correlation coefficient is indicative of an inverse relationship between the numbers in that an increase in one variable would have a corresponding decrease in the reading of the other variable.

Correlation analysis contributed to provide an initial reading on the interrelationship associated with respect to the dimension associated with the constructs within the conceptual model evaluated in the context of the regression analysis.

Besides, correlation analysis also enabled an assessment of the compatibility of the data for exploratory factor analysis, with the conclusions obtained not being a major concern with regard to low correlation readings. Multiple variables in the likes of EM2, JF2, CP3 and GS4 reflected low correlations of below 0.3, which prompted them to be ultimately deleted from the concluding analysis (Hair et al. 2010, Janssens et al. 2008). The tables demonstrating the correlation observed within the variables considered can be seen in Appendix B.

5.5 Exploratory Factor Analysis

5.5.1 Stage One: Suitability of the Data for Factor Analysis

As already stated, it is important to understand the compatibility of the data for conducting the analysis. Correspondingly, this stage is related with identifying multiple cases, which would contribute to reflect the relationship within the variables. In this regard, Tabachnick and Fidel (1996) are of the opinion that a sample size of 300 items is required, although Nunnally (1978) is of the perspective that a 10 to 1 ratio should suffice. In consideration thereof, the sample size of the current study was agreed upon at 291, reduced to 287 after incomplete data were returned.

The next issue to be resolved related to the strength of the inter-correlations associated with the multiple factors under consideration. Tabachnick and Fidell (1996) are of the opinion that a review of the correlation matrix associated with the evidence of the coefficients having a higher value that 0.3 should be considered. Correspondingly, weak correlations within the multiple factors would contribute to deciding on excluding the variable from the review being conducted. As per section 5.3, correlation analysis was duly conducted amongst the multiple variables under consideration, with values attained below 0.3 deemed not compatible with the current study (Green et al. 1988; Hair et al. 2010; Janssens et al. 2008).

Additionally, dual statistical measures were utilized towards ensuring that the constructs were factorable in consideration of the Bartlett's test of sphericity and the Kaiser-Meyer-Oklin (KMO) measure of sampling adequacy. Of the two measures, the former deals with statistical probability related to the correlation matrix, reflecting the extent to which the correlation is observable within the variables (Hair et al. 2010), which should have a significant value of $p<.05$ to be considered acceptable. Further, Kaiser (1974) is of the opinion that if the KMO values exceed 0.6, they should be considered, while the conclusions derived from the exploratory factor analysis in the current scenario indicates them being in range.

5.5.2 Stage Two: Factor Extraction

Factor extraction goes to show the minimal factors, which could provide the necessary input towards representing the relationships in the context of the multiple variables, with principal component analysis (PCA) being the more widely utilized methodology in this regard. It enables the presentation of factor scores which provides the greater feasible share of the variance translated to the fact of the initial factor accounting for the greater part of the variance observed, while the remaining factor concludes the second portion associated with the variance until the variance of the extracted factors is accounted for (Janssens et al. 2008). Indeed, there are multiple techniques towards concluding the retain-ability of the factors under consideration, including the Kaiser's criterion, the scree plot, and the associated factors attributable to literature and theory (Field, 2005; Janssens et al. 2008). In consideration of the Kaiser's criterion, factors having eigenvalue greater than 1.0 were considered for further evaluation, with the scree plot contributing to plot the eigenvalues associated with the factors focusing at a specific point, where the corresponding curve morphs and turns

horizontal. Catell (1966) suggested retaining the multiple factors above the elbow, which is reflective of the factors extracted through Eigen value analysis methodologies.

Kaiser's criterion of eigenvalue was utilized to determine the number of factors, along with the expected factors detailed in the corresponding literature towards completing the evaluation. In this regard, the eigenvalue criterion is more widely utilized towards providing an indication of the number of factors being extracted (Hair et al. 2010). Only factors having a magnitude greater than 1.0 were taken into consideration, with 0.5 being considered the cut-off point, as per Hair et al. (2010) and Janssens et al. (2008).

5.5.3 Stage Three: Operationalization of the Independent Variables

There are multiple rotational techniques for use in conducting exploratory factor analysis, with the orthogonal and oblique processes being more commonly used (Pallant, 2007). In this context, the 'varimax' and 'equamax' processes are certain orthogonal rotation subcategories, although 'promax' is an oblique rotation subcategory. Of all these, the varimax methodology is amongst the more commonly used, which bring into context the variables associated with high loading in the context of individual factors, easing the same (Malhotra, 2004; Janssens et al. 2008). In consideration thereof, this technique was used herein, with the researchers' personal knowledge and skill levels contributing significantly towards reviewing the available literature in the context of the retained factors (Janssens et al. 2008).

There are multiple methodologies to be considered in using the various factors in the context of exploratory factor analysis, with the conclusions utilized to understand the factor scores and the summated variables in this regard (Hair et al. 2010; Janssens et al. 2008). In the context of the current study, the researcher used an accrued variable approach, wherein a variable was brought forth, by adding multiple variables associated

with specific factors, before subsequently calculating the average of the same. This value so calculated formed the basis for further calculations, including those related to multiple regressions. Nevertheless, the accrued scale needs to be analysed in conjunction with reliability analysis, often presented by Cronbach's alpha (Hair et al. 2010; Janssens et al. 2008) as per the illustration in section 5.5.1. It is also important to note that the calculation of the sum, which is necessary for the recoding process of multiple variables, is actually opposite in meaning to other dimensions within the same factor (Janssens et al. 2008).

5.6 Assessment of Reliability

Theories associated with reliability indicate how results derived initially are repeatedly borne out in multiple initiatives, when the conclusions are measured (Malhotra, 2004, p. 267). In this regard, three measures to ensure the reliability of the process include (1) test-retest reliability; (2) internal consistency; and (3) alternative forms (Malhotra, 2004). Of the measures stated, multiple researchers have concluded that internal consistency measures are amongst the most reliable and easy to measure to perceive the level of reliability in a measure (Peterson 1994; Churchill, 1995). The internal nature of the reliability paradigm is defined in terms of the same results derived each time the process is tested (Green et al. 1988, p. 254). In general, item-to-total correlation and Cronbach's alpha co-efficient provide readings and measures for internal consistency (Green et al. 1988).

The validity of the constructs was rechecked using both Cronbach's alpha values corresponding to individual factor and item-total correlations corresponding to individual values. Janssens et al. (2008) provided values associated with Cronbach's alpha greater than 80 enabling the researchers to summarize the scale without the necessity of removing and transacting individual items. Nevertheless, in the event

Cronbach's alpha readings are between 60 to 80, it would be recommended for the researcher to exclude specific readings having the lower item-total correlation, taking into account the increases in the Cronbach's alpha values. At the lower end, minimal increases in Cronbach's alpha, corresponding with the deletion of four or more references is not encouraged and justified. Generally, Cronbach's alpha has a requirement for a minimum of three references, with the aggregate total of the values being closely dependent on the quantum of numbers forming part of the series. Therefore, too many variables could end up increasing the value associated with the Cronbach's alpha, while running factor analysis associated with the same is more desired. Besides, the normal values associated with item-to-total correlations are normally in the range of 0.30 to 0.60 (Green et al. 1988). The upcoming section is representative of the effects of factor analysis and internal consistency.

5.6.1 Principle Component Analysis and Reliability Results

The rotated factorial scores corresponding to individual constructs within the model being evaluated form the basis of identifying the underlying structure of the multi-item instrument (See Appendix C). The criteria associated with the eigenvalue with readings of greater than 1.0 and having an associated factor loading value more than 0.5 would constitute a factor structure within the analysis being conducted (Carmines and Zeller, 1979; Janssens et al. 2008). The associated items forming part of the factors being mapped would constitute the theorized constructs. A single item from within the performance expectancy loaded separately (CP1) gives rise to questions related to the separate variable being considered, although the conclusions derived from the earlier initiatives has stated this aspect associated with the competitive pressure.

5.6.2 Construct Reliability

It is critical to assess the construct reliability of the emergent underlying dimensions from the factor analysis procedure before regression analysis can be done (Hair et al, 2010). Reliability assessment therefore serves to ensure the extent to which scale items actually measure or indicate what they are supposed to, i.e. reflect the underlying dimension sufficiently enough to warrant inclusion in the respective scale.. Hair et al. (2010) for instance suggests that if '*multiple measurements are taken, reliable measures will all be very consistent in their values'* (p.90). Typically, again according to Hair et al (2010) three measures are essential for evaluating construct reliability: (i), The inter-item correlation, which screens low correlations typically below the cut off point of 0.30 (Tabachnick and Fidell, 2013). Section 5.3 above has already demonstrated the vast majority of items met this requirement with only two items falling short of this criterion and hence already removed, (ii), the item to total correlation which assess how individual scale items correlate to the overall scale score or value (Pallant, 2007). Both Pallant (2007) and Hair et al (2010) suggest that item to total scores should exceed 0.5 to attain sufficient scale reliability and finally (iii), Cronbach alpha scores but not only for the overall scale but also the change in Cronbach alpha scores if individual scale items are deleted this validating further construct validity. The tables below present item to total (I-T) and Cronbach alpha if items are deleted as standard construct validity assessment for each factor. A short description is also added for each factor to justify any exclusion of the items further and to aid the reader in understanding the process.

Factor 1: Performance Expectancy

The performance expectancy construct entails sub-factors on the lines of perceived usefulness, extrinsic motivation, job fit and relative advantage. With reference to the performance expectancy dimensions, the reliability of the internal

structure was evaluated. Table 5.3 reflects a corresponding Cronbach's alpha of .96 on the deletion of PE8 and PE11. On a related note, the item-to-total correlation associated with PE8 and PE11 were observed to be 0.24 and 0.28 respectively, thus substantially falling below the recommended cut-off of 0.5 (see Hair et al. 2010; Pallant, 2007). Moreover, removing these items substantially improved the scale Cronbach values, this adding further evidence for their removal (Janssens et al. 2008).

Table 5.3: Internal Reliability Assessment for Performance Expectancy Items

Cronbach's alpha if item deleted	Corrected I-T Correlation	Factor
.863	.788	PE1
.763	.946	PE2
.663	.729	PE3
.663	.832	PE4
.663	.842	PE5
.563	.814	PE6
.762	.735	PE7
.964	.238	PE8
.765	.635	PE9
.865	.823	PE10
.964	.280	PE11
.864	.674	PE12
.865	.596	PE13
.864	.680	PE14
.762	.865	PE15
.863	.843	PE16
.764	.741	PE17
.863	.842	PE18
.763	.799	PE19
.863	.789	PE20

Note: Cronbach's alpha = .965 * and N=18

* On removal of item PE8 and PE11

Factor 2: Effort Expectancy

Effort expectancy was comprised of three sub-factors associated with perceived ease of use and complexity. In the context of the factor considered, thirteen items were considered, which accounted for 14.22% of the total magnitude of variance observed. The corresponding Cronbach's alpha of 0.86 arose from no items deleted since all

items correlated adequately with the overall value of the scale as demonstrated in Table 5.4.

Table 5.4: Internal Reliability Assessment of Effort Expectancy Items

Cronbach's alpha if item deleted	Corrected I-T Correlation	Factor
.720	.860	EU1
.770	.865	EU2
.770	.850	EU3
.770	.850	EU4
.800	.864	EU5
.760	.867	EU6
.762	.736	EU7
.761	.811	EU8
.761	.813	EU9
.761	.825	EU10
.760	.857	EU11
.761	.721	EU12
.760	.765	EU13

Note: Cronbach's alpha = .86 and N=13

Factor 3: Social Influence

The social influences construct comprised of sub-factors associated with subjective norms and image. In the context of the factor considered, eight items were considered, which accounted for 10.21% of the total magnitude of variance observed. The corresponding Cronbach's alpha of 0.89 arose from no items deleted since all items correlated adequately with the overall value of the scale as demonstrated in Table 5.5.

Table 5.5: Internal Reliability Assessment of the Social Influence Items

Cronbach's alpha if item deleted	Corrected I-T Correlation	Factor
.718	.636	SI1
.815	.680	SI2
.817	.852	SI3
.810	.749	SI4
.821	.714	SI5
.812	.717	SI6
.817	.849	SI7
.834	.625	SI8

Note: Cronbach's alpha = .89 and N=8

Factor 4: Perceived Risk

The perceived risk construct comprised of items associated financial and psychological risk. In the context of the factor considered, five items were considered, which accounted for 6.88% of the total magnitude of variance observed. . The corresponding alpha co-efficient of 0.91 arose from no items deleted since all items correlated adequately with the overall value of the scale as demonstrated in Table 5.

Table 5.6: Internal Reliability Assessment of the Risk Items

Cronbach's alpha if item deleted	Corrected I-T Correlation	Factor
.854	.782	PR1
.885	.780	PR2
.846	.751	PR3
.853	.624	PR4
.802	.852	PR5

Note: Cronbach's alpha = .91 and N=5

Factor 5: Government Support

The government support construct comprised of items associated with support from government policy and strategies. In the context of the factor considered, four items were considered, which accounted for 5.32% of the total magnitude of variance observed. One item, GS4 had a score substantially below the recommended cut of point value of 0.5 and Cronbach alpha value also substantially improved on its removal; hence it was removed resulting in a final scale Cronbach alpha of 0.822, as demonstrated un Table 5.7.

Table 5.7: Internal Reliability Assessment of Government Support Items

Cronbach's alpha if item deleted	Corrected I-T Correlation	Factor
.733	.712	GS1
.743	.811	GS2
.703	.948	GS3
.822	.194	GS4

Note: Cronbach's alpha = .822* and N=3

* On removal of item GS4

Factor 6: Compatibility

The compatibility construct comprised of three items, which accounted for 5.01% of the total magnitude of variance observed. The corresponding alpha co-efficient of 0.93 arose from no items deleted since all items correlated adequately with the overall value of the scale as demonstrated in Table 5.8.

Table 5.8: Internal Reliability Assessment of Compatibility Items

Cronbach's alpha if item deleted	Corrected I-T Correlation	Factor
.827	.812	COMPT1
.831	.821	COMPT2
.863	.875	COMPT3

Note: Cronbach's alpha = . 913 and N=3

Factor 7: Behaviour Intention

The behavioural intention construct comprised of four items, which accounted for 4.33% of the total magnitude of variance observed. The corresponding alpha co-efficient of 0.90 arose from no items deleted since all items correlated adequately with the overall value of the scale as demonstrated in Table 5.9.

