

**Adoption, Diffusion and Use of E-Government Services  
in the Abu Dhabi Police Force**

**A thesis submitted to the University of Hertfordshire in partial  
fulfilment of the requirements for the degree of  
Doctor of Philosophy**

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**May 2013**

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## Abstract

Information and Communication Technologies (ICTs) are becoming increasingly prevalent in peoples' daily lives due to the presence of e-government. This research aims to identify and understand factors affecting the adoption and use of e-government services in a public sector organisation in a developing country, in this case, Abu Dhabi Police Force (ADPF) in the United Arab Emirates (UAE). For this purpose a theoretical framework based on existing e-government and e-services literature was developed. To determine its applicability, a qualitative approach involving 200 participants' interviews was used in this study. The questions for the interviews were based on the constructs derived from classic theories in the literature. The theories are: Diffusion of Innovations Theory (DOI), Technology Acceptance Model (TAM), Decomposed Theory of Planned Behaviour (DTPB) and e-Commerce's Trustworthiness models. The research study results revealed that departments that had roles and responsibilities aligned with government online products and services, adopted e-services better. Where training and awareness was provided, individuals adopted e-services better, and where trust in the provision of e-services was divided in two. The first relates to e-services being better than a manual service as e-services provide clarity and transparency. The second form of trust aligns with confidentiality and privacy. A subset of the research revealed that demographic factors that include, an organisational structure position and the role that one has, inhibit or encourages the use and adoption of e-services. The contributions from this research are anticipated to be a better understanding of the adoption, diffusion and use of e-services in the UAE region. For theory, this research study provided a diverse approach (qualitative research) in an organisational context, the development of a conceptual framework specific to Abu Dhabi's public sector department and finally, there is research conducted on government to employee e-services in Abu Dhabi, a rare occurrence. For policymakers, the contribution of this research is that the research can understand the impacts of policies and strategies used for developing and implementing e-services. For practice the contribution can be in the form of results that organisations providing external consultancy services in the UAE can identify and understand. Therefore, results such as, lower positions individuals in departments not utilising e-services emerged and suggest that awareness should be inherent within the organisation. By doing so, fewer risks and waste of resources in the form of time and personnel can be avoided.

### Keywords:

ICTs, E-government, E-services, Developing Countries, Abu Dhabi Government, Public Sector, Police Force, Qualitative Research, Case Study, Technology Diffusion and Adoption Theories

## Acknowledgments

“بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ”

“In the Name of Allah, the All-Merciful, the Ever-Merciful”

After thanking Allah for giving me the chance to undertake and complete this research, I would like to thank many people who assisted me during this process.

I would like to thank my principal supervisor, Dr. Jyoti Choudrie, for her unlimited support, efforts and knowledge. Without her encouragement and support, I would never have completed this research. Dr. Reda Lebcir, my second supervisor, I would also like to thank as he was always ready to help me.

A second thanks goes to the research office, for their efforts in resolving any issues that I faced during my study period at the university. I also want to thank Anne Pink, for her advice and assistance during the last stages of the writing up. Thank you.

Third, I would like to thank my sponsor, Abu Dhabi Police. The police force was most supportive and cooperative and allowed me to complete these studies. Within the police force I would like to thank the Abu Dhabi Police staff members who participated in this study.

Finally and most importantly, my gratitude goes to my parents, wife Ayesha and my son Saif. Thank you for always supporting me with words of encouragement, patience and standing by me during very hectic and stressful times that were endured whilst undertaking this research.

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**List of Abbreviations**

AD	Abu Dhabi
ADPF	Abu Dhabi Police Force
COMPA	Compatibility
COMPL	Complexity
DOI	Diffusion of Innovation Theory
DTPB	Decomposed Theory of Planned Behaviour
G2C	Government to Customer
G2G	Government to Government
G2B	Government to Business
G2E	Government to Employee
GCC	Gulf Cooperation Council Countries
ICT	Information and Communication Technologies
IS	Information Systems
IT	Information Technology
PBC	Perceived Behavioural Control
PCI	Perceived Characteristics of an Innovating
PEOU	Perceived Ease of Use
POD	Policing Operations Department
PU	Perceived Usefulness
RA	Relative Advantage
SID	Security Information Department
SMD	Strategic Management Department
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behaviour
UAE	United Arab Emirates
UK	United Kingdom

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**Publications**

Al-Zaabi, H., Choudrie, J. and Lebcir, M. (2012) 'A Conceptual Framework to Examine Abu Dhabi's Police Force E-Service Initiatives'. Accepted and presented at *International Conference on Information Resources Management 2012*. Paper 77. May 21-23, 2012, Vienna, Austria.

Al-Zaabi, H., Choudrie, J. and Lebcir, M. (2012) 'Adoption and Use of E-government Services in Abu Dhabi Police Force: A Qualitative Study'. Accepted at *Pre- ECIS Workshop of the Association for Information Systems Special Interest Group for ICT in Global Development (SIG GlobDev)*, Barcelona, Spain, June 10th, 2012.

Al-Zaabi, H, Choudrie, J and Lebcir, RM (2012) 'Adoption and Use of E-government Services in the Abu Dhabi Police Force: A Qualitative Study' UH Business School Working Paper, University of Hertfordshire, pp. 27.

# *CHAPTER 1*

## *INTRODUCTION*

### **1.0 Introduction**

This chapter provides an introduction to the research undertaken within this dissertation. It will start by identifying the research problem and will discuss issues such as, the problems facing government organisations with regards to employees and the low adoption rate of new government e-services (Venkatesh and Bala, 2008). Reasons for the barriers between staff and adoption were also proffered. As e-services are related to e-government an introduction to e-government was also provided in this chapter along with introductions to adoption, diffusion and use. To acquaint readers to the pursued research approach of this study, an introduction was also proffered. The overall information of this chapter then led to the formation of the research question driving this research, the main aim and objectives and a research scope surrounding this research study.

### **1.1 Background to the Research Problem**

Due to the potential of ICTs in promoting and seeking economic growth and development at government, business and citizens levels, countries around the globe are striving to achieve e-government success (UN, 2012). ICTs are defined as: “technical systems that accept, manipulate, and process information and facilitate communication between at least two parties” (Hilbert and Katz, 2003: 14). In a UN e-government development index report (2012) a survey of 193 global countries revealed that 190 of the examined countries had online services.

Global efforts to obtain e-government are on the increase, but not all e-government projects and programmes across the globe are successful. This is particularly evident in the instance of developing



countries. Many developing countries are below the United Nations (UN) global index for E-government development (World average e-government development index is 0.4882) (UN, 2012). With e-government development still being low in such countries, citizens are still reliant on traditional means of government products and services provisions and governments are still faced with large increasing costs in the form of printing, storing and filing paper costs, mailing the hard copies, or having large staff levels with outdated skills. In developing and transitional countries, an estimated 15 per cent of e-government projects are successful with the remaining 85 per cent being either total failures or considered as partial failures (Heeks, 2003). This is partly attributed to theories and policies designed in developed countries, being employed in developing countries (Stahl and Elbeltagi, 2004; Schuppan, 2009).

Furthermore, even in organisations context, Venkatesh and Bala (2008: 273) have stated that “low adoption and use of IT employees are still major barriers to successful IT implementations”. Therefore, concerns of failure in e-government projects are not only related to implementation, but also to adoption and use which this research will examine.

Since the late 1990s online products and services have been adopted by private and public sector organisations due to the various benefits of the products and services, which has led to the evolution of e-government (Sprecher et al., 1996). Due to this, internet technology is penetrating at country levels and being used for the improvement of government projects, subsequently leading to the provision of a better communication platform (Northrop and Thorson, 2003). An example by Rose (2004) is of a study supporting electronic health records against paper records where findings revealed that electronic records are more preferable to manual paper records. Benefits of an online system were shown to be; less storage space needed, faster retrieval of information and information can be accessed from any location. Re-engineering gurus Hammer and Champy (2003) further ascertained that the advantages of a computerised system include, increased efficiency, client satisfaction and reduced cost and provided support to e-government adoption and use. Therefore, from an e-government perspective, online products and services meant that usage of electronic systems could lead to fewer employees, faster completion of transactions and fewer hard copy paper records to be filed and stored.

Due to the immense benefits of e-government there has been a tremendous increase in the use of ICTs in facilitating e-government. This is more to increase the interaction between government and citizens of a country (Ndou, 2004). An example is provided by Colesca and Dobrica (2008: 204) where suggestions were made that “national governments have been making significant attempts to make its

services and information available on the Internet”. By doing so, governments are more interconnected with their citizens using the newer communication channels than the older methods of communications, i.e. face-to-face interaction or the telephone.

Currently, ICTs are widespread in most of daily life. For such reasons, governments around the world have become aware of the potentials offered by ICTs and are striving to encourage and provide online services and products to all users. This offering is also simply known as electronic government.

## **1.2 E-government**

As this research emphasises e-government, it was found that this term requires understanding as it is viewed in various ways. In the following sub-section the diversity in definitions and the selection for the main definition is provided.

E-government is defined as “use of information technology to enable and improve the efficiency with which government services are provided to citizens, employees, businesses and government agencies” (Carter and Belanger, 2005: 5). Although this research is focused upon government interaction as well, it emphasises government e-services provided to employees in a public sector organisation. Therefore, for the purpose of this research e-government is viewed as “e-government services being not only for citizens, but other public sectors benefiting from them such as, improving transparency in government functions and save costs in government administration” (UN, 2008: 2).

To demonstrate the diversity in the definitions of e-government, the following discussion is provided. The non-government agency, World Bank’s website referred to e-government as “the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government” (World Bank, 2011). This definition was not viewed suitable due to the mention of wide area networks and mobile computing, which was beyond the scope of this research. Contrastingly, Norris et al. (2001: 3) defined e-government as, “the use of information and communication technologies (ICTs) by the bureaucracy to improve their work processes and governance in a manner that simplifies life for the public and businesses when they interact with them online at all times”. However, this definition refers to bureaucracy, which once again was beyond the scope of this research. Further evidence of a suitable definition of e-government is provided by (Siau and Long, 2005), page 444: “e-government can be regarded as a sophisticated and integrated portal to

connect internal governing and external users”. However, this definition was not used due to its reference to internal and external users. This research will only look at internal e-government services within a public sector organisation.

Another aspect of e-government related to this research is e-government services. E-government services are defined as “government activities that take place by the internet, between the government and members of the public and entities in the private sector. These activities generally involve the electronic exchange of information to provide products or services, to place or receive orders, to provide or obtain information, or to complete financial transactions” (Ministry of Management Services in British Columbia, 2005: 45). However, in this research e-government services will only focus on the internal online activities within a public sector organisation and not from the perspective of members of public.

Services provided by e-government are known as electronic services. E-service is defined as “deeds, efforts or performances whose delivery is mediated by information technology (including the Web, information kiosks and mobile devices). Also included within e-services are the service element of e-tailing, customer support and service, and service delivery” (Rowley, 2006: 341).

During this study, it was apparent that also synonymous with e-government is the phenomenon of e-governance. As e-government involves an automation element due to the provision of online products and services, processes are changed and effectiveness and efficiency are viewed to occur. This change is generally known as e-governance. Whilst that is a generalised view, a search for an appropriate definition was conducted of the term ‘e-governance’ that resulted in diverse definitions of e-governance. The definition most suitable for this research is “the application of electronic means to improve the interaction between government and citizens and to increase administrative effectiveness and efficiency in internal government operations” (Palanisamy, 2004: 254). It can be seen that administrative efficiency and effectiveness that are viewed to result from automation are present; hence deemed to be suitable for this research.

### **1.2.1 Transformation Areas of E-government**

As mentioned earlier, there are several areas of e-government. From the literature it was revealed that there are three transformation areas of e-government (Ndou, 2004), which are, internal, external and relational.

(i) Internal: “Refers to the use of ICT to improve the efficiency and effectiveness of internal functions and processes of government by interrelating different department and agencies. Information can flow faster among different departments, reducing process time etc...” (Ndou, 2004: 4).

(ii) External: “ICT opens up new possibilities for government to be more transparent to citizens and businesses” (Ndou, 2004: 4).

(iii) Relational: “Vertical and horizontal integration of services can be realised, enabling the integration of information from various governments agencies to help citizens get seamless services” (Ndou, 2004: 4).

This research will look at the internal transformation between different departments within a public sector organisation, Abu Dhabi Police Force (ADPF).

### **1.2.2 Types of E-government Services**

When examining e-government, it can be learnt that it exists in various forms, each dependent upon the relationship between user groups and government. There are four main types of e-government services identified in literature (Seifert and Petersen, 2002; Pascual, 2003; Siau and Long, 2005; Mofleh et al., 2009). These are Government to Citizen (G2C), Government to Business (G2B), Government to Government (G2G) and Government to Employee (G2E) which are described in detail below. To inform readers, this research is focused on G2E e-government.

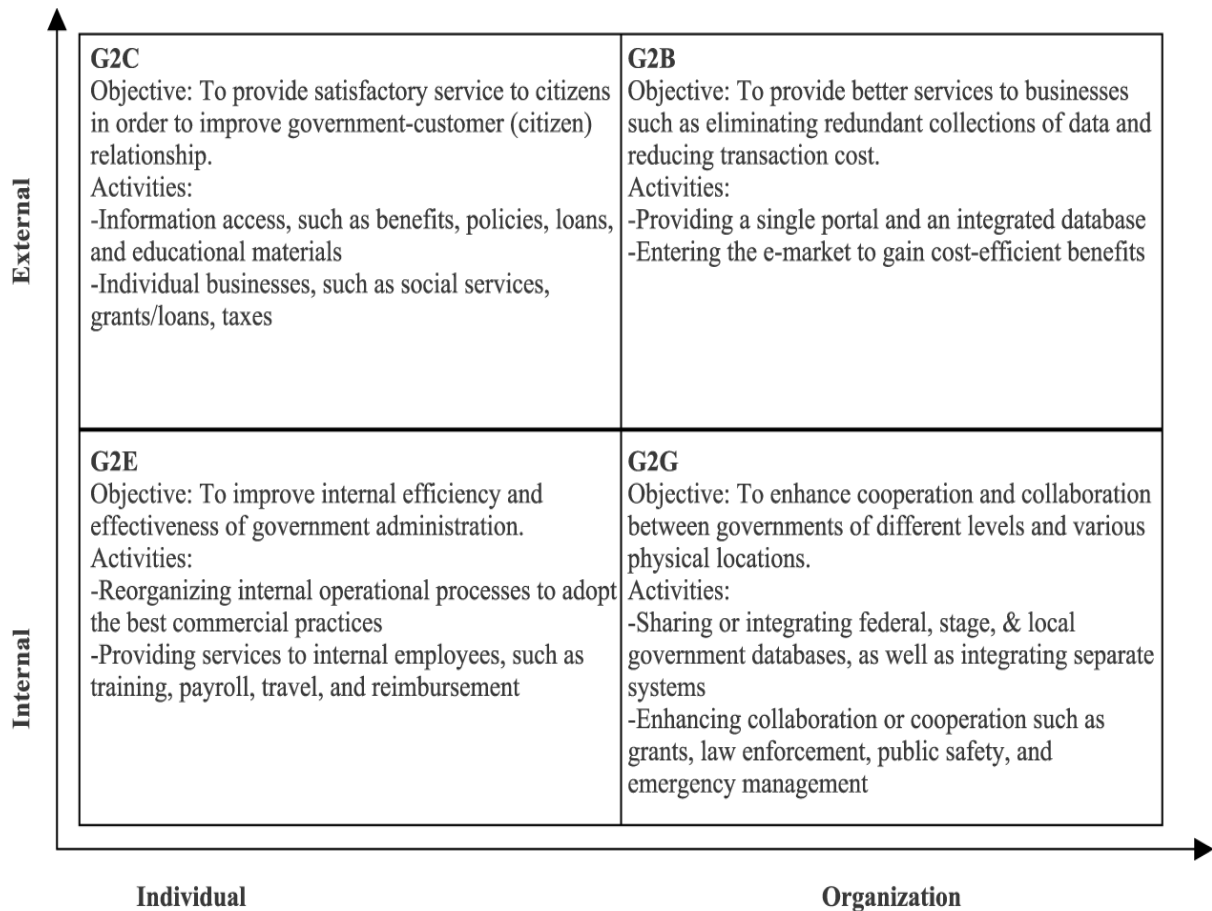
(i) Government to Citizen (G2C) is an external process that deals with completing transactions online for citizens (users). It is said to be the main goal of e-government (Seifert and Petersen, 2002).

(ii) Government to Business (G2B) is another external online process. Transactions with other businesses are done online, such as, “development of an electronic marketplace for government purchases and carry out government procurement tenders through electronic means for exchange of information” (Fang, 2002).

(iii) Government to Government (G2G) is an internal online communication, which is made between governments or organisations (Siau and Long, 2005; Mofleh et al., 2009). It acts as the backbone of the e-government (Seifert and Petersen, 2002).

(iv) Government to Employee (G2E) is an internal online process that deals with the interaction of staff within the organisation (Mofleh et al., 2009).

To illustrate the relationship of these services and their outcomes, figure 1.1 has been provided. As an example, G2E that was described previously is shown in the lower left quadrant as internal, and its objective is described as the “improvement of internal efficiency and effectiveness of government administration” (Siau and Long, 2005: 444).



**Figure 1.1:** Objectivities and activities of the main sectors of e-government (Source: Siau and Long, 2005: 444).

### 1.3 Developed and Developing Countries

This research is focused on ADPF that is viewed to be in a developing country. To identify whether the UAE is a developing country, academic literature described the UAE as amongst one of the high income developing countries that depend heavily on oil exports (Alsadik, 2001; Alhameli, 2006).

To further verify whether this is also true in practice, non-government funded agencies documents were consulted. Based on the UN and DESA report (2012), it was found that there are a number of criteria to differentiate between developing and developed countries, such as, gross national income, adult literacy rate, agricultural production, exports of goods and services.

Furthermore, the UAE is also grouped as one of the highly human developed country in the Arab region (UN, 2013). “The UAE did not pass through the hypothetical development ‘stages’ that most developed countries seem to have experienced. Rather, its large oil revenues have allowed it to leap these stages to the stage of high mass consumption” (Shihab, 2001: 249).

However, in this section a general differentiation will be given between developing and developed countries. Although not all the description of developing countries is applicable to the UAE, a general description is crucial.

When considering developing and developed countries, distinctions exist that are explained hereafter. A developed country is defined as a country that is “advanced economically and socially” (Oxford, 2003). On the other hand, a developing country is “a poor agricultural country that is seeking to become more advanced economically and socially” (Oxford, 2003). However, to familiarise the readers to the main differences between developed and developing countries, table 1.1 is provided. This table was derived from a previous study by Chen et al. (2006) that examined different e-government strategies in developed and developing countries. At the beginning of their study Chen et al. (2006) differentiated between developed and developing countries based on the history, technical staff, infrastructure, citizens and government officers in these countries. These criteria were chosen based on Chen et al. (2006) needs with regards of e-government strategies. As this research is also looking at e-government services in a developing country, some of the criteria in this table was viewed suitable for the purpose of this research. For example, when considering the citizens perspective in e-government, it was found that citizens in developing countries “are reluctant to trust online services and few citizens know how to operate computers” (Chen et al., 2006: 27). This was also applicable to the UAE (Al-Rashidi, 2010), where this issue is examined in greater depth within this research.

Comparatively, when examining the infrastructure in developing countries, it was stated that there is “low internet access for employees and citizens” (Chen et al., 2006: 27). This was not applicable to the UAE. Based on the World Bank (2012) report, it was given that about 70% of the total population have

access to the internet. Therefore, as given earlier even though the UAE is a developing country, not all the criteria is applicable.

	<b>Developed Countries</b>	<b>Developing Countries</b>
<b>History and Culture</b>	<ul style="list-style-type: none"> <li>• Government and economy developed early, immediately after independence</li> <li>• Economy growing at a constant rate, productivity increasing, high standard of living</li> <li>• Relatively long history of democracy and more transparent government policy and rule</li> </ul>	<ul style="list-style-type: none"> <li>• Government usually not specifically defined; economy not increasing in productivity</li> <li>• Economy not growing or increasing productivity; low standard of living</li> <li>• Relatively short history of democracy and less transparent government policy and rule</li> </ul>
<b>Technical Staff</b>	<ul style="list-style-type: none"> <li>• Has a current staff, needs to increase technical abilities and hire younger professionals</li> <li>• Has outsourcing abilities and financial resources to outsource; current staff would be able to define requirements for development</li> </ul>	<ul style="list-style-type: none"> <li>• Does not have a staff, or has very limited in-house staff</li> <li>• Does not have local outsourcing abilities and rarely has the financial ability to outsource; current staff may be unable to define specific requirements</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>• Good current infrastructure</li> <li>• High Internet access for employees and citizens</li> </ul>	<ul style="list-style-type: none"> <li>• Bad current infrastructure</li> <li>• Low Internet access for employees and citizens</li> </ul>
<b>Citizens</b>	<ul style="list-style-type: none"> <li>• High Internet access and computer literacy; still has digital divide and privacy issues</li> <li>• Relatively more experienced in democratic system and more actively participate in governmental policy-making process</li> </ul>	<ul style="list-style-type: none"> <li>• Low Internet access and citizens are reluctant to trust online services; few citizens know how to operate computers</li> <li>• Relatively less experienced in democratic system and less active participation in governmental policy-making process</li> </ul>
<b>Government Officers</b>	<ul style="list-style-type: none"> <li>• Decent computer literacy and dedication of resources; many do place e-government at a high priority</li> </ul>	<ul style="list-style-type: none"> <li>• Low computer literacy and dedication of resources; many do not place e-government at a high priority due to lack of knowledge on the issue</li> </ul>

**Table 1.1:** Main differences between developed and developing countries (source: Chen et al., 2006: 27).

In conclusion, and based on the literature review, there is still no updated and clear details about these criteria in the UAE and in particular AD. For example, lack of details regarding government officers, can impact findings of whether government officers have high or low computer literacy.



## **1.4 Developing Countries and E-government**

When considering e-government and developing countries, it can be found that developing countries are also keen to provide ICTs in order to improve living standards (Martinez, 2003). In this regard, many developing countries around the world, such as, UAE, Qatar, Jordan, or Egypt are attempting to implement the fundamental infrastructure of e-government to provide integrated, simplified and effective services, and to reduce the cost of government services delivery (Aljaghoub and Westrup, 2003; Sayed and Westrup, 2003; Basu, 2004; Zaied et al., 2007; Kettani et al., 2008; Al-Shafi and Weerakkody, 2009). However, not all of the initiatives are successful. In comparison to developed countries, developing countries are viewed to have existing infrastructures that are not mature and compatible to cultural needs (Mofleh et al., 2008); therefore, hindering their development and viewed to be a reason for failure.

Further investigation of failure reasons ranged from issues such as, lack of trust, lack of awareness, resistance to change, lack of skills and funding, lack of strategy and framework and lack of citizen interest (Al-Shafi and Weerakkody, 2007a). This reveals that attributes of success and/or failure are not only governments, but people as well. However, whilst the people element is also a cause of failure, e-government failure in developing countries could also be attributed to the strategies, policies and culture in developed countries differing from the developing countries. However, policymakers in most developing countries ignore these issues and adopt e-government models used in developed countries that lead to subsequent problems (Dada, 2006) and this research also sought to identify whether this is the case.

## **1.5 UAE and E-Government**

The government of the United Arab Emirates (UAE) began to improve the services in public sector organisations in order to achieve high standards of electronic services (ADSIC, 2009).

Based on the United Nations reports, the growth of e-government services in the UAE increased from the year 2005 to 2012. In 2005 e-government development index was at 0.571 and ranked 42 worldwide (UN, 2008). In 2008, e-government development index was at 0.631 and ranked ten places higher at 32 and most recently in 2012 the index was at 0.734 (world average is 0.488) but UAE ranked 28 worldwide and 5th in Asia (UN, 2012). This suggests that efforts are being made in the region, but there is still time to become a leader in the Asian, Middle Eastern region, or globally.



UAE has undergone rapid development over the last 40 years following the discovery of oil and the formation of the country from seven emirates. E-government in UAE is reliant upon the provision of ICTs, “ICT diffusion and usage that has been impressive in recent years” (Global Information Technology report, 2009: 22). However, this stage of transformation faces many obstacles such as cultural issues, inexperienced staff, and resistance from citizens and staff in different organisations (Hesson, 2007). What has also been found is that: “the movement toward implementation of e-government in the UAE has in recent years received the attention of the authorities and policy makers, acknowledging the necessity of utilising the new electronics, information, and communication technologies” (Mansar, 2006). Dubai, a large city of the UAE and neighbour to AD, has recently witnessed both economic downturns and rises that were academically researched for its e-government efforts that revealed: “it is indicative to notice that despite the high number of on-line services available through Dubai e-government, usage levels remain below expectations” (Sahraoui, 2005: 8).

Many organisations in different parts of the world have already implemented e-government initiatives. Therefore, the goal of this research is not to invent a new system, but to make an attempt of identifying and understanding the adoption, diffusion and use of e-government services in a public sector organisation, within a leading developing country. By doing so, similar public sector organisations in other developing countries could immensely benefit.

## **1.6 Technology Diffusion and Adoption Theories**

From the literature review it was also found that most of the e-government studies in the Gulf region were either quantitative, mostly citizen centric, focused upon website accessibility and usability, evaluation of policies or upon growth models. This provided further impetus to this research to conduct a qualitative research that will examine adoption and use of e-government services in a developing country looking at organisations perspective.

To date minimal studies on AD e-government adoption had been conducted. To examine AD’s e-government efforts, a government department that impacts the lives of UAE citizens, the Police Force (ADPF) was used. This was because it allowed an understanding of developing country’s context of both government and employee perspectives to be formed.

To place things in perspective, a literature review of the main diffusion and adoption theories is provided. It was considered crucial to examine some of these theories in order to understand user

adoption towards an innovation. Furthermore, this study will examine staff members in a public sector organisation (ADPF) and examine how the e-government services are adopted and used in this organisation. The government services are recently introduced, therefore, it was considered as an innovation. More about the theories, definitions and explanations will be available in chapter 2 of the literature review.

Furthermore, these theories will also form the base of the research propositions and theoretical framework that will also be looked at later in this dissertation, therefore, also considered important.

### **1.7 Research Question and Aim**

As an introduction to the e-government efforts of ADPF, ADPF began to introduce some automated services offering online communication with its citizens and a few internally for staff members in 2003; however, to date, many services are still conducted manually. Examples include, dealing with job applications, most internal communication within the organisation and dealing with citizens or staff transactions.

Recognising that ADPF is still in the midst of online products and services provision and the researcher having access to the organisation thereby providing a richer and deeper understanding of the area, motivation towards identifying and understanding ADPF e-government initiatives was formed. Further motivation was provided by the researcher when identification of AD and e-government revealed minimal studies on the adoption and diffusion of e-government services in public sector organisations in developing countries. This led to the formation of the research question:

*What factors influence the adoption and use of e-services in public sector organisations in developing countries and why?*

Based on the research question, the following aim was formed.

*To identify and understand factors affecting the adoption and use of e-services in a public sector organisation in a developing country.*

### 1.7.1 Objectives

- To achieve the aim, the following objectives were formed:
  - To undertake a comprehensive and detailed literature review of e-government and developing countries, e-government and the Gulf region, the diffusion of ICTs and information system (IS) areas.
  - To develop an appropriate research methodology for this research.
  - To analyse and discuss the current situation of adoption of e-services within the context of ADPF.
  - To obtain suitable and practical findings for this research.
  - To evaluate the pursued research.
  - To develop conclusions and future directions.
  - To recommend how the limitations in this dissertation can be overcome.
  
- There are also objectives associated with fulfilling this aim and they are as follows:
  - Examine the current situation of some departments in ADPF.
  - Undertake a pilot study and interview about 40 staff members of ADPF.
  - Undertake a final study and interview about 200 staff members of ADPF.

### 1.8 Research Methodology

To complete this research study, this research applied the case study method where each ADPF department was viewed to be a case study. Four different case studies were involved. The departments used for this research are: security information department, IT and communications department, strategic management department and policing operations department. More details about reasons for choosing these departments will be available in chapter 3.

Although *priori* constructs were formed using established adoption, diffusion and use theories, a richer and deeper understanding was sought, which could be obtained using a qualitative data study. To obtain the data, face-to-face interviews and direct observations were employed. Culturally, language differences and clarification to questions also led to consider face-to-face interviews being more appropriate for this research.

The initial pilot study was conducted for two months (January 15 to March 15, 2012) and involved about 40 participants from different management levels and ranks. On the other hand the final study was conducted for about four months (July to October, 2012) and involved 200 participants.

Face-to-face interviews were also viewed necessary due to cultural issues in the UAE. People trust each other easily when speaking face to face rather than having other interview methods, such as telephone interviewing; therefore, face-to-face interviews were used.

Questions that were used during the interviews were disseminated to the participants beforehand to ensure awareness of questions. The questions was organised in two sections with the first section seeking demographic and internet experience. The second consisted of the questions drawn from the conceptual framework that was formed from certain elements taken from the theories DOI, TAM and e-commerce trustworthiness. The interview questions were both closed and open ended questions. This allowed the research to gain rich data and gave participants the chance to speak freely of any issues that could be important for the research.

## **1.9 Research Scope**

This research has introduced many various terms that led to widening of the research area. However, this was deemed to be too wide and the researcher tightened and narrowed the scope. This research will examine ADPF staff usage of the current e-services in some departments. Since ADPF is very large, time and human resources were limiting, which led to consideration of four departments. As stated before, 200 staff from ADPF took part in this study and due to it being a qualitative study, it was felt, following the results, that at this point saturation could be achieved. Furthermore, this research utilised ADPF employees as participants, and employees who made use of the current e-services as well as non-users were also used.

The main reason for focusing on the UAE is that, at present, there is minimal research emphasising the efforts of UAE; particularly, examining issues such as e-government adoption.

## 1.10 Dissertation Outline

To familiarise the readers to each chapter of this dissertation a textual description in the following table is provided.

<b>Chapters</b>	<b>Contents</b>
<b>Introduction</b>	This chapter provided an introduction to the entire research and problems. Furthermore, introduce different topics, terms and theories that will be looked in this research. The aim and objectives of the research, research methodology and research scope were also given.
<b>Literature Review</b>	The literature on e-government, e-government and developing countries, e-government and Gulf region, diffusion of Information and Communication Technologies (ICTs), adoption and diffusion theories will also be discussed. On the other hand, the propositions and theoretical framework and its different constructs will also be formed in this chapter.
<b>Research Methodology</b>	This chapter will include different research methods and techniques used for conducting data and then specify with explanations what research methods used within this research.
<b>Pilot Analysis, Findings and Discussion</b>	This chapter will include information about the case study, analysis and findings of pilot. Changes to the conceptual framework and propositions will also be listed.
<b>Final Study Analysis, Findings and Discussion</b>	Findings and analysis (within and cross analysis) from the final study will be examined in-depth. Further refinement of the research propositions and conceptual framework were included.
<b>Evaluation and Discussion</b>	This section will evaluate the findings of the research using qualitative criteria. Furthermore, a discussion of the findings with respect to literature will also be given.
<b>Summary and Conclusions</b>	The last chapter will include the summary, what was concluded from the entire research, what benefits were discovered, limitations and future directions.

**Table 1.2:** Dissertation Outline

### **1.11 Limitations**

The prime limitation in carrying out this research is the issue of distance. That is, the data collection involved a travel to the UAE in order to interview and question the employees of ADPF.

Lack of literature in e-government and the Gulf region was also an issue in this research. Therefore it was difficult to compare this research with other similar research from the same region. Most studies consider a demand perspective that examines e-government services with citizens focus (G2C). This research is different as it examined a public sector organisation and looked at e-services within the organisation (G2E).

More about limitations is discussed in chapter 7, section 7.3 (Research challenges).

### **1.12 Summary**

This chapter gave an introduction about this research. Background of the research problem, background of the UAE and e-government was also given. Additionally, the aims and objectives and the manner that the research will be undertaken is offered in this chapter.

Reviewing of the e-government and the UAE literature from different views and sources enables the researcher to conclude that although they are relatively new topics there are many successful attempts by different people and organisations. It has also been learnt that obtaining knowledge from reading and making use of people experiences is also the key to success.

This research study aimed to identify and understand factors affecting the adoption and use of e-services in a public sector organisation. Using a qualitative approach involving interview questions based on certain constructs taken from different theories; Diffusion of Innovations Theory (DOI), Technology Acceptance Model (TAM) and E-commerce's Trustworthiness models.

The next chapter discusses more of the theoretical foundations of this research study.

# *CHAPTER 2*

## *LITERATURE REVIEW*

### **2.0 Introduction**

This chapter provides an overview and critique of the topics that provided the theoretical foundations of the research. For this research, literature from several books and online academic citation databases was used, such as, Web of Science, Google Scholar. This was done from the years 2000 to 2012. These databases were used as they provide intense information regarding the various topics impacting this study. However, before delving into the theoretical foundations a description of developing countries, Gulf region, UAE and its e-government efforts is provided.

It will also include some literature of the adoption and diffusion theories that will give the reader a better understanding about these theories before going through the proposed conceptual model. Finally, an in depth explanation of the developed theoretical model with its various constructs will also be given. The theoretical model will help in examining different constructs and how they affect the adoption and use of e-services in organisations, such as in ADPF.

### **2.1 Research on Developing Countries and E-government**

As stated in chapter 1, developing countries are also keen to improve their e-government. Based on the 2012 UN report (UN, 2012) not all countries are improving. For example, most developing countries (around 60 countries) in Africa; Somalia, Chad, Niger and some in Asia; Afghanistan, Bangladesh, and Yemen are still struggling and are grouped as least e-government developing countries. The reason is that these countries still “lack technical skills, high costs of technology, and ineffective government regulation” (UN, 2012: 35). On the other hand other developing countries, such as, UAE, Bahrain,

Kazakhstan, Saudi Arabia are improving and grouped in the top 50 countries in e-government development index (UN, 2012). However, a big gap is still seen between developed and developing countries in terms of e-government development.

Research regarding the adoption and implementation of e-government in developing countries has been undertaken. A study by Kettani et al. (2008) in Morocco examined an important e-government project by a public sector government that successfully managed to transfer from a complete manual paper method into an automated online system (Kettani et al., 2008). One of the success factors of the project is having a “citizen friendly” service, where it managed to focus not only on expert users but for all citizens. Furthermore, the e-government service is also “characterized by transparent, empowering, efficient and effective access to services on an equal basis, and to ensure accountability and impartial application of the law” (Kettani et al., 2008: 16).

The challenges facing developing countries towards e-government is more than just technology, human aspects such as, user skills (Ndou, 2004), resistance from staff (World Bank, 2004), language barrier (Mitra and Gupta, 2007), low level of ICT literacy and e-skills (Khan et al., 2010) are viewed to be important. Also included in the factors of consideration is the inclusion of a clear training plan and qualified staff, which is lacking in many developing countries (Ndou, 2004).

Skills and training have also been identified as crucial for e-government usage in South India (Kumar and Best, 2006; Dada, 2006). Mitra and Gupta (2007: 122) have identified what skills are needed for e-government adoption and specified IT skills. “Soft component (IT skill) and hard component ‘technology’ (networking) are both important enablers for e-government to flourish. Thus, IT skill formation is as important as technological support: both must constitute”.

Further, Ciborra (2005) argued that in order to benefit from e-government, there should also be social and political changes. Ndou (2004: 16) have also supported this argument and stated that “the ability of developing countries to reap the full benefits of e-government is limited and is largely hampered by the existence of many political, social and economic hindrances”.

Heeks (2003) defined three different gaps when understanding e-government failure:

(i) Hard-Soft Gaps; is the gap between technology and people using this technology.



(ii) Private-Public Gaps; the difference between private and public sector shows that it is not necessary for a system working in private sector to also be implemented successfully in a public sector.

(iii) Country Context Gaps; there are also differences between countries. “Large design-reality gap when you try to introduce in a developing/transitional country an e-government system designed in and for an industrialised nation” (Heeks, 2003: 5). Other than e-government implementation, ICT solutions that worked successfully in a developed country might not work in a developing country. “Transferring ICT solutions and related organizational concepts from developed to developing countries seems inappropriate” Schuppan (2009: 118).

In South Asia, Pakistan, Kundi and Shah (2009) found that “computerization is comparatively easy in developed countries because of the availability of technical, financial and human infrastructure but it is difficult in developing nations like Pakistan due to non-availability of required resources, infrastructure and skills” (Kundi and Shah, 2009: 7). An earlier study on Pakistan’s IT adoption by Moreno (2001) found that challenges such as English language proficiency and lack of skills for computer usage existed. In the Middle East region, Jordan was also found to face slow transformation of e-government implementation due to reasons such as, no long term strategy, not understanding people and business needs (Mofleh et al., 2008).

Ndou (2004: 12) summarised the main challenges of e-government in developing countries as, ICT infrastructure, policy issues, human development, change management, partnership/collaboration, leadership and strategy. Odedra-Straub (2003) argued that developing countries have a serious issue with connectivity; therefore, not everyone is capable of using the e-government and its services.