Table 5.9: Internal Reliability Assessment of Behaviour Intention

Cronbach's alpha if item deleted	Corrected I-T Correlation	Factor
.824	.741	BI1
.817	.853	BI2
.816	.879	BI3
.823	.798	BI4

Note: Cronbach's alpha = .90 and N=4

Factor 8: Competitive Pressure

The competitive pressure construct comprised of five items, which accounted for 5.01% of the total magnitude of variance observed. One item, CP3 had a score substantially below the recommended cut of point value of 0.5 and Cronbach alpha value also substantially improved on its removal, hence it was removed resulting in a final scale Cronbach alpha of 0.84, as demonstrated un Table 5.10.

Table 5.10: Internal Reliability Assessment of Competitive Pressure Items

Cronbach's alpha if item deleted	Corrected I-T Correlation	Factor
.723	.778	CP1
.768	.767	CP2
.840	.797	CP3
.786	.581	CP4
.689	.465	CP5

Note: Cronbach's alpha* = .84 and N=4

*on removal of item CP3

Factor 9: Facilitating Conditions

The facilitating conditions construct comprised of three items which accounted for 3.24% of the total magnitude of variance observed. The corresponding alpha co-efficient of 0.83 arose from no items deleted since all items correlated adequately with the overall value of the scale as demonstrated in Table 5.11.

Table 5.11: Internal Reliability Assessment of Facilitating Condition Items

Cronbach's alpha if item deleted	Corrected I-T Correlation	Factor
.726	.636	FC1
.615	.738	FC2
.718	.557	FC5

Note: Cronbach's alpha = .83 and N=3

Tables 5.3 to 5.11 demonstrate, after the removal of four items, Cronbach alpha values of the respective scales can be considered to have good internal consistency. DeVillis (2012) suggests that scores above 0.70 can be considered as having 'good' internal reliability and Pallant (2007) suggesting above 0.70 indicates 'very good' reliability. Therefore, all the scales in this study therefore meet this criterion.

5.7 Summary

This chapter intended to reflect how the data was gathered and processed. The process, therefore, started off with data screening and cleaning, reviewing possible data entry processes and the quality of the respondents of the questionnaires. This was followed through with a description of the respondents, the travel consultants and the Internet service provider. The scales utilized in the current study were described, which involved a review of the factors associated with correlation matrix, exploratory factor analysis and internal consistency analysis. Evidences associated with convergent and discriminant validity was discussed, while the subsequent section would describe hypothesis testing and the results therein.

CHAPTER SIX: RESULTS ANALYSIS – EMPIRICAL VALIDATION

6.1. Introduction

This chapter provides the main study findings in relation to the testing and therefore validation of the conceptual model and the associated. A series of regression and moderator analysis forms the main analytical outputs to test the proposed hypotheses and any moderation effects of gender and age. The structure of the chapter can be outlined as follows:

6.2 Regression Analyses: The section describes the multiple processes associated with regression analysis, detailing why standard multiple regression processes utilize the Enter Methodology towards evaluating the research hypothesis under consideration.

6.3 Checking the Assumptions: This deals with the multiple assumptions which the researcher has already supposedly evaluated in conducting the regression analysis, including detailing aspects related to sample size, multi-collinearity versus singularity, besides evaluating the paradigm in the context of outliers, normality and linearity.

6.4 Interpretation of the Critical values of R^2 Statistics: This deals with summarizing the critical values associated with R^2 in the context of reviewing the conclusions derived from the regression analysis initiatives while reflecting upon the values associated with R^2.

6.5 Evaluating the Research Model and Testing the Hypotheses: The section details the research hypothesis and the corresponding conclusions derived from the regression analysis process while reviewing the research model and evaluating the relationships

within the multiple variables. Further, the section also represents the effects associated with the moderators in the context of the relationships within the multiple variables.

6.6 Discussion: The conclusions derived from the regression analysis conducted in the present study are discussed, in relation to previous conclusions derived and already presented.

6.7 Summary: The chapter is summarized herein.

6.2 Regression Analyses

Regression analysis is extensively used in processing exploratory factor analysis while re-evaluating the consistency of the scales used. This, in turn, reflects the variance in the context of the dependent and the independent variables. Besides, it is also reflective of the contribution made by individual variables with the testing process itself, reflecting the statistical aspect of the conclusions so derived in the context of the model and the variables under consideration (Pallant, 2007). Correspondingly, using multiple regressions enable evaluating the research hypothesis towards concluding the objectives of the study.

Multiple regressions consist of standard, hierarchical and stepwise processes. Of these, standard multiple regression analysis is most commonly used and is also used as part of the current initiative. The methodology justifies itself in consideration of the researcher setting multiple variables in determining the variance in the context of dependent variables. Besides, the process also reflects the predictive power associated in the context of the independent variable considered in the study (Field 2005; Pallant, 2007), which is considered in alignment with the objectives detailed in the first chapter. Hierarchical multiple regression entails the consideration of independent variables

associated within the equation in a predetermined order with regard to multiple theoretical aspects (Pallant, 2007). Nevertheless, this process was not selected in the current study in consideration of the seemingly lack of adequate theoretical grounds since there is a perception of not many nations utilizing the UTAUT model in setting the sequence of the multiple variables in the model. The methodology utilized was dependent on the researcher knowing specific variables in the e-commerce model used, while the corresponding study evaluates the predictive power in the context of the multiple variables stated herein.

The gradual degree of regression enables the researcher to consider a list of independent variables in the study, before the selection of a particular value in consideration of statistical measures (Field, 2005; Pallant, 2007). Nevertheless, there are various challenges associated with the process including Tabachnick and Fidell (2001) being critical of the same since the specific order of the variables considered has to be aligned with statistical criteria which makes the application of the methodology a major challenge. In this regard, the researcher has considered two processes in executing the regression analysis process, focusing initially on the assumptions associated with multiple regressions and the evaluation of the hypothesis under consideration. Thus, linear multiple regression was selected from version 15 of the SPSS package, utilized under the Enter Mode. The conclusions derived contributed to individual variables being considered, and ultimately the hypothesis being evaluated.

6.3 Checking the Assumptions

Prior to executing the regression analysis, multiple assumptions associated with aspects of sample size, multicollinearity versus singularity, outliers and normality were considered. The assumptions concluded thereafter are presented below:

A) Sample size

Deciding on the correct size of the sample is a prerequisite to ensure the generalizability of the conclusions to be derived from the initiative. In this regard, there are perhaps diverse views on the correct and required sample size related to multiple regression initiatives, with Stevens (1996, p.72) of the opinion that 15 subjects per predictor should suffice. Nevertheless, Tabachnick and Fidell (1996) have provided a formula which mathematically deduces the sample size in terms of N>50+ 8m, with m= number of independent variables. In the current study, a sample size of 287 respondents was selected which fulfilled the requirement.

B) All of the relevant variables must be taken into consideration

The multiple independent variables should form part of the regression equation, and not doing so will cause the conclusions derived from the regression exercise to be biased. Thus, a review of the ZPRED and the ZRESID graphs, besides the intuition provided by the researcher, along with a review of the input made by earlier studies could relate to the absence of independent variables (Janssens et al. 2008). Analysis of the relevant derived scatter plots does not reflect a specific pattern associated with independent variables within the model. Additionally, associated literature reviews have indicated the inclusion of factors which influence behaviours promoting e-commerce initiatives.

C) Dependent and independent variables must be at least interval scaled

The study has utilized the seven-point Likert scale which are in general termed ordinal. The idea of equal intervals provide for the scale to provide multiple conclusions which could also be indicative of multiple interval scales (Janssens et al. 2008; Field, 2005).

D) Linear relationship between the independent and dependent variables

The Scatter plot's review reflects the presence of a linear relationship amongst the multiple independent and the dependent variables, called behavioural intention. The corresponding graphs are not indicative of a specific pattern in terms of a parabola, which is representative of a non-linear relationship (Field 2005; Janssens et al. 2008).

E) Residuals

The residuals entail characteristics associated with aspects of 1) independence; 2) normality; and 3) homoscedasticity (Janssens et al. 2008; Field, 2005; Pallant, 2007), where independence is associated with the respondents completing their assigned questionnaires independently. Correspondingly, the regression analysis provided Durbin-Watson Statistics which evaluates the independence associated with the residuals. Should the value provide a reading of between 1 and 3, the residual would be considered to be independent, which was 1.850 in the current case.

Input on the generalized residual distribution parameter is provided by the standardized residual diagram. Within the context of the probability plot, the points are considered to be in a straight line diagonally, starting from the bottom-left and proceeding to the top-right. This is suggestive of the residuals being evenly distributed throughout (Janssens et al. 2008; Pallant, 2001). Homoscedasticity is associated with the residuals having uniform variance against all values within the context of the independent variable (Janssens et al. 2008 p. 157). While the Scatter plot would perhaps be liable to provide a specific pattern, it could in turn be indicative of the phenomenon of heteroscedasticity, with the individual patterns being indicative of standardized deviations from the assumptions associated with homoscedasticity in the context of the triangle or the diamond shaped structure (Janssens et al. 2008). Nevertheless, the residuals should be ideally rectangle in distribution, with the majority

of the scores summarized in the centre at point zero. This is indicative of the current dataset used in this study also.

F) Outliers

Outliers refer to cases divergent to the generalized trend of the conclusions derived from the current study (Field, 2005), with the presence of multiple outliers liable to impact the estimates of the regression coefficients. This would in turn impact the model being no longer neutral, with multiple statistical analyses checking the presence of outliers which would be reflected within the scatter plot. Tabachnick and Fidell (1996) are of the opinion that outliers are considered to be standardized residuals quantified in terms of being 3.3 or below – 3.3. The corresponding Scatter plot is representative of a few outliers within the data set, with additional analysis associated with the case wise Diagnostics being illustrative of outliers with a standard deviation of 3. The entire exercise makes for a table within the range of 3.3 to -3.3, with the respondents within rows 23, 48,120, 220 and 258 being designated outliers. Researchers are also of the recommendation in that in the context of large samples like in the present case of 350 respondents, the existence of multiple outliers is, but normal, and it not imperative to exclude the same (Janssens et al. 2008; Pallant, 2007). Nevertheless, as a general rule just around 5% of cases should be lower than -3.3 or above 3.3, which is indicative of the inexistence of outliers (Tabachnick and Fidell, 1996; Field, 2005; Pallant, 2007).

G) Multicollinearity

This relates to the associations related to the multiple variables, with the phenomenon being indicative of a high level of correlation being present in connection to multiple independent variables where r = 0.7 or more (Pallant, 2007; O'Brien, 2007). The corresponding correlation Table 6.1 listed is representative of the association in the

context of the multiple variables on the lower side. In this regard, a correlation of 0.587 is calculated within the independent variables associated with effort and performance for instance, with the results concluding that the same have a certain association in congruence in the expected direction. Interestingly, government support correlates negatively with intentions, which is discussed subsequent to running the regression between these items.

Besides the calculations associated with bivariate correlations, alternative processes utilized also reflect multicollinearity, including the variance inflation factor (VIF) and tolerance statistics (1/VIF). VIF is therefore representative of the predictor reflecting strengthened linear relationships in consideration of other predictors. Myers (1990) is of the perspective that a value of only 10 could be a challenge, although Bowerman and O'Connell (1990) are of the opinion that VIF readings of more than 1 could be indicative of multicollinearity. In any event, values below 0.1 would be indicative of serious issues, even if Menard (1995) is of the suggestion that values below 0.2 could also be a significant challenge. In none of the cases, does tolerance exceed the recommended 0.10 and VIF fell below the recommended 10.0 and hence no issues of multi collinearity exist in the dataset of final variables.

Table 6.1: Correlation between the Independent Research Constructs

X8	X7	X6	X5	X4	X3	X2	X1	X	Measures
							1	X1	Performance expectancy
						1	.587**	X2	Effort Expectancy
					1	.383**	.325**	X3	Social Influence
				1		-		X4	Perceived Risk
					.334**	.461**	.326*		
			1	-				X5	Government Support
				.403**	.251**	.204**	-.138		
		1						X6	Competitive Pressure
			.266*	.213*	.348**	.365**	.493**		
	1							X7	Facilitating conditions
		.224**	.107*	.133*	.124**	.234**	.434**		
1	.151	.106*	.381**	.299**	.026	.236**	.034**	X8	Compatibility
.057	.433**	.517**	.160**	-.013	.252**	.311**	.446**	X9	Behavior intention

** Correlation is significant at the 0.01 level * Correlation is significant at the 0.05 level

6.4 Interpretation of the Critical Values of R^2 Statistics

Conclusions derived with regard to multiple regressions are considered in terms of values associated with R^2, which is also termed the coefficient of determination. Correspondingly, it is also considered in terms of the squared multiple correlation coefficients (Malhotra, 2004; Hair et al. 2010). The R^2 value is seemingly explanatory of the dependent variable aspect in conjunction to the behaviour incentive to utilize e-commerce facilities. Besides, in using a smaller sample size, R^2 could provide optimistic overestimation associated with the true value within the sample. This makes

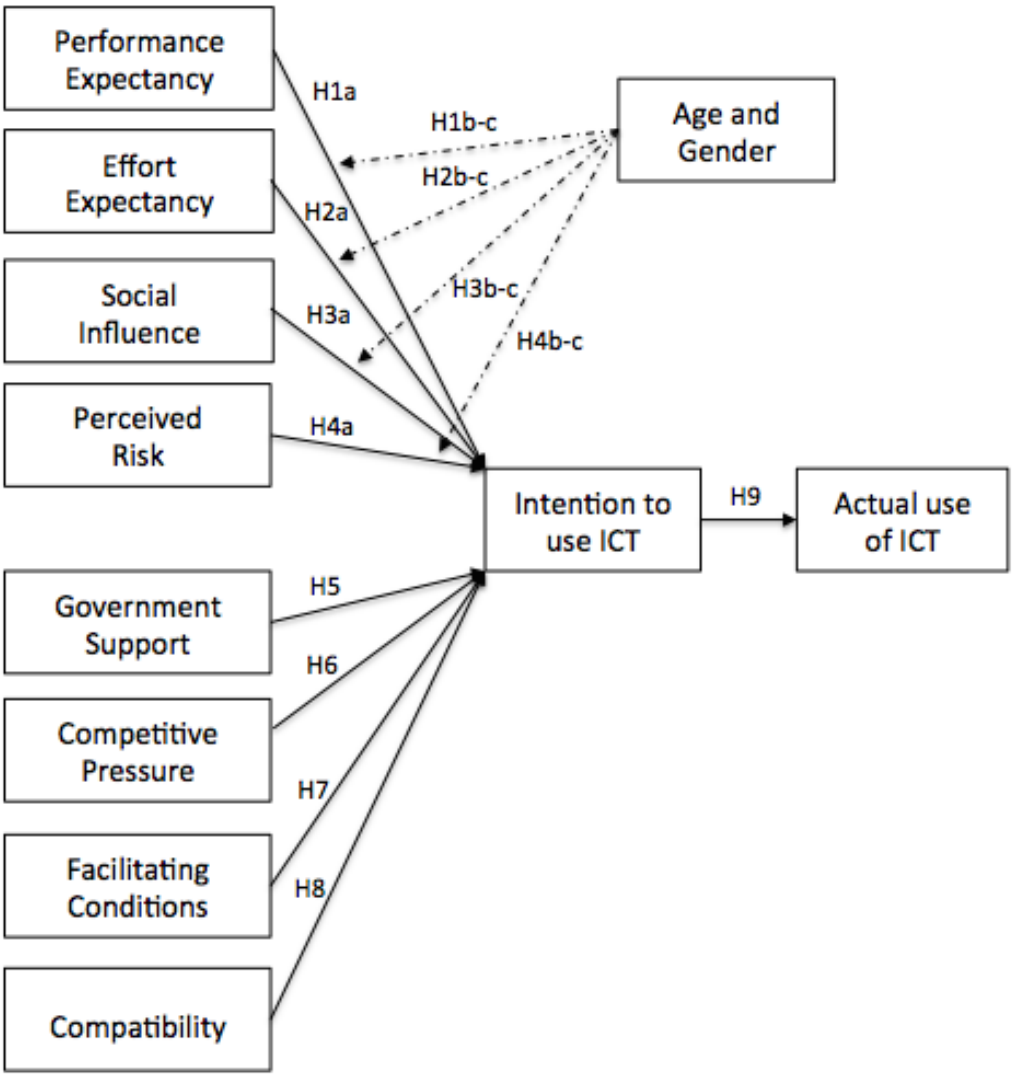
it advisable to adjust the value of the R^2 so as to provide a more accurate value in relation to the population considered (Tabachnick and Fidell, 1996).

Multiple meanings of the R^2 statistic could be gleaned from available literature, with Tabachnick and Fidell (2001) reporting the utilization of tables in a bid to evaluate the critical aspects of the same in the context of the sample size, and in consideration of the sizes associated with the independent variables. With respect to the values associated to either p being 0.05 or 0.01, Pallant (2007) has concluded how a value of 0.45 corresponding to R is considered appreciable in multiple published texts. Sudman and Blair (1998) are of the opinion that if R^2 reflects a value of just 0.09, it would be considered appreciably weak, and it is therefore recommended that the same should have a value of 0.3 or higher to be labelled "moderately strong".

6.4.1 Evaluating the Research Model and Testing the Hypotheses

Figure 6.1 provides the conceptual framework again for clarity before the main findings are reviewed.

Figure 6.1. Conceptual Framework to be validated.



Essentially, three types of hypotheses are present in the framework. H1a, H2a, H3a, H4a, H5, H6, H7 and H8 predict the relationship between personal, external and organizational factors on ICT intention to adopt, whereas H1bc, H2bc, H3bc and H4bc predict the moderating influences of age and gender on personal factors and finally H9 predicts the relationship between intention to adopt ICT and actual behavioural usage of ICT. Using the standard enter method for multiple regression analysis, the first set of hypotheses is investigated, followed by a bivariate regression between intention and

actual usage and finally moderator analysis. The results of the multiple regression are shown in Table 6.2.

Table 6.2. Multiple Regression for predictor variables on intention to adopt ICT.

Predictor Variable	Standardized Co-efficient (beta)	t-value	VIF	Tolerance	Sig.
Performance Expectancy	.265	16.341	1.345	.745	.00
Effort Expectancy	.191	4.332	1.234	.810	.05
Social Influence	.128	4.022	1.322	.756	.01
Perceived Risk	.012	12.897	2.344	.427	.801
Government Support	-.055	.234	1.753	.570	.212
Competitive Pressure	.399	8.534	1.653	.605	.00
Facilitating Conditions	.190	5.332	1.344	.744	.01
Compatibility	.034	.397	1.233	.811	.324

$F_{8, 214} = 61.528, P < .005. R^2 = .599$

The findings clearly indicate that H1, H2, H3, H6 and H7 can be accepted but non-significant results are found for H4, H5 and H8 and therefore these hypotheses are rejected. The size of the beta, or the standardized co-efficient is taken as the correlation

between independent variables with behavioural intention and shows that beta is highest for competitive pressure (.399), followed by performance expectancy (.265), effort expectancy (.191), facilitating conditions (.90) and social conditions (.128). We can conclude therefore that the independent variables have an influence on behavioural intentions also in this order with competitive pressure having the strongest influence and social conditions the least. The adjusted R^2 (.599) show a good degree of variance in the model prediction indicating that together the hypothesized factors comprise 60% of the total variance in behavioural intention. The implications of these findings will be subsequently discussed but H9, or the relationship between behavioural intention and actual behavioural usage is also investigated.

With regard to understanding the nature of the relationship between aspects of the intention and the actual use of e-commerce initiatives, a bivariate regression analysis also found good model explanation ($F_{1, 311}$=89.938, P< .0005. R^2= .301), whereas the beta value of the standardized coefficient at 0.51. Correspondingly, there is a strong influence between intentions and behavioural usage in our study. The conclusions so derived are in support of H9.

6.4.2 Testing the Moderating Effect

Schmitt and Klimoski (1991, p. 18) define a moderator variable as one "affects the nature of the relationship between two other variables", arguing that there are two analytical approaches to identify them essentially: through moderated multiple regression analysis (MMRA) or through subgroup analysis. The first approach is rarely used in consumer research since most marketing studies do not use interval scales and this approach is more suited when interval scales are employed (Carte and Russell, 2003). Therefore, sub group analysis is employed given its much more widespread use in the marketing literature. Therefore sub group analysis was used to determine the

moderating effect of age and gender on the link between independent variables and behavioural intention.

To conduct this approach the sample is split into sub groups on the basis of the third variable, which is the moderator (gender or age). Gender was split into male or female and age into young vs. old groups. Regression analysis was then ran for each sub group and a comparison made using standardised coefficient beta values to identify any moderating effect. In order to determine any significant difference between the two correlations (one for each sub group), the following steps were taken:

1. Correlations are converted into Z scores using Fischer's z score transformation of the Pearson's r value.
2. The standard error of difference between two correlations is computed using the equation:

   $SE = SQRT[(1/n_1-3) + (1/n_2-3)]$

n_1 and n_2 is the sample size of independent samples

3. Dividing the difference of the two z-scores by the standard error, if the Z value calculated exceeds 1.96 or equals it, then we can assume the difference in the correlations is significant at a .05 level (Blalock, 1972).

6.4.2.1 Performance Expectancy

For performance expectancy which can be defined as "the degree to which an individual believes that using the system will help him or her to attain gains in job Performance" (Venkatesh, et al. 2003, p. 447) and the following hypotheses were derived for moderation testing:

Hypothesis 1b: Gender will moderate the effects of performance expectancy on intention to adopt ICT such that the effect will be more positive in males than in

females.

Hypothesis 1c: Age will moderate the effects of performance expectancy on intention to adopt ICT such that the effect will be more positive in younger managers than in older ones.

The results of sub group analysis are shown below. The Z value did not exceed 1.96 and was 1.12 therefore the hypotheses have to be rejected.

Table 6.3: Sub-group Regression Analyses for Performance Expectancy and Behaviour Intention

Sig	R^2	Standardized Coefficients Beta	Measures	Moderators
.000	.555	.672	PE → BI	Males
.000	.577	.688		Females
.000	.481	.721	PE → BI	Younger group
.000	.525	.710		Older group

PE = Performance Expectancy, BI = Behaviour Intention

6.4.2.2 Effort Expectancy

Effort expectancy can be defined as "the degree of ease associated with the use of the system" (Venkatesh et al. 2003, p, 450) and following hypotheses were derived for moderation testing:

Hypothesis 2b: Gender will moderate the effects of effort expectancy on intention to adopt ICT such that the effect will be more positive in males than in females.

Hypothesis 2c: Age will moderate the effects of effort expectancy on intention to adopt ICT such that the effect will be more positive in younger managers than in older ones.

The z score difference for the gender sub groups was 1.9976 and therefore H2a was accepted but H2b was not as the z score difference was below the threshold of 1.96 at .9878.

Table 6.4: Sub-Group Regression Analyses for Effort Expectancy and Behaviour Intention

Sig	R^2	Standardized Coefficients Beta	Measures	Moderators
.000	.325	.473	EE → BI	Males
.074	.164	.343		Females
.000	.350	.653	EE → BI	Younger group
.000	.378	.478		Older group

EE = Effort Expectancy, BI = Behaviour Intention

6.4.3.4 Social Influence

Social influence can be defined as "the degree to which an individual perceives that important others believe he or she should use the system" (Venkatesh et al., 2003, p, 451) and the following hypotheses were derived for moderation testing:

Hypothesis 1b: Gender will moderate the effects of social influence on intention to adopt ICT such that the effect will be more positive in males than in females.

Hypothesis 3c: Age will moderate the effects of social influence on intention to adopt ICT such that the effect will be more positive in younger managers than in older ones.

The z value of the difference from the two correlations between males and females sub group was in this instance greater than 1.96 at 2.443 and thus significant at the 0.05

level and therefore the H3a hypothesis can be accepted but for age sub groups was 0.987 and therefore H3b has to be rejected at the 0.05 level.

Table 6.5: Sub-Group Regression Analyses for Social Influence and Behaviour Intention

Sig	R^2	Standardized Coefficients Beta	Measures	Moderators
.000	.167	.395	SI → BI	Males
.000	.345	.687		Females
.026	.187	.222	SI → BI	Younger group
.000	.159	.355		Older group

SI = Social Influence, BI = Behaviour Intention

6.4.3.5 Perceived Risk

The following hypotheses were formulated for risk of which there are different types encapsulated into one overarching construct called risk:

Hypothesis 4b: Gender will moderate the effects of perceived risk on intention to adopt ICT such that the effect will be more positive in females than in males.

Hypothesis 4c: Age will moderate the effects of perceived risk on intention to adopt ICT such that the effect will be more positive in older managers than in younger ones.

Here the differences are non-significant therefore they can automatically be assumed not generate differences of any significance and no further moderation testing needed, thus hypotheses were rejected.

Table 6.6: Sub-Group Regression Analyses for Perceived Risk and Behaviour Intention

Sig	R^2	Standardized Coefficients Beta	Measures	Moderators
.400	.022	.132	PR → BI	Males
.364	.037	.230		Females
.443	.012	.147	PR → BI	Younger group
.089	.029	.249		Older group

PR = Preserved Risk, BI = Behaviour Intention

6.5 Further Analysis on Actual Use

Actual use is evaluated by the frequency of using the internet as a proxy to technology used consistent with previous studies. Table 6.7 shows that all of the NGOS use internet to further their cause in some way, either as a tool for education or dialogue with supporters or for driving transactions with 52.3 of managers reporting usage of 6-10 times per day for their employees involved at management level. Approximately 42% of the NGOs report employee usage of either the internet or database estimated at 2-3 hours per day.

Table 6.7: Frequency of Using the Internet

Percent	Frequency	Items
		Frequency of Use
0.0%	0	Not at all
0.0%	0	1-2 times a month
1.7%	5	1-2 times a week
7%	20	1-2 times a day
13.9%	40	3-5 times a day
52.3%	150	6-10 times a day
25%	72	More than 10 times a day
		Time
0.0%	0	Never use
1.4%	4	Shorter than 15 min
3.5%	10	15-30 min
7%	20	30 min 2 hrs
41.8%	120	From 2-3 hours a day
34.5%	99	From 4-5 hours a day
19.2%	55	Longer than 5 hours

Although not conceptualized, but in order to assess whether there is a direct relationship between independent variables and actual use, further analysis was conducted. The eight independent variables were regressed on actual use and the results show that R^2 value obtained was .288 ($F_{8, 287}$=12.881, P< .0005). This value is substantially reduced when behavioural intentions was used as a mediator between the independent variables (R^2 = .624) indicating a strong positive mediating role for behavioural intentions. Further, only performance and effort expectancy were found to have a positive significant effect on actual behaviour when the direct effects model is ran, further adding validity to the conceptual framework used in this study. Indeed, the remaining the effects of the remaining independent variables were found to be non-significant at the 0.05 level. The overall findings summary is shown in Table 6.8.

Table 6.8: Hypotheses Conclusions Summary

Results	Moderators	Dependent Variables	Independent Variables	Hypothesis Number
Accept	None	Behaviour Intention	Performance Expectancy	H1a
Reject	Gender	Behaviour Intention	Performance Expectancy	H1b
Reject	Age	Behaviour Intention	Performance Expectancy	H1c
Accept	None	Behaviour Intention	Effort Expectancy	H2a
Reject	Gender	Behaviour Intention	Effort Expectancy	H2b
Reject	Age	Behaviour Intention	Effort Expectancy	H2c
Accept	None	Behaviour Intention	Social Influence	H3a
Accept	Gender	Behaviour Intention	Social Influence	H3a
Reject	Age	Behaviour Intention	Social Influence	H3b
Reject	None	Behaviour Intention	Perceived Risk	H4a
Reject	Gender	Behaviour Intention	Perceived Risk	H4b
Reject	Age	Behaviour Intention	Perceived Risk	H4c
Reject	None	Behaviour Intention	Government support	H5
Accept	None	Behaviour Intention	Competitive Pressure	H6
Accept	None	Behaviour Intention	Facilitating conditions	H7
Reject	None	Behaviour Intention	Compatibility	H8
Accept	None	Actual Use	Behaviour Intention	H9

Summary 6.6: The conceptual framework developed for this study, an integrated ICT adoption model was utilized based on the exploratory interviews with NGO managers. The model was tested using moderator analysis, multiple and bivariate regression analysis. The conclusions derived through regression analysis validates hypothesis, including H1a, H2a, H3a, H6, H7 and H9 associated with performance expectancy,

effort expectancy, social influence, competitive pressure, facilitating conditions and behaviour intention. However, hypothesis 4, 5 and 8 corresponding to perceived risk, government support and compatibility respectively were rejected. The conclusions from moderator analysis also indicate that age and gender minimally affects the relationship between aspects of performance expectancy, perceived risk and behaviour intention, although does play a stronger role in social influence and behavioural intention. Given this, only H3a is accepted. Table 6.7 summarizes the main findings. It can therefore be reasonably concluded that while the UTAUT was initially rolled out in the context of a developed societies, in its multi-dimensional adopted form as derived in this study, it can also be equally applied in the developing world too, including Saudi Arabia but also explain the interactions of ICT adoption within the NGO context. The conclusions are in line with earlier theories for developed societies presented by Gupta et al. (2008), Al-Gahtani, et al. (2007) and Bandyopadhyay and Fraccastoro (2007). The implications of these findings are more fully discussed in the subsequent chapter.