E-government implementation in developing countries is widely affected by security issues, Mitra and Gupta (2007: 122) examined a public sector organisation which is the police force in India and stated that “networking and security appear to be of vital importance to the adoption and proliferation of e-government applications in police”.

These studies revealed that developing countries face challenges in e-government adoption and implementation and allowed this study to understand challenges for AD in a better manner.

## **2.2 Research on Gulf Region (Gulf Cooperation Council Countries) and E-government**

The Gulf Cooperation Council (GCC) consists of six countries, United Arab Emirates, Kingdom of Bahrain, Kingdom of Saudi Arabia, Sultanate of Oman, Qatar and State of Kuwait that shares political and economic interests (Gulf Cooperation Council, n.d.). The GCC are categorised as developing countries that also have “differences in some capabilities and needs. For example, GCC Arab countries are more capable to create a stronger up to date IT infrastructure than other Arab countries” (Al-Rashidi, 2010: 3).

A literature review revealed that research on e-government and Gulf Arab States is few with most research examining e-government challenges, such as, identifying current problems and issues when implementing e-government. Few have looked at adoption, diffusion theories with respect to e-government.

From the literature review conducted on the Gulf region it was discovered that e-government studies had been conducted on countries such as Saudi Arabia (Abanumy et al., 2005), Kuwait (Zaied et al., 2007), Bahrain (Al-Alawi and Al-Amer, 2007), Dubai (Sethi and Sethi, 2009), Oman (Al-Busaidy and Weerakkody, 2010) or Qatar (Weerakkody et al., 2011). To date minimal studies on Abu Dhabi e-government adoption and diffusion had been conducted. From the literature review it was also found that most of the e-government studies in the Gulf region were either quantitative, mostly citizen centric, focused upon website accessibility and usability, evaluation of policies or upon growth models. This provided further impetus to this research to conduct this research.

Of public sector organisations studies, Zaied et al. (2007) study of Kuwait stood out where 20 public organisations in Kuwait were examined. From their research it was found that only 47% of the organisations had suitable connectivity, infrastructure and skills. The recommendations made were that employees should be trained in implementing and using e-government and there should be more collaboration between organisations. Al-Busaidy and Weerakkody (2009) examined three public sector organisations in Oman and learnt that top management support, integration between public agencies, and IT skills are needed. In continuation Al-Busaidy and Weerakkody (2009) once again examined three public sector organisations in Oman and surveyed 105 participants. From this study it was found that some barriers existed for e-government development, such as, low information exchanges between governments. More examples of studies conducted on the Gulf region is provided in Appendix I.

To summarise, from the studies it was found that barriers still exist, for example, in a study by Al-Rashidi (2010), who examined e-government implementation in the Gulf region, he discovered that several factors could affect the implementation of e-government, such as, awareness, trust, political desire, training, resistance to change, security etc.

The literature allowed this research to form a better understanding of e-government in the Gulf region. UAE, has a similar environment to other countries in the Gulf region, therefore, the research is assuming that similar problems or barriers will also face organisations in the UAE.

### **2.3 Research on UAE and E-government**

The e-government project in the United Arab Emirates (UAE) was first introduced by the government of Dubai in 2001, to provide services and information for the citizens online (Ayish, 2005). “The UAE government has always been noted as the region's leader in innovations especially in public sector management” (Westland and Al-Khoury, 2010: 8). The UAE have the most advanced and up-to-date telecommunication infrastructure in the Gulf region and the Middle East (Tubaishat and Lansari, 2011). This encourages the implementation of e-government that can serve its citizens and organisations in this country. “The IT sector grew from \$6.9 billion in 2003 to more than \$11.4 billion in 2008 and this figure is expected to rise to \$14.8 billion in 2011” (Tubaishat and Lansari, 2011: 211).

A study by (Ayish, 2005) has examined the internet usage of 20 public and private sector organisations in the UAE based on press releases, photo gallery, bilingual messages etc. Abu Dhabi police was also included in this study. Furthermore, “the findings of the study seem to show that public and private organisations in the UAE draw heavily on using the internet” (Ayish, 2005: 385). This concludes that organisations have already adopted basic internet usage; however, more awareness is still needed for the implementation of online services and communication.

The success of UAE's (e-government) or policy maker's initiatives reveal many improvements to different sectors, but mainly in the educational field (AME, 2008). Other developing countries, such as Malaysia, have already reached a higher stage of knowledge with what they call ‘knowledge society’ and this could be an example that the United Arab Emirates (UAE) could learn from and emulate in their region (Evers, 2001).

Following the exemplary success of Malaysia the UAE government believes that, by raising the level of intelligence within its citizens and providing them with a high standard of education, this will lead to a more intelligent generation that can take the country to the level of developed countries (Ministry of Higher Education, 2008). This example identifies the UAE government's efforts at providing well-educated citizens who can then make the most of the current and new online products and services when implementing e-government. This is something that Jaeger and Thompson (2003: 390) also found and argued for: "an e-government system would fail if the government did not take an active role in educating citizens about the value of e-government".

#### **2.4 E-government and Public Sector**

E-government is provided by the public sector and since the ADPF is a public sector organisation, a review of some issues related with the public sector and e-government is also provided. One of the main issues that was emphasised is that "the public sector tends to lag behind in the process of technology adoption and business reinvention" (Ndou, 2004: 1). Therefore the finding that was acquired in the ADPF, still lagging behind in terms of internet use was confirmed, although indirectly by such research. However, the public sector has begun to consider technology adoption as important and is considering this matter in more detail. From their understanding, need of ICT in daily activities to improve different government services has been identified. This is due to the pressure made by private sector innovative services of e-business and e-commerce models (Ndou, 2004). "E-government is often heralded as the new way forward for the public sector in both developed and developing countries. This led to increase rate of development and democracy" (Dada 2006: 1).

As given earlier by Heeks (2003), there is a big difference between public and private sector e-government projects. The main difference is that private sector focus on customers while the public sector focuses on citizens (Ciborra, 2005). Therefore, everyone should have their own needs and having similar e-government plans may lead to project failure. "The private sector sees customers as a means to increase profitability. On the other hand, public sector governments should provide equal services to all its citizens" (Dada, 2006: 6).

Public Sector can benefit and improve a lot from having an e-government (World Bank, 2004; Schuppan, 2009). For example, "The use of ICT also offers particular potential to improve financial and taxation systems. The introduction of integrated financial systems with appropriate databases offers the possibility to better control financial flows within the state" (Schuppan, 2009: 121).

Therefore, monitoring and transparency can be easily determined. Further, when introducing e-government in public sector other benefits can also be listed, such as, “electronic system often enables more frequent and accurate data sharing across departments, closer monitoring of employee productivity, easier identification of pressure points for delay and corruption” (World Bank, 2004: 2).

## **2.5 Technology Diffusion and Adoption Theories**

Having provided a generalised overview of developing countries, Gulf region, UAE, public sector and e-government research, the next section presents the theoretical foundations of this research.

### **2.5.1 Diffusion of Innovations**

Diffusion is “the process in which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003: 5). Innovations is defined as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption”, in addition “newness in an innovation may be expressed in terms of knowledge, persuasion or a decision to adopt” (Rogers, 2003: 12). Furthermore, “an innovation refers to a new concept or technology” (Carter and Weerakkody, 2008: 475). “Innovation takes place only with actual use and when the product is actually implemented” (Phonkaew, 2001: 5). E-services in ADPF is implemented but still in initial stages and is not adopted by all staff members, therefore, considered as an innovation. Further, since ICTs have not completely spread within the organisation, there is an issue regarding how the technologies will be taken up by individuals; hence the issue of diffusion is pertinent.

The “diffusion of Innovation (DOI) model has emphasized the attributes of new technology as key determinants of adoption” (Lee et al., 2011: 223), which made this study also view this framework suitable for this research study.

The DOI model by Rogers (2003) suggests that five attributes of innovations can affect the rate of adoption. The rate of adoption is “the relative speed with which an innovation is adopted by members of a social system” (Rogers, 2003: 221). A brief explanation about each attribute of innovations is described in the next page.

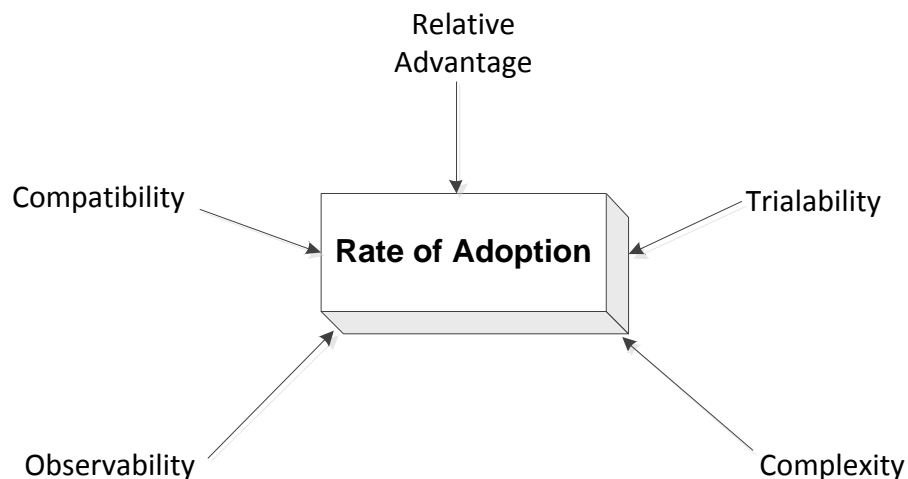
(i) Relative advantage; is “the degree to which an innovation is perceived as being better than the idea it supersedes. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption will be” (Rogers, 2003: 15).

(ii) Compatibility; is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences and need of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible” (Rogers, 2003: 15).

(iii) Complexity; is “the degree to which an innovation is perceived as difficult to understand and use. Complicated innovations are adopted more slowly than simpler innovations” (Rogers, 2003: 16).

(iv) Trialability; is “the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the instalment plan will generally be adopted more quickly” (Rogers, 2003: 16).

(v) Observability; is “the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt” (Rogers, 2003: 16).

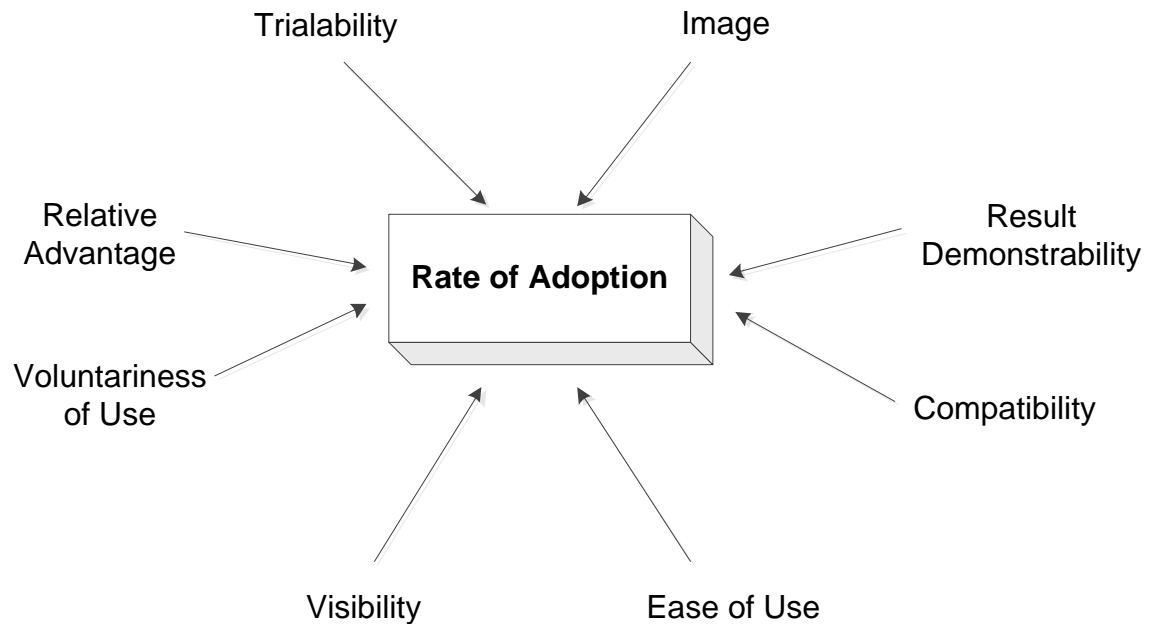


**Figure 2.1:** Perceived attributes of Innovations (Source: Rogers, 2003: 222)

Furthermore, Rogers (2003) have also categorised innovators into five different groups according to time which are: innovators, early adopters, early majority, late majority and laggards.

Tornatzky and Klien (1982) reviewed the literature on studies made on innovation characteristics and its relation to adoption. Based on 75 articles reviewed by Tornatzky and Klien (1982: 28) “three innovation characteristics (compatibility, relative advantage and complexity) had the most consistent significant relationships to innovation adoption”. However, Tornatzky and Klien (1982) made a list of recommendation for future research such as; more studies about innovations characteristics are needed.

Based on the aforementioned recommendation, Moore and Benbasat (1991) “developed an instrument to measure perceptions of using an information technology innovation”. “Moore and Benbasat (1991) identified eight Perceived characteristics of an innovating (PCI) factors that influence the diffusion of an innovation: relative advantage, compatibility, ease of use, result demonstrability, image, visibility, trialability, and voluntariness of use” (Carter and Belanger, 2004: 13).



**Figure 2.2:** Perceived characteristics of an innovating (Source: Moore and Benbasat, 1991)

To give the reader a better idea about the aforementioned PCI constructs, some of the constructs not mentioned before are defined in this section. For example, image is defined as “the degree to which use of an innovation is perceived to enhance one’s image or status in one’s social system” (Moore and Benbasat, 1991: 195).

Voluntariness of use is defined as “the degree to which use of the innovation is perceived as being voluntary or of free will” (Moore and Benbasat, 1991: 195).

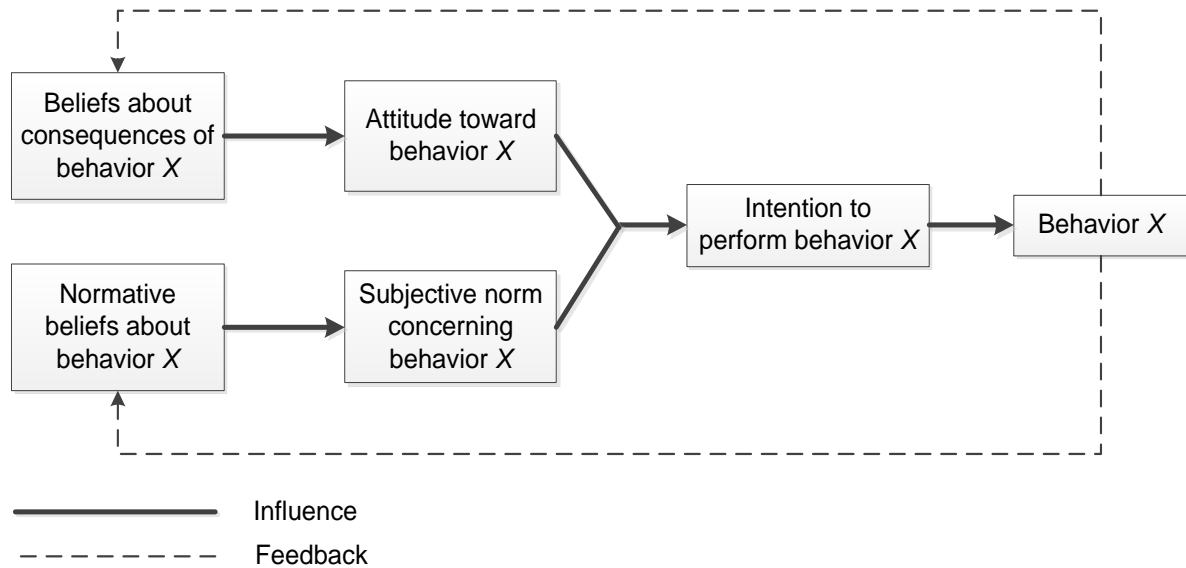
Moore and Benbasat (1991) argued that Roger’s (2003) observability can be decomposed into two different constructs, which are: result demonstrability and visibility. Result demonstrability is defined as “tangibility of the results of using the innovation” (Moore and Benbasat, 1991: 203). On the other hand, visibility is meant by how the advantages of the innovation can be visible to users (Moore and Benbasat, 1991).

Researchers such as, Tornatzky and Klien (1982), Moore and Benbasat (1993), Taylor and Todd (1995a) and Carter and Belanger (2005) have argued that relative advantage, compatibility and complexity have a direct link with adoption in Information Technology studies; therefore, this research will also examine these attributes of innovation to investigate about the e-services adoption in ADPF.

### **2.5.2 Theory of Reasoned Action (TRA)**

When considering adoption, the theory of reasoned action is widely applied. TRA is based on social psychology where the main purpose of the theory is to “make a clear distinction between beliefs, attitudes, intentions, and behaviours; it indicates how these variables can be measured; and it specifies the relation among them” (Fishbein and Ajzen, 1975: 519). Furthermore, “it is based on the assumption that human beings usually behave in a sensible manner; that they take account of available information and implicitly or explicitly consider the implications of their actions” (Ajzen, 1985: 12). TRA “is one of the most widely studied models of attitude and behaviour” (Taylor and Todd, 1995a: 137). Therefore, it was crucial to include it in the literature review, because it forms a foundation of most models, such as, TPB and DTPB. The theory of reasoned action is shown in figure 2.3.





**Figure 2.3:** Theory of Reasoned Action (Source: Fishbein and Ajzen, 1975: 16)

TRA consists of different variables, such as, attitude and subjective norm. Fishbein and Ajzen (1975: 216) defined attitude as “a person general feeling of favourableness or unfavourableness toward some stimulus object”. Furthermore, Taylor and Todd (1995a: 140) defined attitude as “performing a behaviour will lead to a particular outcome, weighted by an evaluation of the desirability of that outcome”. Therefore, evaluate the outcome and then perform a specific behaviour.

On the other hand subjective norm “is the person’s perception that most people who are important to him think he should or should not perform the behaviour in question” (Fishbein and Ajzen, 1975: 302). Furthermore, Taylor and Todd (1995a: 140) defined subjective norm as “a particular referent weighted by the motivation to comply with that referent”, they also provided examples of subjective norms such as, peers and superiors. This means that a certain motivation from another person might interfere or influence the behaviour. Therefore, attitude is an internal influence whereas; subjective norm is an external influence on the person behaviour.

Fishbein and Ajzen (1975) have differentiated between intention and behavioural intention. Intention is defined as “a person’s location on a subjective probability dimension involving a relation between himself and some action” (Fishbein and Ajzen, 1975: 288) whereas intention to perform behaviour “refers to a person’s subjective probability that he will perform some behaviour” (Fishbein and Ajzen, 1975: 288).

Furthermore, there are some limitations with the TRA, Ajzen (1985) argued that time is an important factor and intentions to behaviour changes with time, therefore, prediction of behaviour at the current stage will be different in the future. This research will use part of the TRA (attitude towards behaviour and intention to behaviour); however, to prevent such limitation, the research model will be examined regularly in future in order to have an updated understanding of the current behaviour and will not depend on previous studies.

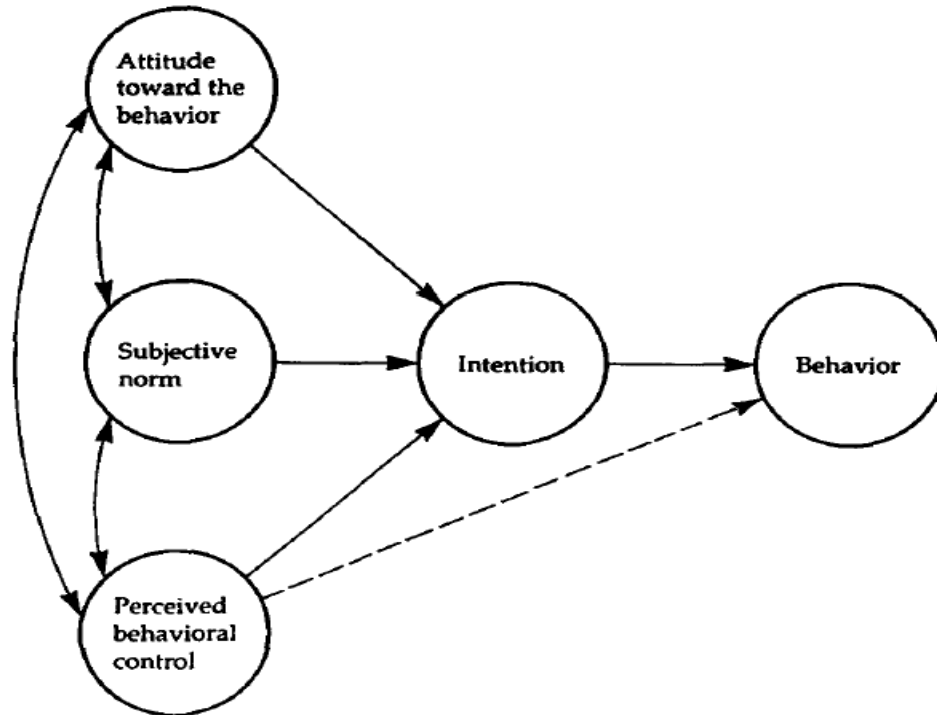
Other theories such as Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB) are the extension of TRA. Since this research study is also considering adoption these theories are also being considered. More details will be given in the next sections.

### **2.5.3 Theory of Planned behaviour (TPB)**

As stated earlier Theory of Planned Behaviour (TPB) (Ajzen, 1985; 1991) is an extension of the Theory of Reasoned Action (TRA) (Taylor and Todd, 1995b). “The theory of planned behaviour, differs from the theory of reasoned action, in that it takes into account perceived as well as actual control over the behaviour under consideration” (Ajzen, 1985: 12). The main aim of the TPB is to “predict consumer adoption intention” (Taylor and Todd, 1995a: 137).

Ajzen (1985: 36) summarised the difference between TRA and TPB as “the two theories are identical when the subjective probability of success and the degree of control over internal and external factors reach their maximal values, when this is the case; we are dealing with purely volitional behaviour to which the theory of reasoned action can be directly applied. When subjective probabilities of success and actual control are less than perfect, however, we enter the domain of the theory of planned behaviour”.

As shown in figure 2.4, the Theory of Planned behaviour (TPB) state that “an individual’s behaviour can be explained by his or her behavioural intention, which is jointly influenced by attitude, subjective norms, and perceived behavioural control” (Chau and Hu, 2001). Attitude and subjective norms have been explained in the previous section; however, more details on the perceived behavioural control will be looked at in the next section (in the DTPB).



**Figure 2.4:** Theory of Planned Behaviour (Source: Ajzen, 1991: 182)

Taylor and Todd (1995a: 151) criticised the TRA and TPB by saying that the two models “require individuals to be motivated to perform a behaviour, this assumption maybe particularly problematic when studying consumer adoption behaviours”, therefore, developed another model which is discussed in the next section. This research will combine other theories such as, DOI, to prevent such limitations.

#### **2.5.4 Decomposed Theory of Planned behaviour (DTPB)**

Due to the shortcomings in TPB the Decomposed Theory of Planned Behaviour (DTPB) was developed by Taylor and Todd (1995a; 1995b). The main reason for the decomposition is to “better understand the relationships between the belief structures and the antecedents of intention. These relationships should become clearer and more readily understood, thus pointing to specific factors that may influence behaviour” (Taylor and Todd, 1995a: 140).

DTPB consists of two different models (Taylor and Todd, 1995a; 1995b), the first model [see figure 2.5] have combined some of Rogers (2003) perceived attributes of innovation with TPB, which will be useful to understand behavioural intention of staff toward an innovation (e-services in ADPF).

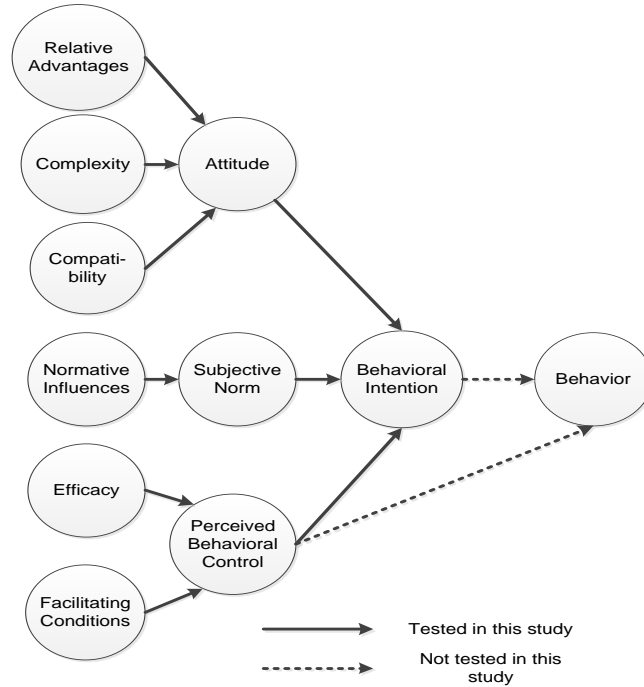
Therefore, “examine the adoption and usage of information technology from a DOI perspective” (Taylor and Todd, 1995b: 145).

Furthermore, when it comes to perceived behavioural control (PBC), in this model it is decomposed into 2 constructs, which are self-efficacy and facilitating conditions. “PBC reflect beliefs regarding access to the resources and opportunities needed to perform a behaviour” (Taylor and Todd, 1995a: 139). “The IT literature demonstrates that PBC may be an important determinant of usage” (Taylor and Todd, 1995b: 150).

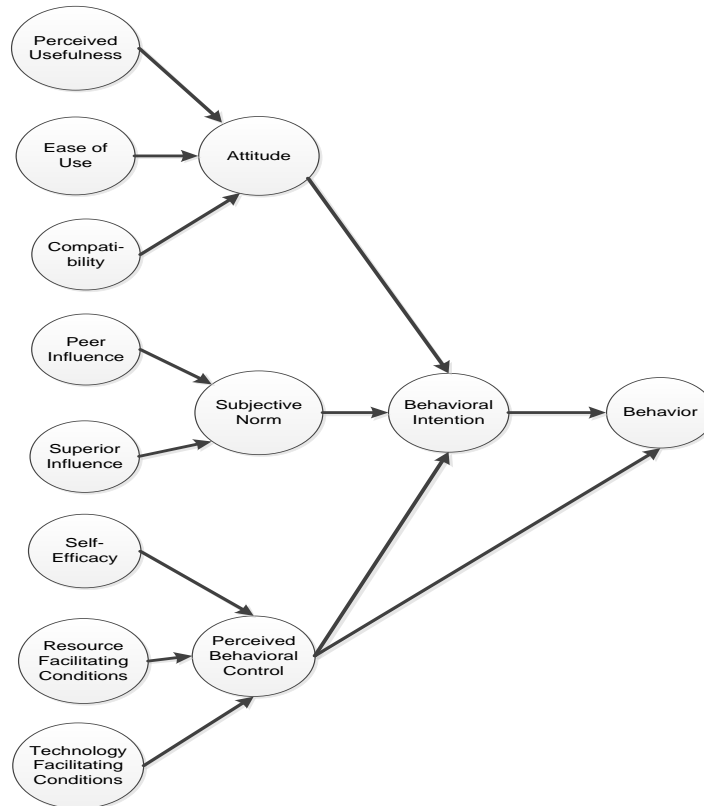
Self-efficacy is “an individual's self-confidence in his/her ability to perform a behaviour” (Taylor and Todd, 1995a: 139). In another way, self-efficacy is the “degree of confidence the adopter has in her/his ability to make use of the innovation” (Taylor and Todd, 1995a: 144).

On the other hand, facilitating conditions “reflects to the availability of resources needed to engage in a behaviour” (Taylor and Todd, 1995a: 139). Resources here are “money, time or technology that is needed to make use of the innovation” (Taylor and Todd, 1995a: 144).

The other model [see figure 2.6] combined Technology Acceptance Model (TAM) with TPB. Furthermore, in this model the subjective norm has also been decomposed, Taylor and Todd (1995b) argued that influences from superiors and peers are not necessarily the same and are also important to look at because of the positive / negative effect it could create. Finally, facilitating conditions have also been decomposed to differentiate between resource (i.e. money and time) and technology.



**Figure 2.5:** DTPB with belief decomposition (Source: Taylor and Todd, 1995a: 142)



**Figure 2.6:** DTPB (Source: Taylor and Todd, 1995b: 146)

A number of IS research studies have also used the Decomposed Theory of Planned Behaviour (DTPB), such as, Tan and Teo, 2000; Jaruwachirathanakul and Fink, 2005; Macredie and Mijinyawa, 2011.

Taylor and Todd (1995b: 165) compared TAM and DTPB and concluded that “when behavioural intention is considered, the results show improvement in explanatory power for both the pure and decomposed TPB over the TAM”. This research will also use some constructs from the DTPB.

### 2.5.5 Technology Acceptance Model (TAM)

As stated earlier, the Technology Acceptance Model (TAM) is an extension of TRA, which is developed by Davis et al. (1989) to “better predict, explain, and increase user acceptance” (Davis et al., 1989: 982) in computer technologies. Similarly, Venkatesh and Bala (2008: 275) have also supported this by stating that “TAM was developed to predict individual adoption and use of new ITs”. Furthermore, “TAM was developed after the introduction of information systems into organizations” (Al-Qeisi, 2009: 32), therefore, it is beneficial for researchers looking at technology in organisations. The main points to address regarding this model, is the addition of two constructs which are perceived usefulness and perceived ease of use. Perceived usefulness is “the degree to which an individual believes that using a particular system would enhance his or her performance” (Davis, 1986: 82). On the other hand, perceived ease of use is “the degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1986: 82).

These two constructs will be used in this research, where perceived usefulness will examine if the e-services in ADPF are considered useful to use by staff members or not. On the other hand, perceived ease of use will examine if the e-services in ADPF are considered easy to use by staff members or not.

Figure 2.7 shows the TAM.

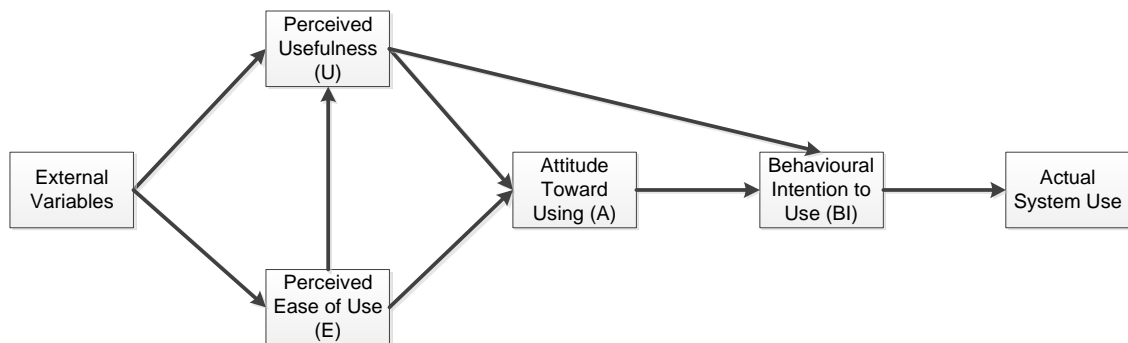


Figure 2.7: Technology Acceptance Model (Source: Davis et al., 1989: 985)

Furthermore, it is argued that TAM explains usage intention more than other models such as, TRA and TPB (Davis et al., 1989; Mathieson, 1991; Taylor and Todd, 1995b). TAM “have a measurable indirect effect on behaviour and it also provides substantive indicators of the factors that influence behavioural intention, which is itself a key determinant of behaviour” (Taylor and Todd, 1995b: 166). Therefore, some of TAM constructs will also be used in this research to examine usage of staff member’s intention in ADPF.

However, TAM is not without any limits, Taylor and Todd (1995b: 169) stated that “if the central goal is to predict IT usage, it can be argued that TAM is preferable than DTPB. However, the decomposed TPB model provides a more complete understanding of the determinants of intention”.

### 2.5.6 Technology Acceptance Model 2 (TAM2)

TAM2 is an extension of TAM and developed by Venkatesh and Davis (2000). Their main aim was to “improve the understanding of user adoption behaviour” (Venkatesh and Davis, 2000: 186). This was done by including other factors to perceived usefulness and intention to use. TAM2 consists of two main theoretical constructs, which are social influence processes (voluntariness, subjective norm and image) and cognitive instrumental processes (job relevance, output quality and result demonstrability) (Venkatesh and Davis, 2000). TAM2 is shown below (figure 2.8).

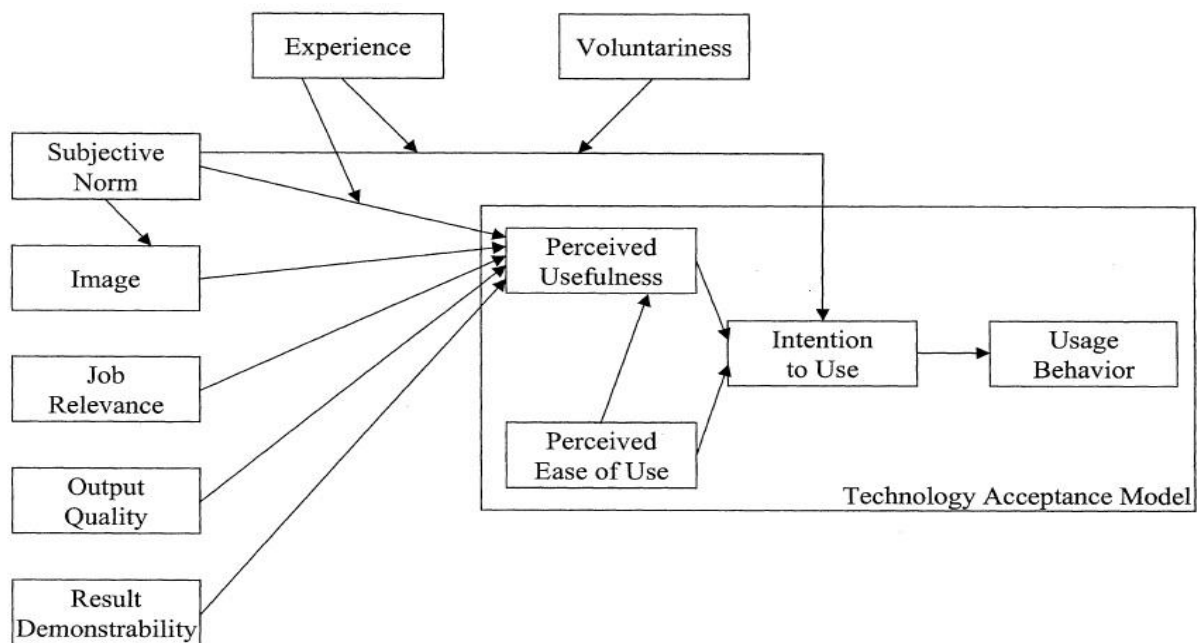


Figure 2.8: Technology Acceptance Model 2 (Source: Venkatesh and Davis, 2000: 188)

Most of these constructs were already defined in previous sections, such as, voluntariness, image and result demonstrability in PCI, subjective norm in TRA and perceived usefulness and ease of use in TAM.

Job relevance is defined as “an individual's perception regarding the degree to which the target system is applicable to his or her job” (Venkatesh and Davis, 2000: 191). Venkatesh and Davis (1991: 191) have stated that “we conceptualize perceptions of job relevance to be part of a compatibility test”. Therefore, it may be part of compatibility. Furthermore, output quality is defined as “considerations of what tasks a system is capable of performing” (Venkatesh and Davis, 2000: 191).

TAM2 has also been widely used in IS research, such as in Chismar and Wiley-Patton (2003) study to examine acceptance and usage in internet applications in hospitals to find if physicians would accept and use this innovation. Hart and Porter (2004) have also used TAM2 to examine the online analytical processing (OLAP) in South Africa.

In 2008, another version of the TAM was developed to look more at perceived ease of use, more details is given in the next section.

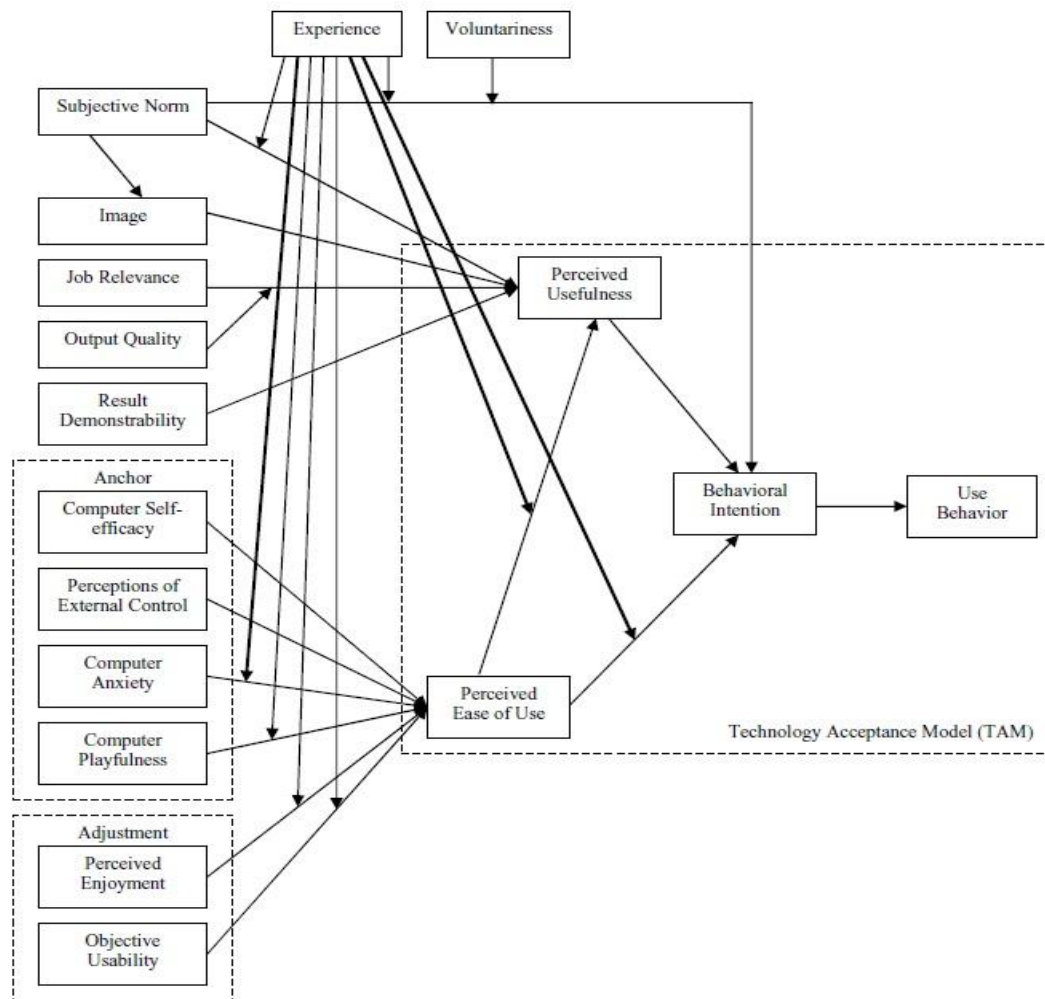
### **2.5.7 Technology Acceptance Model 3 (TAM3)**

TAM3 is the extension of TAM and developed by Venkatesh and Bala (2008) and represents “a comprehensive nomological network (integrated model) of the determinants of individual level IT adoption and use” (Venkatesh and Bala, 2008: 273). TAM3 is similar to TAM2; however, in TAM3 anchors and adjustments were added to the model, which is shown in figure 2.9.

Anchors consist of computer self-efficacy, perceptions of external control (facilitating conditions), computer anxiety and computer playfulness. Venkatesh and Bala (2008: 278) argued that these anchors will influence users to “form early perceptions of perceived ease of use of a system”. Self-efficacy and external control or facilitating conditions has been defined in DTPB section. Computer anxiety is “the degree of an individual's fear, when she/he is faced with the possibility of using computers” (Venkatesh, 2000: 349). Computer playfulness is “the degree of cognitive spontaneity in microcomputer interactions” (Webster and Martocchio, 1992: 204).



Adjustments consist of perceived enjoyment and objective usability. It is also argued that these adjustments will take effect in future, after the system is used. Adjustments will “play a role in determining perceived ease of use after individuals gain experience with the new system” (Venkatesh and Bala, 2008: 278). Perceived enjoyment is “the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use” (Venkatesh, 2000: 351). Objective usability is “comparison of systems based on the actual level of effort required to completing specific tasks” (Venkatesh, 2000: 351).



**Figure 2.9:** Technology Acceptance Model 3 (Source: Venkatesh and Bala, 2008: 280)

In Venkatesh and Bala (2008) study, TAM3 was tested on four different organisations to examine the adoption and use of their new systems. The study concluded that “the development and validation of TAM3 was an important first step in understanding the role of interventions in IT adoption contexts” (Venkatesh and Bala, 2008: 291). Further, they suggested some points that can be beneficial to other

organisations that are implementing new systems, such as, having more user participation in organisations for example; users should be involved in the implementation process. This will help in understanding the system and know its benefit from an early stage. Another point discussed was training, where it was suggested that users should be trained before and during implementation of the new system. Organisations should also support employees and assist them with the new system.

These findings stated above will be also considered and looked at in depth in this research. Furthermore, this research will only use few constructs that are used in TAM3, such as, image, perceived ease of use, perceived usefulness, self-efficacy and perception of behavioural control. More reasons and details will be given in section 2.7 (foundations of the proposed theoretical framework). This research will also look at trust constructs that may influence the adoption and use of e-services in organisations. More details about trust will be given in the next section.

## **2.6 Trust and E-government**

Since e-commerce and e-government are online services, concepts of trust emerged in e-commerce research (Belanger et al., 2002; Ba and Pavlou, 2002; Parent et al., 2005; Gefen et al., 2008; Smith, 2010; Lee et al., 2011) have been also applied to e-government research (Carter and Belanger, 2005; Colesca, 2009).

Conhaim (1998: 13) defined e-commerce as “consumer-oriented storefronts, business-to-business applications as well as behind-the scenes business functions like electronic payment systems and order management”. As given earlier, e-government is defined as the “use of information technology to enable and improve the efficiency with which government services are provided to citizens, employees, businesses and government agencies” (Carter and Belanger, 2005: 5). Both terms have similar concepts that are used by online users; however, they have two different purposes.

Trust has always been an important factor in online communication and usage. In e-commerce, trust has been described as a catalyst for online transactions by customers (Pavlou, 2003). Lee and Turban (2001: 76) stated that “internet shopping involves trust not simply between the internet merchant and the consumer, but also between the consumer and the computer system through which transactions are executed”. On the other hand, in e-government Lee et al. (2011: 224) stated that “e-government service adoption depends on business users' trust in internet technology”.

So far, trust is being generally mentioned, but to familiarise the reader to the concept, the following definition is provided. Trustworthiness is defined as “the perception of confidence in the electronic marketer’s reliability and integrity. This definition will facilitate the examination of the nature of the relationships among trustworthiness, privacy, security, and purchase intentions” (Belanger et al., 2002: 252). Similarly, Garrido and Marina (2008: 223) stated that “trust in the global net is closely connected with a greater level of certainty or confidence and security of the internet”.

Trust is a difficult concept to understand but efforts have been made to understand it. For this research the following definition is being applied. Gefen et al. (2008: 276) view it as: “trust in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of three distinct dimensions: integrity, ability, and benevolence. Therefore, trust is viewed as the willingness to depend, and trustworthiness describes these three attributes of the trustee”.

Reliability is “the degree to which services offer via e-government website are provided in an accurate and dependable manner” (Tan et al., 2008: 3). Integrity is “the trusting party’s perception that the trusted party will be honest and adhere to an acceptable set of principles” (Lee and Turban, 2001: 78). Ability “comprise the skills and competencies enabling a party to have influence within some specific domain” (Lee and Turban, 2001: 77). Lastly, benevolence is “the extent to which the trusting party believes that the trusted party wants to do good things” (Lee and Turban, 2001: 78).

This shows that the trustworthiness and trust are not the same. Instead, trustworthiness deals with personal beliefs, and trust deals with a person’s behavioural intention (Gefen et al., 2008).

Colesca (2009: 34) also added that “bad personal experiences, and news of large scale computerisation failures or inadequacies, may reinforce distrust or reduce a high level of trust in Internet and in the agencies that use them”. This was also supported by Avgerou et al. (2009) who found that in Brazil when e-voting was easy and fast, voters trusted e-voting. However, it was also emphasised that if problems or delays occurred with the e-voting system then this would cause voters not to trust the e-voting again; therefore, experience is viewed important for an online government environment.

Trust is shown to be a difficult situation to attain in an online environment. Colesca (2009: 35) found that an “online environment does not allow the natural benefits of face-to-face communications and to directly observe the service provider behaviour, assurance mechanisms on which humans have

depended on for ages”, which accounted for the process of trust to take time (Walther and Burgoon, 1992).

As mentioned earlier trust influences adoption in e-commerce research, however, the influence of trust by itself is not enough; other factors should also be looked at such as DOI constructs (Slyke et al., 2004). More details about different constructs used for this research will be given later in the conceptual framework section.

## **2.7 Foundations of the Proposed Theoretical Framework**

In organisational sciences that this topic can also be included in, a conceptual framework is described as one that allows academics to make sense of the field to understand the boundaries, major findings and challenges (Shapira, 2011). When forming a conceptual framework Shapira (2011) suggested that (i) there should be a structure to organise observations; and (ii) a description of the structure should be provided in a precise and clear manner. Earlier, IS academics, such as, Taylor and Todd (1995b: 169) recommended that when forming a framework it “should be evaluated in terms of both parsimony and their contribution to understanding”.

Using this reasoning the theoretical framework formed for this research study initially involved examining literature pertaining to the acceptance and use of ICTs, diffusion and adoption theories, as the aim of this research is to understand the adoption and use of e-services. However, this study was careful not to go beyond the domain of e-government research as e-services are encompassed within that area. This meant that previous studies usually understanding, investigating and explaining adoption, use and diffusion using theories such as, DOI (Rogers, 1983), adoption using TAM (Davis, 1986) were considered. Other theories also considered were TRA, TPB and DTPB; however, due to diverse reasons only some of their constructs were used in this research. For example, the TRA, TPB and DTPB examine the ‘social norm’ aspect. Social norm “refers to the perceived social pressure (from superiors or peers) to perform or not perform the behaviour” (Ajzen, 1991: 188). However, e-government services are still new and developing, and with individuals still being sceptical of the service and the internet for more than mundane tasks and surfing the internet, individuals are not yet ready to accept the novel technology; hence social norms was left out. However, this is the initial formation of the conceptual framework. For further research, the researcher made a mental note that if social norms are observed during the pilot study, then they may be included.

### 2.7.1 Constructs from DOI / PCI

Diffusion of Innovation theory has been used in different IS research studies. Further, DOI is viewed to be compatible with other theories such as TRA and TPB (Taylor and Todd, 1995a; Tan and Teo, 2000; Carter and Belanger, 2005; Slyke et al., 2007; Carter and Weerakkody, 2008; Sang et al., 2009; Macredie and Mijinyawa, 2011). An additional reason for applying DOI emerged from DOI being more “commonly used to study user adoption of information systems” (Carter and Weerakkody, 2008: 474). Hence as this research is focused on learning of how the ADPF employers are adopting and using e-services, this also implies considering how the message or spread of messages is occurring in order to implement the novel service is pertinent; DOI was viewed to be most suitable.

Concepts from DOI will be applied in this research, which are: DOI’s Relative Advantage (RA), Compatibility (Compa) and Complexity (Compl). These three “innovation characteristics (compatibility, relative advantage and complexity) had the most consistent significant relationships to innovation adoption” (Tornatzky and Klien, 1982: 28; Moore and Benbasat, 1993; Taylor and Todd, 1995a; Carter and Belanger, 2005). Therefore, based on previous studies which also included e-government adoption and diffusion studies, has led the researcher to consider these constructs and examine them in this research. More about these constructs are explained throughout this section.

RA was pertinent for this research as this researcher wants to learn how the staff members compare the new technology to the traditional manual procedures and, as there is a qualitative element to this research, their views on the matter. For example, RA will examine staff member’s points of view and reasons for being in favour or against e-government services. Within literature, barriers when using e-government services, such as, resistance to change was a major issue (World Bank, 2004; Al-Rashidi, 2010); however, there should be reasons for the resistance to change which this research will examine.

Then, in order to identify whether the novel service is compatible with the provided products and services of ADPF, which compatibility allows. Taylor and Todd (1995a) argued that compatibility is an important construct that can positively influence adoption. They have also provided an example by saying, “if the use of an innovation violates a cultural or social norm, it is less likely to be adopted” (Taylor and Todd (1995a: 141). Furthermore, compatibility can be divided into four dimensions: “(i) compatibility with values (if the e-service matches the user value), (ii) with prior experience (if e-service fit with user experience of technology), (iii) with existing work practices (if e-service fit with

current work) and (iv) with preferred work style (if e-service is reliable with current work style)” (Agarwal and Karhanna, 1998: 4).

In Carter and Belanger (2005: 8) e-government study they have defined compatibility as “the degree to which an innovation is seen to be compatible with existing values, beliefs, experiences and needs of adopters”, which was similar to Agarwal and Karhanna (1998) description of compatibility. Carter and Belanger (2005: 8) found that “higher levels of perceived compatibility are associated with increased intentions to adopt state e-government initiatives”.

It was also noticed lack of skills have led to not using e-government services (Ndou, 2004; UN, 2012), but the reasons might be because users current skills are not compatible with skills needed to use e-government services. This led this research to consider these attributes.

Thereafter, to examine whether the staff members find the services complex to previous procedures; complexity will be considered. More details about this construct with regards to e-government literature will be discussed later in section 2.8 were it will also explain the relationship between complexity and perceived ease of use.

This research has also applied Moore and Benbasat (1991) Perceived characteristics of an innovation (PCI) construct of image. Image construct was also been used in e-government research such as the research by Carter and Belanger (2005). However, status is of immense importance in the Arab region; which has been applied to this research. This may help in discovering other things not seen in other research examined in developed countries, such as in Slyke et al. (2004) and Carter and Belanger (2005) study. More about image is also discussed in section 2.8.1.

Furthermore, relative advantage, compatibility, complexity and image have been used in previous research to examine behavioural intention (Al-Gahtani, 2003; Carter and Belanger, 2005; Lean et al., 2009). For example, a study by Slyke et al. (2004) that was conducted in the United States, have used these constructs to “identify and understand factors that may influence consumers’ intention to use business-to-consumer electronic commerce” (Slyke et al., 2004: 2). The study was conducted in a developed country and was in e-commerce field; however, the result of their study showed that relative advantage and compatibility had a strong impact on behavioural intention. On the other hand, image did not show an impact on behavioural intention. They have also recommended other researchers to conduct additional research to examine this issue.

On the other hand, Chong et al. (2009) used some of the DOI constructs in Malaysia, which is a country that Abu Dhabi can be compared with. However, in their study it was found that innovation attributes have no influence on adoption. Therefore, this study will examine this issue and find out more about DOI/PCI constructs with respect to influence on e-government adoption in a public sector organisation in a developing country.

Examining in depth and understanding the current situation in ADPF will help in discovering barriers or problems and therefore, know how things could be improved. With such reasoning from the literature it was seen that DOI/PCI will help with understanding more of this topic.

### **2.7.2 Constructs from TAM**

Furthermore, previous e-government research (Carter and Belanger, 2005) found that the aforementioned factors of DOI are associated with TAM's constructs: perceived usefulness and perceived ease of use (Carter and Belanger, 2005). Additionally, TAM has been used in various studies that examined adoption in information systems (Carter and Weerakkody, 2008). Therefore, this research will also combine this model in the theoretical framework, more due to the importance of understanding user's ability towards using the innovation. For example, if they find it useful or not, or easy to use or not. Furthermore, it was also noticed from the literature review, that factors such as lack of training led to not using e-services because users may find it difficult to use and none or less training capabilities are available (Kumar and Best, 2006; Dada, 2006). Therefore, the TAM will also help in investigating more issues in this research.

### **2.7.3 Constructs from DTPB**

Perceived Behavioural Control (PBC) is a construct in the TPB. The decomposition of PBC, self-efficacy, resource and technology facilitating conditions was also used in DTPB (Taylor and Todd, 1995b) and TAM3 (Venkatesh and Bala, 2008). Based on literature, it was noticed that PBC is an important construct that can influence the behavioural intention and actual use (Taylor and Todd, 1995b; Macredie and Mijinyawa, 2011). This research will also use the decomposition of PBC to examine the following: (i) Self-efficacy; to examine staff in ADPF if they have the confidence and skills to use the e-services (ii) Resource facilitating conditions; to examine the current situation in ADPF and its current resources, such as, budgets set for implementation and training purposes (iii) Technology facilitating conditions; to examine the current IT infrastructure and IT support in ADPF.



Further, Taylor and Todd (1995a: 144) have also added that “the absence of any of these facilitating conditions represents barriers to adoption and may inhibit the formation of intention”.

#### **2.7.4 Constructs from Trustworthiness**

As mentioned in section 2.6, trust also influences adoption, therefore, concepts of trust used in e-commerce studies was also used in this research, which is trust of the internet and trust of government. “Recent empirical studies (Pavlou and Gefen, 2004; Welch et al., 2005; Belanger and Carter, 2008) have supported that relational characteristics such as trust in the institution who directly or indirectly provides new technology service positively influence users' adoption” (Lee et al., 2011: 223). Furthermore, based on the literature review, it was also found that trust of internet, trust of e-government and its services are creating a barrier between using it or not (Colesca, 2009; Al-Rashidi, 2010). As mentioned earlier “bad personal experiences, and news of large scale computerisation failures or inadequacies, may reinforce distrust or reduce a high level of trust in Internet and in the agencies that use them” Colesca (2009: 34).

Looking at the aforementioned discussion and reason listed, the researcher decided to use constructs from the 4 theories mentioned previously, which are DOI, TAM, DTPB and Web trust models in this research.

#### **2.7.5 Demographic Constructs**

This research also considered demographic factors, such as age, gender, education, income and internet experience and whether they had any effect on the actual use and adoption of the e-services. This was on the basis that demographic and social factors are viewed as critical when determining the acceptance of online services as they emphasise user behaviour (Karjaluoto et al., 2002; Jaruwachirathanakul and Fink, 2005; Schuppan, 2009). Particularly, “age, gender, education, income distribution, language diversity and the percentage of the population living in rural areas” are seen as important when considering demographic factors (Schuppan, 2009: 122). This research did not consider language as a demographic factor because the current e-services in ADPF are available in 2 different languages, which are Arabic or English.

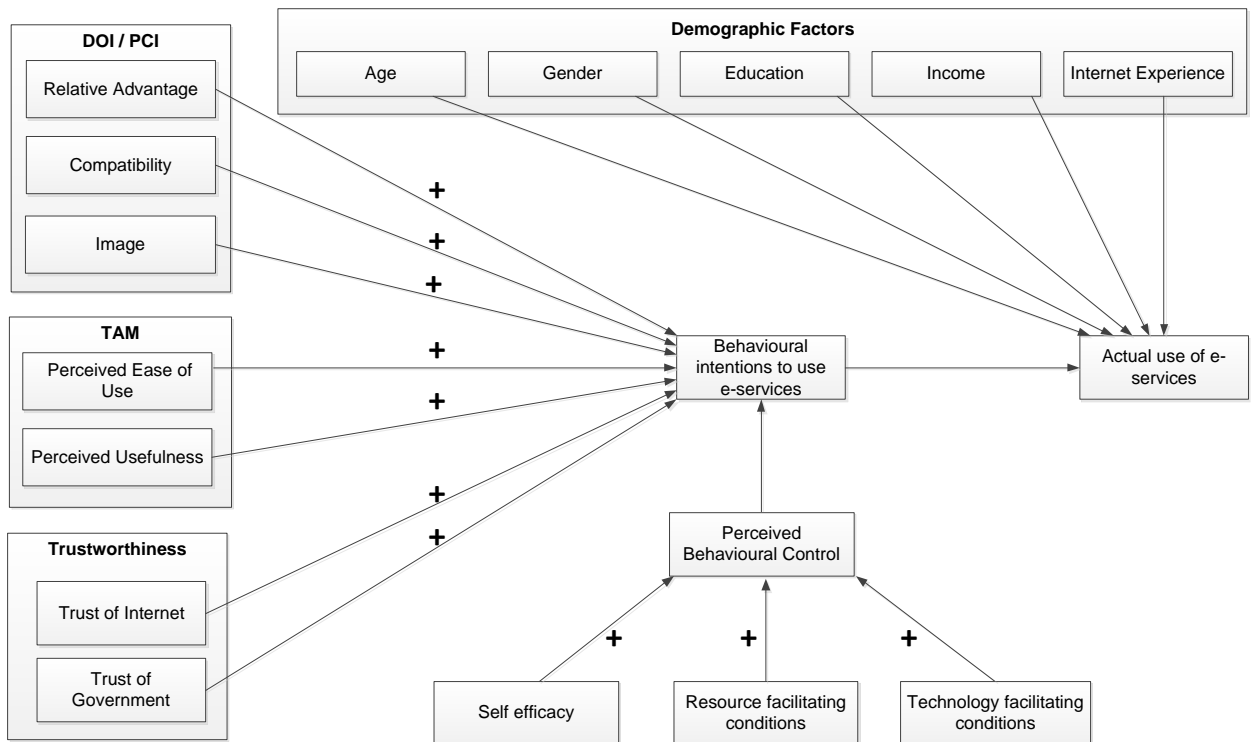
In conclusion every study has different aims and needs, a lot of models with different constructs have been used in literature. However, the researcher should predict and understand what is more suitable



and appropriate for his/her study. Further, “research has shown that the influence of some factors on intention to use IS varies at different stages in the IS implementation process” (Al-Qeisi, 2009: 37). Therefore, even different stages of implementation affect constructs. Finally, based on the researcher knowledge, findings and appropriateness a proposed theoretical framework is given in the next section.

## 2.8 Theoretical Framework

The proposed theoretical framework of this research is shown in figure 2.10.



**Figure 2.10:** Theoretical framework to understand the adoption, diffusion and use of e-services in public sector organisations

As shown in figure 2.10, the behavioural intention construct to use the current e-government services in a public organisation is determined by relative advantage, compatibility, image from (DOI/PCI), perceived ease of use and perceived usefulness from (TAM), trust of internet and trust of government from (trustworthiness) and perceived behavioural control from (DTPB). Finally, behaviour intention will then predict the actual use of e-services in a public sector organisation, which will also be examined by demographic factors.

It is noticed that constructs from DOI, TAM, DTPB and trustworthiness have a direct path to the behavioural intention. This research have used Davis et al. (1989) advice were he stated that “the reason for this deviation is that in work settings, intentions to use IT may be based on anticipated job performance consequences of using the system regardless of overall attitude. In other words, an employee may dislike a system, (i.e., has a negative attitude towards it), but still use the system because it is perceived to be advantageous in terms of job performance” (Taylor and Todd, 1995b: 148). Therefore, because this research is also in a work setting (ADPF) this might also be the case. However, this will also be tested during the pilot study.

In the United Theory of Acceptance and Use of Technology (UTAUT) model Venkatesh et al. (2003) combined relative advantage and perceived usefulness in one construct and named it ‘performance expectancy’ (Carter and Belanger, 2005). Furthermore, Taylor and Todd (1995b), and Agarwal and Karhanna (1998: 3) have also stated that “perceived usefulness in TAM is equivalent to Rogers’ relative advantage”, because both examine influence on performance. However, Carter and Belanger (2005: 10) have argued that “the overlap is not clear”. An example which was also given earlier: RA will examine staff member’s point of view and reasons for being in favour or against e-government services. Perceived usefulness will examine staff member’s points of view if e-government services are useful to them or not. This shows they are not exactly the same. To prevent confusion, the researcher has applied Carter and Belanger (2005) advice in the theoretical framework, were they have used these two constructs in their model.

Agarwal and Karhanna (1998) have also argued that many studies could not differentiate between compatibility and perceived usefulness. However, in this research compatibility and perceived usefulness will examine two different things. For example, compatibility will examine if the e-services fits with the current organisational work or not. On the other hand, perceived usefulness will examine if staff members find the e-services useful in their job or not. Therefore, both constructs were used.

Ease of use “is equivalent to complexity (PEOU is the direct antonym of complexity)” (Moore and Benbasat, 1991; Agarwal and Karhanna, 1998: 3; Carter and Belanger, 2005). An example could be; finding out if the e-services are easy to use or not, is similar to finding out if the e-services is complex to use or not. Therefore, the researcher has also assumed it is the same. This research used Carter and Belanger (2005) advice to use ease of use instead of complexity because ease of use is well tested than complexity. Furthermore, Moore and Benbasat (1996) have also supported ease of use, saying that ease of use, usefulness and compatibility are connected to usage.

In most studies that examined the adoption of e-government services, perceived ease of use were also used instead of complexity, such as studies by Gilbert et al. (2004), Carter and Belanger (2004), Al-Adawi et al. (2005) and Rokhman (2011). Therefore, based on the literature review, this research had used perceived ease of use instead of complexity.

### **2.8.1 Similar E-government Adoption Framework**

As a note to readers, the theoretical framework being applied to this research study is similar to the research model of Carter and Belanger (2005) where constructs from the TAM, DOI and web trust models were integrated, however, in this study demographic factors and PBC were added. Further, Carter and Belanger (2005: 5) model is a “comprehensive model of factors that influence citizen adoption of e-government initiatives”. Comparatively, the proposed conceptual framework of this research study will examine the adoption of a public sector organisation and consider employees rather than citizens. This is viewed to be a contribution of this research study.

Furthermore, the study of Carter and Belanger (2005), was conducted in a developed country (Virginia, USA), and this research is conducted in a developing country (Abu Dhabi, UAE) and is the second contribution of this research study.

### **2.9 Research Propositions**

The following section will list all constructs used in this research and will explain how each construct is supported by literature. This will reveal to readers the fit of the constructs with this research and also show the differences between the constructs used here and in other research. Based on the literature review and theoretical framework, this led the researcher to develop the research propositions.

There are differences between propositions and hypotheses. “The primary difference between propositions and hypotheses is that propositions involve concepts whereas hypotheses require measures” (Whetten, 1989: 491). Furthermore, a proposition “is a statement about the concepts that may be judged as true or false if it refers to observable phenomena. When a proposition is formulated for empirical testing, it is called a hypothesis” (Van Heerden, 2001: 204).

Tavallaei and Abu Talib (2010: 571) stated that “qualitative research does not intend to “test” a hypothesis, whereas, in quantitative research, the researcher seeks to prove and confirm his/her

hypothesis”. This is a qualitative research where measures are not prevalent; therefore, propositions were used instead of hypotheses. In addition to that, because this research is also using a case study method, Yin (2009: 130) advised using propositions in case studies, which “helps to focus attention on certain data and ignore other data, it also helps to organise the entire case study and define alternative explanations to be examined”. Furthermore, Cavaye (1996) and Darke et al. (1998) have also argued that when using a case study the researcher needs first to prepare a list of propositions based on literature and existing theory, which this research has also followed.

### **2.9.1 Diffusion of Innovations (DOI) / PCI**

“Diffusion of Innovation (DOI) model has emphasized the attributes of new technology as key determinants of adoption” (Lee et al., 2011: 223). Furthermore, Carter and Weerakkody (2008: 474) have also argued that Rogers (2003) DOI is commonly used in user adoption studies.

As stated earlier “three innovation characteristics (compatibility, relative advantage and complexity) had the most consistent significant relationships to innovation adoption” (Tornatzky and Klien, 1982: 28; Moore and Benbasat, 1993; Taylor and Todd, 1995a; Carter and Belanger, 2005). Furthermore, Carter and Belanger (2004), study in e-government adoption showed that relative advantage and compatibility have increased citizen’s intention to use e-government services. Therefore, based on the literature review, in this research the following propositions are predicted.

***Proposition 1:*** *Relative advantage will have a positive effect on the behavioural intention to adopt and use of e-services.*

***Proposition 2:*** *Compatibility will have a positive effect on the behavioural intention to adopt and use of e-services.*

Moore and Benbasat (1991) have argued that image is one of the perceived characteristics of an innovating (PCI) that influences acceptance of adoption. Other PCI constructs such as, voluntariness of use, trialability and observability were inappropriate to be used in this research. For example, voluntariness of use is defined as “the degree to which use of the innovation is perceived as being voluntary or of free will” (Moore and Benbasat, 1991: 195). The e-services in ADPF or in any public sector organisation is a personal choice and cannot be compulsory, “voluntariness would be unlikely to show significant variability” (Carter and Belanger, 2005: 9).

Trialability is “the degree to which an innovation may be experimented with on a limited basis” (Rogers, 2003: 16). E-services have passed the testing and pilot phase and are being launched in ADPF; therefore, this construct will be inappropriate to look at in this stage.

Observability is “the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt” (Rogers, 2003: 16). E-services should be used by staff members in order to know the advantages or disadvantages of it. Each staff member has a different position and task, therefore, staff members should use the e-services based on their work needs. Furthermore, in the current case study not all staff members know about the e-services, therefore, results of the innovation is not yet clear and could be examined in future research.

Based on the literature review, image was used in technology adoption research (Agarwal and Prasad, 1997; Slyke et al., 2002; Slyke et al., 2004; Carter and Belanger, 2004; Shareef et al., 2011). However, image was also seen as not an effective construct on adoption of technologies (Slyke et al., 2004; Carter and Belanger, 2005), “e-government services might not be image enhancing in the United States, it may not be the case in other countries and cultures. This should be investigated further” (Carter and Belanger, 2005: 20). Based on the literature review and the contradictions, this research will test image in adoption of e-services, however, based on most studies and literature the proposition will have ‘positive influence’ on adoption of e-services.

***Proposition 3:*** *Image will have a positive effect on the behavioural intention to adopt and use of e-services.*

### **2.9.2 TAM (Perceived Ease of Use and Perceived Usefulness)**

“Technology Acceptance Model (TAM) has highlighted that individuals adopt new technology once they perceived the usefulness and easiness of use” (Lee et al., 2011: 223). Furthermore, Agarwal and Karahanna (1998: 2) also stated that “empirical studies based on TAM have indicated that usefulness and ease of use beliefs do explain significant variance in attitude, intentions, and usage”. However, in Carter and Belanger (2004: 16) study of e-government adoption found that “higher levels of perceived ease of use are not significantly associated with increased use intentions of e-government services.” This was later explained in their study where it was found that the overall numbers of subjects (136 participants) are young college students with an average of nine years computer experience. Therefore,

they are well educated and will be impossible to compare with anyone from the public who will have different level of education and age.

Sang et al. (2009) e-government adoption study in Cambodia (Southeast Asia), used the TAM model and concluded that TAM constructs support e-government adoption. Another study by Lean et al. (2009) also employed TAM and other theories to examine factors affecting e-government services in Malaysia. Based on literature review and the importance of perceived ease of use and usefulness in user adoption of technology, this research derived the following propositions.

***Proposition 4:*** *Perceived ease of use will have a positive effect on the behavioural intention to adopt and use of e-services.*

***Proposition 5:*** *Perceived usefulness will have a positive effect on the behavioural intention to adopt and use of e-services.*

### **2.9.3 PBC (Perceived Behavioural Control)**

As stated in section 2.5, PBC influences behavioural intention. “The IT literature demonstrates that PBC may be an important determinant of usage” (Taylor and Todd, 1995b: 150; Al-Gahtani et al., 2007; Al-Shafi and Weerakkody, 2010). A study by Awadhi and Morris (2008) in Kuwait, who examined facilitating conditions (resource and technology) on influences of adoption of e-government services (citizen context), found that facilitating conditions influence behavioural intentions. This was similar to a study made by Al-Shafi and Weerakkody (2010) in Qatar, who also stated that facilitating conditions affect citizen adoption to use e-government services. Therefore, this research has predicted the following proposition.

***Proposition 6:*** *Resource facilitating conditions will have a positive effect on the behavioural intention to adopt and use e-services.*

***Proposition 7:*** *Technology facilitating conditions will have a positive effect on the behavioural intention to adopt and use e-services.*

Further, self-efficacy was also seen to be important. In a developing country, Alsobhi and Weerakkody (2010) found in Saudi Arabia, a country with a culture similar to AD, that computer training for

citizens was important in order to use and prevent the current low adoption rate. This led this research to understand that building computer skills is one of the major issues required for using e-services.

In another study by Shareef et al. (2011), factors affecting adoption of e-government by citizens in Canada were examined. Based on their literature review, it was concluded that self-efficacy has a strong influence on the adoption of e-government; however, they discovered in their study that self-efficacy is not important and had very little influence on the adoption of e-government. They have argued that their study is only an exploratory study and there are no supported research studies available. They also recommended more studies on the self-efficacy effect on e-government adoption especially in developing countries so that results could be compared, which this research is currently examining.

Therefore, based on the literature review, this research proposes the following proposition.

***Proposition 8:*** *Self efficacy will have a positive effect on the behavioural intention to adopt and use e-services.*

#### **2.9.4 Trustworthiness**

As stated earlier, the concept of trust has been used and tested in adoption research whether in e-commerce (Ba and Pavlou, 2002; Pavlou, 2003; Chong et al., 2009) or e-government context (Belanger et al., 2002; Venkatesh et al., 2003; Parent et al., 2005; Carter and Belanger, 2005; Gefen et al., 2008; Carter and Belanger, 2008; Carter and Weerakkody, 2008; Colesca, 2009; Smith, 2010; Lee et al., 2011; Shareef et al., 2011).

In e-government research it was revealed that e-government adoption depends heavily on trust, security and transparency. "Citizens' trust, leading to adoption and use of e-Government systems, has two dimensions: trust on the governments and trust on internet" (Colesca, 2009: 34). Furthermore as given earlier, Lee et al. (2011: 224) further ascertained that "e-government service adoption depends on business users' trust in internet technology", they also added that "trust positively influence user adoption" (Lee et al., 2011: 223).

This research is based on a military organisation, where staff members when being enrolled are required to sign documents in order to show loyalty towards the organisation. Therefore, the results and responses when adding the construct "trust of e-government" was predicted to be the same to all

participants in this study. However, when considering the “generalisation of the study”, which will be looked at later in this dissertation, the study should be applicable to other public sector organisations too. This showed that in order for this framework to be generalised, all constructs whether they were directly or indirectly related to the study should be looked at in details.

A study by Al-Shafi and Weerakkody (2007b) in Qatar concluded that trust of citizens in using e-government services had affected the adoption of these e-services. Shafi and Werakkody (2007b: 12) argued that “this environment prevents citizens from accessing some online information”. This finding was also supported by Alsobhi and Weerakkody (2010) study in Saudi Arabia, which looked at the influence of security and privacy issues in citizen perspective to adoption of e-services. Further, even with internet banking; privacy, risk and trust were also seen as important factors that affect behavioural intention to adopt internet banking services in Thailand (Jaruwachirathanakul and Fink, 2005).

Therefore, based on literature review the following propositions were formed.

***Proposition 9:*** *Trust of the internet will have a **positive** effect on the behavioural intention to adopt and use of e-services.*

***Proposition 10:*** *Trust of the government will have a **positive** effect on the behavioural intention to adopt and use e-services.*

### **2.9.5 Demographic Factors**

Demographic factors has been widely used in previous studies that examined the adoption of ICTs, such as adoption of e-government (Huang et al., 2002; Colesca and Dobrica, 2008; Dwivedi and Williams, 2008; Awadhi and Morris, 2008, Alshehri and Drew, 2010), adoption of computers (Al-Jabri, 1996; Venkatesh et al., 2000), adoption of broadband (Anderson et al., 2002; Choudrie and Dwivedi, 2006; Dwivedi and Lal, 2007).

A study by Jaruwachirathanakul and Fink (2005) proposed a framework to examine internet banking adoption in Thailand. It was suggested that some moderating variables that encourage adoption, such as, income, education, internet experience should be considered; hence pursued within this research.



Based on literature and needs, this research will examine various diverse demographic factors to examine the adoption of e-government services in a public sector organisation. The demographic factors to be considered are: age, gender, education, income and internet experience. There are other demographic factors, such as marital status, ethnicity and others, however, they are beyond the research scope and will be a suggestion for future studies.

### **2.9.5.1 Age**

Previous studies have found that age influences the behavioural intention, adoption and actual use (Venkatesh et al., 2000; Colesca and Dobrica, 2008). It was concluded that the younger the person the more chance to adopt different ICTs such as computers (Vankatesh et al., 2000), broadband (Choudrie and Lee, 2004) or e-government (Colesca and Dobrica, 2008). Similarly, based on Jaruwachirathanakul and Fink (2005: 301) literature review, they found out that there is a “strong relationship between age and the acceptance of innovation. That is, older consumers are found to have negative attitudes with new technologies”. Therefore, this research formed following proposition.

***Proposition 11:** Younger staff members are more likely to adopt and use e-services than older staff.*

### **2.9.5.2 Gender**

Similar to the age demographic factor, gender has also been used in many studies to examine its effect on the actual use and adoption of ICTs in general (Al-Jabri, 1996; Vankatesh et al., 2000; Choudrie and Lee, 2004). Based on literature and particularly e-government studies (Colesca and Dobrica, 2008) it was concluded that males use technology more than females; hence, the following proposition was formed.

***Proposition 12:** Males are more likely to adopt and use e-services than females.*

### **2.9.5.3 Education**

Based on literature, education level is also connected to adoption of innovation or ICTs (Vankatesh et al., 2000; Rogers, 2003; Choudrie and Lee, 2004). These studies showed that the higher level of education the more chances there are of adopting the innovation or ICTs.

In ADPF e-services might need an educated staff to be able to cope with the technology; therefore formed the following proposition.

***Proposition 13:*** *Staff members with higher education are more likely to adopt and use e-services than staff with lower education.*

#### **2.9.5.4 Income**

Income was also seen as an important factor that has an effect on adoption (Vankatesh et al., 2000). It was concluded that people with higher income are more likely to adopt different ICTs.