CHAPTER SEVEN: DISCUSSION OF FINDINGS.

7.1. Introduction:

The findings in the preceding results have already validated the portability of validating an adapted multi-dimensional version of the UTAUT model, but within a Saudi and NGO context. This chapter's purpose is to address the findings in relation to the original study research objectives, i.e. to discuss the findings in relation to the nature of technology adoption in Saudi NGOs (research objective one), its structural composition in terms of positive and negative predictors, their inclusion and/or exclusion (research objective two) and finally, in relation to the main themes arising from the preceding discussion, the implications for managers and public policy makers. (research objective three). Although, and logically there emerges an overlap with the theoretical contributions of the findings within these discussions, wherever possible, the discussion linked theoretical contribution, is separated and discussed in a dedicated sub-section in a subsequent chapter, effectively distilling the original findings which have arisen from this discussion chapter.

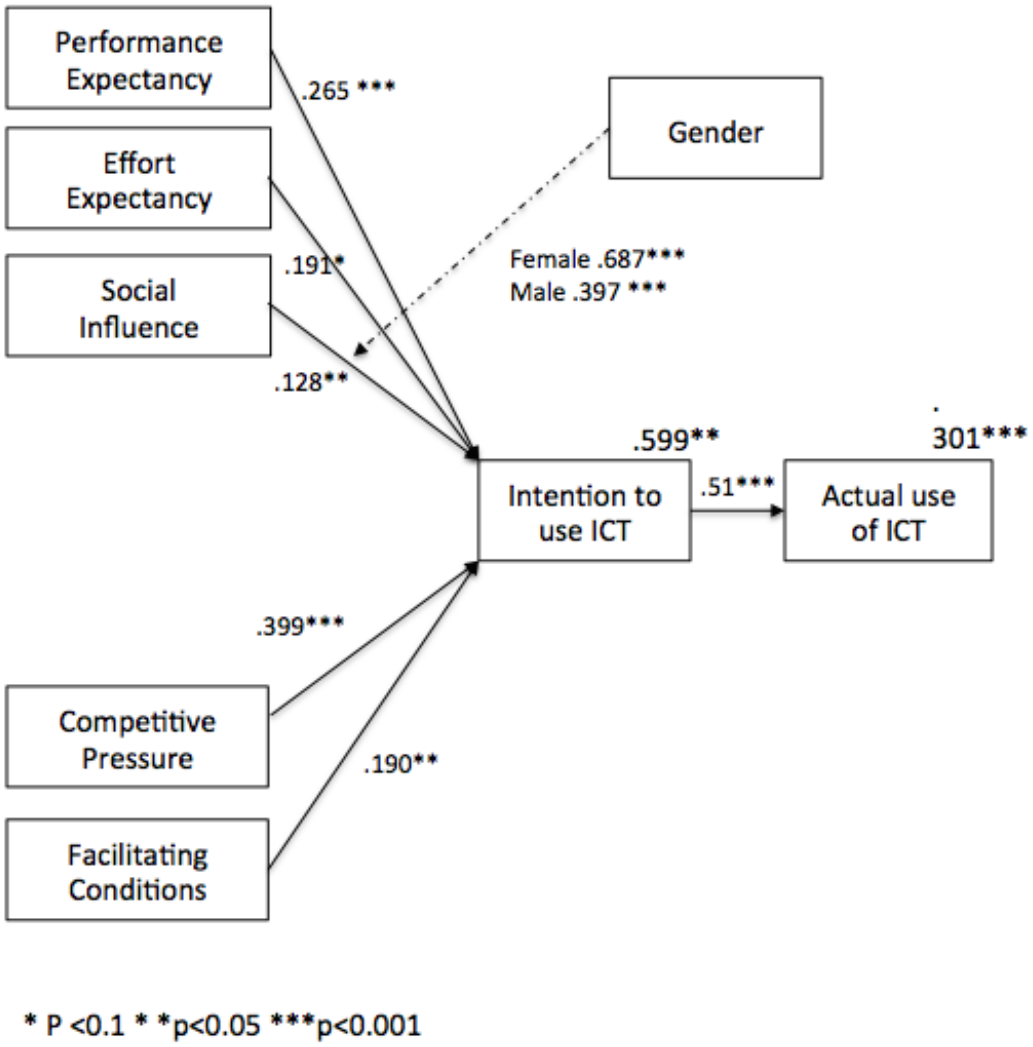
This chapter attempts to highlight those findings which are consistent and therefore corroborate existing studies as well as those findings which to not confirm to the status quo consensus in technology adoption. In doing so, it presents a critical reflection on the key findings in relation to the extant literature but also extends the boundaries of existing studies those findings which are original to this study and therefore those which form the foundation of the theoretical contribution sub-section which will be reviewed in the subsequent chapter.

7.2 Objective 1: Nature of ICT Adoption in Saudi NGOs.

The first research objective aimed to understand the *nature of ICT adoption* in Saudi NGOs. Given the lack of research generally conducted on ICT adoption in the NGO context, and the narrow focus of existing studies in other ICT adoption contexts in Saudi Arabia, understanding the nature of ICT adoption was critical. Numerous technology adoption models have proposed the use of integrated underlying factors for predicting technology adoption (e.g. Venkatesh et al. 2003; Taylor and Todd, 1995). Venkatesh et al. (2003), although integrative places more emphasizes on personal factors and yet others such Taylor and Todd (1995) have a more balanced approach, with equal roles for organizational, personal and environmental or external factors. At the other extreme, DePietro et al. (1990)'s TOE, revolves completely around non-personal factors. The reason why the nature of technology adoption is critical, since it directs the overarching focus of the conceptualisation on technology adoption, and this in turn affects directly the implications for managers and public policy, in relation to technology adoption within the NGO sector. If for instance, the conceptualised framework was predominantly organisational in nature, then the priority for managing technology adoption would revolve around managing the internal organisational structure, processes and systems for instance. If the conceptualisation was predominantly defined by personal factors, then the focus for managers and public policy would be towards persuasion management at the individual human decision making level.

The study framework developed in this study corroborates a multi-dimensional and therefore mixed approach to technology adoption, but critically, or the first time within an NGO and Saudi technology adoption context. Figure 7.1, presents the empirically validated framework arising from this study, with non-significant predictor variables excluded from the framework to derive a statistically robust framework only.

Figure 7.1. The Multi-Dimensional Technology Acceptance Model for Saudi NGOs.



The initial framework developed from the qualitative phase proposed a mix of predictors, comprising (i) personal factors: personal expectancy, effort expectancy, perceived risk and social influence, (ii) external or environmental factors: government support and competitive pressure and finally (iii) organizational factors: facilitating conditions and compatibility. Given that half of the predictive factors were personal, and consistent with Venkatesh et al. (2003) moderating influences of gender and age were posited as influencing their effects on behavioural intentions, the study was

originally argued as a modified or adapted version of Venkatesh et al's (2003) comprehensive UTAUT framework. Moreover, Venkatesh et al. (2003) proposed that their framework should be used in conjunction with other related ones especially when being applied to different contexts. Others (e.g. Fowler, 1993; Hardgreave and Johnson, 2003) further suggest that technology adoption models should seek to take a holistic approach and provide for an integrative perspective when mapping the predictors of technology adoption and as such should adopt a multitude of approaches. As Taylor and Todd (1995) for instance argue, a combinational approach to understanding the nature of technology adoption is likely to generate more predictive capacity than one based on personal, organizational or environmental and external factors alone.

Furthermore, an integrative approach to mapping the nature of technology acceptance in Saudi Arabia, is also consistent with studies of technology acceptance done in emergent and developing nations. Gupta et al. (2008) for instance in utilizing the original UTAUT framework in n Indian government agency context, concluded that further research should integrate other extraneous variables other than the personal ones which define the UAUT model. Al-Gathani et al's (2007) remains one of the first to validate the UTAUT model in a non-Western context but also within a Saudi context and in doing so this study argued that further studies should seek to integrate other factors aside those within the UTAUT framework. In Baker et al's (2008) study on applying the theory of planned behaviour in a technology adoption context also within Saudi Arabia, the authors conclude for a need to integrate social factors, i.e. those based on environmental context more. Studies in other non-Western countries also confirm extending technology acceptance beyond mere personal factors. Kendal et al. (2002), for instance in examining technology acceptance in a Singaporean context, emphasized the role of organizational factors such compatibility. Seyal et al's (2004) on the adoption of e-commerce in Pakistan, also focused on the role of external and

organizational factors as critical in technology adoption, and indeed finds support for the role of government support.

The final validated framework shown above demonstrates some key implications and differences from the originally conceptualized framework (see Figure 6.1). First, the main proposition that an integrated or multi-dimensional perspective related to the nature of technology adoption of Saudi NGOs will emerge is validated. Performance expectancy, effort expectancy and social influences as personal factors are retained in the validated framework as are one of each of the conceptualized external and organizational factors, i.e. competitive pressure and facilitating conditions. Second, the model still retains its largely personal, and therefore UTAUT modification nature, since only perceived risk is not validated. However, a key difference with the UTAUT model with the study model is the omission of moderating influences, with the exception of gender effects on social influence. Surprisingly, also government support and facilitating conditions are not retained in the final validated model. Therefore, it can be concluded that aspects of personal, organizational, external or environmental factors define the nature of technology adoptions for Saudi NGOs.

In many ways, this finding should come as no surprise, since it reflects the portability of managers, as sample frames, in being able to tap into external and organizational as well as human decision-making levels. This corroborates studies that suggest that senior managers and directors of organizations are in the best position to take leadership in ICT adoption, and indeed are expected to do so since, **"***business cannot afford technology-illiterate managers any more than it can afford business-illiterate IT professionals"* **(**Keen, 1991, p. 121). Given this, Bassellier et al. (2000) argued that organisational managers, and not frontline employees, are most suited to articulate the complexities of ICT adoption at the organisational level, since they have one hand on the strategic policy, and another on what employees are capable, or not, in

relation to ICT adoption, thus being able to present a more holistic view of organisational ICT adoption issues. The implication for managers, of the findings, will be elaborated in more depth in a subsequent sub-section but herein it becomes evident that the multi-dimensional nature of the conceptualisation may have arisen from the portability of using a managerial sample to tap into the complexities of ICT adoption by an organisation for the aforementioned reasons.

It can also be argued that whilst the multi-dimensional nature of technology acceptance is validated, important hypothesized relationships and constructs, (i.e. perceived risk, government support and facilitating conditions) are not retained. The main part of this discussion chapter discussed each of the retained and non-retained predictor variables, from both a theoretical and practical perspective. Each construct is discussed individually, before the managerial implications, of the final framework are presented.

7.3. Objective 2: Structural Explanation of Validated Framework.

The structural explanation of the validated framework refers directly to explaining objective two of the study since this aimed to determine the key influences of technology adoption for Saudi NGOs. However, to add additional rigor, this discussion section not only discusses those predictors, which are retained in the final validated framework but also those, which could not be statistically validated. The constructs are discussed in relation to their influence, i.e. competitive pressure with the largest influence on behavioural intentions is discussed first with the remaining influencing factors discussed subsequently. Following this, the predictors, which could not be statistically validated, are then discussed. The researcher is of the view, that non-significant findings can also present important new insights, as well as significant findings. Where significant findings provide an evidence-based avenue on what to

utilize for management purposes, non-significant findings may also provide important clues on the discrepancy between expected and actual findings, and the underlying roots for this.

7.3.1 Competitive Pressure

Competitive pressure emerged as the strongest factor to positively influence behavioural intentions to adopt ICT and therefore for the NGOs of Saudi Arabia, competitive pressure is a vital factor for technology adoption. This confirms existing studies, which argue that innovation adoption is very much carried out due to competition (Looi, 2005; Link and Bozeman, 1991; Kimberley and Evanisko, 1981). Environmental uncertainty is caused due to competition, which is why the need for and rate of technology adoption increases (Ettlie and Bridges 1982). This finding therefore is supportive of the contention competition and high technology adoption rates are positively related (Premkumar and Roberts, 1999: Levin et al. 1987).

The results brought forward by Lee (2004) do not indicate the same as he states that competitive pressure for third sector organizations do not play a vital role in the adoption of technology. This could be due to the fact, that in his study the third sector organizations were more typical of third sector organizations, i.e. much smaller in size than the ones used for this study. The finding also supports studies in other NGO contexts, which have proposed that technology usage is becoming increasingly important for leveraging strategic advantage for NGOs (Morosan and Jeong, 2008; Doolin, et al. 2002). For the NGO sector to remain competitive in the industry, information technologies are being used to transfer information into knowledge (Betsill and Corell, 2012).

Moreover, Sargeant and Shang (2015) argue that competitive benchmarking and analysis is critical for NGOs, since without this ‘scoping’, not only differences that

organization can leverage as potential sources of competitive advantage, but also and critically, scope for examining similarities with competitors and therefore for potential collaboration can be determined. As collaboration, is critical for NGOs, and can be determined from competitor analysis, i.e. in determining the similarities with competitors and therefore using these as the foundation for collaborative activity, the findings indicate competitive pressure is an essential driver for NGOs in Saudi Arabia. However, at the same time this should not be seen as merely the same as in the corporate sector, but rather as an avenue for identifying collaborative capacity too. The implications of this for Saudi NGO managers will be discussed further in a subsequent sub-section.

Furthermore, that competitive pressure has been found as the most strongest positive influence of ICT adoption, also lends support to the growing view that ICT knowledge of managers should also comprise knowledge of competitor's use, or lack thereof, of ICT, such that to include *"current and emergent technologies and knowledge that is both generic to all industries and specific to the organization and its competitors"* (Bassellier et al. 2000, p. 15). Indeed, several studies (e.g. Applegate et al. 1999; Armstrong and Sambamurthy, 1990) argue that organisational leaders have a responsibility to become aware of competitor usage of ICT. Knowledge of competitor ICT adoption, has therefore become a central determinant of managerial ICT related competence (Bassellier et al, 2000), effectively without such knowledge, a manager can not attain competence in relation to ICT processes. As Kearns and Lederer (2003) describe a study in which almost fifty percent of CEOs, described their ICT investments as a response to attain competitive advantage.

7.3.2 Performance Expectancy

The second most important factor that affects the intention to adopt is performance expectancy. The degree to which an individual realizes that new technology and its use would help enhance his or her level of job performance is known as performance expectancy (Venkatesh et al. 2003). This construct, was measured by its various underlying convergent constructs, i.e. extrinsic motivation (Davis et al. 1992), perceived usefulness (Davis et al. 1992; Davis 1989), outcome expectations (Compeau et al. 1999; Compeau and Higgins, 1995) job fit (Thompson et al. 1991) and relative advantage (Moore and Benbasat, 1991). This study, confirms the consensus related to the importance of performance expectancy (Gupta et al. 2008; Park et al. 2007; Anderson et al. 2006; Al-Gahtani et al. 2007; Neufeld et al. 2007; Venkatesh et al. 2003). Therefore and given the consensus of its importance, the validation of performance expectancy as a positive predictor of intention to adopt ICT is not surprising. What is surprising however is that unlike previous studies, no moderation effects for gender and age were found to influence this relationship.

In this study, an insignificant moderator effect was observed for both age and gender. Baker et al. (2008) and Al-Gahtani et al. (2007) stated similar results where gender was not considered as a significant moderator in their UTAUT model for the behaviour intention and performance expectancy, within Saudi context respectively. A contrasting, result was presented by Venkatesh, et al. (2003) and Park et al. (2007), where they stated that the men had a significantly higher moderating influence on performance expectancy. One obvious, reason for this study's results not supporting moderator effects for gender, is the small sample of women used in this study. Both within the exploratory interviews and in the main survey investigation, women comprised only 20% (n = 57) of the total sample, and therefore statistically validating differences in gender moderating effects, may be a result of the low sample size for

women in the main study. Despite this shortcoming, our sample still represents the proportion of women much higher than in the average Saudi workplace where 5 percent more accurately reflects the Saudi female workforce (Baker et al. 2008).

In the only other studies to examine gender, moderating influences in a Saudi technology adoption context, Baker et al. (2008) and Al-Gahtani, et al. (2007) also found non-significant results, albeit their models were based on the theory of planned behaviour (Baker et al. 2008) and on a purely UTAUT framework (Al-Gahtani et al. 2007). One explanation that both studies propose is that is that in Saudi workplaces, the greater male orientation diminishes any influence that female identity effects may have on organizational decision making since women in the Saudi workplace are first small in number and a consequence their effect on organizational decision making is even smaller. Where female respondents report findings, these may become therefore biased by these effects to articulate responses which they feel that a majority male dominated workplace in Saudi may expect. If the results are only used to guide inference making, and it is accepted that there are truly no differences in gender in the relationship between performance expectancy and intention to adopt ICT, then the only feasible explanation for to account for this is that both men and women feel and think the same about performance expectancy. Individual gender differences have not permeated adequately to allow gender identity expression and therefore any differences remain muted or diminished.

This however, does not explain the fact that age moderating effects were also not found in this sample. Some studies such as Jones and Hubona (2005) observed a strong moderating influence between the age of the user and the perceived usefulness for technology adoption. One explanation, for not finding any moderating influence for age in this study, is that across young and older males, performance expectancy outcomes are processed to the same extent. This could be due to the fact that even older

males in Saudi may have become exposed sufficiently to ICT in the workplace and in their private lives, to overcome the initial barrier of expecting 'what benefit will ICT generate for me?' This question, which is essentially linked to performance expectancy, arises with lack of experience in ICT usage (Venkatesh et al. 2003). Although, this does not reflect the diffusion of ICT in the NGO workplace but rather could be a reflection of general ICT exposure and diffusion in Saudi society, as actual or perceived through exposure to its effects. Indeed, the argument that ICT usage is already high in the NGO context for managers could also be made certainly if we examine current usage from Table 6.6 on the frequency of internet usage. This prevalence assessment indicates that 53.5% of respondents, used email 6-10 times per day and 2-3 hours per day is spent on the internet by 41.8% of NGO managers. Unlike, Baker et al. (2008) and Al-Gahtani, et al. (2007) who used a much average age sample in their studies and therefore argue that no difference emerged due to the younger age bias of the sample, not allowing adequate age comparisons, this study did have a good age mix. Based on this discussion it could be concluded that ICT practices are already diffused in the NGO manager's workplace, and perhaps outside too in Saudi society, thus overcoming initial concerns of its outcomes and benefits.

7.3.3 Effort Expectancy

The amount of convenience and ease present with the addition of technological system is referred to as effort expectancy (Venkatesh et al. 2003). Numerous indicators of effort expectancy exist in the literature, including perceived ease of use (Davis, 1989; Moore and Benbasat, 1991; Davis et al., 1992) and complexity (Thompson et al. 1991). The general consensus in the literature, is that effort expectancy is positively related to ICT adoption (e.g. Venkatesh et al. 2003; Calantone, et al. 2006; Bandyopadhyay and Fraccastoro, 2007; Abushanab, 2007). Others have however found

little effect for effort expectancy (e.g. Anderson et al. 2006; Al-Gahtani, et al. 2007). This study does however support the first group of studies and shown a positive influence of the effects of effort expectancy on intentions to adopt ICT. Again, the prevalence findings from Table 6.7 demonstrate that NGO managers are already familiar with ICT practices. On the one hand, this should generate an opposite effect on effort expectancy, i.e. if managers are already familiar they may feel more comfortable with new technology adoption. On the other hand, Saudi managers, given their experience, may recall the challenges in using ICT practices which may have become second hand knowledge now but initially may have been more challenging and involved substantial effort in their use. If this is the case, then it is likely that given this recall, familiarity and experience, managers consider perceived effort to be critical in influencing their likelihood to adopt or not.

Critically, no moderating effects for gender or age were found to influence effort expectancy effects on intention to adopt. This is in contrast to Venkatesh et al. (2003) and Jones and Hubona (2005), who found that females and older users found technology adoption more difficult than males and younger users. Indeed, it often argued that females and older users consider the use of new technological system to be frustrating and require greater mental effort to understand new systems (Colby and Parasuraman, 2003). Also, the confidence for using the new technology is stronger in males and younger users as compared to females and older users, which is why young males use technology more in general (Vekiri and Chronaki, 2008; Volman and Van Eck, 2001). However, this study's findings are consistent with Gupta et al (2008) and Al-Gahtani, et al. (2007) who found no significant differences in moderation effects for gender or gender on effort expectancy.

The most obvious explanation for lack of moderating effects is that managers from all age and gender groups already use ICT practices in their workplaces, as

evident from Table 6.6, but are also exposed to ICT sufficiently in their cultural surroundings to have become familiar enough with ICT practices. The initial risk, linked to perceived difficulty, barrier has therefore already been internalized by this usage. The implications for managers this are discussed in a subsequent sub-section.

7.3.4 Social Influence

The perception of an individual regarding how important others consider it is to use an innovation is referred to as the social influence (Venkatesh et al. 2003). It is often referred to as subjective norms in the Theory of Reasoned Action, Planned Behaviour and Decomposed models (Taylor and Todd, 1995; Ajzen, 1991; Davis et al. 1989), or as 'Image' in diffusion of innovation theories (Rogers, 1995; Moore and Benbasat, 1991) or simply as social factors in the PC utilization model (Thompson et al. 1991). Clearly, social influence is central to technology adoption theories and indeed in the general adoption of innovation and behaviours frameworks. Consistent with others, (e.g. Gupta et al. 2008; Al-Gahtani, et al. 2007; Bandyopadhyay and Fraccastoro, 2007; Neufeld et al, 2007; Venkatesh et al. 2003) this study also finds and therefore supports the notion that social influence has a positive effect on intention to adopt new technologies. Anderson et al (2008) is one of the few studies not to support such a relationship.

Given the attention that technology behavioural theorists have given to social influence, much has been written on it in terms of its conceptualization and effects, which can subsequently help to explain for the positive moderating effects of gender influence on this relationship. It is generally accepted that the behaviour of an individual is affected through social influence due to three reasons - internalization, compliance and identification (Warshaw, 1980; Venkatesh and Davis, 2000). The individual is engaged in attaining a social status, which is why the identification and

internalization require him to manage the social pressure. At the same time, he complies in order to be rewarded for his task (Warshaw, 1980). Within a mandatory setting, this compliance view can be applied to the literature related to technology acceptance (Venkatesh et al. 2003; Venkatesh and Davis, 2000; Hartwick and Bakri, 1994). Moreover, culture theorists have also focused on social influences and have generally agreed that under a high power distance cultural context (the way inequality is handled), the opinions of others are more influential (Srite and Karahanna, 2006; Hofstede and Hofstede, 2005). This effect is also observed under conditions of higher uncertainty avoidance contexts and in collectivist cultures given the greater role of social influence in shaping self-identity (Srite and Karahanna, 2006; Hofstede and Hofstede, 2005). Indeed, Lee and Green (1991) find this relationship to hold under these cultural conditions. A more detailed theoretical account is presented in discussing social influence since critically, it was the only predictor variable to show significant influence for gender effects. This finding is therefore critical from a moderating perspective for technology adoption amongst Saudi NGOs.

It also supports existing studies such as Venketesh et al. (2003) but does not support others (e.g. Al-Gahtani et al. 2007; Baker et al. 2008; Gupta et al. 2008) who found no relationship to hold, also in a Saudi context. These authors explained their findings due to the small sample sizes they used for females in their studies, but these sample sizes exceeded the current study sample size, raising the issue that sample size effects are an insufficient explanation within these studies. The positive moderating effect observed for women on social influence indicates that female NGO managers are more influenced by social factors in adopting new technologies. There are several possible explanations for this effect taking into account that the expected moderating gender effect was not observed for other predictors such as performance expectancy or effort expectancy.

First, it could be argued that women have not internalized the role of technology adoption as much as men and this generates greater uncertainty in its use since greater internalization leads to greater compliance and ultimately identification. Once the identification stage is reached, Venkatesh et al. (2003) argue that technology adoption becomes much easier, effectively a part of self-identity. Add to this, the effect of women scoring higher in openness in personality traits (Costa et al. 2001), higher uncertainty and collectivist self-identity (Hosftede and Hosftede, 2015; De Mooij, 2014), this effect becomes compounded more. Although, women may use ICT as much as men, the internalization of technology as part of self-identity for men is much more accessible (Venkatesh et al. 2003) and therefore could explain why female Saudi NGO managers in this study, still require social influence to affect their technology adoption. A second effect, compounded yet further by Saudi male dominated workplace and cultural norms, is that women in Saudi Arabia are expected to behave in a more submissive and therefore less assertive, risk taking style (Sharabi, 1991). The risk of failure and loss of 'face' or social identity which is also generally higher in females than males (Sharabi, 1991) cannot be used to account this effect since no significant effects were found for perceived risk which is discussed in a subsequent sub-section. Therefore, the internalization-compliance-identification pathway, further compounded by cultural factors and the unique Saudi male dominated environment, may provide the most robust explanation for this positive moderating effect observed. Interestingly, no positive moderating effect was observed for age on social influence effects. This is in contrast to Al-Ghatani et al. (2007) but consistent with Baker et al. (2008). Given the good age mix in the study sample, and the explanation already proposed for performance and effort expectancy, it is possible that both young and older managers have equally been exposed to technology affects to such an extent that both have internalized this effect equally. Therefore, both old and younger male and female

managers feel equally strong about the role that others can play, or not on their compliance with new technology usage.

7.3.5 Facilitating Conditions

Within the organization, the availability of resources, such as technological, financial and human resources is referred to as the facilitating conditions (Taylor and Todd 1995; Thompson et al. 1991). The behaviour intention and facilitating condition construct are observed to have a strong relationship. The NGO managers clearly feel that the perceived need of financial resources is vital in encouraging their adoption of new technology since the scale used in this study to tap into facilitating conditions was largely based on financial resources, given the overwhelming number of managers interviewed citing this. This finding is therefore consistent with other studies (e.g. Neufeld et al. 2007; Wang and Cheung, 2004; Venkatesh et al. 2003; Taylor and Todd, 1995; Thompson et al. 1991). This effect also supports those few studies which have investigated this relationship in non-Western contexts (e.g. Gupta et al 2008; Al-Gahtani et al. 2007) but does not support the work of Anderson et al (2006), one of the few studies not to support this relationship.

Clearly, the finding supports the notion that NGO managers feel they are dependent on financial resources to be available before technology adoption can be fully materialized. This finding should come as no surprise, since Saudi NGOs although not limited typically by resources, are like any other organization, also dependent on financial support for new ventures. Facilitating conditions and compatibility in the literature are often discussed 'hand in hand' since it is generally conceptualized that facilitating conditions lead to compatibility. Given that this study did not find this, and instead found a non-significant effect for compatibility, in contrast to the previous studies exploring this relationship (e.g. Gupta et al. 2008; Al-Gahtani,

et al. 2007; Neufeld et al. 2007; Wang and Cheung, 2004; Venkatesh et al. 2003; Taylor and Todd, 1995; Thompson et al. 1991). Given that this study finding is completely in contrast to the consensus in the literature, and counter-intuitive in relation to the facilitating conditions-compatibility relationship, this issue us further digressed under the subsequent sub-section discussing compatibility and also within the appropriate managerial implications sub-section.

The subsequent factors, perceived risk, government support and compatibility, were found to be non-significant and therefore H4a-c, H5 and H8 were rejected. Explaining these effects has profound implications for Saudi NGOs in relation to technology adoption. An overview first is provided concerning each of these factors in relation to existing studies.