The researcher assumed that staff in ADPF with higher incomes tend to purchase different types of technologies, i.e. computers, ipads etc.; therefore, they are able to adopt different ICTs even at work, and even in the case of e-services in ADPF.

***Proposition 14:*** *Staff members with high income are more likely to adopt and use e-services than staff with low income.*

#### **2.9.5.5 Internet Experience**

When considering internet experience with adoption minimal research was revealed, this led this study to also consider it. Of the few studies, Colesca and Dobrica (2008) found that internet experience is important when researching e-government adoption. In the aforementioned study, internet experience was examined with perceived ease of use and perceived usefulness of e-government services. Furthermore, another study by Jaruwachirathanakul and Fink (2005: 301) stated that “prior experience with technologies also has an impact upon consumer beliefs and attitude and increases the likelihood to adopt the new technologies”.

A study in Kuwait by Awadhi and Morris (2008: 5) had also argued that internet experience is important to consider, for example, in their study they have stated that “there would be a significant positive relationship between facilitating conditions and use behaviour of e-government services, and this relationship would be moderated by internet experience”.

In this research the researcher will examine if internet experience has a direct effect on the adoption of e-government services. However, based on the literature review, the following proposition was formed.

***Proposition 15:*** *Staff members with more internet experience are more likely to adopt and use e-services than staff with less or no internet experience.*

## **2.10 Summary**

This chapter consisted of the literature review of main areas this research will cover, such as, developing countries and e-government, gulf region and e-government, UAE and e-government. It also provided details regarding the theoretical framework and propositions applied in this research study.

To acquire the data and the philosophical foundations surrounding this research study, the next chapter explains and reasons the research methods and methodology.

# *CHAPTER 3*

## *RESEARCH METHODOLOGY*

### **3.0 Introduction**

The previous chapter looked at the literature review on e-government and technology adoption models, and proposed a theoretical framework that aimed to understand factors affecting the adoption and use of e-services in public sector organisations. Furthermore, based on the literature review and the theoretical framework, research propositions were formed.

This chapter will consist of different material related to the research approach used in this research. There will be an introduction to different research philosophies and then to the approach, strategy and techniques that are used in this research.

To study and examine the diffusion, adoption and use of e-services in ADPF an appropriate research approach, strategy and technique should be used. To understand and validate the theoretical framework in chapter 2, data is required. The data to be acquired for this research was deemed to be qualitative as this would allow a rich and in-depth understanding to be formed. The philosophical foundation used in this research for guidance purposes is interpretivism. A deductive approach was also used. The research strategy utilised is a case study and considered four case studies which were taken from four different departments in ADPF. The data collection technique was mainly face to face interviews and direct observations. Reasons for using these approaches are listed in this chapter.

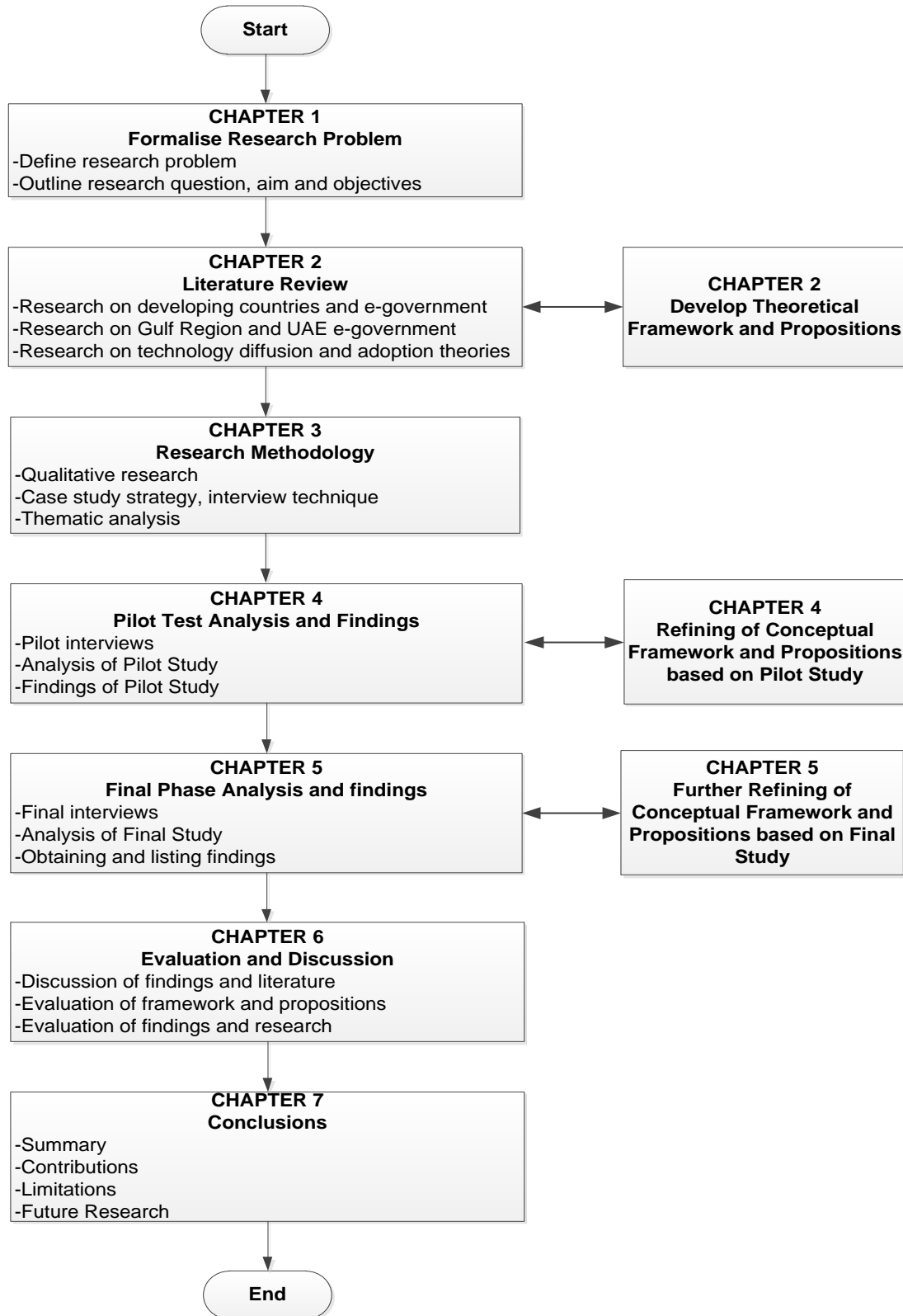
Before going into details with this chapter, the researcher wants to differentiate between methods and methodologies. Methods are the techniques used in a research (Bryman, 2008; Saunders et al., 2009). “Methods might be instruments of data collection like questionnaires, interviews or observation”

(Bryman, 2008: 160). On the other hand methodology is “the study of the methods that are employed in the study” (Bryman, 2008: 160). Doolin (1998: 301) refers to methodology as the philosophical foundations of research, whilst the method refers to the data collection methods.

### **3.1 Research Design**

This study have followed a research design in order “*to identify and understand factors affecting the adoption, diffusion and use of e-services in a public sector organisation in a developing country*”. The research design is shown in figure 3.1. It guided the researcher throughout the entire study.

The research started with defining research problems, this had led to identify the research gap in literature. Further, a research question was formed based on the research gap. This led to outline the research aims and its objectives (chapter 1). The next step was going through the literature review and topics related to this research which also helped in proposing the theoretical framework and propositions (chapter 2). After that the research methodology; research approach, strategy and technique was identified and looked at in details (chapter 3). This was followed by the pilot study, sample size, technique used, analysis and its findings (chapter 4). The next phase was similar to the pilot study phase; however, it conducted a larger sample size. Further, analysis and findings of the final phase study was also conducted, which was followed by the refinement of the developed conceptual framework and propositions (chapter 5). Discussion and evaluation of the entire process was also crucial which compared the research findings with the literature (chapter 6). Finally, conclusion, contributions and limitations were also listed (chapter 7).



**Figure 3.1:** Research design to identify and understand factors affecting the adoption, diffusion and use of e-services in a public sector organisation

### 3.2 Qualitative and Quantitative Research

Qualitative research is “used to study social and cultural phenomena in depth, with a focus on text” (Myers, 2009: 260). This research will examine staff members in a specific organisation and in order to understand the current situation of e-government adoption and its staff this method was seem the most appropriate. Strauss and Corbin (1990: 17) described qualitative research as “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification”. A simple description of qualitative research by Miles and Huberman (1994: 56) was a research that “is done with words and not with numbers”. Denzin and Lincoln (2005: 3) argued that “qualitative research is situated activity that locates the observer in the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings and memos”.

On the other hand, quantitative research is “used to study natural phenomena and general trends across a population, with a focus on numbers” (Myers, 2009: 8 and 260). Similarly, Cornford and Smithson (1996: 40) added that “quantitative research relies on developing metrics (numbers) that can be used to describe phenomena (objects and relationships understudy)”. Further, Denzin and Lincoln (2005: 12) added that “quantitative researchers use mathematical models, statistical tables and graphs”. Quantitative research is useful when collecting data from a large population or from many organisations at the same time (Myers, 2009).

To conclude, “qualitative research is developed in the social sciences to study social and cultural phenomena. Quantitative research is developed in the natural sciences to study natural phenomena” (Myers, 2009: 8). To summarise, table 3.1 provides briefly some of the main differences between qualitative and quantitative.

<u>Qualitative research</u>	<u>Quantitative research</u>
Word	Numbers
Points of view of participants	Points of view of researcher
Researcher close	Researcher distant
Theory emergent	Theory testing
Process	Static
Rich, deep data	Hard, reliable data
Micro	Macro

**Table 3.1:** Some of the main differences between qualitative and quantitative research (Source: Bryman and Bell, 2003: 302)

Furthermore, researchers can also combine qualitative and quantitative research methods in one study, which is called triangulation. Triangulation is “the idea that you should do more than just one thing in a study” (Myers, 2009: 10). A more specific definition of triangulation by Bryman and Bell (2003: 575) is “the use of more than one method or source of data in the study of a social phenomenon so that findings may be cross-checked”. It is beneficial for a study to triangulate data in order to look at it from different views and angles; however, it is argued that triangulation is a complex task, which needs a lot of experience and training with multiple research methods (Myers, 2009). This means that a researcher will need to spend a lot of time in a single study. Therefore, it is recommended that in order to triangulate it is better to have multiple researchers in one study and split quantitative and qualitative research methods between them (Myers, 2009).

Based on the aforementioned discussion and reasons it was seen that it is more suitable to only use qualitative research method in this research, because of the limited time available, being the only researcher in this study and little experience in conducting quantitative research techniques and analysis.

### **3.2.1 Reasons for using Qualitative Research**

As stated earlier, the study is a qualitative research. Main reasons for this study to consider qualitative research rather than quantitative research are because of the following:

(i) The research question is “*what factors influence the adoption, diffusion and use of e-services in a public sector organisation in a developing country and why?*” What and how questions are questions that qualitative research usually look at (Denzin and Lincoln, 2005; Myers, 2009). “Traditionally, qualitative inquiry has concerned itself with what and how questions” (Denzin and Lincoln, 2005: 498). Myers (2009: 6) gave some examples of questions used in qualitative research, such as, “what is happening here or how has it come to happen this way”. This shows that qualitative research is not looking for answers just as yes or no, but it is digging deeper and trying to find out and understand complex issues (Benbasat et al., 1987; Myers, 2009).

(ii) This research will try to study the current situation of an organisation in a developing country looking at its e-government services. Which is a first attempt in this organisation, therefore, the researcher will try to discover what the current barriers (if available) and what can influence the



adoption of e-services in ADPF. The findings will help in developing a verified and validated framework that can be used in other organisations too.

(iii) This research will look at human nature and feelings towards an innovation. Which is how the e-services in ADPF diffuse, being adopted and used by staff members, therefore, interpretivism philosophy will be used. Saunders et al. (2009: 119) have argued that interpretivism will look at “subjective meanings and focus upon details of a situation”. This is similar to the above reasoning when saying that it will try to find out and understand complex and subjective issues (Orlikowski and Baroudi, 1991). More details on interpretivism will be given later in this chapter.

(iv) The researcher will take the opportunity to interview and get involved more with the participants / employees of ADPF. Therefore, this will allow participants to express their thoughts, opinions and feelings especially as their details will remain anonymous. Myers (2009: 5) added that “it is impossible to understand why someone did something or why something happened in an organisation without talking to people about it”.

(v) Qualitative research will also allow the researcher to ask different and more questions whenever possible and this will help in getting even more information about participants (Cornford and Smithson, 1996). The “intent of qualitative research is to understand the deeper structure of a phenomenon” (Orlikowski and Baroudi, 1991: 5). Furthermore, “although qualitative research is typically associated with generating theories, it can also be employed for testing them” (Bryman and Bell, 2003: 26), which will be used in testing research propositions in this research.

In conclusion, “if you want to understand people’s motivations, their reasons, their actions and the context of their beliefs in an in-depth way, qualitative research is the best” (Myers, 2009: 6).

### **3.2.2 The Critique of Qualitative Research**

Qualitative research has also been criticised in literature. For example, in qualitative research you cannot generalise your findings of the sample to a large population (Bryman and Bell, 2003; Myers, 2009). This is because in qualitative research, the researcher is examining specific people, environment, location or organisation, were the situation of others might be very different, therefore, cannot generalise the findings to other settings. However, this was criticised by some authors (Walsham, 1995; Lee and Baskerville, 2003; Walsham, 2006; Yin, 2009) who argued that

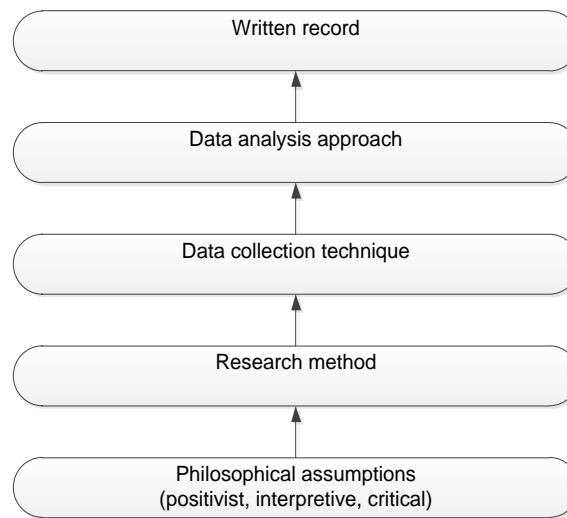
generalisation of findings could occur also in qualitative research. Furthermore, Lee and Baskerville (2003: 233) identified four types of generalisation: “(i) Generalising from data to description (ii) Generalising from description to theory (iii) Generalising from theory to description (iv) Generalising from concepts to theory”. This study had overcome the generalisation issue by examining more than one case study to ensure that findings can also be transferred from one context to another. More details are given later in chapter 6.

Bryman and Bell (2003: 299) “argued that qualitative research is too subjective”, saying that findings of the research depend heavily on the researcher participants thoughts, views and personal opinion that was collected through interviews or observations.

Another critic of qualitative research is the issue of analysis. When the researcher gathers data through interviews and then writes down notes, it is argued that some of the important text could be missed, which might be important issues that could make a difference in the research findings (Cornford and Smithson, 1996). However, to overcome this issue, the researcher received assistance of a colleague employed in ADPF for note taking. More details will be given later in the chapter.

### 3.2.3 Qualitative Research Design

Finally, after looking at definition of qualitative and quantitative research, reasons for choosing qualitative research and its disadvantages, this study will follow a qualitative research design based on Myers (2009). The research design is given below in figure 3.2.



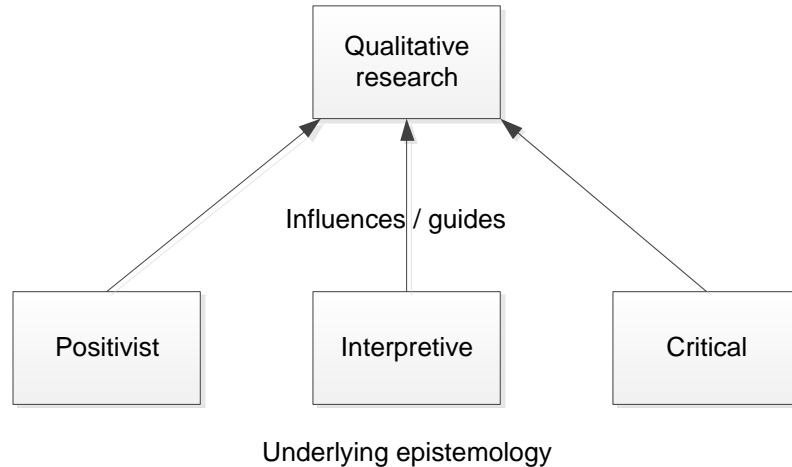
**Figure 3.2:** Qualitative Research Design (Source: Myers, 2009: 36)

### 3.3 Philosophical Assumptions

“The term philosophy is sometimes used in a very wide sense to describe any viewpoint, value or belief” (Kroeze, 2011: 1). Research philosophy relates to “the development of knowledge and the nature of that knowledge” (Saunders et al., 2009: 107). This research is aiming to identify and understand factors affecting the adoption and use of e-services in a public sector organisation in a developing country. Therefore, knowledge will be developed at the end of this research.

“The most pertinent philosophical assumptions are those that relate to the underlying epistemology which guides the research” (Myers, 2009: 35). Epistemology is a “Greek word which means knowledge” (Myers, 2009: 35). Hirschheim (1992) defined epistemology as “assumptions about knowledge and how it can be obtained”. Another definition by Saunders et al. (2009: 112) that epistemology “concerns what constitutes acceptable knowledge in a field of study”.

In IS research the main categories for epistemology are: positivism, interpretivism and critical (Chua, 1986; Orlikowski and Baroudi, 1991). Myers (1997: 36) further added that “qualitative research can be positivist, interpretive, or critical”, which is shown in figure 3.3.



**Figure 3.3:** Underlying Philosophical Assumptions of Qualitative Research (Source: Myers, 2009: 37)

Based on the aforementioned details, and because this research is qualitative, the three philosophical assumptions will be looked at. Orlikowski and Baroudi (1991: 24) have also believed that positivism, interpretivism and critical “can offer an insightful perspective on the phenomena of interest in information systems research”. Therefore, any of the three philosophical assumptions maybe applied to

a qualitative research; however, discussions regarding the appropriateness of a research philosophy for this research will be proffered in the next section.

### **3.3.1 Interpretivism**

The first philosophical assumption is interpretivism, which “assumes that people create and associate their own subjective and intersubjective meanings as they interact with the world around them” (Orlikowski and Baroudi, 1991: 5). In this research, the findings and meanings will be gathered from the interaction and interviewing of ADPF staff. Interpretivism aims to “understand the context of the information system, and the process whereby the information system influences and is influenced by the context” (Walsham, 1993: 4-5).

“Interpretivism advocates that it is necessary for the researcher to understand differences between humans in our role as social actors. This emphasises the difference between conducting research among people rather than objects such as trucks and computers” (Bryman and Bell, 2003; Saunders et al., 2009: 116). Myers (2009) have also added that an interpretive researcher should understand the main context in conversations and what exactly they mean, which can only happen when asking more questions. A flaw with this research philosophy is that “this type of research rejects the notion of factual description of events but attempts to understand the phenomena behind behaviour, thus one study is not used to predict the outcome in other settings” (Jeffery, 1992: 114). To an extent this research does have some suggestions of interpretivism as the changes that ADPF are going through cannot be generalised to all police forces around the globe. However, this research study highlights behaviours and experiences of individuals associated with e-services; hence providing some aspects of interpretivism.

### **3.3.2 Positivism**

Positivist studies “are premised on the existence of a priori fixed relationships within phenomena which are typically investigated with structured instrumentation” (Orlikowski and Baroudi, 1991: 5). Its main aim is to test theories, such as using hypotheses for testing (Myers, 2009).

Myers (2009: 37) has also added that positivist researchers “assume that reality is objectively given and can be described by measurable properties”. Further, Bryman and Bell (2003: 14) have linked positivism with quantitative research, stating that “it advocates methods of natural sciences to the study

of social reality”. However, as Myers (2009) found, qualitative research can also be positivist. Applying this reasoning to this research, a conceptual framework was developed, that is considered to be a structured instrument to understand the adoption and use of e-services in a current organisation. Burrell and Morgan (1978: 5) described positivism as a way to “explain and predict what happens in the social world by searching for regularities, casual relationships between its constituent elements”. There is some indication of positivism in this research due to the researcher identifying several relationships that can influence on the adoption and use of e-services in ADPF. However, this research does not go further to identify causal relationships as this would not allow an in-depth understanding of individuals feelings and opinions, which interpretivism allowed us to do. Further interpretivism allowed the research study to interpret the context and individual’s attitude and behaviours towards e-services.

### **3.3.3 Critical**

Critical research is the least common in IS studies (Myers, 2009), which aims to “critique the status quo, through the exposure of structural contradictions within social systems, and thereby to transform these alienating and restrictive social conditions” Orlikowski and Baroudi (1991: 6). Other than criticising social situation, critical researchers often recommend improvements (Myers, 2009). Furthermore, critical research “assume that social reality is historically constituted and that it is produced by people. It is constrained by various forms of social, cultural and political domination” (Myers, 2009: 42).

When considering critical research in this study, it was also seen appropriate especially that this study aims to understand why and how ADPF employees are using or not using the e-services and what factors influence the adoption. Therefore, the culture or the politics of the organisation should also be understood and examined which might affect the adoption. This concluded that some elements of critical research could also be beneficial for this study.

However, based on the aforementioned description of the three philosophical assumptions, it was concluded that combining interpretive and positivist research was the most appropriate for this research. This will give the researcher the opportunity to gather as much data as possible from interviewing participants in this study and understand in depth the current situation, which is also guided by the developed conceptual framework and research propositions. This was similar to a study by Low and Jeffery (1989) who attempted to understand software process changes using the two

epistemologies. In their study, interviews were conducted, as well as using findings from empirical research. It was argued that in order to have a better understanding both interpretive and positivist research should be used and pursued in this research.

### **3.4 Research Approach (Inductive and Deductive)**

Inductive and deductive are two different approaches used in this research. “With deduction a theory and hypotheses are developed and a research strategy designed to test the hypotheses. With induction, data are collected and a theory developed as a result of the data analysis” (Saunders et al., 2009: 129). Inductive approach helps to “understand the nature of the problem” (Saunders et al., 2009: 126). Furthermore, Saunders et al. (2009: 126) have also stated that “if you are particularly interested in understanding why something is happening, rather than being able to describe what is happening, it may be more appropriate to undertake your research inductively rather than deductively”.

Considering the research philosophy and approach, it is noted that “deduction owes more to positivism and induction to interpretivism” (Saunders et al., 2009: 124). However, this is not a fixed rule; some studies have also combined interpretivism with deduction (Milonakis and Fine, 2009: 24). Furthermore, in some research a combination of both inductive and deductive were used (Schadewitz and Jachna, 2007). This shows that the researcher is free to choose whatever approach they think is more suitable for their research.

Based on the discussion, research question and aim, this research used both approaches. It has used deductive approach to form propositions and theoretical framework from the literature. However an inductive approach was used when considering qualitative research. A qualitative approach and a case study method were conducted to gather data by interviews and understand issues in depth. The findings led in refining the framework and propositions based on the gathered interview data and researcher understanding. Finally this led to determine and outline important factors that can influence the adoption of e-services in a public sector organisation in a developing country.

### 3.5 Research Methods / Strategies

A research method is a “strategy of enquiry, a way of finding empirical data about the world” (Myers, 2009: 53).

As mentioned earlier this is a qualitative research, therefore, the researcher went through most of the qualitative research methods in literature, read and understood them and conclude that a case study research is the most appropriate research method for this research. Reasons for using a case study, definitions and explanations are listed in the next section.

Furthermore, other common qualitative research methods will also be looked at. Table 3.2 provides some examples of common qualitative and quantitative research methods.

<i>Qualitative research</i> <i>A focus on text</i>	<i>Quantitative research</i> <i>A focus on numbers</i>
Action research	Surveys
Case study research	Laboratory experiments
Ethnography	Simulation
Grounded theory	Mathematical modelling

**Table 3.2:** Examples of some qualitative and quantitative research methods (Source: Myers, 2009: 8)

#### 3.5.1 Case Study Method

As this research wanted to understand the impacts of e-government, this meant that e-government (the phenomenon) could not be studied in isolation and suggestions have been made that a case study method was viewed to be most suitable (Creswell, 2009).

A case study is defined by Yin (2009: 18) as “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident”. A more specific definition by Myers (2009: 76) is “a case study research in business uses empirical evidence from one or more organisations where an attempt is made to study the subject matter in context”. Myers (2009: 73) also added that “the purpose of case study in business and management is to use empirical evidence from real people in real organisations to make an original contribution to knowledge”.

“Case study research is the most widely used qualitative research method in IS research, and is well suited to understand the interaction between information technology-related innovations and organisational context” (Orlikowski and Baroudi, 1991; Darke et al., 1998: 273; Myers, 2009). Klein and Myers (1999: 68) also added that “case studies are accepted as a valid research strategy within the IS research community”. It is also possible for using a case study in both interpretivism and positivism philosophical assumptions in IS research (Cavaye, 1996; Darke et al., 1998). An example of an IS case study that used an interpretivism philosophical assumption was by Orlikowski (1991). The research looked at IT control in a software consulting organisation. Orlikowski (1991) used different data collection techniques for gathering data, such as, observation, unstructured and semi-structured interviews. The main aim of the study was to understand control and deployment of IT in the organisation, therefore, to get a better understanding and in-depth study case study method was needed (Yin, 2009).

Furthermore, this research has used the advice and recommendation from Cavaye (1996) and Darke et al. (1998), were they stated that when using a case study the researcher needs first to prepare a list of propositions based on literature and existing theory. After that these predicted propositions will be compared with the case study findings. Finally, the results of the case study will judge if the theory should be refined or validated. Yin (2009: 27) listed 5 components for case study research; (i) How and why research question (ii) List propositions (iii) Unit of analysis (what the case is; in order to focus on a certain thing rather than everything) (iv) Linking case study data to propositions (v) Have a criteria for interpreting study findings.

Yin (2009) had also recommended when to use certain research methods. He compared five major research methods which are; case study, experiment, survey, archival analysis and history, against three conditions which suit them the most. It is not necessary that these situations should be exclusive to these methods; however, these are preferable situations. Table 3.3 shows the three conditions with the five research methods.

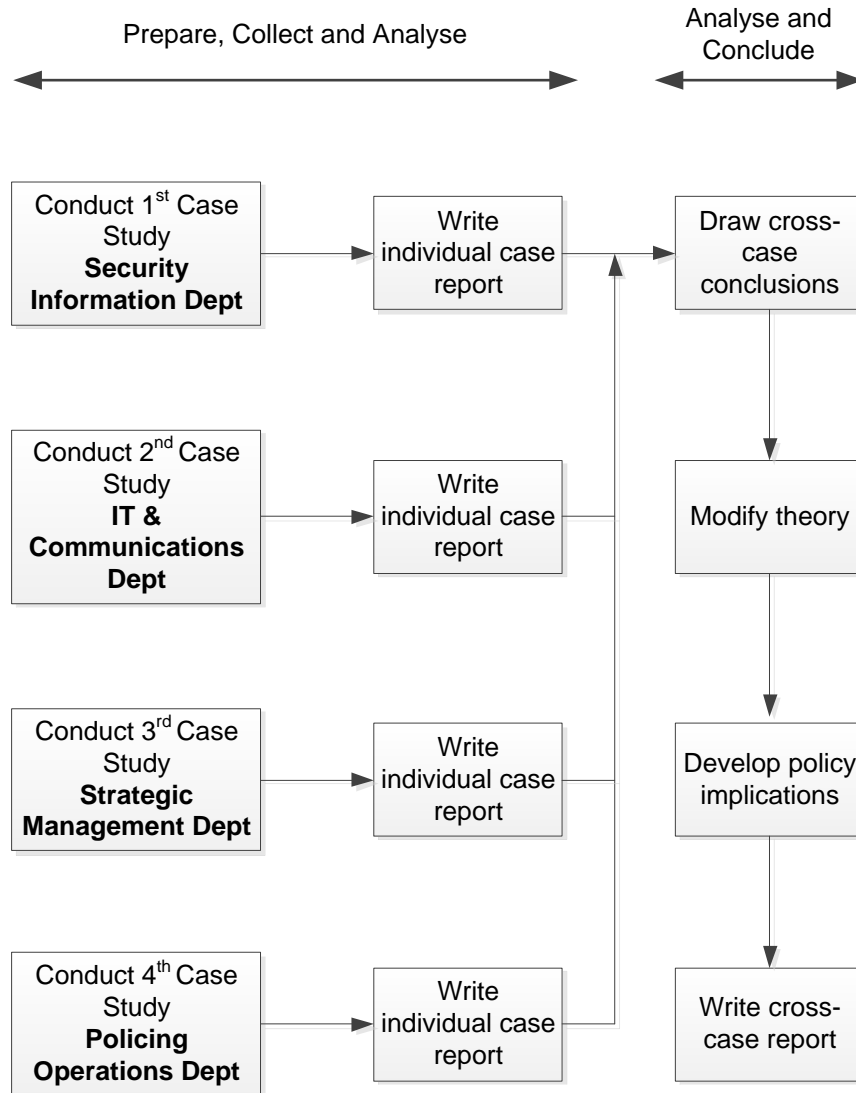


Research Method	Form of Research Question	Requires Control of Behavioural Events?	Focuses on Contemporary Events?
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival Analysis	Who, what, where, how many, how much?	No	Yes / No
History	How, why?	No	No
Case Study	How, why?	No	Yes

**Table 3.3:** Relevant situations for different research methods (Source: Yin, 2009: 8)

It is possible to have a single or multiple case studies (Darke et al., 1998). Yin (2009: 61) argued that multiple case studies are more preferred than single case studies, “analytic conclusions from two or more cases are more powerful than those coming from a single case”. In this research four departments from ADPF were viewed as 4 different case studies, the departments used for this research are: security information, IT and communications, strategic management and policing operations department. More details about the departments will be looked at in the next chapter. The reason for using multiple cases is because the researcher wanted to examine the ADPF e-services in depth to understand the factors affecting the adoption and usage of e-services. An in-depth case study was not pursued as accessibility to only one department and various viewpoints was not possible. Further a sole department did not have enough participants for this researcher to form a sound and deep understanding. Furthermore, using multiple case studies provides rich explanations (Walsham, 1995) and also provides the opportunity of comparing results between the case studies “cross-case analysis”. Multiple case studies “allow cross case analysis and comparison, and the investigation of a particular phenomenon in diverse settings” (Darke et al., 1998: 277), this will be looked at in depth when analysing the data in chapter 4 and 5.

As given earlier this study examined four different departments within ADPF. Figure 3.4 shows the multiple case study method used in this research. Each case study will be analysed separately which will be looked at in chapter 4 (pilot study) and chapter 5 (final study), after that a cross-case analysis will be concluded by looking at all the four case studies.



**Figure 3.4:** Multiple case study method used in this research based on Yin (2009: 57)

Darke et al. (1998) argued about the difficulty of finding a suitable case study, because most organisations do not intend to participate in case study research. Myers (2009) has also argued about the difficulty of gaining access to the organisation when conducting a case study research. However, in this study because the researcher used to work in ADPF and had a lot of contacts in the organisation therefore, finding participants and gaining access to the organisation was not an issue.

Yin (2009) added that the use of case studies could produce bias views by the researcher; however, he argued that any research method could produce bias results; therefore, researchers have to work hard to produce reliable reports. Another disadvantage about case study is that researchers face issues with report writing and that it takes a long time to complete (Yin, 2009).

### **3.5.2 Action Research**

Rapoport (1970: 499) defined action research as a research method that “aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework”. Another similar definition was given by Bryman and Bell (2003: 303) which defined action research as “an approach in which the researcher and a client collaborate in the diagnosis of a problem and in the development of a solution”. Therefore, it is a mixture between observation, discussion and working together in order to improve a specific issue. Myers (2009) stated that action research is different from other research methods, because other research methods only seek to understand and study the situation, but action research involves applying changes too.

In this research, the researcher entered ADPF as a PhD student, therefore, the researcher was not authorised nor had any influence to discuss and improve any certain issue. His main task was only to observe and gather data. Therefore, this research method was concluded not appropriate for this research.

### **3.5.3 Ethnography**

Ethnography is “a research method in which the researcher immerses himself in a social setting for an extended period of time, observing behaviour, listening to what is said in conversations and asking questions” (Bryman and Bell, 2003: 569). The aim of ethnography research is to study in-depth and understand people and their culture (Myers, 2009).

This research method was seen as one of the choices the researcher had considered before starting this research. Using this research method meant that the researcher should spend a lot of time in the organisation for observation, however, because of the distance issue between the university which is in the UK and the organisation in the UAE this method was seen impossible. “An ethnographic approach implies intense researcher involvement in the day-to-day running of an organisation” (Bryman and Bell, 2003: 315).

Furthermore, a lot of time is needed to undertake this method, and because the researcher has a specific period of time to complete the research based on his scholarship this method was not seen appropriate.

Myers (2009: 99) argued that the process of ethnography is “very time consuming”. Therefore, this research method was also seen not appropriate for this research.

### **3.5.4 Grounded Theory**

Glaser and Strauss (1967: 1) defined grounded theory as “the discovery of theory from data – systematically obtained and analysed in social research”. This shows that the research will entirely be based on the gathered data, which will create the theory. Strauss and Corbin (1990: 23) added that in grounded theory “one does not begin with a theory then prove it, it begins with an area of study and what is relevant to that area is allowed to emerge”.

Based on the description of the research term, it is similar to the previous research methods in which the researcher will need to spend a lot of time gathering data to understand and observe everything in-depth because anything gathered might be an important aspect when starting the analysis. However, because of the time limit and distance issue this method was not appropriate. Furthermore, the researcher might need to gather any missing data during any phase of the research process which might be difficult to obtain for this research. Another issue of this research method is that this research is examining e-government services in an organisation; therefore, its aim is not to create a new theory but to refine and adjust propositions and theoretical framework based on current technology and adoption theories in order to match the following aim.

In conclusion and based on the aforementioned discussion the case study is the most appropriate research method for this research. It will assist in looking and examining the case in depth and at the same time suitable for the researcher’s time limit and distance issue.

After looking at some of the common qualitative research methods, and understanding why this research has used a case study method, the next section will look at different data collection techniques.

### **3.6 Data Collection Techniques**

The data collection technique used in this research was mainly face to face interviews and direct observations. Interviews are considered “the most common technique for collecting qualitative data” (Myers, 2009: 6).

As stated in previous section, this research is using a case study method. Yin (2009: 101) “listed six major data collection techniques (sources of evidence) which are commonly used when collecting qualitative data within case studies. (i) Interviews (ii) Direct observations (iii) Participant observation (iv) Documentation (v) Archival records (vi) Physical artifacts”. Strengths and weaknesses of the six data collection techniques used in case studies are shown in table 3.4. Furthermore, each data collection technique will be also looked at briefly in the next section.

<u>Source of Evidence</u>	<u>Strengths</u>	<u>Weaknesses</u>
<b>Interviews</b>	<ul style="list-style-type: none"> <li>• Targeted – focuses directly on case study topics</li> <li>• Insightful – provides perceived causal inferences and explanations</li> </ul>	<ul style="list-style-type: none"> <li>• Biased due to poorly articulated questions</li> <li>• Response bias</li> <li>• Inaccuracies due to poor recall</li> <li>• Reflexivity – interviewee gives what interviewer wants to hear</li> </ul>
<b>Direct observations</b>	<ul style="list-style-type: none"> <li>• Reality – covers events in real time</li> <li>• Contextual – covers context of “case”</li> </ul>	<ul style="list-style-type: none"> <li>• Time-consuming</li> <li>• Selectivity – broad coverage difficult without a team of observers</li> <li>• Reflexivity – event may proceed differently because it is being observed</li> <li>• Cost – hours needed by human observers</li> </ul>
<b>Participant observation</b>	<ul style="list-style-type: none"> <li>• [Same as for direct observations]</li> <li>• Insightful into interpersonal behaviour and motives</li> </ul>	<ul style="list-style-type: none"> <li>• [Same as for direct observations]</li> <li>• Bias due to participant observer’s manipulation of events</li> </ul>
<b>Documentation</b>	<ul style="list-style-type: none"> <li>• Stable – can be reviewed repeatedly</li> <li>• Unobtrusive – not created as a result of the case study</li> <li>• Exact – contains exact names, references and details of event</li> <li>• Broad coverage – long span of time, many events and many settings</li> </ul>	<ul style="list-style-type: none"> <li>• Retrievability – can be difficult to find</li> <li>• Biased selectivity if collection is incomplete</li> <li>• Reporting bias – reflects (unknown) bias of author</li> <li>• Access – may be deliberately withheld</li> </ul>
<b>Archival records</b>	<ul style="list-style-type: none"> <li>• [Same as for documentation]</li> <li>• Precise and usually quantitative</li> </ul>	<ul style="list-style-type: none"> <li>• [Same as for documentation]</li> <li>• Accessibility due to privacy reasons</li> </ul>
<b>Physical artifacts</b>	<ul style="list-style-type: none"> <li>• Insightful into cultural features</li> <li>• Insightful into technical operations</li> </ul>	<ul style="list-style-type: none"> <li>• Selectivity</li> <li>• Availability</li> </ul>

**Table 3.4:** Six common sources of evidence in qualitative data (Source: Yin, 2009: 102)

### 3.6.1 Interviews

The first data collection technique discussed in this dissertation is face to face interviews, which were used in this research. Interview “is a data gathering technique that involves questioning a subject (interviewee)” (Myers, 2009: 259). Another similar definition of an interview is “a collection of questions designed to be asked by an interviewer” (Bryman and Bell, 2009: 570).