7.3.6 Compatibility

As already mentioned, compatibility is often discussed 'hand in hand' with the concept of facilitating conditions since ultimately the aim of facilitating conditions is to engineer compatibility and the relationship also operates in the reverse direction, with compatibility strengthening facilitating conditions. Given this dual relationship between the two, it seems counter-intuitive to find a positive relationship being reported for facilitating conditions but not for compatibility. Indeed, the study finds a non-significant relationship for compatibility, thus rejecting H8. As a reminder, compatibility is defined as the degree to which the social culture of the organization supports the values, beliefs, work practice and needs to become consistent with any innovation (Rogers, 1995; Agarwal and Karahanna, 1998; Moore and Benbasat, 1991). Given that the scale adopted for compatibility tapped into, values, needs, work practices and organizational culture, the study can only conclude that finding consistency between these and technology adoption does not influence technology

adoption for Saudi NGO managers. This is actually consistent with some studies such as Thong (1999) and Teo et al (1998) but contrary to the vast majority, which do find supporting evidence for this relationship (i.e. Gupta et al. 2008; Al-Gahtani, et al. 2007; Neufeld et al. 2007; Wang and Cheung, 2004; Venkatesh et al. 2003; Taylor and Todd, 1995; Thompson et al. 1991). This anomalous finding may be explained through various perspectives unique to Saudi NGO culture.

First, Arab culture generally depends much more on the oral tradition than on non-Arab cultures (Hill et al. 1998; Patai, 1983). It is therefore possible, that Saudi NGO managers depend less on tangible evidence for beliefs, values, practices and needs, arising from organizational culture and supporting evidence, than non-Western counter-parts. As such, these managers when being asked to articulate the effects of organizational values and beliefs may simply find it much more difficult to articulate these as concrete factors. Although the pre-testing of the survey found no ambiguity in these questions, and the interviews did support this construct and its supporting hypotheses, it is possible that compatibility may need alternative measurement methods to tap into its abstract nature. Certainly, according to De Mooij (2014) even the concept of belief and value may not have the same meaning in different cultures and therefore often a much more thorough emic, or inductive enquiry may be needed to deconstruct abstract constructs applied in different cultures. Therefore, the first explanation is based on a methodological one.

Second, it may well be possible that for the NGOs sampled, facilitating conditions have simply not migrated into the phase of compatibility yet, i.e. they have not become internalized sufficiently, and therefore the concept of synergy arising from shared values, beliefs and practices inside the organization with new technology has not materialized sufficiently. A longitudinal study examining the effect of facilitating conditions on compatibility may be warranted to prove this proposition. Moreover,

given the collectivist , higher uncertainty avoidance and higher power distance nature of Arab nations (Hofstede and Hofstede, 2005), Saudi NGO managers may simply not be able to identify with tangible organizational factors as being able to synergize with another tangible factor, facilitating conditions. De Mooij (20014) again supports the contention that in cultures characterized by higher collectivism, power distance and uncertainty avoidance, individuals are not able to articulate shared meaning between tangibles as well as those from Western individual cultures. Tangible factors provide individualist cultures with a means to attenuate their individualistic self-identities, i.e. as barriers to forming relationships, but this concept is alien to those with a mix of collectivism, higher power distance and uncertainty avoidance. The latter for instance cannot relate to concepts such as corporate identity as well (Sabri, 2004) as individualistic, lower power distance and lower uncertainty avoidance cultures since allotting human values to non-human objectives, i.e. identity to a corporation, requires contravening relational rules which govern relational self-identities (De Mooij, 2004; Ein-Dor, et al. 1992; Hofstede, 1991; Kedia and Bhagat, 1988).

7.3.7 Perceived Risk

The relationship between perceived risk and intention to adopt was not supported, nor we were the hypothesized moderating influences of gender and age in this relationship and therefore based on this H4a-c was rejected. Indeed, several studies have also shown no effect observed for perceived risk (e.g. Yuksel and Yuksel, 2007; Looi, 2005). These studies argue that perceived risk is more of a concern when security issues related to new technologies are ‘new’, once this barrier of insecurity has been internalized then perceived risk reduces. Given the moderately high levels of usage by Saudi NGOs, already of ICT, as well as of its permeation throughout Saudi culture – and growing fast – it can be concluded that insecurity issues are perhaps not as

prevalent for the managers anymore as they would be for a culture new to technology innovations.

Furthermore, NGOs generally have to deal with human lives and are therefore at the 'thick edge' of risk management already (Gallarotti and Al Filali 2013; Natsios, 1995). As such, new technologies may not present as much a risk as is often perceived in new technology contexts for NGO managers. Moreover, the mix of age ranges in the study sample indicates that any perceived risk attached by one particular age range, i.e. in the literature generally older people are linked to higher perceived risk for new technology adoption, may have become mitigated by the younger sample.

Add to this, the largely male composition of the mix, may have further mitigated the higher perceived risk often related to women users (Venkatesh et al. 2003). This may also further explain why no moderating effects for both gender and age were observed, albeit the original pathway is also non-significant further compounding the non-significance of any moderating influences. The fact that no moderating influences were observed for performance and effort expectancy, both antecedents of perceived risk (Venkatesh et al. 2003), further accounts for a reduced effect of perceived risk on intentions to adopt. Indeed, it may be that since managers feel comfortable in terms of complexity and ease of use, or outcomes expected from usage, the risk in technology adoption has already been internalised by respondents. Therefore, the discussion already presented for the lack of moderation found in performance and effort expectancy is able to account for a diminished effect on the general pathway of perceived risk on adoption intention.

7.3.8 Government Support

The original research framework and the accompanying literature, strongly stressed the importance of government support within Saudi Arabia generally for

introducing new technologies. As a result it would be expected that government support would have a strong and positive effect on technology adoption. Contrary to this, this study found no such relationship to hold and therefore H5 was rejected. Critically, in many ways, this finding presents the most challenging in terms of explaining.

This finding is particularly surprising since the culture in Saudi Arabia is very much different from the Western culture in terms of the state-business relationship. In the Western market, governments tend to have low levels of interference as well as support. On the other hand, the government of Saudi Arabia actually decides which technology must be allowed within the nation and which must be restricted. The electronic and digital laws within the nation are also decided by the government, as has been extensively discussed in the literature review chapter already. Indeed, the strongly argued that the government of Saudi Arabia plays a vital role in the development and assistance of technology adoption. Moreover, studies on technology adoption also demonstrate a powerful role for government support in technology adoption by organizations and individuals (e.g. Tigre, 2003; Chan and Al-Hawamdeh, 2002; Kim et al. 2009). Given the power distance of Saudi Arabia, relative to its Western counterparts, from a cultural perspective it would also be expected that citizens and companies are more reliant on the state for support and have greater trust in the state for this support. There are however some studies that have found no support for this relationship (e.g. Wang and Chueng, 2004; Seyal, 2004; Wong, 2003; Tan and Ten, 2000; Ten et al. 1998). These studies argue that in a sector where traditionally state intervention has been low, then expectations of state support are also low for technology adoption. Many of these studies for instance are linked to the tourism sector, which is characterized by its independence and whose policies are bound by seasonal demand and supply, rather than state interventions. Similarly, the NGO sector in Saudi Arabia has traditionally enjoyed unprecedented freedom and flexibility.

Indeed, the post 9/11 pressure on Saudi was due to this freedom to the NGO sector. It would appear from this study, that NGO managers in Saudi Arabia do not find government support to influence their technology adoption. In many ways, this is an alarming finding for the researcher since his own role is to educate the sector on technology compliance from the state. The implications of this therefore will be discussed as a key finding in the managerial implications section subsequently.

7.4 Objective 3: Managerial and Public Policy Implications.

This section of the discussion chapter seeks to address objective three of this study, namely examining the managerial and public policy implications of the structure and nature of technology adoption of Saudi NGOs. Given the original articulation of this study, highlighting the challenges facing the NGO sector in Saudi Arabia, especially post 9/11, the need to examine both managerial and public policy implications is vital. Both are discussed separately below.

7.4.1. Managerial Implications

The study provides NGOs in Saudi Arabia with valuable insights on the factors, which would impact ICT adoption. Given the growing consensus that ICT adoption is essential in creating and shaping general managerial competence (Bassellier et al, 2000; Applegate et al. 1999; Armstrong and Sambamurthy, 1990), having an understanding of some of the practical ways that managers can use to foster greater ICT adoption becomes all the more critical.

First, the fact that perceived risk was not found to be significant but performance and effort expectancy were, but with no moderating influence for age and gender should come as some comfort for Saudi NGO managers. Highlighting the benefits and positive expected outcomes of any new project is central in managing not

for profit teams (Sargeant and Shang, 2015). If this can be done, without the additional challenge of dealing with risk management, then an important initial management hurdle is already overcome. The fact that perceived risk did not emerge as an issue indicates that NGO managers are relatively comfortable with dealing with perceived insecurity issues related to new technologies. Communicating to overcome these insecurity barriers is therefore not needed. Despite this, there is still some perceived complexity and outcome expectancy which would need to be dealt with, albeit probably much less compared to if perceived risk effects were validated. An important, are of priority therefore for introducing new technologies to Saudi NGOs, is communicating to overcome perceived complexity, ease of use, and perceived outcomes related to job-fit and performance for instance. Facts and figures here proving the impact of new technologies on performance of other Saudi NGOs that have adopted new technologies may be vital. Demonstrating the ease of use to Saudi NGOs through sale agents, or 'demos', or through exhibitions, is also recommended.

This is consistent with the general view that 'user friendliness' as an ICT concept (Kim et al. 2008; Huh et al. 2008). User friendliness is therefore not only a concept applied to web design, which is often thought of when hearing of this term, but rather it is a central component in articulating the benefits, and reducing perceived complexity for managers in their decision making process in relation to new technology adoption. To conclude, taking relevant measures towards making employees and managers more aware of the system's benefits would encourage them to help implement the associated processes (Kim et al. 2008; Venkatesh et al., 2003; Venkatesh, 2000). It is correspondingly important that ICT professionals should disseminate relevant information amongst employees and individual NGO owners to make them more comfortable and aware of the systems involved, which would contribute to employees and managers being more comfortable with the perceived

complexities of any new technological processes. This would in turn contribute to the greater acceptance and utilization of new technologies.

Second, this study suggests that both compatibility and facilitating conditions should be in place for NGOs to create synergy between the internal structure of the organization with any technological product or system. This is despite finding no support for the effects of compatibility. As was argued this finding may simply be because facilitating conditions have not yet migrated sufficiently to articulate the effects of compatibility. Therefore, the pathway between facilitating conditions and compatibility may still hold and managers should not expect to decouple these two key organisational constructs. Efforts should be made by managers to engineer internal organizational change and through this change management process, create the necessary compatibility and facilitation for new technological practices. Given the strong influence noted for facilitating conditions indicates that Saudi NGOs are sensitive to financial resources available for new technological projects. This is not surprising, since although Saudi NGOs are some of the most heavily funded in the world, like all NGOs the priority is always on the human services they provide and therefore budgeting and allocation of resources is first and foremost, directed towards human services. If a new substantial technological project is to be introduced, naturally managers will want to know whether they can balance this with other more priority and immediate efforts on the ground. This then is also linked to performance expectancy since if NGOs realise that in the long term, new technologies can create substantial operational efficiencies, initial start-up costs of new technologies may be more acceptable.

Third, the strongest predictive factor to emerge from this study was in fact competitive pressures as a driver for adopting technology. As such, it is important to communicate the changing status quo in the NGO sector in Saudi by highlighting that

other NGOs are adopting new technologies to develop their service offerings. Competitive benchmarking reports in relation to which Saudi NGOs have adopted new technological systems and how this has impacted performance may go a long way to communicate performance expectancy and play on the social pressure from other competitors. It is important to highlight here, that competitive pressures may not necessarily operate in an aggressive direction in the NGO sector, as is the case in the corporate world. Rather, competition can lead to collaboration in the third sector in general (Sargeant and Shang, 2015). Therefore, emphasising that whilst other NGOs are integrating new technologies, the outcome of this is they can then become part of a new digitally connected NGO circle, and increase engagement and connections with other stakeholders. Using this push strategy is more consistent with the concept of completion in the NGO sector. Correspondingly, the Saudi Ministry of Development in particular needs to have a more active role in being able to convince stakeholders towards encouraging instituting e-commerce processes in the NGO sector but also developing trust in the sector of its enabling role. In instituting e-commerce processes, there would be enhanced degrees and measures of cooperation between the Ministry of Communication and Information Technology, Ministry of Development and the NGO sector. Effectively, the Ministries responsible for enabling the NGO sector should be in direct communication with individuals towards facilitating the early detection of problems and challenges. The former should therefore facilitate in terms of providing a continuous level of support and feedback to the agents so that they are proficient with the systems implemented (Applegate et al. 1999).

Fourth and perhaps most critically is the finding that NGO managers are not leveraged by perceived government support in adopting new technologies. Whereas, the government of Saudi Arabia has made substantial progress in communicating to the NGO sector the need to upgrade technological systems, it would appear that this may

not have internalized amongst managers of NGOs as much as the government would expect or hope. This finding forms the backdrop of implications for policy making and is therefore discussed separately below.

7.4.2 *Public Policy Implications.*

In many ways, the pressure on the Saudi government to revolutionise the NGO sector in terms of its transparency and accountability through greater ICT integration, post 9/11, is unwarranted since no evidence to date has been presented that any Saudi NGO has been involved directly funding terrorism. The biased nature of this external pressure is beyond the scope of this thesis, but given that this external pressure existed post 9/11 and still does, the need to ensure that the NGO sector is upgrade is essential. However, many Saudi NGO managers commented that they perceived the need to do so, as a result of being culpable for funding terrorism as a general image of the sector to be wholly unfair and fictitious. Therefore, communicating ICT change for the sector, because of this contention, may not be the best way forward to bring real change in the NGO sector in Saudi Arabia.

The Saudi government has launched an ambitious e-government policy and strategy in its own right, for purposes of transforming and diversifying the economy. The ultimate purpose of this intervention is to generate long-term sustainability. Indeed, at the United Nations (UN) Conference on Sustainable Development held in Rio de Janeiro, Brazil in 2012, the UN member states reached consensus that in order to achieve sustainability, government agencies and institutions must not only improve their efficiency and transparency but must also thrive to be accountable and to implement democratic principles in their organizational logic and operations (UN, 2014). The participating nations including Saudi Arabia have also agreed that e-government holds tremendous potential in realizing these goals. The notion of e-government encompasses several technologies and information communication

practices. Apart from developing and implementing technical tools such as social media that facilitate the communication between citizens and government agencies, e-government also promotes and uses electronic transactions and Big Data to make governments more efficient and to provide vital services and information to private citizens, research institutions, NGOs, and economic stakeholders such as investors, business owners, etc. (Oliveira and Welch, 2013).