The interviewer’s main role in interviews is to “listen, prompt, encourage and direct” (Myers, 2009: 121). This assists in ascertaining and determining the interviewee’s reasons for certain actions.

Walsham (1995: 78) found that “with respect to interpretive case studies, it can be argued that interviews are the primary data source, since it is through this method that the researcher can best access the interpretations that participants have regarding the actions and events which have or are taking place, and the views and aspirations of themselves and other participants”. Furthermore it is also added that interviews are considered one of the most important qualitative data collection technique used in case studies (Walsham, 1995; Darke et al., 1998; Yin, 2009; Myers, 2009). All type of interviews can be classified into three main categories, which are shown in table 3.5.

<u>Type of Interviews</u>	<u>Description</u>
<b>Structured interviews</b>	The use of pre-formulated questions, strictly regulated with regard to the order of the questions, and sometimes regulated with regard to the time available.
<b>Semi-structured interviews</b>	The use of some pre-formulated questions, but no strict adherence to them. New questions might emerge during the conversation.
<b>Unstructured interviews</b>	Few if any pre-formulated questions. In effect interviewees have free rein to say what they want. Often no set limit.

**Table 3.5:** Type of interviews (Source: Myers, 2009: 124)

In structured interviews, the interviewer should only ask the questions prepared beforehand, in a certain order and complete the interview within a limited time. Structured interviews are usually used in telephone conversations and survey research (Bryman and Bell, 2003; Myers 2009). In this type of interview, the interviewer will only get specific answers from the interviewee. Myers (2009: 124)

argued that “if you stick religiously to your prepared set of questions you are unable to pursue new lines of enquiry that might emerge during the interview”.

In unstructured interviews, the interviewee has the opportunity to speak freely about the topic discussed. The questions prepared by the interviewer are very few. New questions are created in the interview itself (Myers, 2009). However, replies might go beyond research scope and gather irrelevant data (Myers, 2009).

Semi-structured interviews come between structured and unstructured interviews. The interviewer will have a list of questions to ask the interviewee, however, the interviewee will still have the chance to speak freely.

After comparing and examining the three types of interviews, it was concluded that semi-structured interviews is the most appropriate for this research. The semi-structured interview “tries to take the best of all approaches, while minimising the risk, and is commonly used in business and management research” (Myers, 2009: 125). In this research, the researcher wanted to get the most out of the interviews by encouraging interviewees to speak freely, however, the researcher also wanted to focus on the prepared questions, therefore, not go beyond the research scope.

It is also possible to record the interview, such as, using Dictaphone or Audiotapes (Walsham, 1995; Darke et al., 1998; Yin, 2009), however, the interviewer should not record if “(i) an interviewee refuses (ii) recording device is considered as a substitute for listening (iii) interviewee is distracted from the recording device” (Yin, 2009: 109). Therefore in certain instances, the recording device was not allowed.

### **3.6.2 Direct Observations**

Observations occur when certain behaviours are viewed in the field. For example, during meetings and in offices, or even observing the tidiness in offices can also be considered important for the observer (Yin, 2009). Direct observation is “when you are watching other people from the outside, but not taking any part in their activities” (Myers, 2009: 138).

Yin (2009: 110) had also added that “observation may provide additional information about the topic being studied”. Furthermore, observations and interviews techniques are usually used when examining

a case study (Bryman and Bell, 2003). Therefore, based on literature review, it was concluded that direct observation is also important to consider when examining a case study. In this research, the researcher had observed some of the staff members at ADPF while using and discussing the e-services, in order to understand more about the adoption and use of e-services, for example, finding out what e-services do they usually use or are they facing difficulties when using it.

Furthermore, the researcher can also validate some of the interviewee responses. For example, if one of the officers said in an interview that e-services are easy to use and then during the observation, the researcher can tell if this officer finds it easy to use or not.

### **3.6.3 Participant Observation**

Participant observation is “when you not only observe people doing things, but participate to some extent in these activities as well” (Myers, 2009: 139; Yin, 2009). This shows that the interaction between the observer and the people is the main difference between direct and participant observation. Myers (2009) argued that interaction helps the researcher in understanding meanings more than when you only observe.

This process is time-consuming, especially that the observer will be treated as a stranger and needs a lot of time so that people in the organisation trust him and let him be involved with their work, therefore, this method was not considered in this research (Yin, 2009). Furthermore, participant observation might help in collecting a lot of data; however, it is beyond the aim of this research, which might be more suitable for ethnographers.

### **3.6.4 Documentation**

Documentations are informal documents produced for personal reasons (Lincoln and Guba, 1985). Therefore, data might not be accurate or reliable (Yin, 2009). Example of documentations can be diaries, memoranda, e-mails or letters (Myers 2009; Yin, 2009).

Documentation technique is more useful if used with another technique, such as, interviews. “Documents are invaluable for providing details on their own” (Myers, 2009: 161). Documentation technique could assist in gathering data that could help the researcher to ask more questions about a certain document to find more about it (Yin, 2009).



As shown in table 3.4, documentations can be difficult to find (especially e-mails) and time-consuming. The researcher could spend a lot of time searching and going through documents that could not be related to his research or beyond his scope, therefore, it would be a waste of time or maybe gets more confusing with these large amounts of data. Therefore, this technique is not considered in this research.

### **3.6.5 Archival Records**

Archival records are formal documents produced for official reasons (Lincoln and Guba, 1985). Therefore, it is similar to documentation in section 3.6.4, but considered more formal. Examples of archival records are; survey data, organisational records, service records (Yin, 2009).

When the case study is in a police force, it is extremely difficult to get permission or access in order to get details from any archival records, especially that most details deal with privacy and security issues. This had led the researcher to not consider this technique because of its difficulty in accessing any information from archival records in ADPF.

### **3.6.6 Physical Artifacts**

Physical artifact is “a technological device, a tool or instrument, a work of art or some other physical evidence” (Yin, 2009: 113). Yin (2009) argued that physical artifacts may not be relevant in some of the case studies, therefore, it is not considered as important as other data collection techniques. This research focus more on the behaviour and attitude of ADPF employees adopting and using the e-services, therefore, this method was not seen to be applicable for this research.

## **3.7 More about the Data Collection Technique**

The data collection period of this research was divided into two sections. The first phase was during the pilot case study which was for two months, from January, 2012 to March, 2012. The second phase was during the final phase which was approximately for four months, from July, 2012 to October, 2012.

In the pilot study, around 40 employees from ADPF were interviewed, where as in the final phase around 200 employees from ADPF were interviewed. Staff members from ADPF were chosen

randomly from the four departments stated earlier. This meant that there was no consideration given to differences between the participants such as, hierarchy, rank, age, gender, education, income, internet experience and nationality.

One or two weeks prior to conducting the face-to-face interviews, questions were distributed in the form of hard or soft copies. Requests were made to the researcher by participants requiring prior warning and knowledge of the questions to be used during the interview and also for the participants to make time allowances. If replies were not received within a week, reminders in the form of e-mail or text messages were sent. Most of the participants replied on time, but some were busy; therefore, the researcher had to send reminders. The researcher had also received some support from colleagues in ADPF to remind participants to take part in the study.

To conduct the interviews, mostly ADPF premises were used. However, in some cases, informal meetings were held. This is a strategy similar to Zuboff (1988) who found that informality obtained results that formal settings could not. The informal meetings were in public places such as; coffee shops. The alternative locations were employed as some participants felt more at ease when expressing opinions in the informal locations in comparison to formal, office locations. An added reason was that the participants' had duties and workloads at work that made it difficult to seek replies during their working hours.

On the other hand, the advantage of formal meetings was that a quiet suitable environment that made participant's focus more on the interview questions and prevented both the interviewer and participant from getting distracted with the surroundings, mobile phones or television. Therefore, both formal and informal interviews have advantages and disadvantages. Each formal meeting was held for about one hour. Informal discussions were held on a daily basis with time varying from one meeting to another.

Further, face-to-face interviews were also pursued due to the culture in UAE where people trust and speak with one another in terms of familiarity. Cohn and Lyons (2003) have also argued the importance of face to face interviews and the location of the interview itself which have a large influence on the comfort levels of the interviewee. In addition to that, other type of interviews such as, in telephone interviews, the interviewee might get bored or distracted with other things, therefore, giving inaccurate data which might affect the findings of this research. Therefore, face to face interviews were seen more appropriate for this research.

This research had used semi-structured interviews. Interview questions consisted of both close and open ended questions. This also led to having richer data and gave participants the chance to speak freely about any issues that could be important for the research. “If the interviewer directs the interview too closely, and refuses to allow interviewees to express their own views except in response to questions that are tightly controlled by the researcher, then the data obtained will lose much of the richness of interpretation” (Walsham, 1995: 78).

Further, as stated earlier four different case studies were used and in each case study interviewee background differed from one person to another which was discovered during the pilot study. Interviewee from different departments may or may not use the e-services in ADPF; therefore, sometimes there should be slight changes to questions. For example, if a person used online services for buying tickets then the researcher should ask him more about the online ticketing service. This shows that new questions might be introduced depending on the interviewee. However, important questions, that were related directly to the research propositions were never changed and were the same for all interviewees. In addition to that, order of questions might also change. For example, if an interviewee talked about something which is also related to another question in the interview, the interviewer did not stop him and continued listening to him and got notes, therefore, the order of questions were not important.

Other types of interviews such as, group interview (Bryman and Bell, 2003) were not applicable to this research because the researcher wanted every interviewee to be comfortable and speak freely rather than be affected by a colleagues answers or other responses, therefore one-on-one was seen the most appropriate.

As stated earlier most participants were busy; therefore, it was not easy to convince them to take part in this pilot study. Another issue was that, because it was a random sampling approach, some participants did not have much information about e-services in ADPF. However, this helped the researcher to also consider staff members who have little or no ICT background.

For note taking during the interviews, the researcher received the assistance of a colleague employed in ADPF. Note taking by the researcher colleague assisted the researcher to focus more on the interview questions and responses, especially since some of the interview questions were open ended and needed more attention rather than note taking. In some instances, a Dictaphone was also used during some of the interviews. The researcher wanted to use a Dictaphone in all interviews; however, some of the

participants refused and in those cases, only hand written notes were made. Meetings with participants who did not mind having a Dictaphone were more useful because the researcher could, later on, repeatedly listen to an interview and complete any unclear or incomplete information. On the other hand, in interviews with no Dictaphone, the researcher and his colleague placed more effort in getting all the needed information from participants.

An important consideration for this research, the university and the ADPF is an ethics protocol. Prior to entering the research context ethics approval was sought; therefore, this research complied with the ethics protocols at the University of Hertfordshire. Due to the ethics protocol, participants were informed beforehand about the aim of the study. This helped the participants to hold conversations related to various issues and was important as individuals would not participate without determining the purpose of the interview.

During the interviews the researcher wore the traditional mens' Arab gown and introduced himself as a PhD student at the University of Hertfordshire in the UK and not as a police officer. The following statement was added in the letter given to the participants; "You are kindly requested to participate in an interview that is being conducted by Hassan Al-Zaabi, a PhD candidate in University of Hertfordshire, Systems Management Research Unit (SymRU)". The researcher had also informed participants that their conversations would remain anonymous. The main reason was that the researcher wanted participants (especially low level staff) to speak freely and express any thought, idea or opinion even if it was a negative issue without fear. This had clearly increased the level of trust between the participants and the researcher. Rather than knowing the researcher rank and position, which may affect the participant response and create a barrier and therefore, give inaccurate data in order to please the researcher.

### **3.8 Data Analysis Approach**

To make use of the collected data, analysing it is crucial. Based on Myers (2009) qualitative research design, data analysis approach comes after data collection technique. This section will look more at the analysis phase that was used in this research.

Before going in-depth with the analysis method used in this research, Miles and Huberman (1994: 10) simply explained data analysis as a process that consists of "data reduction, data display and conclusion drawing". Data reduction is the process of simplifying and summarising data. Data display

is the process of organising the summarised data. Finally, concluding and explaining the data and its relation to the research question and theoretical framework.

Several analytic techniques (five are listed below) are available in literature such as, (i) pattern matching logic, which “compares an empirical based pattern with a predicted one” (Yin, 2009: 136). The pattern matching logic confirms the validity of the propositions when comparing with data collected through interviews, and concludes if data supports the propositions or not. (ii) Explanation building which is used for explanatory case studies and its main aim “is not to conclude a study but to develop ideas for further study” (Yin, 2009: 141). (iii) Time-series analysis compares a certain study and its changes during a different of period, such as, comparison between Abu Dhabi police e-services usage in now and in future. (iv) Logic models examines “chain of events over an extended period of time” (Yin, 2009: 149), each event will be numbered and linked with possible outcomes. Usually the logic model is presented as a diagram and it helps in identifying visions and sequence of events. (v) Finally the cross-case synthesis analyses only used in multiple case studies. This technique deals with each case study individually, and then compares the results. However, after examining different analytic techniques and because of the time limit, the pattern matching and cross-case analysis technique was the most suitable for this research.

This research analysed its data by using thematic analysis. Thematic analysis “is widely used in qualitative research and it is defined as a method for identifying, analysing, and reporting patterns (themes) within data” (Braun and Clarke, 2006: 83). Thematic analysis in general “involves the searching across a data set to find repeated patterns of meaning” (Braun and Clarke, 2006: 91). Furthermore, thematic analysis “is a form of pattern recognition within the data, where emerging themes become the categories for analysis” (Fereday and Muir-Cochrane, 2006: 4). Some scholars such as, Ryan and Bernard (2000) used thematic coding as a process in other analysis methods, however, Braun and Clarke (2006) argued that thematic analysis is a complete analysis method. There are other qualitative analysis methods in literature, such as, narrative analysis (Murray, 2003), grounded theory (Glaser, 1992; Strauss and Corbin, 1998) and discourse analysis (Potter and Wetherell, 1987). However, after reading, understanding and going through different analytical methods this was seen the most appropriate for the researcher. More details and reasoning will be looked at in this section.

Myers (2009: 175) argued that “there is no such thing as one approach that is better than all the others, each analysis approach has its advantages and disadvantages”. For example, one of the points that Myers (2009) mentioned when choosing an analytical method was if the researcher finds the approach

interesting or not. Further, as given earlier the thematic analysis is widely used in qualitative research; therefore, it is considered a reliable approach. Table 3.6 give some reasons why thematic analysis is widely used.

<b><u>Advantages of Thematic Analysis</u></b>
Relatively easy and quick method to learn and do.
Accessible to researchers with little or no experience of qualitative research.
Can usefully summarise key features of a large body of data and offer a thick description of the data set (data set is all the data gathered to be used for a specific analysis (Braun and Clarke, 2006)).
Can highlight similarities and differences across the data set.
Can be useful for producing qualitative analyses suited to informing policy development.

**Table 3.6:** Advantages of thematic analysis (Source: Braun and Clarke, 2006: 97)

The advantage of using codes when describing text is to, easily “retrieve and organise the data” (Miles and Huberman, 1994: 57). Themes “capture something important about the data in relation to the research question. A theme might be given considerable space in some data items, and little or none in others, or it might appear in relatively little of the data set. So researcher judgement is necessary to determine what a theme is” (Braun and Clarke, 2006: 87). In literature researchers “often use the terms concept, category and theme interchangeably” (Bazeley, 2009: 6).

Codes and themes can be identified based on literature and a specific research question (similar to this research, and called theoretical thematic analysis) or data driven (similar to grounded theory, and called inductive thematic analysis) (Braun and Clarke, 2006). Furthermore, the theoretical thematic analysis will keep the researcher aiming the research question: “*identifying and understanding factors affecting the adoption and use of e-services in a public sector organisation in a developing country*”, therefore, focusing on gathered data and the relation to the theoretical framework.

The analysis of data in this research was guided by Braun and Clarke (2006) six stages of thematic analysis, which are given in table 3.7.

<u>Phase</u>	<u>Description of the Process</u>
1- Familiarising yourself with your data	Reading and rereading of the data, noting down initial ideas
2- Generating initial codes	Coding interesting features of the data
3- Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4- Reviewing themes	Checking in the themes work in relation to the coded extracts (level 1) and the entire data set (level 2).
5- Defining and naming themes	On-going analysis to refine the specifics of each theme and the overall story the analysis tells; generating clear definitions and names for each theme.
6- Producing the report	Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature.

**Table 3.7:** Phases of Thematic Analysis (Source: Braun and Clarke, 2006: 95)

Different computer-assisted qualitative data analysis software can be used to help in coding and categorising text, such as, NVivo, Atlas.ti, HyperRESEARCH etc. (Yin, 2009). However, these software packages do not analyse the text, they only organise the text and help the researcher in finding specific words or codes. The analysis process and the study of the data should be examined and done by the researcher. Gibbs (2007: 40) has also stated that “you don’t have to use software at all, most of the last century qualitative research did not or could not use software”. Furthermore, in this study the researcher used paper based technique which made him comfortable in examining transcripts and note taking; however Microsoft Word and Excel were used to arrange the text for retrieving data. After that the researcher looked in depth at each of the participant responses and created links between them. Yin (2009: 128) argued that “developing a rich and full explanation or even a good description of your case, in response to your initial how or why questions, will require much post-computer thinking and analysis on your part”.

### 3.9 Evaluation of Qualitative Research

There are various approaches for evaluating the research findings in a qualitative IS research (Lincoln and Guba, 1985; Miles and Huberman, 1994; Hoepfl, 1997; Devers, 1999; Bryman and Bell, 2003; Zhang and Wildemuth, 2009). Golden-Biddle and Locke (1993) formed criteria to evaluate ethnography research. Klein and Myers (1999: 70) introduced a set of principles to evaluate hermeneutic research. Schultze (2000: 30) suggested a different approach to evaluate ethnography and confessional research.

As stated earlier, this is an interpretive qualitative research study along with elements of case study research. For this, an approach formed by Lincoln and Guba (1985) was viewed to be most appropriate for this research. Lincoln and Guba (1985) listed four main criteria to judge interpretive qualitative research, which are: (i) Credibility (ii) Transferability (iii) Dependability and (iv) Confirmability. Pozzebon (2003: 10) argued that “respecting these four criteria would guarantee the trustworthiness of findings from studies using qualitative methods”. To ensure that this research has pursued these principles, a description of how and when they were used is given in the next sections.

Furthermore, the evaluation approach of Lincoln and Guba (1985) also aims to generalise the research findings by examining ‘transferability’. The “concept of transferability corresponds to the crucial positivist criterion of generalisability” (Pozzebon, 2003: 10). Lee and Baskerville (2003: 221) argued that “because the field of information systems (IS) is not just science but also a profession, the generalisability of an IS theory to different settings is important not only for purposes of basic research, but also for purposes of managing and solving problems that corporations and other organisations experience in society”.

The criteria of qualitative research differ from quantitative research (Lincoln and Guba, 1985; Hoepfl, 1997; Devers, 1999, Bryman and Bell, 2003). The main criteria of qualitative and quantitative research and its definitions are listed in table 3.8.

<u>Qualitative Research</u>	<u>Quantitative Research</u>
<b>Credibility:</b> “the truth of the findings, as viewed through the eyes of those being observed or interviewed and within the context in which the research is carried out” (Devers, 1999: 1165).	<b>Internal validity:</b> “the degree to which findings correctly maps the phenomenon in question” (Devers, 1999: 1157).



<p><b>Transferability:</b> “the extent to which findings can be transferred to other settings. In order for findings to be transferable, the contexts must be similar” (Devers, 1999: 1165).</p>	<p><b>External validity:</b> “the degree to which findings can be generalised to other settings similar to the one in which the study is occurred” (Devers, 1999: 1157).</p>
<p><b>Dependability:</b> “the extent to which the research would produce similar or consistent findings if carried out as described, including taking into account any factors that may have affected the research results” (Devers, 1999: 1165).</p>	<p><b>Reliability:</b> “the extent to which findings can be replicated or reproduced by another investigator” (Devers, 1999: 1157).</p>
<p><b>Confirmability:</b> “researchers need to provide evidence that corroborates the findings. Such evidence should come directly from subjects and research context, rather than researcher’s biases, motivations, or perspectives” (Devers, 1999: 1165).</p>	<p><b>Objectivity:</b> “the extent to which findings are free from bias” (Devers, 1999: 1157).</p>

**Table 3.8:** Criteria to evaluate qualitative and quantitative research (Source: Devers, 1999: 1157 and 1165)

### 3.9.1 Credibility

Credibility is the “adequate representation of the constructions of the social world under study” (Bradley, 1993: 436). It is the “credibility of the account that a researcher arrives at that is going to determine its acceptability to others” (Bryman and Bell, 2003: 288). Credibility can be approached by two techniques; triangulation (Denzin, 1970; Lincoln and Guba, 1985; Patton, 2002; Yin, 2009) and respondent validation (Hoepfl, 1997; Bryman and Bell, 2003).

Triangulation is defined as the “rationale for using multiple sources of evidence” (Yin, 2009: 114). There are four types of triangulation which are: data triangulation, investigator triangulation, theory triangulation and methodological triangulation (Patton, 2002; Yin, 2009).

(i) **Data triangulation** is defined by Jupp (2006: 305) as “combining data drawn from different sources and at different times, in different places or from different people”. Data sources “can vary based on the times the data were collected, the place, or setting and from whom the data were obtained” (Denzin, 1970; Thurmond, 2001: 254). However, in this study it was not possible to gather data at different times and verify if the findings were similar because of the time limit of this research and the distance between the UK and the UAE. This study had interviewed staff members from four

different departments in ADPF where the total number of participants were about 200 during the final study, and in different locations, therefore, data triangulation was partially used in this research.

**(ii) Investigator triangulation** is to provide multiple evaluators, observers or investigators in a single study (Jupp, 2006; Yin, 2009). In this study the researcher was supervised by two different supervisors and they have guided the researcher and evaluated the entire research. Furthermore, the researcher had also published papers which helped in getting feedback from reviewers. Finally, the researcher was interviewed and examined twice during his two progression tests in the university which gave him the opportunity to examine his work by other academics.

**(iii) Triangulation of theories** is “the use of multiple theories or hypotheses when examining a phenomenon” (Denzin, 1970; Thurmond, 2001: 254). This study looked at different technology and adoption theories, such as, DOI, TAM, DTPB in order to examine e-government services adoption and usage in ADPF, therefore, theoretical triangulation was also used in this research.

**(iv) Methodological triangulation** is the use of multiple methods in a single study (Yin, 2009). There are two types of methodological triangulation; within-method triangulation and across-method triangulation (Thurmond, 2001). Within-method triangulation is using more than one data collection technique in a single study. However, you cannot combine qualitative and quantitative techniques in within-method triangulation (Denzin, 1970; Thurmond, 2001). On the other hand, across-method triangulation is combining different data collection techniques from qualitative and quantitative research in a single study (Denzin 1970; Thurmond, 2001). To conclude, this study is a qualitative research, interviews and direct observations were used, therefore, it is based on a within-method triangulation.

As given earlier, another procedure for credibility is the use of participants in the study to analyse and validate the findings (Hoepfl, 1997). Bryman and Bell (2003: 290) stated that “respondent or member validation is a process whereby a researcher provides the people on whom he has conducted with an account of his findings, in order to seek corroboration”. This was done by interviewing 12 staff members from ADPF. More details are available in chapter 6. Furthermore, this research have also followed the advice of Miles and Huberman (1994: 278) when looking at credibility, such as answering questions similar to “does the findings of the study makes sense? Are they credible to the people in the study and to readers?”

### 3.9.2 Transferability

Devers (1999: 1165) defined transferability is “the extent to which findings can be transferred to other settings. In order for findings to be transferable, the contexts must be similar”. Therefore, to ensure transferability of findings in this study, the researcher proposed a conceptual framework that was examined and tested in four different case studies in this research. A detailed discussion of how this research ensured transferability of findings will be given in chapter 6.

### 3.9.3 Dependability

Dependability is “the extent to which the research would produce similar or consistent findings if carried out as described, including taking into account any factors that may have affected the research results” (Devers, 1999: 1165). Lincoln and Guba (1985) have also argued that in qualitative research an “inquiry audit” is important. It “ensure that records are kept of all phases of the research process” (Bryman and Bell, 2003: 289). In this study all stages undertaken were explained in detail, whether it was on the research methodology (methods, strategies, techniques) used for this research (chapter 3), details of participants from ADPF, analysis and findings (chapter 4 and 5), validation and discussion (chapter 6) or even conclusions, implications and limitations (chapter 7). This can help other researchers in understanding the study process in depth and therefore, may produce similar findings if undertaken in other public sector organisations in a developing country.

#### 3.9.3.1 Case Study Protocol

Yin (2009) argued that in order to increase reliability (dependability) in multiple case studies research the use of case study protocol is crucial. The purpose of having a case study protocol is that “it intends to guide the investigator in carrying out the data collection from the case study” (Yin, 2009: 79). Furthermore, it also guides the investigator when it comes to report writing and make it clear and understandable for readers (Yin, 2009). The case study protocol consists of four sections which were also used in this research (Yin, 2009: 81).

**(i) Overview of the case study;** details such as, aim, objectives and back ground of the research were all looked at before conducting the study, which were mainly in chapter one. In addition to that a letter (in English and Arabic language) was send to participants which included details of the investigator, the aim and objective of the study which is included in appendix IV and V.

**(ii) Field procedures;** there are several tasks the investigator should follow when examining the field procedures.

The first task is getting permission to access to the organisation and the interviewees. The investigator applied and got the approval from the ethics committee in the university (see appendix II for the ethics committee approval). The investigator had also got permission to conduct the study in ADPF (see appendix III for the letter from ADPF). Furthermore, the investigator is sponsored by ADPF therefore; accessing the organisation was not a big concern.

The second task is to have the resources while conducting the study in the field. The investigator had prepared all the resources beforehand, such as, laptop, interview questions, papers, pen, Dictaphone. However, during the interviews the investigator's main role was asking questions that he read from the interview paper and listening to the interviewee. The investigator's colleague was in charge of note taking and sometimes starting and stopping the Dictaphone.

The third task is to get assistance whenever needed in the field. As given in the previous section, a colleague had helped in note taking during the interviews. The researcher did not face any issue, however, plans were made to contact the supervisor or other PhD candidates by email or phone if needed.

The fourth task is to schedule the interviews. This was also prepared beforehand to consider how many interviews should be conducted in a day, a week, and a month. However, it was impossible to be accurate in this procedure, but the researcher tried his best to estimate and prepare a schedule which was very important to follow.

The final task was to be prepared for any "unanticipated event" (Yin, 2009: 85). The researcher was ready for the worst scenario. However, there were no major issues occurred during the field study. Minor issues occurred, such as, conducting part of the study in the holy month of Ramadan, which means that participants were fasting and therefore, very few were interested in taking part in this study, however, after Ramadan things were better. Furthermore, many staff members were busy, therefore, the researcher had to always find substitutes and then come back in a suitable time to the previous staff member.

**(iii) Case study questions;** protocol questions are meant to be “reminders regarding the information that needs to be collected” by the interviewer (Yin, 2009: 86). There are five different levels of questions recommended by Yin (2009).

The first level is to prepare interview questions, which in this case are the questions that were used to ask staff members in ADPF. Appendix X shows the list of questions used in this study.

The second level is asking questions about each case study individually and should be answered by the researcher (interviewer). For example, in the IT department how is the responses overall? Do they use any e-service? Are the e-services easy to use within staff from the IT department? Are the e-services useful to staff in the IT department? This helped the researcher to summarise and focus about each case study individually, which also helped in the analysis phase (in chapter 4 and 5).

The third level is to ask questions of findings across the multiple case studies (Yin, 2009: 87). Similar to the second level, these questions should also be examined by the researcher (interviewer) in order to compare between the responses within all the case studies. This was identified when analysing the case studies, cross-case analysis. It examined different views regarding the e-services adoption, diffusion and usage in departments within ADPF.

The fourth level is to ask general questions about the study and provide answers. An important question that was looked at in this study was the research question, which looked at the bigger picture (public sector organisations) of the entire research. “*What factors influence the adoption, diffusion and use of e-services in a public sector organisation in a developing country and why?*”

The fifth and final level was questions that helped in finding out the research recommendations and conclusions. More about recommendations and conclusions is available in chapter 7.

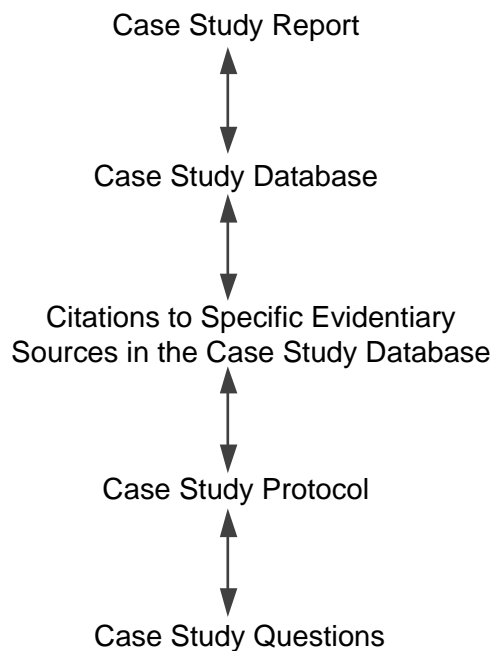
**(iv) Guidance for case study report;** Yin (2009: 89) recommended to “think about the outline, format or audience for the case study report before collecting the data”. This study followed Braun and Clarke (2006) approach for writing the final report which was explained earlier in section 3.8. Furthermore, Miles and Huberman (1994) also guided this phase of the research, focusing on data display and conclusion drawing and verification.

### 3.9.3.2 Case Study Database

Another advice from Yin (2009) to increase reliability is to create a case study database. A case study database contains important notes that may be taken during the case study research. This database helps in retrieving data; this had helped in this research to go back to the hand written notes whenever needed especially when it came to the analysis phase. Furthermore, the data can also be used for cross-case analysis (Yin, 2009).

### 3.9.3.3 Maintain a Chain of Evidence

Finally, maintaining a chain of evidence also increases reliability of data in a case study (Yin, 2009). This was explained earlier in section 3.9.3.1 and 3.9.3.2. Figure 3.5 shows the chain of evidence which was formed by Yin (2009) and was followed in this study.



**Figure 3.5:** Maintaining a Chain of Evidence (Source: Yin, 2009: 123)

### **3.9.4 Confirmability**

It is “the extent to which findings are free from bias” (Devers, 1999: 1157). Findings were discussed with other PhD candidates, academics and even some staff from ADPF and acted as “confirmability audit” (Lincoln and Guba, 1985) to assure that there was no bias or “allowed personal values to sway the conduct of the research and findings deriving from it” (Bryman and Bell, 2003: 289). More details will also be given in chapter 6.

### **3.10 Summary**

This chapter described the research methodology used for this research. The approach, strategy and techniques used in this research were also listed. In addition to that other strategies and techniques not used in this research were also added to give the reader a better idea about other choices in literature. The analysis and evaluation process were also looked at in this chapter. The next chapter (chapter 4) will consist of a description of the case study, and also more details about the pilot study, description, analysis and findings.

# ***CHAPTER 4***

## ***PILOT ANALYSIS, FINDINGS***

### ***AND DISCUSSION***

#### **4.0 Introduction**

Having discussed and described the research methods and research methodology surrounding this research, this chapter provides details of Abu Dhabi government with relation to e-government and also the organisation (ADPF) that is used as the pilot case study for this research. The reason for using a pilot case study was to allow the researcher to refine the data collection plans with respect to both the content of the data and the pursued procedures. Further, this organisation was accessible due to the researcher being granted a sabbatical in order to attain a higher qualification of a PhD. As Yin (2009) states, a “pilot test is not a pre-test” (Yin, 2009: 92) and was the reasoning pursued in this research study. This chapter also describes the formation of the interview questions, content validity, and pursued processes for the pilot study conducted in Abu Dhabi Police Force (ADPF). Additionally, the results and findings of the pilot case study are provided. Finally, refinement to the research propositions and conceptual framework based on the pilot study findings are also provided.

#### **4.1 Background of the case study**

The context of this research is Abu Dhabi. In the following section a description of both Abu Dhabi and the Police are provided.



#### 4.1.1 Introducing Abu Dhabi and its E-government Efforts

Abu Dhabi is the largest city and the capital of the United Arab Emirates (UAE). The United Arab Emirates (UAE) located in the Middle East region, has a total land area of approximately 77,700 sq. km and a population of an estimated 4.5 million (BBC, 2009). It consists of 7 different states / emirates which are; Abu Dhabi, Dubai, Sharjah, Ajman, Umm al Quain, Ras al Khaymah and Fujayrah. To familiarise the reader to the region, a map of the United Arab Emirates (UAE) is shown in figure 4.1.



Figure 4.1: Map of United Arab Emirates (Source: Worldatlas.com, n.d.)

Based on the UAE economic report (government.ae, 2010), 29.4 % of the Gross Domestic Product (GDP) is from oil sector, the other 70.6% is from non-oil sector, such as, manufacturing: 16.2%, construction: 10.7%, wholesale: 9.0%, real estate: 8.2%, government services: 8.0% transportation: 7.1%, financial services: 5.8%, hotels and restaurants: 1.8%, agriculture and fishing: 1.7%, electricity, gas and water: 1.6% and household services: 0.5%.

The UAE contains leading developing emirates that are aware of the various changes occurring in the relationship between citizens and government due to Information Systems (IS) and striving hard to obtain them. Furthermore, the government of Abu Dhabi formed a committee that was named Abu

Dhabi Systems and Information Centre (ADSIC) in October, 2005 and launched in December, 2008 (ADSIC, 2012a). Its main task is to:

- “Supervise the implementation of the e-government program in Abu Dhabi government entities (ADGEs).
- Sponsor initiatives and mature assets and competencies that it deems of critical importance for the e-government project.
- Propose policies and technology standards for government and relevant entities to achieve a comprehensive quality in reaching the highest levels of efficiency, confidentiality, and safety in the e-government project.
- Issue rules and guidelines regarding the implementation of IT policies and the technical specifications, and communicate them to all the government entities.”

(ADSIC, 2012a)

Many public government organisations in Abu Dhabi have a direct link with ADSIC to introduce and improve their e-government services. ADSIC’s aim is to combine all public organisations in Abu Dhabi in a single web portal that will help citizens and other organisations to easily communicate with each other and “make Abu Dhabi Government more effective and efficient in delivering modern services” (ADSIC, 2012a).

In 2008 only 11 government entities joined ADSIC, such as, Department of Municipal Affairs, Environmental Agency Abu Dhabi, Department of Economic Development, Abu Dhabi Water and Electricity authority, Abu Dhabi National Oil Company, Military Survey Department. Along with the aforementioned main public sector organisations, due to the support of the Abu Dhabi government and the growth of awareness regarding the benefits of e-government, the number of public organisational departments increased to 25 in 2010. One of the organisations that also joined the ADSIC in 2010 was the Abu Dhabi Police Force (ADPF). Currently there are about 50 public government organisations from different sectors such as, health, education, construction and estates, telecommunications, police and military, energy, banks, media etc. (ADSIC, 2012b).

In 2009, 35 e-government e-services were introduced in the Abu Dhabi government portal that combined services from different public organisations. Presently in 2012, this number has increased to approximately 100 diverse e-services (ADSIC, 2012c). An example of an e-service provided by Abu

Dhabi Health Authority is shown in figure 4.2. This service assists users to view and use an online facility to obtain their medical results when applying for a visa that is necessary to travel to Abu Dhabi.



**Figure 4.2:** Example of Health Authority e-service (Source: Abu Dhabi.ae, 2012)

To provide e-services, there are currently only two telecommunication companies in the UAE. These are Etisalat and Du. Etisalat was formed in 1976 and is the incumbent monopolist of the region. Etisalat introduced analogue dial up internet connection in 1995 (Etisalat.ae, n.d.). From 1995 internet subscribers increased to an estimated 660,000 internet users in 2006 and 1,323,000 in 2010 (Etisalat annual report, 2010: 12). Comparatively Du was established in 2006 (Du.ae, n.d.), and offered internet connections necessary for an internet infrastructure with products such as; broadband, or 3G networks.

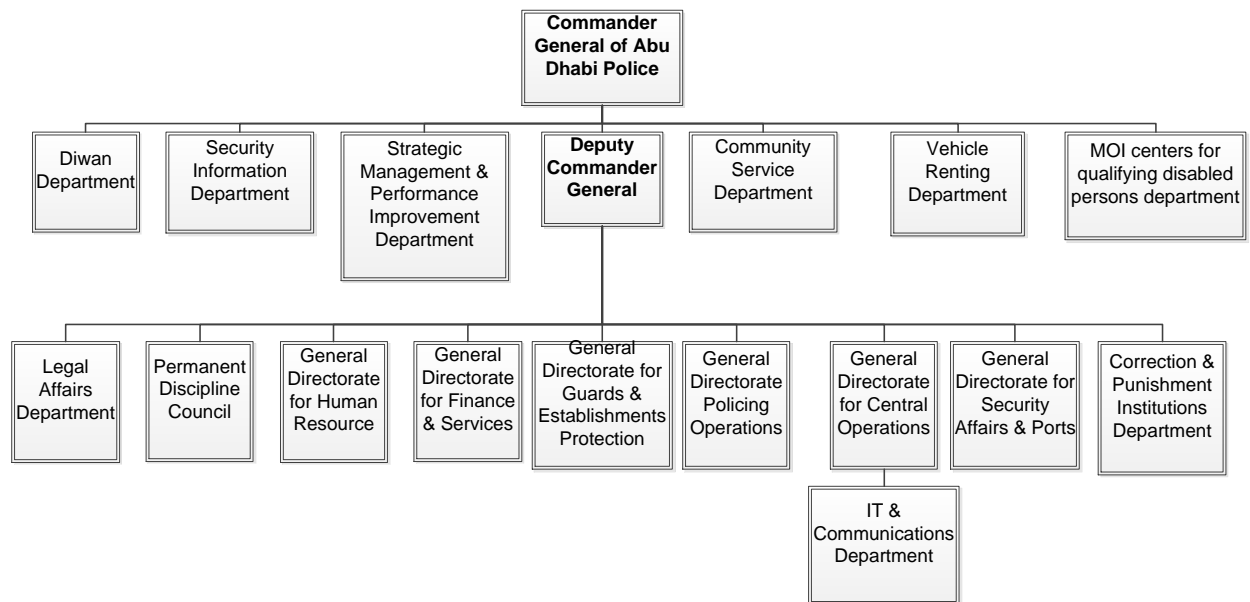
Due to such efforts, there are currently an estimated 560 different e-government services in the UAE, mainly located in Dubai, and the government's current aim is to reach 1500 e-government services by February 2014. For this, a budget of an estimated \$ (US) 41 million is to be spent in the coming 2 years (Alarabi, 2012). This show how the government of the UAE understands the importance of e-government services and are willing to improve services for both citizens and public sectors organisations in the country.

#### **4.1.2 Background to Abu Dhabi Police Force (ADPF)**

As stated earlier, this research is focused upon a public sector organisation, which in this case is Abu Dhabi Police Force (ADPF). In 1957 ADPF was formed to ensure members of the public are protected

and will abide to the law (Gulfnews, 2007). Since then, to achieve better standards and measures within the organisation that are capable of handling all types of security issues, many changes have been undertaken. These changes include police structure, regulations or services. An example is the improvement in 2010 to traffic safety in Abu Dhabi. By paying attention to quality, training, and education within ADPF as well as the citizens “deaths resulting from traffic accidents have declined by 17%, compared with the same period last year” (Adpolice.gov, 2010).

In terms of location, ADPF is situated in the capital of the UAE, and considered to be the largest police headquarters of the country as its coverage is the utmost of the UAE, with a total employee number of 32095 in the year 2012. To cope with its wide coverage of the region, there are many directorates and departments (Figure 4.3).



**Figure 4.3:** Organisation structure of some departments in ADPF (Source: Adpolice.gov, n.d.)

To ensure that protection is offered to citizens, ADPF has a recruitment policy that allows the organisation to recruit individuals capable of improving the organisation. ADPF is of the view point that its organisation is for its citizens, which also extends to its recruitment policies. Generally, police forces around the globe recruit individuals with armed forces backgrounds and experience; however, ADPF is an exception and enlists civilians from diverse nationalities.

## 4.2 Preparation for Data Collection

ADPF e-services are still in the early stages of implementation and adoption. This implies that not all work procedures are automated. Further, when examining some of the automated services, there are still large numbers of staff who are not using them. Currently, ADPF provides basic automated services such as, applying for annual leave or verifying and validating personnel details. However, ADPF, specifically the Information Technology (IT) department are developing and implementing new e-services, mostly on an annual basis. Examples of screenshots of some of the e-services currently launched in ADPF are shown in figures 4.4 and 4.5.



Figure 4.4: Screenshot of SANAD support e-service in ADPF

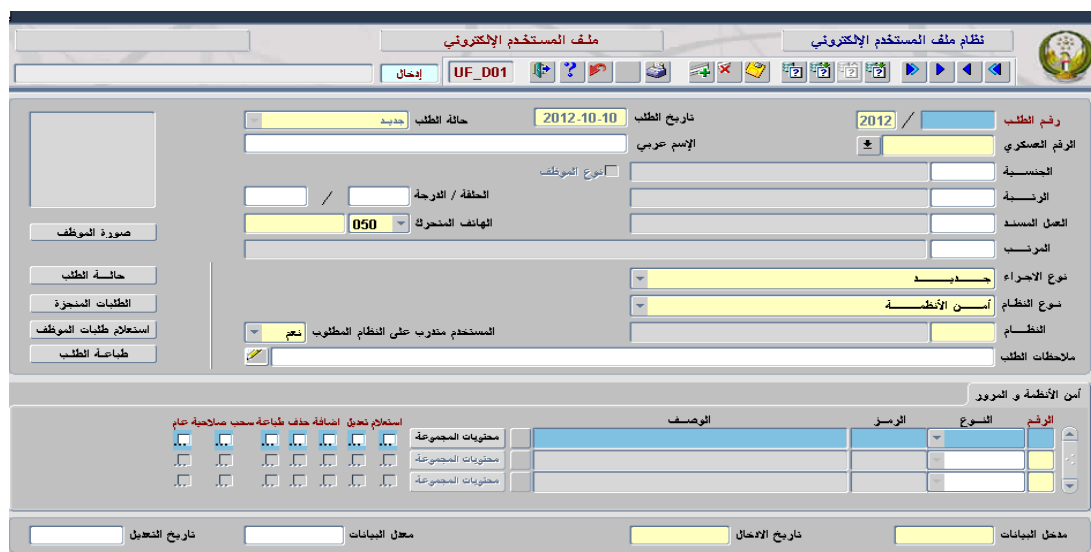


Figure 4.5: Screenshot of Human resource e-service in ADPF (in Arabic language)

As the earlier formed theoretical framework in chapter 2 examines the adoption, diffusion and use of e-services and ADPF being at earlier stages of development and implementation of e-services, it was felt that this research is vital to ADPF e-services development. An added reason is that the principal investigator of this research is being sponsored by ADPF and as the research has been progressing, formal and informal conversations collated during data collection are provided to ADPF that has ascertained the importance of this research. In the following sections details of the formation and validation of the interview questions will be provided.

#### **4.2.1 Forming Interview Questions**

As mentioned earlier, propositions stated in chapter 2 were based on the theoretical, conceptual framework. To determine its application to a real life situation interview questions were formed.

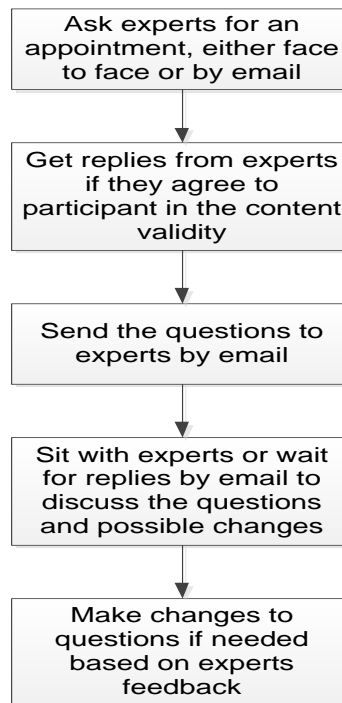
To gather the data a qualitative research approach to seek a deep and rich understanding of the process changes was pursued. From the literature review (Kostopoulos, 2004; Sahraoui, 2005; Al-Moalla and Li, 2010) it was found that there are fewer qualitative data studies on the UAE and a quantitative approach would result in only identification of the factors but not a deep understanding; therefore, the quantitative approach was dismissed. For this purpose, an interview consisting of 22 questions, was utilised. For more information, please refer to Appendix IV for the example of the pilot questions used during the interview. The interview questions were validated by 20 experts whose details are provided in the following section. The questionnaire had two sections. The initial section contained nine questions seeking demographics details. The subsequent section (question 10 to 22) consisted of open ended questions that examined issues related with the constructs: trust of the internet, behavioural intention, actual use, relative advantage, compatibility, image, perceived ease of use, perceived usefulness and perceived behavioural control. The challenge that was encountered at this stage of the research was to form questions that could be understood and answered by a lay person as well as an expert. To overcome this challenge, the researcher applied questions that were simply worded and to the point.

#### **4.2.2 Verification and Validation of the interview questions**

After developing the questions a verification and validation strategy was used, it is “generally established through literature reviews and expert judges or panels” (Straub et al., 2004: 45). The period to verify the questions was approximately for one month. For this purpose, in June 2011 the researcher



travelled to Abu Dhabi. For verification and validation of the interview questions, 20 experts were used who were selected on the basis of knowledge and experience with of e-services and AD. The experts included six academics in AD, seven high ranking officers, three civilians, the researcher's principal supervisor and three consultants from AD. Emails and face to face interviews were mainly used for the validation of the questions. The academics in AD assisted in clarifying questions pertaining to AD and improvements of the questions (e.g. rewording, grammar changes, or redesign of questions). Contrastingly, the ADPF personnel assisted in gauging the suitability and understanding of questions within the ADPF staff. This led to improvements in the questions. The principal supervisor based in United Kingdom (UK) assisted in issues related to ensuring the relation between the research questions, the constructs taken from the diffusion and adoption theories and the interview questions. Figure 4.6 shows the main stages of the verification phase.



**Figure 4.6:** Main stages to verify and validate the interview questions

For information purposes, the demographic details of the experts participating in the verification and validation process are provided in table 4.1.

<b>Education</b>	<b>Higher Diploma</b>	<b>Bachelor</b>	<b>Masters</b>	<b>PhD</b>	<b>Total</b>	<b>Workplace</b>
<b>Gender</b>						
<b>Females</b>	0	2 Civilians	1 Captain	0	3	ADPF
	0	0	1	2	3	Academics
	0	0	0	0	0	Other
	0	2	2	2	<u>6</u>	
<b>Males</b>	1 Civilian	3 Lieutenants	1 Captain 1 Major 1 Colonel	0	7	ADPF
	0	0	0	4	4	Academics
	0	0	3	0	3	Other
	1	3	6	4	<u>14</u>	
<b>Total</b>	<u>1</u>	<u>5</u>	<u>8</u>	<u>6</u>	<u>20</u>	

**Table 4.1:** Experts participated in verifying and validating the interview questions

#### 4.2.3 Findings and Outcomes after Verifying and Validating the Interview Questions

This section will give some examples of changes that occurred to the questions after the verification process. Further discussions will also be included.

The main issues that were discussed with experts are listed below:

- Translation of questions
- Depth of the questions
- Design of the questions
- Terms used
- Participants involved in the study

##### 4.2.3.1 Translation of the questions

Translation of the questions from English to Arabic was an important discussed topic. The first language of most of the staff in ADPF is Arabic; therefore, questions in Arabic were crucial. One of the experts stated that “*few staff understands English well, so they will find it difficult even if you used simple terms*”. Furthermore, Walsham (2006: 323) added that “it is better to be able to speak the local language fluently in order to carry out field research”. Therefore, the researcher translated the



questions with the help of a professional translator. Another test pilot to determine the suitability of the questions emerged following the verification of questions in order to ensure that the translation of the questions was as required by the researcher, a strategy that allowed relevance and rigour to this research (Griffie, 2001).

#### **4.2.3.2 Depth of the questions**

The researcher was told by one of the experts to *“dig deeper when asking participants, this will help in getting more information which will help when analysing the results”*. For this, more open-ended questions were also used in interviews.

#### **4.2.3.3 Design of the questions**

Even though the researcher had given immense consideration to the questions, there were still changes to be made. Examples include: verifying that the questions were understandable, amending the questions to the conceptual framework, improving the way of asking the question etc. Further, this research followed the Leung (2001) advice that in order to gather all needed information, it is important to carefully design the questions.

One of the experts stated that *“the categories in some of the questions are not clear and participants will find difficulties answering this question because of the layout. So, should be changed in order to make it easier and understandable”*.

Therefore, based on expert views it was decided that the layout of the questions should be simply written to provide ease of use for participants. This was to ensure that participants would not struggle with the questions. It was found that if difficulties and challenges emerged, then participants could find a reason to withdraw.

#### **4.2.3.4 Terms used**

Some of the terms that were used were not easily understood. An advice from one of the experts was: *“questions should be very simple, you should always put in mind that not everyone can understand how you think and not everyone is well educated so keep it simple”*.

Based on qualitative and quantitative research methods handbooks, Harkness and Schoua-Glusberg (1998) had also recommended keeping sentences short and choosing easy vocabulary when asking questions. This might lead respondents to ignore the question or even give wrong answers. Therefore, changes were made to some questions.

#### **4.2.3.5 Participants involved in the study**

Another issue to be considered for the pilot study was the selection of participants, which in this research are personnel from ADPF. Some of the experts thought that the questionnaire should be answered only by a certain level within Abu Dhabi police, such as; branch managers or department managers, who have been working in ADPF for couple of years. One of them stated that “*experience is important, if you ask young officers they will not help you as much as experienced officers*”. However, other experts have disagreed and advised the researcher to investigate and understand the adoption of e-services by all staff members; therefore, different gender, age, levels and positions of the organisational hierarchy were involved.

### **4.3 Pilot Study**

After preparing and validating the interview questions, the researcher was ready to commence the pilot study. A description of the pilot study, analysis and their findings are provided in this section.

A pilot study was conducted after the content validation. A pilot study “has a role in ensuring that the research instrument as a whole functions well” (Bryman and Bell, 2003: 170). Another issue is that the pilot will help in “identifying ambiguities and other problems with the questions” (Cornford and Smithson, 1996: 100) and to estimate the time scale of the interviews. Furthermore, Yin (2009) also argued that the pilot test is important and will help the researcher in improving the data collection method and make possible changes before conducting the final study. Therefore, to determine if the data collection technique is suitable for the study a pilot will be beneficial. From the pilot, there was an understanding of what theoretical aspects are relevant in practice, and also whether the formed questions for this research are applicable and understandable to all the participants of the ADPF. Hence, it has to be noted that the researcher was careful to ensure that this research was not just a *dress rehearsal*, but allowed clarification and development of relevant lines of questioning as the following results show.

A case study “uses empirical evidence from one or more organisations where an attempt is made to study the subject matter in context” Myers (2009: 76). In this research the empirical evidence is provided by a single organisation (ADPF); however, it will examine four different departments within the organisation. The departments used for this research are: security information department, IT and communications department, strategic management department and policing operations department. The departments were selected upon the basis of accessibility as well as role in e-government and e-services development and implementation. The security information department deals with security issues of networks, police data and different services and offered the research with information regarding security issues when developing and implementing e-government in the ADPF. The IT and communications department is responsible for IT provision and policy, which would allow to form an understanding regarding the impacts and reasons for pursuing certain policies. The strategic management department is responsible for forming and implementing strategic visions for ADPF; therefore also pertinent to understand the process followed for implementing policies. Finally, the policing operations department is in charge of field work operations. Field work consists of many tasks that police perform out of their offices and deal with issues related to the public, such as, theft or crime investigations, traffic control, riot control and others. The reason for having this department is to examine a non-administrative department; that is, this department was viewed to be important to understand the impacts and operations of e-government.

### 4.3.1 Sample Population

The period of the pilot study was for two months that began from January, 2012 to March, 2012 and involved interviewing 39 participants from different management levels and ranks. Details of the 39 participants are shown in table 4.2, 4.3, 4.4 and 4.5.

Age Ranges	Security Information Department		IT & Communication Department		Strategic Management Department		Policing Operations Department		Total	Percentage
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>		
18-20	-	-	1	1	2	-	1	-	5	13%
20-30	3	2	2	3	1	2	1	1	15	38%
31-40	1	1	2	-	2	-	2	1	9	23%
41-50	2	-	1	-	2	-	2	1	8	21%
51-60	-	-	-	-	1	-	1	-	2	5%
<b>Total</b>	<b>6</b>	<b>3</b>	<b>6</b>	<b>4</b>	<b>8</b>	<b>2</b>	<b>7</b>	<b>3</b>	<b>39</b>	<b>100%</b>

**Table 4.2:** Age and gender of pilot participants

Education Level	Security Information Department	IT & Communication Department	Strategic Management Department	Policing Operations Department	Total	Percentage
Below High School	-	2	1	2	5	13%
High School	2	1	1	4	8	20%
High Diploma	2	4	1	3	10	26%
Bachelor	4	2	4	1	11	28%
Postgraduate	1	1	3	-	5	13%
<b>Total</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>39</b>	<b>100%</b>

**Table 4.3:** Education level of pilot participants

Monthly Income (UAE Dirhams)	Security Information Department	IT & Communication Department	Strategic Management Department	Policing Operations Department	Total	Percentage
Below 10,000	-	3	1	2	6	15%
10,000-19,000	2	2	-	2	6	15%
20,000-29,000	3	2	1	4	10	26%
30,000-39,000	3	1	4	1	9	24%
40,000-49,000	1	1	2	-	4	10%
More than 50,000	-	1	2	1	4	10%
<b>Total</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>39</b>	<b>100%</b>

**Table 4.4:** Monthly income of pilot participants

Internet Experience	Security Information Department		IT & Communications Department		Strategic Management Department		Policing Operations Department		Total P.U	Total W.P
	<i>Personal use</i>	<i>Work purpose</i>	<i>Personal use</i>	<i>Work purpose</i>	<i>Personal use</i>	<i>Work purpose</i>	<i>Personal use</i>	<i>Work purpose</i>		
Less than 1 year	-	3	-	1	-	2	6	6	6	12
1-2 years	1	4	-	2	-	3	1	4	2	13
2-3 years	-	2	-	4	1	4	1	-	2	10
3-5 years	1	-	1	3	4	1	-	-	6	4
5-10 years	3	-	4	-	2	-	-	-	9	-
More than 10 years	4	-	5	-	3	-	2	-	14	-
<b>Total</b>	<b>9</b>		<b>10</b>		<b>10</b>		<b>10</b>		<b>39</b>	

**Table 4.5:** Internet experience of pilot participants

To form an understanding the researcher categorised participants based upon their organisational position in terms of lower level staff, middle level staff and high level staff. More details will be given later.

#### **4.4 The Process for Data Analysis**

As stated earlier in chapter 3, a thematic analysis process was used in this research. Furthermore, a detailed description of each theoretical construct with respect to the case study will be looked at in this section. After the discussion of the case studies, the main themes identified from this research will be listed. Finally, findings will also be summarised.

In chapter 2, a theoretical framework was formed in this research. Yin (2009) argued that in order to validate the analysis process it should be based on the theoretical framework and its propositions. Therefore gathered data will be categorised based on the theoretical constructs, which are; relative advantage, compatibility, image, ease of use, usefulness, trust of internet, trust of government and perceived behavioural control.

The main steps used for data analysis are shown below.

(i) The researcher went through the 39 interview transcripts and highlighted all the text that had a link with constructs from the theoretical framework. The researcher immersed himself into the findings by re-reading the results and forming notes in each transcript. An extract from an interview that shows highlights in the text and notes is given in Appendix VI. This assisted the researcher to acquire more familiarity with the data

(ii) The researcher then began to code some of the information from the highlighted text (an example is also shown in Appendix VI). This helped in retrieving different data easily from the different transcripts.

(iii) Codes were categorised under the factors identified earlier from theory. However if there was any new code that could not be categorised or subcategorised with the factors identified earlier, a new category (theme) was formed and the new result was then coded in terms of the new code and categorised to a new category (new theme). This meant that new factors influencing adoption were then identified.

(iv) Reviewing themes with the codes of the case study.

(v) Thereafter, the researcher went through each category (themes) to identify subcategories. This process continued until it was not possible to subcategorise or to group themes any more. (More about themes, data extracts and details of the four case studies are shown in Appendix VII)

(vi) Finally, the findings were written and their relation with the research question and literature was identified. More details will be given in the findings section of this chapter.

#### **4.4.1 Themes from the Pilot Study**

Based on the thematic analysis approach, the main step in qualitative analysis is to generate codes and themes (step 2 to 5, as described above). Different codes and themes were produced when analysing the data from the four case studies, which were summarised in Appendix VII.

There are many techniques in literature to identify themes in interviews, such as, repetitions of words and generate word frequency, searching for metaphors, linguistic connectors, search for missing data, etc. (Ryan and Bernard, 2003). However, as shown earlier in chapter 3 (phases of thematic analysis) themes in thematic analysis are identified from the collated codes. Furthermore, as earlier explained there are no right or wrong procedures in analysis. This depends on the investigator, “theme identification involves judgments on the part of the investigator” (Ryan and Bernard, 2003: 103). More about codes and themes are given later in this chapter.

#### **4.5 Using the Theoretical framework for Analysis**

As stated earlier, each theoretical construct from the framework was used to examine each case study solely (within-case analysis). Following that a cross-case analysis was undertaken. This led to comparing the data between the case studies. This was conducted in order to have a better picture when it comes to the findings stage.

More details about the case studies and its analysis are given in the next section.

**4.5.1 Case Study 1 (Security Information Department)**

Most of the participants (seven out of nine) had more than five years personal use internet experience. Five out of these seven who used the internet are categorised as middle and high level staff. However, when it came to using the internet for different work purposes most participants had less than two years of experience.

Based on the participant’s interviews six out of nine have already used some of the e-services, which were mainly from middle and high level staff. A summary of participant’s details that used the e-services is given in table 4.6.

Details of participants in “Security Information Department” using current e-services				
Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	41-50	Post graduate	40,000-49,000	High
Male	20-30	Bachelor	30,000-39,000	Middle
Male	20-30	Bachelor	20,000-29,000	Middle
Female	31-40	Bachelor	30,000-39,000	Middle
Female	20-30	Bachelor	30,000-39,000	Middle
Female	20-30	High Diploma	20,000-29,000	Middle

**Table 4.6:** Details of pilot participants in SID using e-services

On the other hand, table 4.7 below show the detail of participants who did not use any of the e-services. Education level and organisational positions showed that it may affect the usage of e-services. Participants not using the e-services have an educational level of either high diploma or high school; on the other hand, two out of three participants not using the e-services are considered as low level staff.

Details of participants in “Security Information Department” NOT using current e-services				
Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	20-30	High Diploma	20,000-29,000	Middle
Male	31-40	High School	10,000-19,000	Low
Male	41-50	High School	10,000-19,000	Low

**Table 4.7:** Details of pilot participants in SID not using e-services

#### **4.5.1.1 Relative Advantage**

Relative advantage is defined earlier as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 2003: 15). In this study the relative advantage was used to compare the new e-services with the traditional paper based procedures.

Some of the staff members in this department who were males, from different age categories, mainly low level staff with low level of education (high school and high diploma) argued that when it comes to communication and interaction with other staff members, regarding any transaction or work procedure, it is easier for them to talk face to face than using computers. A statement by one of the male staff members aged 41-50, with a high school certificate and categorised as a low level staff said that “...using a telephone or communicating face to face is much easier to explain things...”

When comparing the e-services with paper transactions, others who were categorised as middle and high level staff showed more interest in e-services and explained how completing transactions and inquires became much faster than previous manual methods. For example one of the male staff members aged between 20-30 who had a bachelor degree and categorised as a middle level staff that prefers e-services said “...it is a fast way to send documents, so any transaction will be processed faster...”

Analysis with respect to relative advantage led the researcher to examine different themes, such as speed of e-services and faster communications within department.

#### **4.5.1.2 Compatibility**

Compatibility is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences and need of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible” (Rogers, 2003: 15).

The researcher asked participants to describe their work routine in general. After that the researcher asked if the e-service fits in with their work lifestyle. This is to determine whether e-services are compatible with staff work routine or not.



Most of the staff (seven out of nine) in the security department had personal computers, such as, desktops, laptops or both at their office. Details of the two participants who did not have access and own computers are given below.

Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	31-40	High School	10,000-19,000	Low
Male	41-50	High School	10,000-19,000	Low

**Table 4.8:** Details of pilot participants in SID who did not have access to computers

The main reason for the two staff members (details in table 4.8 above) not having and using a computer is because they said they do not need it at work. A statement was made by a male participant, 31-40 years old, with a high school certificate and categorised as a low level staff said that *“I never used a computer and my work is always submitted on time and perfect so what is the point of all this...”*

Another staff member in this department (male, 20-30, high diploma, categorised as middle level staff) had a computer in his office but never used any of the e-services, claiming that he only use a computer to check his email. He had also refused to describe his work routine for security reasons.

Based on the interviews most other (six out of nine) participants’ lifestyle was compatible with computer and e-service usage; however, a minority did not use computers for their work; therefore, had different work lifestyle. Furthermore, a summary of the themes, which looked at staff work style and their existing work practices is given in Appendix VII.

#### **4.5.1.3 Image**

Image is “the degree to which use of an innovation is perceived to enhance one’s image or status in one’s social system” (Moore and Benbasat, 1991: 195). In this case, two categories emerged. One was where the person is viewed to be talented and skilled user. Comparatively, image was also seen as a way to compete with other departments.

Initial results showed that higher level staff from the security department viewed and considered staff using e-services as talented and skilled. This is due to their experience in internet and they could explain the challenges faced by users. For example, one of the higher level staff (Male, 41-50,

postgraduate) stated that: *“Not everyone is capable of learning new things especially if he/she is old in age and is used to a certain procedure, let’s say for 20 years. So I think that only smart employees will have the creativity, talent and skills to use new e-services immediately”*.

An alternative view is that e-services users from different organisational level are unique as this person is seen as someone willing to improve the department, such as, using e-services to process transactions quickly. This will make a big difference when comparing the rate of progress of transactions with other departments not using the e-services. *“Staff using the e-services are willing to improve the organisation and work with the police strategy, which show that they deserve to be different than others who doesn’t want to improve”* (Female, 20-30, bachelor degree, middle level staff).

#### **4.5.1.4 Perceived Ease of Use**

It is the “degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1986: 82).

As stated earlier, six out of nine from this department are currently using different e-services in Abu Dhabi Police. However, the researcher in this section wanted to find out if the users find the e-services easy or not. Examples of interview questions: “how many attempts did you have before you began using the e-services? Did you need any training courses? How often do you seek help or advice when using the e-services?”

The results showed that the security information department members found e-services easy to use and rarely sought help or advice with the functionality or options of the current e-services. When asked further of how do they identified ease to use, a high level staff member (male, 41-50, postgraduate) said that ease of use was achieved by trial and error. This was a view that emerged within the higher level staff members. An example statement is provided: *“you have to try it by yourself and look at the options and functions you have. It took me couple of hours to know everything”* (Male, 41-50, postgraduate, high level staff). Comparatively, a younger staff member at the middle level displayed the signs of the times by stating statements such as: *“I didn’t need any training to use these e-services, it was simple...the e-service is easy to use so you don’t need to ask anyone...”* (Male, 20-30, bachelor degree, middle level staff). Therefore, it can be seen that e-services are viewed as easy to use, but this also depended upon age, and the position within the organisation. Younger members who are familiar with technology, due to the changes in times and government initiatives of diffusing online products

and services, were more aware of novel technology and found e-services easier to use than the older members of staff. Furthermore, this led the researcher to conclude that most staff members, especially younger staff find e-services simple.

#### **4.5.1.5 Perceived Usefulness**

It is “the degree to which an individual believes that using a particular system would enhance his or her performance” (Davis, 1986: 82). This is to examine the usefulness of e-services from staff point of view.

From the replies it was learnt that enhancement in performance was achieved by the new system allowing the searching and retrieving of data when required. An interesting outcome was that enhancement was also in the form of not losing information. That is, before the e-services, hard copy documents could be lost with data being lost as well. Due to the new service this could be minimised. As a female participant aged 20-30 with a high diploma certificate and categorised as a middle level explained “*documents are online, you can search for anything you need easily, rather than search for papers that can be in different folders, on my desk or even lost...*” Therefore, not only does the online security issue emerge at this point, but also evident was that hard copy documents were less at risk of being lost. E-services also allowed enhancement in performance as data was secure and offered peace of mind to individuals. As revealed in the following statement: “*...even from a security perspective, it is safer for documents to be online, rather than leaving them on your desk that anyone can read them even the office boy*” (Male, 20-30, bachelor, middle level staff). However, it was believed that a system cannot really impact performance. As the following statement shows “*...e-services might be useful in some occasions and for certain staff, but not for everyone and for my current role it is not important*”. (Male, 20-30, high diploma, middle level staff)

#### **4.5.1.6 Trust of Internet and Government**

Trust “in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of three distinct dimensions: integrity, ability, and benevolence” Gefen et al. (2008: 276). Therefore, to examine users’ beliefs in the trustworthiness of the internet e-services and government two main questions were asked.

The first question was a general question to know if participants had ever used the internet for online shopping. This would reveal if they trusted the internet in general and its online payments. The second question was related to security issues regarding the e-services network in ADPF and e-service capabilities of handling different transactions, interactions and inquires.

The nine participants in this department had enough knowledge with security in ADPF. All participants in this department trusted the network security in Abu Dhabi Police and argued that ADPF had a safe network, *“all data are important, so we always make sure that the network is safe and up to date, that’s why we monitor everything 24/7”* (Female, 31-40, bachelor degree, middle level staff). Furthermore, none of the participants using the e-services had encountered any unscrupulous incident. Comparatively when asked about online purchases, most staff from diverse organisational levels, age, gender and education preferred using the internet only for general use, such as surfing the internet and showed fear of online payments which was identified as one of the main themes. *“I use the internet for searching only, but not for buying. What if a hacker took my bank details? They can steal and no one can stop them. I always read articles about how these hackers come out with new ways to hack online shoppers”* (Male, 31-40, high school, low level staff).

From the replies, it was learnt that most staff members only trust the internet when using the e-services and not for general use. Furthermore, it was also learnt that most staff trust ADPF and the government regarding protecting and maintaining confidentiality of data.

#### **4.5.1.7 Perceived Behavioural Control**

Perceived behavioural control (PBC) consists of three constructs, self-efficacy, resource and technology facilitating conditions. Examining staff knowledge and confidence to use the e-services (self-efficacy), budget set for e-service implementation projects (resource facilitating conditions) and technology facilitating conditions such as, networks, hardware and software and support in using the new technology in ADPF were also crucial.

For this department, the researcher also had an opportunity to observe some of the staff members when using the e-services at work. As stated earlier, it was noticed that younger staff members (20-30 years old) displayed more confidence when using the e-services. *“I didn’t need any training to use these e-services, it was simple...”* (Male, 20-30, bachelor degree, middle level staff). There was no difficulty associated with the application and showed utmost confidence and understanding when using the e-

services. Comparatively, some of the older staff members displayed confidence; however, it was observed that it took them more time to use the e-service and the process did not seem easy and smooth compared to the younger staff members.

In general and based on most of the participant's response using the e-services, the main identified theme in this section was the simplicity of the e-services seen by staff members in the security information department.

Most offices in security information department had computers, printers and fax machines. Furthermore, no one of the participants had ever complained about any electricity or network faults, which shows that they are not facing any issue when it comes to technology facilitating conditions.

#### 4.5.2 Case Study 2 (IT & Communications Department)

Ten participants were involved in the pilot study that was in the IT and communications department: six males and four females. Their education and level in organisation varied; for example, one had a postgraduate degree, two with bachelors, four high diploma, one high school certificate and two below high school.

Furthermore, five out of ten were categorised as low level staff, three middle level staff and two high level staff. All participants had more than three year's personal use internet experience. This shows that most staff in this department are used to the internet; however, because the e-services are recently introduced, the usage of internet for work purposes is less (seven out of ten have less than three years' experience) and only currently used.

Based on the participant's interviews all ten have already used some of the e-services. Details of participants are shown in table 4.9.

Details of participants in "IT & Communications Department" using current e-services				
Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	41-50	Bachelor	More than 50,000	High
Male	31-40	Post graduate	40,000-49,000	High
Male	20-30	High Diploma	20,000-29,000	Middle
Male	20-30	High Diploma	10,000-19,000	Low

Male	31-40	Below High School	Below 10,000	Low
Male	18-20	Below High School	Below 10,000	Low
Female	20-30	Bachelor	30,000-39,000	Middle
Female	20-30	High Diploma	20,000-29,000	Middle
Female	20-30	High Diploma	10,000-19,000	Low
Female	18-20	High School	Below 10,000	Low

**Table 4.9:** Details of pilot participants in IT using e-services

All staff members stated that e-services were immediately adopted when launched in Abu Dhabi Police. Most participants were also involved in the pilot testing of some of the e-services before being launched, therefore, had an idea about them and did not need intense training.

#### 4.5.2.1 Relative Advantage

Relative advantage is defined earlier as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 2003: 15).

When comparing new online procedures and previous paper based procedure, all ten staff members were in favour of the online services. Many advantages were discussed and themes were identified, such as, faster and easier transactions when using e-services, confidentiality of the data when being processed online. A statement was made by one of the female participants (20-30, bachelor degree, middle level staff) when arguing that online documents are not like paper based documents in the sense that online documents are securely saved in computers and no one can access the document without authorisation. “...it is impossible for someone to see your details unlike paper documents...” This was mainly supported by high and middle level of employees.

Initial results showed that there was no difference in staff member’s age, gender, education and organisational level in the IT department with respect to relative advantage. There was familiarity with computers and e-services that led to the researcher to examine the next construct, compatibility and work routine.

#### 4.5.2.2 Compatibility

Compatibility is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences and need of potential adopters” (Rogers, 2003: 15).

The researcher asked participants to describe their work routine. Following that another question was asked to determine whether the e-services fitted in with their work lifestyles. Most staff members work routines depend on computers, whether it was for implementing software, updating data, check different e-services (e.g. IT support e-service), or network applications.

This led the researcher to conclude that all staff in this department, regardless of their demographic details, dealt with different issues related to computer usage on a daily basis. This showed that using e-services is compatible with their work environment and existing work practices. A male participant, 41-50 years old, with a bachelor degree and considered as a high level staff stated that *“we sit in front of computers from 7:30am to 2:30pm, 5 days a week; we implement e-services, therefore, to test the system and fix faults we have to use and try all kind of e-services even if we don't need them”*.

Another female participant, 20-30 years old, with high diploma and categorised as a middle level staff claimed how her prior experience with computers and internet assisted her in using new e-services, *“I am used to different online services here at Abu Dhabi Police so I don't have any reason not to try new e-services when they are introduced for the staff”*.

#### 4.5.2.3 Image

Image is “the degree to which use of an innovation is perceived to enhance one's image or status in one's social system” (Moore and Benbasat, 1991: 195). In this case study, two similar categories emerged; importance and reliability of e-services. It was observed that most staff members in the IT department were not concerned with others using or not using the e-services. They looked at e-services as an important tool that can enhance and accomplish different tasks; *“...I use these e-services regularly, not to show others that I am smart or an expert in computers. I use it because I think they are important”* (Male, 31-40, postgraduate, high level staff).

Staff members from middle and higher levels also showed more reliability and trust towards the e-services. A female participant added “...if something is reliable, in this case e-service, then it is a good choice for staff to use it...” (20-30, bachelor degree, middle level staff).

Results from this case study showed that most e-service users were not influenced by image. Unlike results from the previous case study (security department), where it was found that users were viewed to be more skilled than others when using the e-service; therefore, this may influence other staff to use it and appear to be talented and skilled.

#### **4.5.2.4 Perceived Ease of Use**

It is the “degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1986: 82).

All ten participants interviewed in this department are currently using different e-services. Most of the participants from various age, gender, educational and organisational levels found e-services easy to use and to proffer a user friendly interface. Furthermore, prior experience in computers was also a reason of why all staff members in this department showed ease of use towards e-service usage. “Because I have computer experience I did not need any training course, however, if the user have no experience at all I think it is important to take basic courses on how to use a computer at least” (Male, 20-30 years old, high diploma, middle level staff).

To conclude, main themes identified were simplicity of e-service which showed how staff members found e-services easy and simple. Furthermore, prior experience with computer and internet usage led them to find e-services similar to any other application they have used before.

#### **4.5.2.5 Perceived Usefulness**

It is “the degree to which an individual believes that using a particular system would enhance his or her performance” (Davis, 1986: 82).

When examining opinions of participants towards whether e-services are useful for Abu Dhabi police staff; all the participants in this department argued that e-services are important and useful. High level staff members in this department showed more trust towards e-services and argued that e-services are



reliable; therefore, they preferred for example, to read online reports. As revealed in the following statement: “...*I can also make comments and post questions that may help me at work. The correspondence system is reliable for communicating with other staff regarding work procedures, which I think is useful*” (Male, 41-50, bachelor degree, high level staff). Therefore, reliability of e-services was seen as an important characteristic in this department.