With two-thirds of the population being under 30 years of age, Saudi Arabia has a very young population; moreover, Saudi "millennials" are avid users of communication technologies including smart phone, tablet computers, and social media networks (BCG, 2015). The combination of these two factors and the desire to advance the country economically has led the Saudi government to embrace the use of new technologies in delivering services to its citizens. Saudi Arabia has been one of the early adopters of e-government in the Middle East region and has thus far steadily improved and expanded its e-government portfolio.

Currently, most government agencies in Saudi Arabia have websites that provide at least some level of customer service to visitors (Al-Shehri et al. 2010). However, as of 2012, only 59% of government agencies had fully implemented all e-government capabilities on their websites. In this context, it is, however, also important to point out that since 2012, Saudi Arabia has made significant strides. The Ministry of Justice, for example, has fully automated its court proceedings and administrative tasks. Individual who are involved in trials or who need to complete deeds that require court approval can now do so remotely through their computers. It is no longer necessary for lawyers, parties, or judges to appear in person at the court. An added advantage of this change in administrative and judicial practice is that all court proceedings are automatically achieved and stored in the cloud where they can be retrieved with the press of a bottom. Therefore, sustainability for sustainability's sake should also be the

policy used for the Saudi NGO sector. When these NGO managers are surrounded by other sectors receiving positive communications phrased with technology adoption or the sake of sustainability, then not doing so for the NGO sector may prove counter-productive. The fact that NGO managers no longer hold perceived government support as a critical driver of technology adoption may be the strongest indication yet of re-framing the narrative on policy towards ICT adoption for the Saudi NGO sector.

A second potential cause for not finding government support so influential in ICT adoption may be due to the fact that many NGOs operate under the patronage of members of the extended Royal family. Indeed, to argue that the volunteer sector is independent in Saudi Arabia would be ignoring the powerful influence of the Al-Saud royalty as important decision makers at the board levels of many of the most well-known charities and NGOs in the country. The NGOs are under the direct influence of Royals in the Kingdom and they form a supervisory umbrella over the activities and functionalities of these NGOs (Finn et al. 2006). Each sector of the society, whether that is voluntary services, cultural activities, or women empowerment programs, is distinctively influenced, by royalty, even autonomous NGOs. The financial activities of these NGOs are under constant radar of Kingdom's authorities which are under absolute influence of Saudi Royal family (Gallarotti, 2011). Al-Birr, for instance, is effectively a government arm but with an independent image, often implementing government policy and directives such as the women sheltering program of 2005. The involvement of a prince or a princess as a patron of NGOs is usually considered as an essential benchmark of quality within the Saudi NGO landscape. In many cases, individual princes and princesses and their drive or levels of activity determine the policy and activity levels of the respective NGO. A case in example is Sara bint Talal bin ‘Abd al-Aziz, an extremely active patron for the Down’s Syndrome charity in Riyadh.

The role of Al-Saud royalty as effective patronage in the voluntary sector of Saudi in many ways is attempts by some of the Royal family members attempting to create social change without going through the official vertical hierarchy in the country. The Saudi princesses and princes have long been considered as autocratic; operating autonomously even from state policy (Gallarotti, 2011). Indeed, in order to have their voices heard these members of the extended Royalty often promote social culture through NGOs (Al-Yahya, 2011) or Montagu (2011) terms "*reverse patrimonialism*" by serving their country through patronages to NGOs. A key implication of this is of course it that, NGOs are not influenced by state policy, but by the powerful patronage of the extended Royalty over individual NGOs. A challenge therefore for the state is to convince and leverage these Royal patrons, to align their NGO's policies with state policies. However, this opens up an additional challenge in that any such change agent for the NGO sector must carry with it substantial power and authority, and be sanctioned with Royal approval at the highest level, to have any credibility and authority over extended members of the NGO patronage system. Any compliance, or regulation system for the sector, must be shown to be transparent and willing to impose compliance measures for *all* NGOs, in breach of state policy, irrespective of who the patron may or may not be.

7.5. Summary

The discussion has shed light on the originality of this study, especially in terms of uncovering the multi-dimensional or integrated nature of technology adoption in Saudi NGOs for the first time. In doing so, a series of personal factors, namely performance expectancy, effort expectancy, social influence as well as organisational, i.e. facilitating conditions and external or environmental, i.e. competitive pressure, were found to be the most robust positive influences on ICT adoption. Moreover, a key factor, which

was expected to influence ICT in a positive direct, government support, was not supported. Numerous managerial implications are presented in this chapter but also public policy implications especially in relation to the unexpected lack of support for government support are discussed. This study argues that two potential reasons for this include, dissatisfaction by NGOs in the current status quo of mislabelling the NGO sector in a critical manner might be counter-productive and the patronage system through which many NGOs may operate may limit their dependence on state policy as a guiding principle to improve in relation to ICT. Although the theoretical contribution has been touched on this in this chapter, this is further digressed in the subsequent chapter, in conjunction with highlighting the study's chief limitations and recommendations for further research.

CHAPTER EIGHT: THEORETICAL CONTRUBUTION, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

8.1. Introduction.

The purpose of this chapter is to provide a synopsis and self-refection of the study. In doing so, it can be divided into the following sub-sections: (i) theoretical contribution reviews the findings in terms of contribution to theory development, (ii) methodological contributions overview any contribution to methodology and finally (iii) limitations and recommendations for further research overviews a retrospective critique of the study and within this builds arguments for further research. Finally the chapter concludes with a conclusion (iv) serving also as the summary for the entire project.

8.2. Theoretical Contribution of Study

The study sought to investigate a neglected study domain, namely the adoption of ICT by Saudi NGO managers. The lack of existing knowledge on ICT adoption within Saudi contexts first provided a backdrop to this study. Although some studies have been done on Saudi profit making contexts, none of these had applied an integrative approach to ICT adoption. Therefore, whilst for instance Al-Gahtani, et al (2007) adopt the UTAUT model for investigating adoption of desktop applications by Saudi knowledge workers, Baker et al. (2008) apply the Theory of Planned Behaviour to a sample of workers from Saudi corporations to investigate adoption of computers. These existing studies adopt the perspective that technology adoption is driven largely by personal factors. Within western contexts however, numerous studies have adopted more integrative approaches, assessing the combination of personal, organizational and environmental or external factors as predictors of technology adoption. No previous

study to date has investigated whether the multi-dimensional, holds within a Saudi context and this therefore formed the primary theoretical contribution of the present study. Given the importance of organizational factors such as facilitating conditions and compatibility or external and environmental factors such as government support and competitive pressure, integrating these within a technology adoption perspective for a Saudi context was critical. The findings validate the multi-dimensional nature of technology adoption in a Saudi context and therefore provide evidence of the robustness of this approach.

Second, and compounding this lack of knowledge, is that no previous study has explored ICT adoption within a NGO context and therefore given the rich heritage of Saudi NGOs, the recent discourse on the need to increase transparency and accountability of the Saudi NGO sector, this context provided an ideal platform for further investigation and knowledge development. Although numerous studies and accounts exist which emphasize the role that technology can have on the operations of NGOS (e.g. Sargeant and Shang, 2015; Lee et al. 2001; Finn et al. 2006; Te'eni and Young, 2003; Poole et al. 2001), no study has investigated the technology adoption process in an NGO context before. Therefore, a secondary key contribution of this study is to advance knowledge on technology adoption within NGOs. As an initial foray into this exciting new research domain, this study is a first to validate the multi-dimensional nature of technology adoption within NGOs. In doing so, the study also focuses on managerial and therefore organisational adoption.

Third, and linked to the second objective of the study to examine the structural composition of the multi-dimensional nature of technology adoption in Saudi NGOs, are several theoretical contributions in their own right. First, the study is the first to find a discrepancy between facilitating conditions and compatibility. Whereas typically, these are discussed in conjunction with each other as having a dual relationship (e.g;

Taylor and Todd, 1995; Thompson et al. 1991), this study found support for validating facilitating conditions but not for compatibility. This indicates that perhaps facilitating condition effects have simply not migrated over yet to materialize as compatibility, which is possible if the relationship between both is considered as a pathway. This issue is discussed under managerial implications but from a theoretical perspective, it suggests that facilitating conditions themselves may represent a diffusion of innovation effect, and it is possible a tipping point needs to be reached before compatibility of these conditions is appreciated at the organizational level. Second, despite the overwhelming consensus on the importance of government support in technology adoption, especially in developing or emergent economies (e.g. Calantone et al. 2006; Molla and Licker, 2005a; 2005b; Seyal et al. 2003; Everard, 2000), this study finds no support for this contention. This is more surprising given the role of the Saudi government in initiating digital change within all sectors in the country (e.g. Al-Yahya and Fustier, 2011). In many ways therefore, this study represents a departure from the typical stereotype of Saudi Arabia as a patriarchal system whereby state governs, and citizens follow only. Government agencies in Saudi Arabia are tasked with formulating necessary guidelines regarding Internet and e-commerce legislation and yet the majority of NGO managers perceive that state directives do not significantly impact on the adoption of e-commerce processes. It is therefore important that the extent of government support be investigated further in consideration of reviewing technology adoption processes within Saudi Arabia. The issue of trust which was not investigated may act as a potential mediator in future studies; perhaps Saudis do not trust the level of competence of their government in enabling digital adoption in the NGO sector. Third, the findings linked to moderating influences also reflect a contribution to theory development, since they advance the notion that male, female, younger and older identities, but at the Saudi managerial level, have equally internalised the effects of

performance expectancy and effort expectancy. Whereas previous studies, such as Al-Gahtani et al. (2007) and Baker et al. (2008), who also examine these moderating influences within Saudi technology adoption contexts, point to purely sampling causes as influencing this result, this study suggests this may be due to the internalisation of existing levels of diffusion of technologies in the cultural and organisational environments. This study makes this proposition since unlike previous studies (Baker et al, 2008; Al-Gahtani, et al. 2007), the age sampling mix was much more diverse and therefore sampling bias cannot be purely linked to this finding.

8.3 Methodological Implications

The central methodological contribution of the current study is the need to use qualitative input in developing technologies adoption conceptualisations for local and cultural contexts. It is a challenge to duplicate Western standards, of business orientation modelling generally in the Saudi context (Calantone, et al. 2006). While the measures deployed in the current study seemingly reflect the generalized versions of the technology adoption domains with regard to the constructs evaluated, excluding input from interviews would have accounted for major discrepancies (Craig and Douglas, 2005). Qualitative research has been shown to generate greater validity in the Saudi context to further highlight sand explain the factors contributing to technology adoption. In this regard, exploratory interviews conducted enable a deeper understanding of the conditions facilitating the technology adoption process. Consistent with Hardgreave and Johnson (2003) recommendation, this study verifies that conceptualising technology adoption especially for non-Western contexts should be rooted in inductive queries to guide the development of theory.

A second key methodological contribution is the use of managers, as the primary sampling frame, to reflect organisational level technology adoption for Saudi

contexts. Existing studies purporting to study technology adoption in Saudi contexts (Baker et al. 2008; Al-Gahtani, et al. 2007) have used frontline staff, as users of technologies and inferred organisational technology. As such, this study represents a first to utilize managers in its sampling to more accurately reflect the organisational perspective. According to Thompson et al (1991), the use of the sample frame affects inferences related to technology adoption. Bassellier and Reich (2001) argue that in examining organizational technology adoption processes, managers provide the most appropriate sampling unit, in contrast to frontline staff, since, only they possess the "set of IT-related explicit and tacit knowledge that a business manager possesses that enables him or her to exhibit IT leadership in his or her area of business" (p. 1). Moreover, as Rockart et al. (1994) also in relation to the same context, argue, "Only line managers are close enough to their business segments to see the most effective ways to utilize this resource. Only they possess the clout to embed IT into their strategies and to commit the necessary financial resources" (p. 55). Despite this consensus, existing studies, inferring organisational technology adoption, avoid using managerial responses and as such this study reflects a more accurate methodological alignment with tapping into the organisational perspective.

8.4 Limitations and Directions for Future Research

Regardless of the fact that this study aims to facilitate the adoption of ICT by Saudi NGO management bodies and provides suggestions to decision makers in the field of NGOs, the study has certain shortcomings. It has not investigated different avenues of future research. First of all, an outline has been proposed for the Saudi NGOS in terms of the model but it is lacking in terms of practical execution. Without a longitudinal study it is not possible to determine if whether or not the constructs can truly influence behaviour. Moreover, the researcher has exclusively inquired the NGOS

based in Riyadh and Jeddah, the largest of the Saudi cities, instead of investigating other NGOs spread across the entire country. Even though this methodology facilitates the researcher in collection of data, at the same time it limits the results in terms of generalization. It has been found that the assessment of an up-dated model consisting of a relatively larger sample including other NGOs across the GCC countries could further help a great deal in generalizing the results.

Secondly, the NGO sector has been investigated in this study and the same concerns have been found to exist in this sector. The research results are exclusively centred on this sector. Thus, to apply the results deduced from this study to other related sectors like education, government etc. the research should be extended much further. Also the researcher should be careful in case he/she wishes to apply the research findings to industries or those offering different services particularly like hospitals or education. The future research prospects in developing countries should use the model proposed in this study and apply it to other sectors like education in order to get knowledge about the level to which these research conclusions can be generalized. These other related other sectors often comprise independent structures but carry the same function of many NGOs, i.e. fundraising and social marketing applications.

Third, a basic shortcoming of this study exists in its cross-sectional design. This is because causality of relationships cannot be fully verified in cross-sectional studies. According to (Luarn and Lin, 2005; Looi, 2005), the insight and objective to use e-commerce is calculated at a single point in time. On the other hand, after a time period this objective may vary. Moreover, the development stages of technology adoption across industries can be demonstrated in longitudinal studies.

The fourth point is that this study highlights the essential function that government organs can perform to persuade the organizations towards the application

of e-commerce in developing countries by offering them benefits to invest in this innovation. On the other hand, there are two significant factors regarding this feature. First of all there exists an argument that the use of e- commerce may be made obligatory for NGOs by the Saudi government, leading to a direct effect on the actual use. Though, the existence of any relationship between the government support and actual use has not been found. So, future research efforts may highlight the relation between government support and adoption of technological innovation in Saudi Arabia. Secondly, though the government support lead to the adoption of technological innovation in developing countries the same may hold for developed countries (Calantone et al., 2006). Hence, future research applying UTAUT model should be performed to thoroughly examine the importance of government institution in developed as well as developing nations.