Low level staff members receive orders from higher level individuals, and most of their task is to search and prepare documents and reports for higher level staff. This had led low level staff in this department to see the usefulness of the e-services from their point of view which is the fast retrieving of data and how e-services organises this data. A statement was made by a female participant as “...*e-services are extremely useful...it makes the work much easier...organises all types of polices and letters which will make it easy if you want to retrieve any data in future*” (Female, 18-20, high school certificate, low level staff)”.

#### **4.5.2.6 Trust of Internet and Government**

Trust “in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of three distinct dimensions: integrity, ability, and benevolence” Gefen et al. (2008: 276).

As stated earlier, two questions related to trust were asked during the interviews. Responses were similar to the previous department where all the participants trusted the e-services reliability, security and network at ADPF. This led to identify themes such as, trust in the reliability of e-services and trust in the security of ADPF. Staff members were confident with the ability of the e-services to deal with transactions without errors. However, when it came to internet shopping, few used online payments. They showed fear of online payments which was identified as one of the main themes in this section. However, some admitted they shop online; but do not feel comfortable doing so. From the few participants who have tried and used online payments it was noticed that in terms of age, they were less than 30 years old. This was attributed to the government initiatives and leading to younger members being more familiarised to technology. “...*if I find something I like and did not have time to go shopping I will order it online*” (Female, 18-20, high school certificate, low).

#### **4.5.2.7 Perceived Behavioural Control**

Similar to the previous department (security and information department) constructs examined such as self-efficacy showed that all staff had enough confidence, knowledge and training to use different e-service applications due to their experience and education background in IT.

The researcher also investigated more about IT project budgets especially that the IT department is in charge of all IT projects. It was concluded that high budgets and sometimes open budgets are specified yearly for projects related to e-government and e-services due to the support of Abu Dhabi government; therefore, resources did not have any issue on the impact of implementation and use of e-services in ADPF.

### 4.5.3 Case Study 3 (Strategic Management Department)

The strategic management department deals with creating visions, strategic issues and policies for ADPF. Based on the participant’s interviews most participants (eight out of ten) in this department already used some of the e-services. Details of all the participants whether they have used the e-services or not are shown in the two tables below.

Details of participants in “Strategic Management Department” using current e-services				
Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	41-50	Bachelor	More than 50,000	High
Male	31-40	Post graduate	40,000-49,000	High
Male	31-40	Bachelor	40,000-49,000	High
Male	20-30	Post graduate	30,000-39,000	Middle
Male	18-20	Below High School	20,000-29,000	Middle
Male	18-20	Below High School	Below 10,000	Low
Female	20-30	Post graduate	30,000-39,000	Middle
Female	20-30	Bachelor	30,000-39,000	Middle

**Table 4.10:** Details of pilot participants in SMD using e-services

Details of participants in “Strategic Management Department” NOT using current e-services				
Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	51-60	High Diploma	30,000-39,000	Middle
Male	41-50	Bachelor	More than 50,000	High

**Table 4.11:** Details of pilot participants in SMD not using e-services

It was clearly shown that age factor played a big role in this department. As shown in the second table, two participants aged between 41-60 years did not use any of the e-services. Contrastingly, other participants younger in age used these e-services.

The two participants who did not use the e-service provided similar reasons; that is, they are used to work in a specific way for many years and they are comfortable with it. When asked if they intend to use it within six months, they said no. One participant (male, 51-60 years old, with a high diploma certificate, and considered as a middle level employee) showed resistance towards e-service usage and stated that *“no one can force me to use a specific procedure; most important thing is that I work and*

*know my job. I might retire any time soon so what is the point in learning new things about these e-services”.*

The next sections will analyse and explain in-depth about the responses gathered from participants in the strategic management department.

#### **4.5.3.1 Relative Advantage**

Relative advantage is defined earlier as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 2003: 15).

Analysis with respect to relative advantage led the researcher to examine for diverse themes. About 80% of participants used different e-services, and when asked for the reasons, most spoke of the benefits of confidentiality and advantages of e-services in general. For example, younger female participants, with a high level of education and categorised as middle level staff were in favour of using e-services as an easy method for better communication. One of the female participants (20-30 years old, with a bachelor degree, and considered as a middle level staff) offered an example of the benefit of e-services by saying that *“if we need to tell staff in other departments about specific information or a new policy why we have to type it in papers? We can instead upload files in the correspondence system and everyone can login and read everything...”*

Results showed that most staff members, both genders, with a high level of education (bachelor and postgraduate degree) were clearly in favour of using e-services. Some discussed the opportunity of e-services in terms of communication and processing of matters whilst seated in their office. A male participant stated that *“Abu Dhabi police is getting bigger year by year, and some departments are located in different areas in Abu Dhabi, therefore, it is impossible to communicate with different departments or branches face to face. It takes a lot of time and effort. There are other procedures that we should follow which is using the new technologies available for the staff in Abu Dhabi police”* (male, 31-40 years old, postgraduate, high level staff). This led the researcher to examine more about e-services communication and therefore, identified remote communications within staff members as a crucial theme.

### 4.5.3.2 Compatibility

Compatibility is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences and need of potential adopters” (Rogers, 2003: 15).

Similar to previous departments (Security and IT), all staff in the strategic management department had personal computers, such as desktops, at their office. They also claimed they are important for different work procedures and used on a daily basis. Some of the middle level staff in this department supervised other department’s performance and required regular updates; therefore, most middle level staff working in this department depended heavily on e-services and computers for communication purposes. A middle level staff stated that “*strategies should be built based on important facts and when creating a vision you should have made a complete research of the situation you are currently in. Information should be taken from other departments, therefore, online links between departments is very important to get all needed information that will be always updated*” (Female, 20-30, postgraduate, middle level staff).

Initial results showed that staff working in this department identified e-services as an association of computers and compatible with their work styles. This was especially noticed within middle level staff. Therefore, existing work practices was seen as the main theme in this section. This is due to most staff members use of computers and e-services which enhance their work and compatible with their current jobs.

### 4.5.3.3 Image

Image is “the degree to which use of an innovation is perceived to enhance one’s image or status in one’s social system” (Moore and Benbasat, 1991: 195). Responses of participants from the strategic department (similar to security department) revealed that there was more concern towards other peers views and opinions of them; unlike staff in the IT department who viewed the benefit and reliability of e-services as a matter of importance.

Younger participants categorised as low and middle level staff members (details in table 4.12) claimed that using e-services meant that they are more valued by higher level colleagues (their direct managers in the department) and called upon to attend important decisive meetings.

Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	20-30	Post graduate	30,000-39,000	Middle
Male	18-20	Below High School	20,000-29,000	Middle
Male	18-20	Below High School	Below 10,000	Low
Female	20-30	Post graduate	30,000-39,000	Middle
Female	20-30	Bachelor	30,000-39,000	Middle

**Table 4.12:** Details of pilot participants using e-services to impress high level staff

Contrastingly, higher level staff (details in table 4.13 below) argued that e-service users are considered more experienced and talented in the organisation. A statement was made by a high level staff as “...a lot of staff in the police are not capable of using all functions in a computer, so when your direct manager knows that you are using it this means that you have a better chance to be promoted or considered smarter than your colleagues from the same department...” (Male, 41-50, bachelor degree, high level staff)

Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	41-50	Bachelor	More than 50,000	High
Male	31-40	Post graduate	40,000-49,000	High
Male	31-40	Bachelor	40,000-49,000	High

**Table 4.13:** Details of higher level staff considering e-service users as talented

This had concluded two main themes; staff being valuable in the organisation and staff were seen as talented and experienced, therefore, get easily promoted.

#### 4.5.3.4 Perceived Ease of Use

It is the “degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1986: 82).

As stated earlier eight out of ten have used some of the e-services in this department. Based on the interview results, it was concluded that older staff members from different education level found that e-services are difficult “...still a lot of staff in the police are not capable of using all functions in a computer...” (Male, 41-50, bachelor degree, high level staff) This identified themes such as, the

complexity of e-service, which was seen by older staff members in the strategic management department.

However, most staff members from diverse age, gender educational and organisational levels recommended having more training sessions. “...*I have little knowledge with computers but I find out that these e-services are easy. I took 1 or 2 training session for using the correspondence system because it had a lot of different functions...*” (Female, 20-30, bachelor degree, middle level staff). Training will help all users not only to use the e-service, but they can also recommend improvements to services in order to make the most out of it for their work procedures.

#### **4.5.3.5 Perceived Usefulness**

It is “the degree to which an individual believes that using a particular system would enhance his or her performance” (Davis, 1986: 82).

Two main categories were formed when examining staff member’s views towards e-services usefulness and enhancement of work performance. The first category in terms of e-services argued how important it is and how it helped them with their work (advantages of e-services). They were mainly middle aged employees (20-40 years old), with a high level of education (bachelor and postgraduate degrees) and categorised as middle and high level individuals. One of the participants stated that “*advantages are more than disadvantages when it comes to using technologies and in specific e-services in organisations; for example, the IT support system is used by most staff in Abu Dhabi police*” (Male, 31-40, bachelor degree, high level staff).

Comparatively, a category against e-services emerged (mainly older staff with a low level of education) where findings revealed that, e-services might be useful only for some and not everyone. Furthermore, it was also seen as a way to process transactions that can be accomplished by other similar methods (paper based transactions). An example of statement was “*e-services might be useful for some of the staff, but not for me...*” “*...e-services is only another method of dealing with different transactions, but it does not create something new*” (Male, 51-60, high diploma, middle level staff).

#### 4.5.3.6 Trust of Internet and Government

Trust “in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of three distinct dimensions: integrity, ability, and benevolence” Gefen et al. (2008: 276).

All staff members showed trust in the ability and performance of e-services in this department, which was identified as one of the themes in this section. An interesting point was that staff members who never used the e-services trusted the IT department and ADPF in general for its capabilities to implement different services. This was due to the good reputation of e-services among staff members within ADPF.

Other topics discussed were the confidentiality and protection of data, where high level staff (details in table 4.14) strongly argued about the high standard of security in ADPF towards e-services and its database. “*I always hear that the IT department is updated with latest technologies, therefore, I don’t think anyone can hack into the system*” (Male, 31-40, postgraduate, high level staff).

Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	41-50	Bachelor	More than 50,000	High
Male	31-40	Post graduate	40,000-49,000	High

**Table 4.14:** Details of staff in SMD mentioning the confidentiality of data

Lack of trust of internet in general was also an issue discussed and identified in this research. Most staff from different gender, educational and organisational level argued that they trust online websites in general, however, not when it comes to online payments. “*...I get nervous when I buy things online, I just don’t trust paying online...check my bank account immediately after online transactions to check how much money is exactly deducted from my account*” (Male, 31-40, bachelor degree, high level staff).

#### 4.5.3.7 Perceived Behavioural Control

The perceived behavioural control constructs, such as resource and technology facilitating conditions in this department were similar to security information and the IT department. However, when the researcher examined self-efficacy of staff members and their use to computers and e-services, it was noticed that some of the staff are struggling with training issues. It might take a long time, “months”,



for low and middle level of staff from the strategic department to get enrolled into training sessions. “...I was waiting to enrol in a training first. I applied for training and after couple of months got accepted” (Female, 20-30, bachelor degree, middle level).

This concluded that some of the staff from low and middle levels needs more training and the current situation can affect the adoption of e-services in ADPF due to less confidence and capabilities when using the e-services.

**4.5.4 Case Study 4 (Policing Operations Department)**

In this case study most of the staff members preferred traditional communication procedures, unlike previous departments. Based on the participant’s interviews this department have the least e-service usage, were only four out of ten have used some of the e-services. Details of all participants whether they are using or not using the e-services are provided in the two tables below.

Details of participants in “Policing Operations Department” using current e-services				
Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	20-30	Bachelor	20,000-29,000	Middle
Male	18-20	High School	Below 10,000	Low
Female	20-30	High Diploma	20,000-29,000	Middle
Female	31-40	High Diploma	More than 50,000	High

**Table 4.15:** Details of pilot participants in POD using e-services

Details of participants in “Policing Operations Department” NOT using current e-services				
Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	51-60	Below High School	30,000-39,000	Middle
Male	41-50	Below High School	Below 10,000	Low
Male	41-50	High School	20,000-29,000	Middle
Male	31-40	High School	10,000-19,000	Low
Male	31-40	High Diploma	10,000-19,000	Low
Female	41-50	High School	20,000-29,000	Middle

**Table 4.16:** Details of pilot participants in POD not using e-services

As shown in the above tables, it is worth mentioning that education level and age of participants differed between participants using and not using the e-services. For example, most participants not using the e-services had a lower level of education, such as, below high school, high school and high diploma. Furthermore, their age was also considered older than participants using the e-services.

It was also noticed that even users of e-services in this department use them very rarely, unlike other departments who use them in daily basis. This is because most of them work in fields and not in offices. An example of field work is to be involved in theft and crime scenes.

Most of participants (six out of ten) have less than one year internet experience for both personal use and work purposes. This shows that staff members in this department are still new when it comes to internet and e-services.

#### **4.5.4.1 Relative Advantage**

Relative advantage is defined earlier as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 2003: 15).

Analysis with respect to relative advantage had led the researcher to examine two main themes. The first theme was related to social relation between staff members or in other words “wasta”. Wasta is well known in Arab countries and is defined as “the degree to which an individual perceives a person’s success as being related to their ability to utilize connections with people, who are both able and prepared to change the course of natural events on that person’s behalf. It relates to having special help to get ahead in life, help that may not be available to others” (Whiteoak et al., 2006: 81).

It was concluded that some staff members especially older and with lower levels of education prefer communicating face to face in order to accomplish transactions rather than having a full automated service. In e-services transactions being processed are transparent and every phase of the process can be easily tracked, therefore, all transactions are processed equally and fairly. However, when having paper based transactions and the connections to talk to higher level staff, transactions can be processed differently from others and sometimes even faster than any other procedure. A male participant (41-50, below high school and categorised as a low level staff) who never used the e-service and showed resistance towards using it said that “... *if a transaction needs approval, it is better face to face. You can discuss everything in details and be treated as a special case...*”

He also argued when using *wasta*, transactions are processed faster “...*Sometimes you need to know the person in charge or you will never finish...*” (Male, 41-50, below high school, low level staff).

The second theme was the need to have new skills and training to use the e-services. Older participants and with lower educational qualifications also argued that they are used to processing paper based transactions which is easy for them and does not require much effort or skills. They have argued that using e-services requires new skills and training, and they are older so do not need to develop and learn new skills, such as, training sessions to learn how to use computers in general. One of the participants stated that “...*when talking about computers, this means new knowledge and requires training. Do you think everyone have time for training? Sometimes, at a certain age you can't learn new things. I have worked for more than 20 years in a certain way and I am happy with the way I work and not interested in using computers at the end of my career*” (Male, 51-60, below high school, middle level staff).

#### **4.5.4.2 Compatibility**

Compatibility is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences and need of potential adopters” (Rogers, 2003: 15).

Most staff members regardless of gender, age, education and organisational level in this department work outside their offices due to their work routine, and do not have access to computers and e-services. A male participant stated that: “...*my work environment is to deal with security issues; we work in different shifts, sometimes at night or in the morning. If I want to enquire about things I can either call by phone or maybe go during my break*” (Male, 18-20, high school certificate, low level staff).

Another participant complained about not having the opportunity to use any of the e-services even after attending training sessions because of his work routine. “*I had attended one training session and learned basic functions in it, but I have forgot about it because I didn't use it after the training*” (Male, 31-40, high school certificate, low level staff).

Based on participants' responses, it was concluded that e-services usage is not compatible with prior experience (most staff have no experience with computers or e-services) or with existing work practices (their current work routine does not depend or need e-services).

#### 4.5.4.3 Image

Image is “the degree to which use of an innovation is perceived to enhance one’s image or status in one’s social system” (Moore and Benbasat, 1991: 195).

Results showed that younger staff members who have already used the e-services claimed that users of e-services are considered smarter than other staff members (details given in table 4.17). This view was formed from the promotions that their colleagues from other departments obtained. This was attributed to their knowledge in technologies.

Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	20-30	Bachelor	20,000-29,000	Middle
Male	18-20	High School	Below 10,000	Low
Female	20-30	High Diploma	20,000-29,000	Middle

**Table 4.17:** Details of pilot participants claiming e-service users are more intelligent than others

This was also agreed by some older staff that never used the e-services. One of them stated that: “*I don’t have the skills and knowledge to use a computer. It needs an educated person so I think yes using e-services means that the person is smarter*” (Male, 41-50, below high school certificate, low level staff).

On the other hand, some of the non-users of e-services displayed resistance towards using e-services and also argued that there is no relation between intelligence and the use of e-services. “*I don’t use e-services and my direct manager trusts my work and depends on me in every task. I still don’t think e-services are important and it has nothing to do with being smarter or closer to high level colleagues*” (Female, 41-50, high school certificate, middle level staff).

#### 4.5.4.4 Perceived Ease of Use

It is the “degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1986: 82).

The majority of older male staff with a low level of education said that using e-services are complicated which led them not to use it anymore. *“It wasn’t easy and if you asked me to work on it now I will not know”* (Male, 31-40, high school certificate, low level staff).

Others complained about the few training sessions. This was more evident within younger staff members and categorised as middle level staff. Their details are shown in table 4.18.

Gender	Age	Education level	Monthly income (UAE Dhs)	Level in organisation
Male	20-30	Bachelor	20,000-29,000	Middle
Female	20-30	High Diploma	20,000-29,000	Middle

**Table 4.18:** Details of pilot participants who are asking for more e-service training

They have used few of the e-services without training and it was also noted that they did not know of many e-services. An example is provided as follows: *“when they first introduced e-services in the police I knew of it by chance from a colleague. No one told us about it or trained us on using them. We tried by ourselves when we had free time but didn’t know the purpose, how and why to use them. Whenever we asked for help, the technical team told us that the system is still new and you will be trained soon. It took a lot of time (about six months) until we had our first training”* (Male, 20-30, bachelor degree, middle level staff). This showed that some of the staff members (younger in age, categorised as middle level staff and are educated) are willing to learn and use these e-services; however, lack of training was seen as a barrier and was identified as a main theme (e-service training) in this section. Furthermore, if more e-service training is provided, the complexity of the e-services will be seen easier and therefore, attract more users.

#### 4.5.4.5 Perceived Usefulness

It is “the degree to which an individual believes that using a particular system would enhance his or her performance” (Davis, 1986: 82).

As mentioned earlier, most participants (six out of ten) not using the e-services had a low level of education (below high school or high school certificate) and considered older than staff members using the e-services. Non-users of e-services showed resistance, and insisted that they do not find e-services useful to them; therefore, it was concluded as one of the main themes in this section. Reasons for e-

service resistance were examined further, and it was concluded that most find alternative methods more preferable than using the e-services. For example one of the participants stated that “...*there are other ways you can still enquire about things or apply for different transactions, for example, using the telephone*”. (Male, 41-50, high school certificate, middle level staff). Therefore, e-service was only seen by older male participant with a low level of education as an alternative method to process and enquire about transactions which is similar to manual procedure, such as, paper based transactions.

On the other hand, as explained in the compatibility section users of e-services in this department do not have the opportunity to use the e-services regularly due to work routine; but they concluded that they would find it useful.

#### **4.5.4.6 Trust of Internet and Government**

Trust “in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of three distinct dimensions: integrity, ability, and benevolence” Gefen et al. (2008: 276).

All the staff members from this department, even the e-services non-users showed trust towards the e-services; whether it was from a security or reliability view. A statement was made by one of the participants as “*I am not a security expert but I do trust Abu Dhabi police in general and I trust everything they provide*” (Female, 31-40, high diploma, high level staff). This shows that staff in this department has faith in the ability of ADPF to implement reliable services. However it was seen that trust in e-service by itself does not have an influence on e-service usage. Other factors, such as, relative advantage, compatibility, ease of use and others, should all work together in order to better understand the diffusion, adoption and use of the e-services.

Furthermore, when asked if participants do online shopping, most from different levels said they do not buy things online. Different reasons were given, such as, some not having a computer at home and some said they do not know how to use a computer. So the issue in this department was not only trusting the internet, but also not having any access to the internet. More about access issues will be looked in the next session “perceived behavioural control”.

#### **4.5.4.7 Perceived Behavioural Control**

As given earlier, perceived behavioural control (PBC) consists of three constructs, self-efficacy, resource and technology facilitating conditions. Examining staff knowledge and confidence to use the e-services (self-efficacy), budget set for e-service implementation projects (resource facilitating conditions) and technology facilitating conditions, such as, networks, hardware and software and support in using the new technology in ADPF were also seen important.

Initial results showed that the work routine of staff had affected the use of computers and e-services in this department. Most staff members (especially staff that have low level of education and are categorised as low level staff) had no skills in using the e-services, therefore; this had clearly affected the ability and confidence (self-efficacy) of staff towards e-service usage.

Furthermore, the researcher observed that most staff members had no access to computers, laptops or any other means of technology. This was also due to their work routine and lack of support from the IT department to provide different devices, such as, computers. This concluded that technology facilitating conditions should be looked at in this department and action should be made either by higher level staff in this department or by IT and strategic management department. Therefore, collaboration with other departments in ADPF is crucial.

#### **4.6 Cross-Case Analysis and Findings from the Pilot Study**

The above within case analysis provided analysis and findings in terms of each case. However, this limited detection of similarities and differences between the diverse departments (Myers, 2009). For this, cross case analysis was employed. Cross-case analysis also “enhance generalisability” and aims to have a deeper understanding of the case studies (Miles and Huberman, 1994: 173), which led this researcher to utilise this approach.

To provide a reader with some insights, a detailed cross-case analysis of relative advantage is provided in table 4.19. The remaining constructs cross-case analysis is given in Appendix VIII.

Cross-Case Analysis of Relative Advantage					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
Confidentiality of Data	Users of e-services suggests that data is secure	✓	✓	✓	✓
		Males aged between 20-30, highly educated and categorised middle level staff, supports confidentiality and at the same time less risk for documents to be lost.	High and middle level of staff supported the use of e-services to enhance documents and transactions security.	Most participants from different age, gender, level of staff and education argued that e-services can increase privacy of documents.	Younger participants, both genders support security and privacy of data when using e-services rather than any other method.
Speed of E-services	The speed of accomplishing transactions	✓	✓		
		Middle and high level staff showed more interest in e-services and explained how completing transactions and inquires became faster than previous methods.	Most participants in this department discussed and supported the speed of e-services to accomplish transactions.		
Easier procedure	E-services lead to process different transactions easily		✓	✓	
			Staff with computer and internet experience in general found e-services easier than other traditional methods.	Younger females, with a high level of education were in favour of using e-services as an easy method and better method for communication.	
Remote Communication	E-services can communicate remotely within departments		✓	✓	
			Most staff from different age, gender, education and level in organisation had supported the e-services that it can be used anywhere, unlike face to face communication.	Most staff from both genders, with a high level of education discussed the opportunity of e-services in terms of communication while they are in their office.	
Easier Communication when using traditional methods	Prefer using traditional communications because it does not require new skills	✓			✓
		Low level male staff, with different age categories, and low level of education prefer traditional communications and paper based transactions than e-services.			Older males, categorised as low level with a low level of education, argued paper based transactions are easier than automated.
Social Relationships	Relationships between staff members occurs only by face to face or by telephone				✓
					Older males, aged 41-60, categorised as low level staff, argued that using “wasta”, transactions are processed faster.

Table 4.19: Cross-Case Analysis of Relative Advantage



When identifying RA, it was found that themes such as, confidentiality of data, speed of e-services, easier procedures, remote communications, easier communication and social relationships were found. When examined more closely, all four departments displayed confidentiality of data. Which showed that it is considered important when compared with paper documents that can be read by anyone, therefore provide more privacy. Other themes, such as social relationships were only found in the policing operations department, where it showed that older staff members with low education and low level in organisation prefer traditional methods because of “wasta”.

Table 4.19 also shows the second level of themes in each department, this helps in seeing the similarities and differences in depth among staff members. Examining age, gender, education and level of education with respect to each theme and department is important to have a better and deeper understanding.

To summarise, RA allowed the research to determine that e-services are safer and secure ways of processing documents within departments. They also expedite the services. However, during the interviews it became apparent that e-services are not viewed beneficial as those who are used to their ways do not want to adopt new ways. Therefore, although RA is beneficial, they are viewed to be negative as they make individuals change that is not liked within certain individuals in departments of the ADPF. This shows that with a qualitative approach not only is the presence of RA evident, but it allows a deeper understanding of how e-services are viewed to be better or not.

#### **4.7 Summary of Pilot Findings**

Relative advantage taken from DOI involved the researcher attempting to ascertain whether participants expressed preferences towards the innovative technology or the traditional communication channels. Within three departments of ADPF, there was a preference towards use of e-services in comparison to traditional communications channels of face-face communication, telephone or e-mail. The three departments were security information, IT & communications and strategic management.

Within security information 6/9 participants had used some of the e-services, and hailed mainly from the middle and high level staff. Education levels and positions in the department featured when determining usage of e-services in this department. Participants not using the e-services had an educational level of either high diploma or high school; on the other hand, 2/3 participants not using the e-services were lower level staff. Staff in this department showed some interest in new e-services,

therefore, they are accepting the idea of adopting different e-services, however, all argued that it should be useful and beneficial to them. In the IT department, all ten participants had already used some of the e-services. This was attributed to the working environment of staff in this department as all of them had to deal with different issues related to computer usage. Furthermore, participants claimed that e-services were immediately adopted when launched in ADPF. Most participants were also been involved in the pilot testing of some of the e-services before being launched, therefore, had an idea about them and did not need intense training. In the strategic management department age had a large role to play. Younger participants from this department showed more interest in e-services adoption and usage rather than older participants. The two participants who never used the e-services were between 41-50 and 51-60 years old. Similar to the aforementioned departments, most staff in this department relied on e-services and internet usage, which concludes that their work routine is compatible with e-service usage.

Responses of participants from the strategic department showed that they were concerned with their 'image or status', unlike the IT department that thought e-services were beneficial to work procedures. Three participants were using e-services because that meant that they were more valued by higher level colleagues and called upon to attend important decisive meetings. Another three thought that they were experienced in the organisation and considered a higher level individual. Finally four participants thought that staffs using e-services are considered smarter than other staff members.

When it came to trust of the e-services and trust of internet in general, most staff in this department trusted the e-services launched in ADPF, but lacked trust in internet services not related to the police, such as, shopping or cinema websites.

The policing operations department displayed the least e-service usage, with only four out of ten using some of the e-services. Education level and age of participants differed between participants using and not using the e-services. For example, most participants not using the e-services had a low level of education, such as, below high school, high school and high diploma. Furthermore, their age was also considered older than participants using the e-services. Most participants (6/10) had less than one year internet experience for both personal use and work purposes. These results showed that staff members in this department are still new when it comes to internet and e-services. Furthermore, most staff members in this department work outside their offices and in the fields with no access to computers. Due to their daily job patterns and routines, these participants concluded that e-services usage is not compatible with the environment they are currently in. The majority of participants also complained

that using e-services is complicated which led them to not use it anymore. Furthermore, when it came to usefulness of e-services participants argued that e-services are only useful in specific departments and for certain staff members with jobs dealing with computers. The policing operations department also did not display trust of the internet. A summary of the main findings of the four case studies used in this research is in Appendix IX.

From this example of the thematic analysis some findings, apparent or not apparent in all the departments resulted. In the next section a discussion of the constructs in terms of the existing literature on e-government is proffered.

## **4.8 Discussion**

### **4.8.1 Actual Use**

Three out of four departments: security information, IT and communications and strategic management revealed that the majority of staff members are using the e-services. The policing operations department displayed less interest in the e-services. From this, it was concluded that factors such as “compatibility” or work routine have a large role in adoption. Most staff in the policing operations dealt with policing issues outside their offices. For communication purposes handheld transceiver (known as walkie-talkie) were used and for documentation mostly paper notes and log books were used; therefore, less or no access to computers was required. Carter and Belanger (2004) study although citizen centric focused also found that those who have already used e-commerce services found them suitable to their lifestyles; hence, more likely to use e-government services.

### **4.8.2 Behavioural Intention**

When examining the intention of staff towards the adoption of e-services, most staff showed more interest and willingness to use more new e-services. This was apparent in the IT and communication departments, where all the pilot participants are currently using e-services. Comparatively, resistance emerged within most of the older staff members, with low level of education and categorised as low level staff in departments other than the IT. Literature review in organisation focused studies showed that there could be resistance towards e-government adoption (Themistocleous and Irani, 2001). Other challenges to overcome the intention aspect were computer and internet skills and training. These have

emerged in previous e-government studies that found skills requirements and training as pertinent for e-government (Heeks, 1999; Bonham et al., 2001; Ho, 2002).

### **4.8.3 Relative Advantage**

As discussed earlier, different responses, opinions and examples were given regarding relative advantage within the four departments. Some argued (in IT and Security information department) that e-services are faster and easier to use compared to any other method. Furthermore, most staff members from different departments claimed that e-services provide confidentiality of data.

Other older participants disagreed (in policing operations department) and argued that e-services will limit social relationships and this will slow down transactions. Older staff from security and policing operations department against e-service usage had also added that using e-services will require computer training and skills to be developed which they think they are old enough to change their habits and do not have time to learn new things.

However, in most previous studies that examined e-government adoption whether it was based on citizens or organisations, relative advantage was seen as one of the most important factor for e-government adoption (Carter and Belanger, 2004; Carter and Belanger, 2005; Carter and Weerakkody, 2008; Sang et al., 2009). This was also the case in this study, where most e-service users from different departments listed and explained the advantages when using ADPF e-services comparing to previous methods used.

### **4.8.4 Compatibility**

As stated earlier some staff showed that e-services are compatible with their work and lifestyle, which result in more e-service usage (e.g. IT and security department). This is expected as the IT department is the provider of information, knowledge and use of novel technology. Security was also to an extent expected as not only was the department responsible for the security of the organisation, but for the security of data entered in the new system. On the other hand, departments (i.e. policing operations department) where their work routine is mainly in fields and not in offices, were not compatible with computers which resulted in less e-service usage. This was supported by Akbulut (2002) study, where he had concluded that compatibility of a system is linked with the needs of the organisation. Therefore, in this case, compatibility of e-services is linked with the needs of the department. For example, in the

IT department the need for computers and e-services is high; therefore, it is compatible and adopted. On the other hand, in the policing operations department the need for computers and e-services is low; therefore, it is not compatible and not adopted.

#### **4.8.5 Image**

The majority of staff from security information, strategic management and policing operations department thought that e-services users are treated differently within the organisation and considered smarter and more intelligent than other staff. This was also supported by staff members who do not use e-services. The reason for these thoughts maybe related to cultural issues, where more skilled and talented people are treated differently from others. Lean et al. (2009) argued that image affects adoption, unlike a study made by Phang et al. (2005) who found no relation between image and adoption. This construct depends heavily on the culture of the country. However, image is considered an important construct for e-service adoption and usage in ADPF, where staff is attracted to certain technologies to show that they are highly skilled and better than others in the organisation.

#### **4.8.6 Perceived Ease of Use**

Having e-services that are easy to use is one of the important factors in e-service adoption. "Willingness to use e-government service will be affected if the online system was perceived to be too complicated and difficult to understand and take too much time in entering the data or input" (Lean et al., 2009: 472). This is similar to staff using their e-services in ADPF. If the e-services are difficult to understand and use, then very few will use them, which was clearly shown in the policing operations department. Other departments claimed that current e-services are easy; however, some argued that it needs training in order to use it.

Similar to previous section (in compatibility), staff that use computers at work seemed to work fluently with e-services, on the other hand, staff who worked in fields and outside offices thought that it is difficult to use the current e-services even after some training which lead them to avoid using them. Therefore, staff work routine was a major issue, which showed that practice and regular use made them more capable and confident when using the e-services.

#### **4.8.7 Perceived Usefulness**

Most participants from different departments agreed that e-services are useful for daily tasks, enquiry and dealing with transactions. However, as stated earlier in relative advantage, some showed resistance and argued that not all e-services are useful, and prefer using traditional communication, such as, paper based procedures, telephone or face to face conversation. In literature, most studies supports perceived usefulness in adoption of e-government services, and that if the e-services are useful then more citizens or staff will use them (Carter and Belanger, 2004; Lean et al., 2009).

#### **4.8.8 Trust of Internet**

Most participants trusted the e-services in Abu Dhabi police, based on latest technology being used in IT and Security department. However, when it came to trust of internet usage in general most participants in all the departments did not trust online payments. In the daily news of the UAE, it was stated that 72 online users had their online bank accounts hacked in 2011 (Emaratalyoum.com, 2012). This shows why a high percentage of people still do not trust the internet.

In literature, it was shown that trust is an important factor in adoption of e-government services (Welch et al., 2005; Gefen et al., 2005; Belanger and Hiller, 2006; Colesca and Dobrica, 2008; Carter and Belanger, 2008; Lean et al., 2009). As noted from interviews, most participants from different departments talked about not trusting the internet for different reasons, such as, hackers and online theft. Ebrahim and Irani (2005: 602) argued that “one of the main barriers of e-government adoption is security and privacy, such as threats from hackers (Gefen et al., 2002), absence of privacy of personal data (Lambrinouidakis et al., 2003), and lack of knowledge for security risks (Zeichner, 2001)”.

On the other hand, the researcher concluded that it is not necessary to trust the internet in order to trust the e-services. Most of the participants showed that they do not trust the internet; however, they trust the e-services and use them. Therefore, this shows that there is no relation between trust of internet and the use of e-services. Furthermore, this will lead to examine the proposed framework in depth with relation to trust of internet. More details will be given later in proposition and conceptual framework section.

#### **4.8.9 Perceived Behavioural Control**

Constructs of PBC had also showed how it can affect e-service usage in ADPF. Most staff members from policing operations had no skills and were not confident with computers therefore could not use the e-services. So ADPF should look at training more seriously.

Furthermore, when the researcher examined the technology and resource facilitating conditions, it was concluded that ADPF is trying to provide all resources and technology needed to improve the organisation needs, which was observed in ADPF premises.

However, not all departments were treated equally, whether it was in providing training to its staff members or providing computers, therefore, all departments should be looked at equally and not to focus only on certain departments.

#### **4.9 Propositions and Conceptual Framework**

In this section pattern matching is conducted where the earlier formed propositions are compared to the findings of this research. This also assisted in refining the propositions and developing the conceptual framework.

##### **4.9.1 Demographics**

The five demographics details looked at this research were age, gender, education, monthly income and internet experience.

When examining for internet experience, two categories were formed: personal use and work purpose. However, it was found that there was no link between internet work purpose and internet personal use. For example, some might use the internet for personal use for more than ten years for fun or pleasure. Contrastingly, some only began using e-services at work this year. A reason for this can be associated with the government's aim of internet provision since the 1990s, but e-services were only recently introduced. Due to this novel finding, the research decided to examine internet experience in general terms. This was also found in other e-government literature where e-government adoption is not differentiated between work and personal use, but referred to in general terms (Colesca and Dobrica, 2008; Lean et al., 2009). Furthermore, this led to examining the influence of internet experience on e-

service usage as given in proposition 15. ***Staff members with more internet experience are more likely to adopt and use e-services than staff with less or no internet experience.***

It was also noticed from the overall departments that younger participants used e-services more often than older participants that led to the conclusion that there was resistance towards automation in the older individuals. 11/ 39 participants are not using any of the current e-services in ADPF, of these 7/ 11 were aged above 41 years old. Internet research has revealed that “Older demographic groups are less likely to use the internet than younger demographic groups (Carveth and Kretchmer, 2002: 243)”. The proposition proposed in this research was also similar. ***Younger staff members are more likely to adopt and use e-services than older staff.***

Furthermore, when it came to gender, most responses were similar, which made it difficult to differentiate between the two genders. Based on the research proposition; ***Males are more likely to adopt and use e-services than females.*** However, the number of participants in this pilot study was only 39, and therefore, in the final study, more participants will be included in the study which will make it more appropriate to examine different genders responses in details.

In education, it was also noticed that education played a big role in changing mentalities of participants which was clearly shown that the more educated the person the more they are likely to improve their work procedure and use different new technologies, such as e-services. The proposed proposition that will be also looked at in more details in the final study is; ***Staff members with higher education are more likely to adopt and use e-services than staff with lower education.***

Finally, when examining the staff monthly income during the pilot study, it was noticed that the monthly income is related to the level of staff in the organisation. For example saying that the higher the level of staff, the higher the monthly income. In organisational change literature, staff levels were categorised into different groups. For example in a study by Pavett and Lau (1983), they have used various levels to differentiate between staff in the organisation, such as, top, middle and lower level. Therefore, since this research is also examining an organisation, this category of staff was also used and seen appropriate for this research.

Based on literature the proposed proposition was: ***Staff members with high income are more likely to adopt and use e-services than staff with low income.*** However, as stated above the staff income was related to the level of staff in the organisation and based on literature, this led the researcher to change



the aim of the proposition to: ***High level staff members are more likely to adopt and use e-services than lower level staff.***

The researcher had observed the differences of staff members responses based on their level in the organisation, and therefore, concluded that examining level of staff was crucial. Initial results also showed that education level in the organisation was also linked with staff level in the organisation and concluded that most of the highly educated staff are either middle or high level in the organisation.