The fifth point states that the present study analyses the importance of mediators in relationships existing in the model. On the other hand, the review of literature based on technology acceptance reveals that gender has been emphasized regarding mediating the impact between both dependent as well as independent variable instead of age. Not much of the research has been performed, focusing on both gender and age in developing countries. (Venkatesh et al. 2003) states that future research efforts in particular should emphasize on the interaction between these two demographic variables as well as their mediating position role between the independent and the dependent variables. For instance, Venkatesh et al. (2003) proposed that older females having some experience are expected to put in more effort. This suggests that further research should focus on right age at which these effects become visible or begin to fade away for various constructs like effort expectancy or performance expectancy respectively. Moreover, due to cultural restrictions smaller female sample

size has been considered in this study. This limited the researcher, not allowing him to establish the interaction effect as the comparisons won't be coherent.

The sixth point states that though UTAUT can describe the adoption of e-commerce there are other variables like trust, organizational factors, CEO characteristics must be taken into account to examine the adoption of e-commerce in organizations. Moreover, the researchers could examine as well as incorporate the casual antecedents of some constructs employed in model designed for technology acceptance into the UTAUT. For instance, Davis et al. (1989) explored the various impacts of system features in terms of apparently simple and useful constructs .These antecedents would facilitate the designers in designing websites that would cater the needs of NGOs, making it valuable and user friendly in years to come.

The seventh point is that this study has taken into account employees who have some experience regarding the utility of e-commerce. The amount of experience will influence the rate of technology adoption as proposed by Zain et al. (2005). According to an argument put forward by Venkatesh et al. (2003), inexperienced users are more influenced by social factors while accepting a technological innovation during the initial phase. As a result, future research employing various experienced participants in the system must be carried out.

Finally, a methodological implication was the use in the current study in adopting multiple regression, as the main analytical process for mapping the hypothesised relationships. However, a key assumption in multiple regressions is that constructs are not processed as latent variables and therefore additional variance caused by extraneous indicators or error variance is not considered in determining the validities of the constructs but also of the hypothesised relationships (Bandyopadhyay and Fraccastoro, 2007). This issue can also be addressed in future research by adopting

shorter item scales to reflect the constructs and therefore employ more robust statistical processes such as structural equation modelling, Partial Least Squares, etc.

Finally, eight and perhaps most critical is that an in-depth inductive query was not conducted but rather an exploratory phase was used to facilitate, rather than to construct, new hypotheses. A pure social constructionist phase for instance may uncover much more, deep rooted perceptions and attitudes, related to ICT adoption drivers or barriers. In-depth interviews, used in conjunction with other probing techniques such as metaphor elicitation techniques, for instance may help to uncover insights which direct probing may not be able to tap into. Such approaches would require much longer times for interviews and be open to using the datasets for detailed thematic analysis, not only to use in facilitating hypotheses construction, but in generating new theory in terms of new construct generation and new hypothesised relationships.

8.5 Conclusion

To first summarise this chapter, it has highlighted the important findings of the present research study. Therefore, it has emphasized the theory-based ramifications of the results deduced from the study. In doing so, it has highlighted the key theoretical contributions but where possible, any methodological implications have also been proposed. A series of limitations, and as a consequence of these, research recommendations for further research were made.

Based on a post-positivist critical realist ontology, this study embarked on a two step study design. The first involving a series of exploratory interviews with senior Saudi NGO managers, and the second comprised the main survey phase to validate the conceptual model arising from the inductive phase and its associated hypotheses. Critically, a multi-dimensional conceptualisation arose from the inductive phase and this was again validated from the empirical survey phase, lending support to the notion

that ICT adoption for Saudi NGOs is an integrative and multi-dimensional domain. This ahs important ramifications for managers in Saudi NGOs since it indicates that it's not just human decision making at the employee psychology level for instance that needs to be leveraged for ICT adoption but also there is a need to monitor and evaluate competitive use of ICT and monitor and evaluate the internal organisational structure and systems to align them with the new technologies. Critically, this study points also the value of using managers as a sample frame to uncover organisational ICT and given this use it is possible the richness of the emergent multi-dimensional nature has actually emerged. This is in line with the existing literature on the use of managers to uncover ICT knowledge, since they represent the interface between organisational policy and vision, as often its instigators, and with frontline employees who may be the ones asked to adopt the new technological processes and systems. By no means, is this an exhaustive study and the limitations section has shown a multitude of weaknesses in the current study design and approach. However, and often emerging from an understanding of the limitations a string of potential recommendations for further research have also been highlighted to take the study of ICT adoption further. New approaches to uncover managerial perceptions and attitudes towards ICT adoption remain a ripe opportunity for research in the future as does alternative techniques in understanding the NGO sector.

Clearly, ICT adoption by Saudi NGOs has shown a more complex side by the lack of government support influencing its adoption, a finding completely contrary to existing studies and the study's original framework. However, this finding has also raised some serious implications for public policy in relation to ICT adoption by NGOs. First, it suggests that perhaps NGOs do not consider government state policy and its directives in the compliant and positive perspective as might be thought of and one cause behind this might the general status quo, globally and nationally, that the

sector has suffered in terms of its disparagement and culpability for acts for which no evidence has to date been presented. The solution to this therefore is clearly to celebrate with confidence the achievements of the Saudi NGO sector, rather than undermining it through external pressures, unfounded by evidence, and to by default empower Saudi NGOs with the position they deserve at the global humanitarian landscape as one of its current chief shapers. Doing so, might privilege Saudi NGOs with the necessary credibility and therefore encourage them to trust their country's state policy on ICT as an initiative and driver for adoption more.

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APPENDIX A: Reliability analysis of pre-test survey.

Factor	Corrected I-T Correlation	Cronbach's alpha if item deleted
Performance Expectancy Cronbach Alpha = .788		
PE1	.654	.731
PE2	.789	.632
PE3	.633	.665
PE4	.701	.702
PE5	.784	.695
PE6	.814	.623
PE7	.698	.711
PE8	.112	.802
PE9	.564	.766
PE10	.754	.643
PE11	.094	.812
PE12	.567	.754
PE13	.455	.733
PE14	.566	.729
PE15	.789	.712
PE16	.763	.699
PE17	.687	.745
PE18	.703	.787
PE19	.711	.761
PE20	.709	.759
Effort Expectancy Cronbach Alpha = .758		
EU1	.734	.711
EU2	.732	.713
EU3	.743	.698
EU4	.738	.678
EU5	.713	.756
EU6	.734	.712
EU7	.699	.756
EU8	.734	.719
EU9	.754	.700
EU10	.732	.704
EU11	.741	.708
EU12	.701	.745
EU13	.723	.734

Factor	Corrected I-T Correlation	Cronbach's alpha if item deleted
Social Influence Cronbach Alpha = .772		
SI1	.601	.767
SI2	.654	.798
SI3	.789	.723
SI4	.734	.733
SI5	.703	.764
SI6	.711	.737
SI7	.800	.688
SI8	.543	.812
Perceived Risk Cronbach Alpha = .734		
PR1	.734	.693
PR2	.756	.704
PR3	.743	.732
PR4	.602	.789
PR5	.805	.602
Government Support Cronbach Alpha = .621		
GS1	.701	.733
GS2	.796	.743
GS3	.878	.703
GS4	.096	.822
Compatibility Cronbach Alpha = 0.723		
COMPT1	.799	.747
COMPT2	.801	.740
COMPT3	.843	.731
Behavioural Intentions Cronbach Alpha = 0.787		
BI1	.732	.743
BI2	.834	.754
BI3	.839	.759
BI4	.756	.751
Competitive Pressure Cronbach Alpha = 0.756		
CP1	.745	.755
CP2	.745	.776
CP3	.771	.792
CP4	.398	.823
CP5	.376	.835
Facilitating Conditions Cronbach Alpha = 0.724		
FC1	.521	.713
FC2	.684	.655
FC5	.438	.729

APPENDICES: APPENDIX B: CORRELATION MATRICES FOR VARIABLES

(All correlations significant at the 0.05 level.)

Correlation between Dimensions of Performance Expectancy

																	1	PE1
																1	.72	PE2
															1	.79	.89	PE3
														1	.71	.82	.88	PE4
													1	.70	.87	.88	.83	PE5
												1	.82	.86	.83	.83	.84	PE6
											1	.83	.62	.64	.72	.82	.64	PE7
										1	.1	.22	.18	.24	.20	.33	.30	PE8
									1	.75	.69	.61	.74	.65	.64	.61	.57	PE9
								1	.88	.615	.79	.82	.70	.78	.71	.61	.87	PE10
							1	.45	.50	.46	.45	.25	.54	.56	.34	.35	.50	PE11
					1	.7	.51	.30	.54	.53	.56	.65	.65	.6	.53	.67	.52	PE13
				1	.45	.65	.65	.54	.64	.725	.65	.60	.63	.65	.60	.63	.60	PE14
			1	.8	.65	.63	.8	.78	.98	.74	.20	.76	.71	.65	.74	.67	.78	PE15
		1	.7	.63	.54	.61	.68	.44	.63	.68	.22	.74	.61	.73	.77	.82	.71	PE16
	1	.69	.65	.64	.45	.55	.40	.35	.67	.723	.16	.82	.72	.6	.68	.72	.64	PE17
1	.82	.73	.73	.74	.67	.69	.68	.42	.54	.570	.10	.73	.83	.77	.61	.62	.79	PE18
1	.71	.7E	.87	.87	.74	.85	.55	.69	.71	.41	.65	.14	.53	.78	.53	.72	.61	.75	PE19
1	.80	.73	.89	.68	.55	.53	.59	.52	.43	.68	.494	.11	.53	.61	.71	.75	.62	.73	PE20

APPENDIX B: CORRELATION MATRICES FOR VARIABLES CONTINUED
(All correlations significant at the 0.05 level.)

Correlation Between Dimensions of Effort Expectancy

												1	EE1
											1	.783	EE2
										1	.793	.779	EE3
									1	.777	.778	.731	EE4
								1	.830	.864	.741	.742	EE5
							1	.819	.866	.859	.862	.744	EE6
						1	.703	.655	.671	.657	.704	.708	EE7
					1	.757	.670	.718	.753	.641	.751	.771	EE8
				1	.778	.688	.654	.526	.663	.757	.763	.639	EE9
			1	.925	.752	.664	.760	.731	.658	.636	.630	.737	EE9
		1	.863	.856	.828	.781	.845	.819	.813	.828	.822	.848	EE10
	1	.728	.834	.792	.615	.796	.793	.780	.780	.881	.615	.597	EE11
1	.751	.973	.784	.834	.799	.755	.789	.796	.764	.757	.853	.865	EE12

APPENDIX B: CORRELATION MATRICES FOR VARIABLES CONTINUED

(All correlations significant at the 0.05 level.)

Correlation Between Dimensions of Social Influence

						1	SI1
					1	.948	SI2
				1	.821	.824	SI3
			1	.875	.639	.766	SI4
		1	.885	.837	.717	.753	SI5
	1	.853	.832	.692	.672	.638	SI6
1	.854	.849	.739	.761	.737	.996	SI7

Correlation between Dimensions of Perceived Risk

				1	PR1
			1	.608	PR2
		1	.746	.731	PR3
	1	.883	.573	.645	PR4
1	.702	.624	.585	.626	PR5

APPENDIX B: CORRELATION MATRICES FOR VARIABLES CONTINUE

Correlation between Dimensions of Government Support

			1	GS1
		1	.725	GS2
	1	.762	.844	GS3
1	-.271	-.296	-.270	GS4

Correlation between Dimensions of Competitive Pressure

X5	X4	X3	X2	X1	
				1	CP1
			1	.704	CP2
		1	.239	.175	CP3
	1	.857	.766	.667	CP4
1	.358	.379	.487	.446	CP5

APPENDIX B: CORRELATION MATRICES FOR VARIABLES CONTINUE

(All correlations significant at the 0.05 level).

Correlation between Dimensions of Facilitating Condition

			1	FC1
		1	.793	FC2
	1	.473	.549	FC3

Correlation between Dimensions of Compatibility

			1	COMPT1
		1	.848	COMPT2
	1	.961	.805	COMPT3

Correlation between Dimensions of Behaviour Intention

				1	BI1
			1	.714	BI2
		1	.704	.880	BI3
	1	.727	.884	.860	BI4

APPENDIX C: ROTATED FACTIR MATRIX FOR FINAL SURVEY INSTRIMENT SCALE

CP	FC	C	BI	CP	GS	PR	SI	EE	PE	Items
									.86	PE1
									.84	PE2
									.83	PE3
									.81	PE4
									.80	PE5
									.80	PE6
									.79	PR7
									.77	PE8
									.77	PE9
									.77	PE10
									.76	PE11
									.75	PE12
									.73	PE13
									.73	PE14
									.70	PE15
									.63	PE16
									.61	PE17
									.52	PE18
								.85		EE1
								.85		EE2
								.82		EE3
								.82		EE4
								.81		EE5
								.80		EE6
								.79		EE7
								.73		EE8
								.71		EE9
								.70		EE0
								.70		EE1
								.70		EE2
								.68		EE3
							.84			SI1
							.84			SI2
							.81			SI3
							.81			SI4
							.72			SI5
							.71			SI6
							.67			SI7
							.65			SI8
						.79				PR1
						.78				PR2
						.74				PR3
						.68				PR4
						.66				PR5

CP	FC	C	BI	CP	GS	PR	SI	EE	PE	Items
					.826					GS1
					.803					GS3
					.790					GS2
				.934						CP2
				.906						CP5
				.906						CP4
			.676							BI1
			.661							BI3
			.649							BI2
			.626							BI4
		.626								C1
		.620								C2
										C3
		.553								C4
	.828									FC1
	.776									FC2
	.567									FC3
.526										CP1
1.02	1.343	1.451	1.661	1.687	1.789	2.567	4.88	11.56	22.690	Eigen Value
2.09	3.247	3.856	4.333	5.01	5.234	6.88	10.2	14.22	25.88	Var. Explain

Notes: KMO measure of sampling adequacy**:** .938 ; Sig .000 ; Cumulative Variance 77.678