#### **4.9.2 Other Constructs**

As discussed earlier, when examining trust of internet and trust of government in the case studies. All participants showed faith and trust towards the government. However, when it came to trust of the internet, most of the participant argued that they do not trust the internet in general. E-services are used through the internet, however the aim of this part of the study is to examine trust of the e-services and not trust of the internet in general. This concluded that e-government studies are different from e-commerce studies.

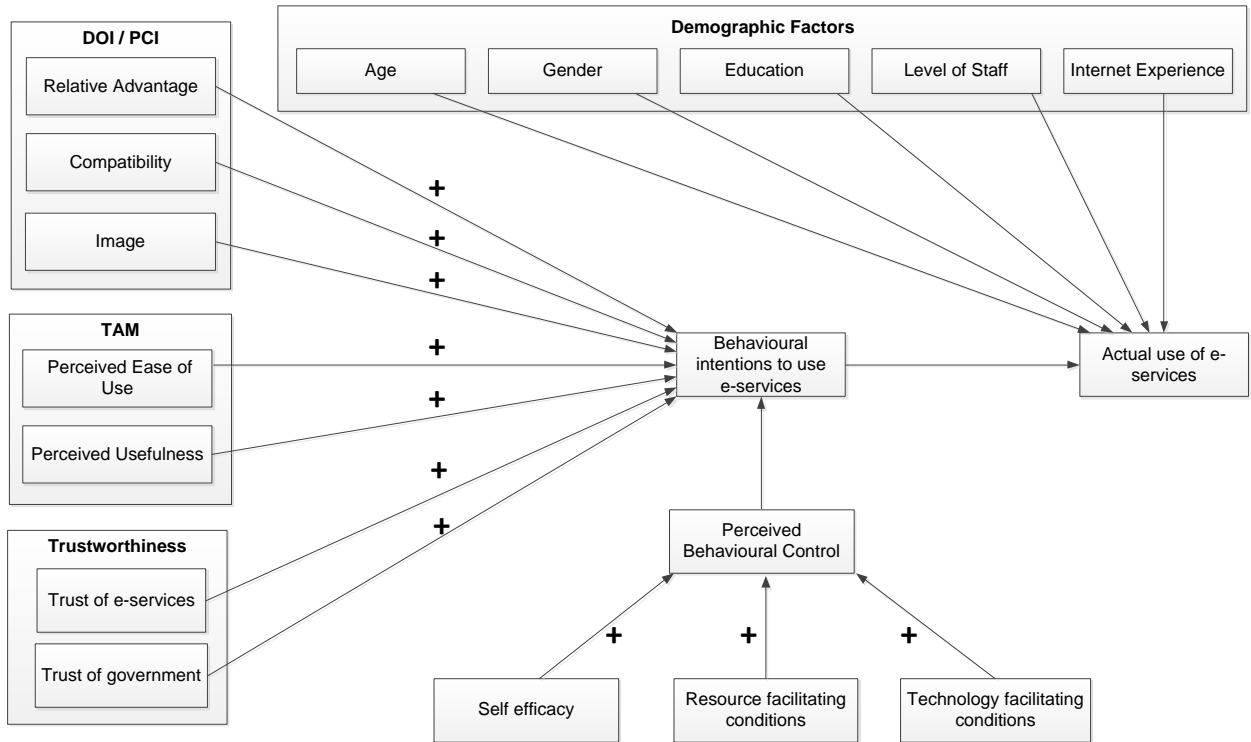
Trust of the e-services could be looked at as the reliability and performance of the e-service, and issues related to security, such as, protection of details and transactions. Most e-service users from all four departments showed that even though they use the e-services and trusts the e-service, they do not trust the internet in general. Therefore, it was concluded that trust of internet does not influence e-service usage. This led the researcher to replace trust of the internet by trust of e-services.

Refined proposition: ***Trust of the e-service will have a positive effect on the behavioural intention to adopt and use of e-services.***

In conclusion, the framework will be refined and two main changes will occur: (i) The use of level of staff members instead of monthly income in demographics (ii) The replacement of trust of internet by trust of e-service. The updated framework is given in the next section.

### 4.9.3 More on Conceptual Framework

Based on the discussion and changes after the pilot study, the updated conceptual framework is shown in figure 4.7 below.



**Figure 4.7:** Conceptual framework after the pilot study to understand the adoption, diffusion and use of e-services in public sector organisations

### 4.10 Summary

This chapter described the context of this research and described the pilot study's process. Also proffered in the chapter were the findings and analysis of the pilot study that led to a refinement to the propositions and conceptual framework. The next chapter provides details of the final study that was conducted for this research.

# ***CHAPTER 5***

## ***FINAL STUDY ANALYSIS, FINDINGS***

### ***AND DISCUSSION***

#### **5.0 Introduction**

The previous chapter described the pilot study undertaken in ADPF that led to improvements in the interview questions, validation of the data collection methods, testing and refinement of the propositions and the conceptual framework. This assisted the researcher with familiarisation to the organisation, determining ways of seeking and convincing staff members to become participants.

The pilot study findings also indicated the importance of some of the factors with respect to the adoption and diffusion of the e-services that were explained in the previous chapter. For example, the issue of compatibility and work routines, trust of the e-services, age and education demographic factors were identified, or not identified (as the case may be). However, to better understand the area, validate and provide an in-depth and rich analysis of the research findings, a larger sample size was viewed as crucial. This would allow saturation of the data to occur. Therefore, another phase, the final phase for data collection took place in ADPF, which this chapter will describe, analyse and discuss.

The main aim of this chapter is to report the analysis phase and the findings conducted from the four case studies in ADPF. The findings of the study will assist answering the research question which is “*what factors influence the adoption and use of e-services in a public sector organisation in a developing country and why?*” This will also lead to further refinement of the propositions and framework.

## **5.1 Final Study**

Similar to the pilot, the final study was also conducted in ADPF premises and acquired data using interviews and observations of ADPF employees. The data collection period was completed in four months from July, 2012 to October, 2012 with estimated one hour interviews and additional observations being conducted on a daily basis during the working hours. For this phase of the research, the researcher interviewed an overall number of 200 staff members from diverse management levels, educational background, age and experience.

Informal discussions regarding some of the results also took place. For example, discussions about AD e-government in general and the difficulties encountered by some staff members at accepting the transformation and the new procedures introduced in ADPF. There was no specific time or location for informal discussions. They occurred anywhere, such as, in ADPF premises lobbies, or the officer's club. Following the pilot, the interview questions were amended with a revised version in English and Arabic available for reference purposes in appendix X and XI.

### **5.1.1 Details of Sample Population**

Four departments were also involved in this study similar to the pilot, which were: security information, IT and communications, strategic management department and policing operations department. Demographic details of the participants of this study are provided in appendix XII. However an overview of the participants' details across the different departments is given in this section.

The participants were chosen from four different departments: security, IT, strategic and policing operations department. There were approximately 50 participants from each department where the majority of the participants were aged between 20 to 40 years old. Participants from the 20 to 40 years old age range formed about 64% from the total number of participants and formed the majority of the sample population. To examine and study the situation in depth, it was important to identify and understand the other age categories too. Participants aged between 18 to 20 years old formed 11%, 19% aged between 41 to 50 years old and 6% aged between 51 to 60 years old. The retirement age for all ADPF staff members is 60, which accounts for the participant's age range ending at 60 years old.

When considering gender distribution, the researcher attempted to have an equal distribution, even though male staff members outnumber females in ADPF. For example, as shown in table 5.1 the number of male participants were 29 compared to 21 female participants in the security department. In the strategic department, 26 males and 24 females participated during this study. Details of the participant's gender in other departments are also shown in table 5.1.

Age Ranges	Security Information Department		IT & Communications Department		Strategic Management Department		Policing Operations Department		Total	Percentage %
	Male	Female	Male	Female	Male	Female	Male	Female		
18-20	1	2	4	2	-	5	6	2	22	11%
20-30	8	9	9	15	5	13	7	6	72	36%
31-40	7	6	7	-	13	4	14	5	56	28%
41-50	11	4	9	1	3	2	8	-	38	19%
51-60	2	-	3	-	5	-	3	-	13	6%
Total	<b>29</b> (58%)	<b>21</b> (42%)	<b>32</b> (64%)	<b>18</b> (36%)	<b>26</b> (52%)	<b>24</b> (48%)	<b>38</b> (75%)	<b>13</b> (25%)	<b>201</b>	100%

**Table 5.1:** Age and gender of participants

Based on the interview questions, the researcher also formed a table to differentiate between staff members using or not using the e-services. Table 5.2 illustrates that the majority of staff using e-services were from the IT department- 47/50. Of the 47 users, 29 were males and 18 were females. Next, the strategic department had 40/50 e-services users, where 22 were males and 18 were females. In the security department, 32/50 had used the e-services. Of these, 15 were males and 17 were females. Finally in the policing operations department only 9/51 used the e-services, of which seven were females and only two were males. An interesting discovery here is that in the policing operations female users of e-services outnumbered the males. More details are shown in table 5.2.

	Security Information Department		IT & Communications Department		Strategic Management Department		Policing Operations Department	
Number of participants using e-services	<b>32</b> (64%)		<b>47</b> (94%)		<b>40</b> (80%)		<b>9</b> (18%)	
	Male 15	Female 17	Male 29	Female 18	Male 22	Female 18	Males 2	Female 7
Number of participants not using the e-services	<b>18</b> (36%)		<b>3</b> (6%)		<b>10</b> (20%)		<b>42</b> (82%)	
	Male 14	Female 4	Male 3	Female -	Male 4	Female 6	Male 36	Female 6
Total	<b>50</b>		<b>50</b>		<b>50</b>		<b>51</b>	

**Table 5.2:** E-service users across the four departments

The researcher also examined users and non-users of e-services with respect to their position in the organisation. There were three categories of staff members in terms of their positions:

- (i) Higher level: staff members holding supervision positions in ADPF, such as, general managers, directorate managers, division chiefs or high rank officers (Lt. Colonel to General).
- (ii) Middle level: staff members holding administrative positions in ADPF, such as, branch managers, section managers or middle rank officers (from Lieutenant to Major).
- (iii) Lower level: staff members who are categorised as front line either civilians or ranked lower than officers, such as, sergeants, corporals or policemen.

Levels in organisation	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department	Total	Using e-services	Not using e-services
Supervision (High Level)	6	8	7	8	29	22 (76%)	7 (24%)
Administrative (Middle Level)	14	17	18	17	66	47 (71%)	19 (29%)
Front line / Office work (Low Level)	30	25	25	26	106	59 (56%)	47 (44%)
Total	50	50	50	51	201	128 (64%)	73 (36%)

**Table 5.3:** Level of staff in organisation and e-service usage

Generally as illustrated in table 5.3, larger numbers of higher positioned staff members used e-services (22/29). This was followed by the middle positioned individuals (47/66), and finally, front line staff or low level individuals (59/106).

The reason for not having an equal distribution of the numbers of staff members in each level is due to the majority of staff members in ADPF viewed to be low level individuals. For general information, the ADPF overall staff members are about 32095. Of these, 27443 are low level, 4187 middle level and only 465 are considered to be high positioned staff.

## **5.2 Within Case Analysis and Findings of the Final Study**

As in chapter 4, the data gathered during this phase was analysed using thematic analysis. Similar to the pilot study, the researcher went through each interview transcript, highlighted main ideas and responses with respect to the constructs identified in the conceptual framework. Notes and codes were then made in each transcript to give the reader an idea about the responses when going through the transcripts later. Samples of some transcripts from the four case studies with highlights, codes and themes are available for reference purposes in appendix XIII.

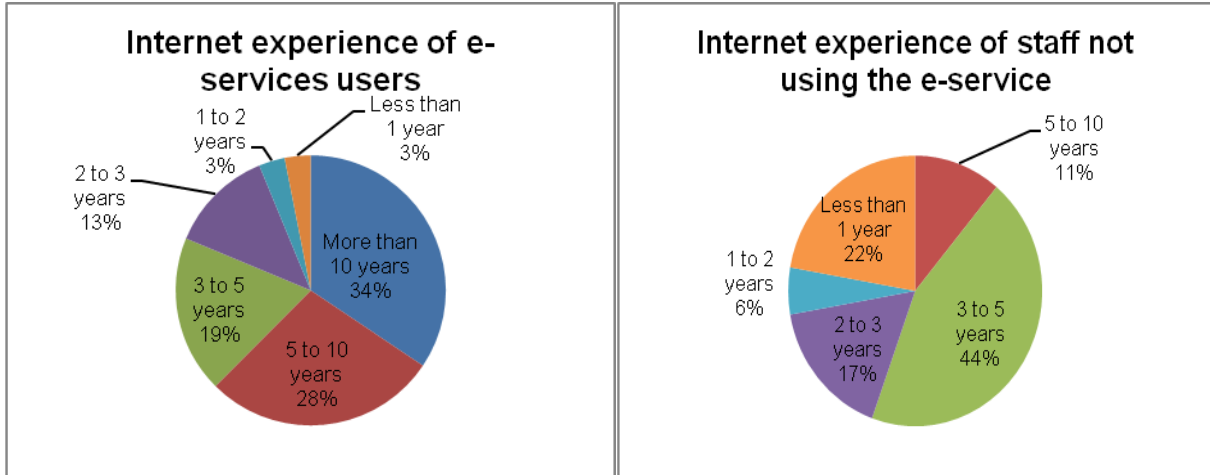
Once the coding and themes occurred, different levels of themes were identified from the participant responses. These details are explained in this chapter. However, all levels of themes and data extracts from the four case studies are provided in appendix XV.

Although this chapter is similar to the previous chapter 4, it is known that due to the large numbers of participants in the final study, more explanations and themes will be identified in this phase. In turn, this should allow the researcher to understand the topic in an in-depth manner and provide more reliable findings.

The following sections will analyse, explain and show the themes and findings of each case study individually “within case analysis”, which will then be followed by a cross-case analysis of this phase of the research study.

### **5.2.1 Case Study 1 (Security Information Department)**

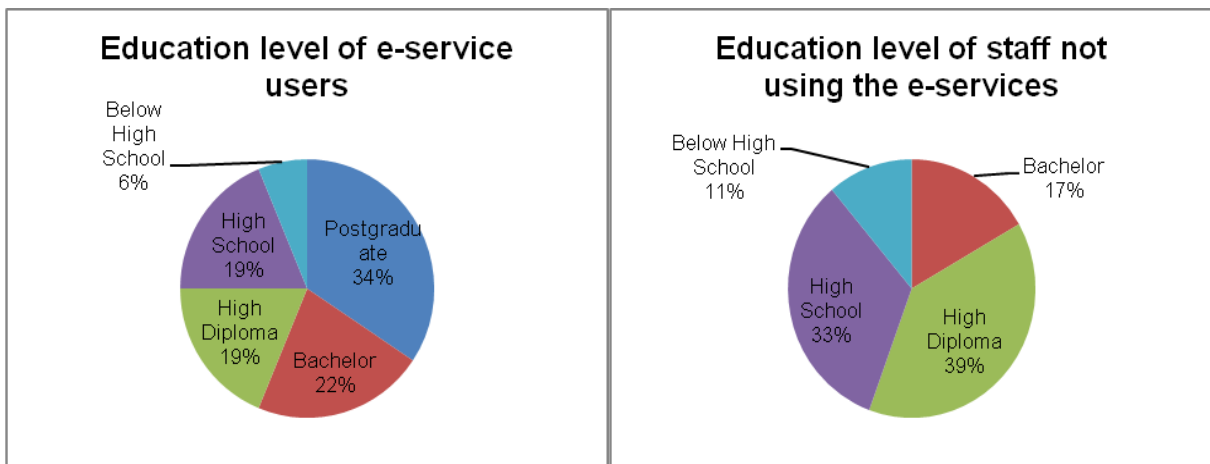
As shown in table 5.2, 50 (29 males and 21 females) staff members from the security information department participated in the final study. It was found that 32/50 have used the current e-services, of which, 15 were males and 17 were females. This revealed that female users outnumber male staff members when utilising e-services. When examining the level of staff members in this department, 5/6 high level staff, 11/14 middle level and 16/30 low level staff members used the e-services. This led to the conclusion that higher and middle level staff members show more interest in e-services than the lower level staff members. Further, based on the participants’ provided in appendix XII, internet experiences varied between individuals. Figure 5.1 shows a pie chart of the participants with different internet experiences.



**Figure 5.1:** Internet Experience of staff members in the SID

Figure 5.1 shows that in both non users and users of e-services internet experience was apparent. However, it was concluded that e-service users have more internet experience than staff members not using the e-service. For example, 34% of e-service users have more than 10 years internet experience; whereas no individual from the ‘other’ category had more than 10 years internet experience.

Figure 5.2 below shows the education level of both e-service users and non-users. E-service users had higher level of education, for example, 34% had postgraduate degrees, 22% bachelor degree, 19% high diploma, 19% high school and 6% below high school. Comparatively, the other category had no postgraduate degree holders, 17% undergraduates, 39% higher qualifications diploma, 33% high school and 11% below high school qualifications.

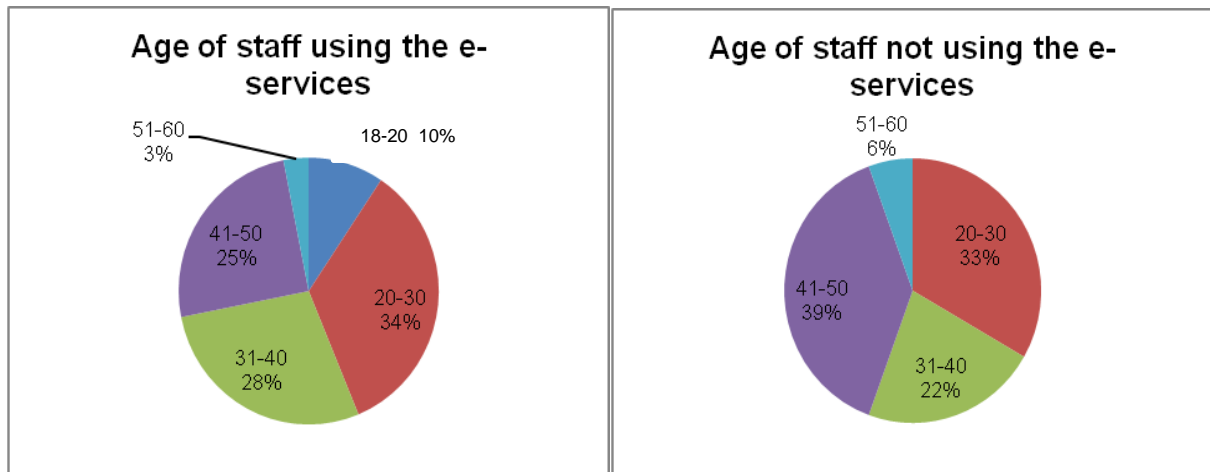


**Figure 5.2:** Education Level of staff members in the SID



When considering internet experience in general and the education level of participants, it was noticed that most of the participants with higher level of education, such as, postgraduate and undergraduate qualifications used the internet more than others. A possible explanation could be attributed to the internet being used for research purposes during their university studies.

Figure 5.3 below illustrates the age ranges of staff members using and not using the e-services where slight differences between the two categories emerged.



**Figure 5.3:** Age range of staff members in the SID

Having examined the demographics, the proceeding sections examine each theoretical construct obtained from the earlier formed conceptual framework.

### 5.2.1.1 Relative Advantage

Relative advantage is defined earlier as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 2003: 15).

When comparing between enquiring, processing and accomplishing transactions procedures in online and paper based environments, diverse discussions and themes arose. A question asked during the interviews was; *“Do you think the internal e-services are better than the traditional communication channels of the telephone or face-to-face interaction? And why do you think so?”*

The majority of the participants favoured usage of the e-services; however, some were against the e-services. Examples of first level themes that supported e-services are: confidentiality of data, speed of e-services and remote communications. On the other hand first level themes that were against e-services: social relationships, easier communication when using paper based procedures. Each theme will be listed and explained below. Furthermore, as stated earlier, all levels of themes and data extracts from the four case studies are given in appendix XV.

(i) **Confidentiality and security of data:** most male participants from the different age groups, higher educated levels and categorised as high level positioned individuals argued that the use of e-services guaranteed confidentiality and privacy of data, which is not apparent in paper based transactions. This shows that this category focuses on security issues the most. One of the officers stated that *“It is important to secure the data. Sometimes we have secret reports that no one should read or see them and when they are stored in our database it is better than old methods of storing files in shelves”* (Male, 41-50, postgraduate, high level, more than 10 years internet experience). Another statement was *“E-services are better in security, but I advise my colleagues to lock their laptop or desktop when they finish, we all know that it is more secure to save them in our computers but what is the point if our computers are switched on and not locked. Anyone can read or even print information...”* (Male, 20-30, bachelor degree, middle level, 5-10 years internet experience).

(ii) **Speed of e-services:** speed of e-services when it comes to the communication between staff either for updating or retrieving certain confidential information was also discussed in most of the interviews. Different staff members, both genders, middle aged (20-40), with a high level of education, categorised as middle levels and having more than five years of internet experience, commented upon the speed of transactions and enquiry. That is, prior to e-services more time was spent on work. For instance, one of the participants stated that *“...because of the pressure I have at work, everything should be completed quickly before getting more work the next day ...”* (Female, 31-40, bachelor degree, middle level, 5-10 years internet experience). Whilst that was a female perspective, a male participant provided more depth to this understanding. *“...Yes e-services are better than telephone communication when dealing with work. For example, if I was attending a meeting and after we finished I need to prepare a document and get approval from my manager and then send the document again to the person in charge of the meeting. If this procedure was done by paper and sent by hand with the office reporter it will take one week minimum. I will need to call my manager when he receives my document and explain to him, he might also ask me to see him if there are things not clear, after that I will give it to the reporter and send it to the person in charge of the meeting. If he was not there, the document will*

*be returned and I have to send it again later. So things will take much longer in the older way...*" (Male, 20-30, postgraduate, middle level, 5-10 years internet experience). Another female participant explained that e-services are a shorter way of dealing with transactions. "*...it is like avoiding unneeded steps in the process, so it should be faster*" (Female, 31-40, postgraduate, middle level, more than 10 years internet experience).

(iii) **Remote communications:** another topic discussed during the interviews by some of the participants who were categorised as low level staff with internet experience, was about the advantage and ability of e-services to communicate remotely. For instance, with other departments in different geographic locations in Abu Dhabi city. One of the staff stated: "*...Before, we used to go to different police stations to send and receive security documents that were so confidential that only specific staff members are allowed to do this job. This used to take time, unlike now when they are dealt online*" (Male, 31-40, high diploma, low level, more than 10 years internet experience). Another female participant said: "*...I use e-service to get information from our department and other departments for monthly reports to be processed quickly. Sometimes I have to prepare a report in the same day for presentation, so without the e-service I can't make it...*" (Female, 20-30, high school low level, 3-5 years internet experience).

(iv) **Social relationships:** The discussion about social relationship and the use of "wasta" in Arab countries was also discussed earlier in chapter 4 (Case study 4 - Pilot). As a reminder, wasta is defined as "the degree to which an individual perceives a person's success as being related to their ability to utilize connections with people, who are both able and prepared to change the course of natural events on that person's behalf. It relates to having special help to get ahead in life, help that may not be available to others" (Whiteoak et al., 2006: 81). Wasta was supported mainly by older, lower educated, lower positioned males. One of the participants not using any of the e-services stated: "*...No, I prefer face to face communications because it is faster to deal with things when the other person recognises you and knows who you are, and you will get more help from him...*" (Male, 51-60, high school, low level, 2-3 years internet experience). Similarly, another participant (male, 41-50, below high school, low level, no computer or internet experience) had also supported traditional communication, such as face to face, and/or a telephone conversation to complete several kinds of transactions, "*if you apply for a personal order by using a computer no one will know you or appreciate you then it will get rejected, as relationships are important*". The researcher asked him to elaborate and explain what he means by personal order, he said that "*anything you apply for yourself and not related to your work. Like why my promotion is late, whereas I should have been promoted 2 years before*".

(v) **Favouring traditional communications:** some of the participants (details shown below in table 5.4) commented to having a preference directed towards not using e-services due to acquiring new skills. For this, training is crucial and these staff members did not want to learn of new skills and knowledge. Others are satisfied with not using computer and e-services, and being praised by their managers and higher staff individuals. For example one of the male participants said that: “...*I work based on what my manager tells me. He never tells me to use e-services so I don’t use it...*” (Male, 20-30, below high school, low level, 6 months internet experience). A female participant commented that “...*it might be better to use e-services, but I need to learn not only about e-services but also learn how to use computers and between me and you, I am bored from studying...*” (Female, 41-50, high school, low level, no computer or internet experience).

Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	41-50	High School	Low Level	2 - 3 years
Female	41-50	High School	Low Level	No experience
Male	31-40	High School	Low Level	No experience
Male	20-30	Below High School	Low Level	Less than 1 year (6 months)

**Table 5.4:** Details of some participants not using the e-services in the SID

It was observed that most participants with little or no computer and internet experience at all, categorised as low level staff had lower education levels.

### 5.2.1.2 Compatibility

Compatibility is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences and need of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible” (Rogers, 2003: 15). Furthermore, Carter and Belanger (2005: 8) found that “higher levels of perceived compatibility are associated with increased intentions to adopt state e-government initiatives”.

The main aim of this section was to examine if the existing e-services are compatible and coherent with staff members work routine and life style in general. The question that was asked during the interviews was; “*Can you briefly describe your work routine? Having described your work routine does the e-service fit in with your lifestyle? Or do you prefer other methods?*”

More than 50% of participants (both genders, high level of education with internet experience) in this department found that e-services were compatible. This was concluded based on their existing work practices and preferred work style, which led to the construct compatibility. More details are given in this section.

(i) **Existing Work Practices:** The researcher observed that most staff from different organisational levels, with more than two years of internet experience in the security information department depended on computers for daily work routines. Examples of activities are writing documents using MS Word, MS PowerPoint for presentations and other computer applications that are connected to the data base for storing records. Therefore, even though most staff used computers for basic procedures since computers were also employed for work routines, the research revealed that staff members were used to computers. This led the researcher to conclude that e-services are compatible with the existing work of some staff members in this department. This was also supported by one of the participants: “...yes, I use the computer and internet at work and even at home. In my opinion there is no difference between them and the e-services” (Male, 41-50, bachelor degree, middle level, 5-10 years internet experience). Another participant added: “I make presentations for my direct manager in the department using MS PowerPoint...Yes it fits with my work. It makes me comfortable with using computers and different e-services because I know how to use it” (Female, 20-30, high diploma, low level, 3-5 years internet experience).

(ii) **Preferred Work Style:** Mainly highly educated individuals with more than five years of internet experience expressed an interest in e-services and computers. This was shown by the staff member’s desire to utilising e-services. “I don’t know if it fits or not, but I like using e-services so I use it for work. I wish if we have more e-services, I will use them more. But now I am forced to do some things without computer, like some inspection procedures” (Female, 41-50, postgraduate, middle level, more than 10 years internet experience). Another participant stated that “Now my work is not technical, it is supervision, so no e-services fit with my work...I don’t prefer other methods, I think using technology improves work and I prefer e-services and always advise staff in the department to use them...” (Male, 51-60, bachelor degree, high level, 5-10 years internet experience).

However, a minority of staff members in this department were of the view that e-services do not fit with their work life styles. Some low level staff argued that they do not use e-services because their work is not associated with computers. Therefore, the researcher concluded that lower level staff members do not prefer using e-services as they have little experience with computers and internet, and

their work routine is also not compatible with computers and e-services. Details of some staff members from this category are shown in table 5.5.

Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	31-40	High School	Low Level	No experience
Male	20-30	High School	Low Level	1 - 2 years
Male	20-30	Below High School	Low Level	6 months
Female	20-30	High School	Low Level	2 - 3 years
Female	31-40	High Diploma	Low Level	3 - 5 years

**Table 5.5:** Details of some participants whose work routine is not compatible with e-services

### 5.2.1.3 Image

Image is “the degree to which use of an innovation is perceived to enhance one’s image or status in one’s social system” (Moore and Benbasat, 1991: 195). For this, the sought question was: *“Do you think staff members using the internal e-services are, (i) more valued in the organisation by colleagues of the same level, (ii) more valued by higher level colleagues and called upon to important decisive meetings, (iii) experienced and knowledgeable in computer and internet usage, (iv) considered smarter than other staff members (v) Or other. State why?”*

This aims at examining and understanding staff members view on how e-service users are viewed and perceived of by their colleagues in the organisation. *Are staff members in ADPF using e-services to show off? Are they using it to only feel secure and show that there is no difference between them and other e-service users? Or are they using it for the benefit of the organisation?* As mentioned earlier in chapter 2, image is a construct that can affect adoption; hence, people adopt it to “enhance their image or status” in front of others (Moore and Benbasat, 1991: 195). Two main themes were discussed and formed from the interviews for this construct.

(i) **Talented and skilled users:** Most of the staff members (43/50 participants, both e-service users and non-users) from diverse age, gender, education, positions in the organisation and internet experience thought that e-service users are more valued in the organisation and perceived as smarter than other members. One of the participants who argued that e-service users are smart and talented gave reasons for this, *“...because it is hard to change the way you work from writing papers to typing on computers...”* (Female, 31-40, high school, low level, 2-3 years internet experience). Others claimed

that some use e-services for showing off in front of others. An example provided by one of the female participants was: “...I know some people personally that use e-services so that their name is given and stored in the system and then show others that they are educated and know how to use new technologies...” (Female, 20-30, postgraduate, middle level, 5-10 years internet experience). It was also concluded that some staff members particularly categorised as lower positioned individuals used e-services to show managers that they are smart and intelligent than others; therefore deserve to be more valued in the department and get a promotion.

(ii) **Experienced with Computers:** 7/50 participants who were mainly staff not using the e-services (4/7) and are categorised as lower positioned staff members and with low level of education stated that e-service users are experienced and knowledgeable in computer and internet usage. One of the participants stated the view that e-service users are more experienced and knowledgeable “...because they have the ability to use e-services easily and this comes purely from their experience with computers and internet...” (Male, 31-40, bachelor degree, middle level, 5-10 years internet experience). Another female participant stated: “...maybe they got the experience from using many internet websites and online applications for years” (Female, 18-20, high school, low level, 1-2 years internet experience). Details of the seven participants are shown in table 5.6.

Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	41-50	High Diploma	Low Level	3 - 5 years
Male	31-40	Bachelor	Middle Level	5 - 10 years
Male	20-30	High Diploma	Low Level	3 - 5 years
Male	20-30	Postgraduate	Middle Level	5 - 10 years
Female	31-40	High Diploma	Low Level	3 - 5 years
Female	31-40	High School	Low Level	2 - 3 years
Female	18-20	High School	Low Level	1 - 2 years

**Table 5.6:** Details of some participants who considered e-service users as experienced

Therefore, overall results showed that status is important within staff in this department. However, the majority supported the view that e-service users are more valued in the organisation and considered smarter than non e-service users, which led to an increased use of e-services to increase their status in the department.



#### 5.2.1.4 Perceived Ease of Use

It is the “degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1986: 82). The main aim of this construct during the interviews was to examine staff members using the e-services; that is, if they find it easy or difficult to use. Therefore, this interview question was for staff that had tried and used the e-services in ADPF.

Four questions were asked in this section; (i) *How many attempts did you have before you began using the e-service?* (ii) *Did you need any training courses before using any of the e-services?* (iii) *If you have completed any training course before using these e-services, do you know how to use all the functions of the e-service well, or do you still need more training?* (iv) *How often do you seek help or advice regarding the e-services?*

As given earlier, 32/50 had used the current e-services. Different discussions occurred in interviews, such as the need of more e-service trainings; another topic discussed was the complexity of e-services and computers that had faced some of the e-service users at the beginning of the adoption stage. Therefore it was concluded that even though the majority of staff members had used the e-services, it was not an easy process for most staff to transfer from paper based procedures to automated systems. More details are discussed in this section.

(i) **E-service training:** most participants, who were mainly younger males, with different level of education and organisational level argued that e-services are easy to use. *“I don’t remember how many attempts but it was only few times...No, I didn’t need training courses because I know how to use it...”* *“I ask other colleagues for help very rarely when I first used the e-services, but not now...”* (Male, 31-40, postgraduate, middle level, more than 10 years internet experience). However, others claimed that training is crucial for all users even if they know how to use computers and internet. *“...Yes, I know how to use e-services but training is worth it. You don’t lose anything, it is for free and you learn new things at the end...if it was a new e-service then I will have to do another training course...”* (Male, 18-20, high school, low level, 2-3 years internet experience).

(ii) **Complexity of e-services and computers:** most participants, who were mainly older staff from both genders with low level of education and categorised as low level staff, had talked about the complexity of e-services they faced before attending training courses. *“...it took me time to learn and understand about some e-services. Yes of course, training courses are important and I have attended*



*one about the correspondence system...I understood it better after training but not everything. It is difficult to know about it only from training and lecturing. It is better when you use it by yourself later at work” (Male, 41-50, below high school, low level, 3-5 years internet experience).*

A female participant who also spoke of her experience and the difficulty she had faced when using computers in general, suggested that it is important to have regular and more training from time to time. “...my problem was from the computer itself, I asked my manager to register me for a computer course first, to know about Windows and how it work. Then I learned to use the e-service...” (Female, 41-50, below high school, low level, no internet experience).

#### **5.2.1.5 Perceived Usefulness**

It is “the degree to which an individual believes that using a particular system would enhance his or her performance” (Davis, 1986: 82). The main aim of this construct is to examine the usefulness of the e-services among ADPF staff members. Different reasons and discussions occurred in interviews that are listed below. Some of the identified themes from interviews in this section were also discussed earlier in this chapter, and therefore to prevent repetition, these themes will only be explained briefly.

(i) **Confidentiality of data:** e-services was seen useful by most male participants, different age groups, with high level of education and categorised as high level individuals. Most of these participants had explained how using e-services provides a higher level of security to information, where different transactions are stored in computers rather than storing them in paper files. This theme was also identified and discussed earlier in relative advantage section.

(ii) **Remote communications:** one of the advantages of e-services is the ability to communicate remotely with different departments. This theme was also looked at in relative advantage section, most staff categorised as low level staff with internet experience talked about the benefit and speed of the process when using e-services rather than sending and enquiring about different transactions manually.

(iii) **Existing work practice:** most of the staff members, whether they were using or not using the e-services; categorised as low and middle levels, argued that not all e-services are useful to them as a department. They have linked the usefulness of e-services with their work routine, which was also examined in compatibility section. This was discussed when the researcher asked in interviews if they think e-services are useful for staff in ADPF in general. A male participant stated that “*No it is not*

*useful for everyone; there are few e-services comparing to the work we have. Maybe because we are still new and in future when there are more new e-services it will be better...*” (Male, 41-50, bachelor degree, middle level, 3-5 years of internet experience).

(iv) **Specifications of e-services:** Most participants regardless of their age, gender, education and level in organisations had discussed the benefits and usefulness of e-services when it came to its specifications. Specifications include the ability of e-services to perform tasks such as, fast updates of information, ability to search for documents easily, retrieving and sending transactions within department and to other departments electronically. This was also discussed earlier when introducing “speed of e-services” in relative advantage, where some participants talked about how fast e-services can process different transactions. “...it is like avoiding unneeded steps in the process, so it should be faster” (Female, 31-40, postgraduate, middle level, more than 10 years internet experience).

#### **5.2.1.6 Trust of E-service and Government**

Trust “in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of three distinct dimensions: integrity, ability, and benevolence” Gefen et al. (2008: 276). Two main questions were asked during interviews; the first question examined if staff members trust the reliability and performance of the e-service, “do you trust the reliability and performance of the current e-services? Can you provide an example?”

The second question was to examine trust towards ADPF; “do you think staff personal details and other information are kept safe and confidential when using the internal e-services? And how do you know that?” The purpose of the second question is to understand the relation between participants and ADPF, which is a public sector organisation managed and supervised by the government of AD.

Based on the conducted interviews; staff members’ arguments and expressions, it was concluded that most staff showed confidence, faith and trust towards e-services and ADPF. Different reasons are categorised in the themes listed below.

(i) **Trust of higher management in ADPF:** all participants whether using or not using the e-services, and regardless of their gender, age, education, level in organisation and internet experience argued that one of the main aims of ADPF is to provide all needed and required security. Some had also spoken of divisions in the security department where specialisations in terms of computer networks and hacking

occurred. *“Yes it is safe, I don’t know if you met them but we have a full subdivision only for security in internal networks and communications...”* (Male, 31-40, postgraduate, high level, more than 10 years of internet experience). Because this interview was held in the security department, most staff had experience in different issues of security in this organisation; therefore, staff members were comfortable and demonstrated trust towards ADPF security and management.

(ii) **Reliability and reputation of e-services:** most staff members who were using the e-services had claimed that e-services are reliable and can deal with different transactions efficiently. Contrastingly, some of the older participants said that they had not used the e-services because they had heard of the internet connection being slow, which could impact some of the processed transactions. This showed that the reputation of the e-services had an influence on its adoption as to whether it was a negative or a positive influence.

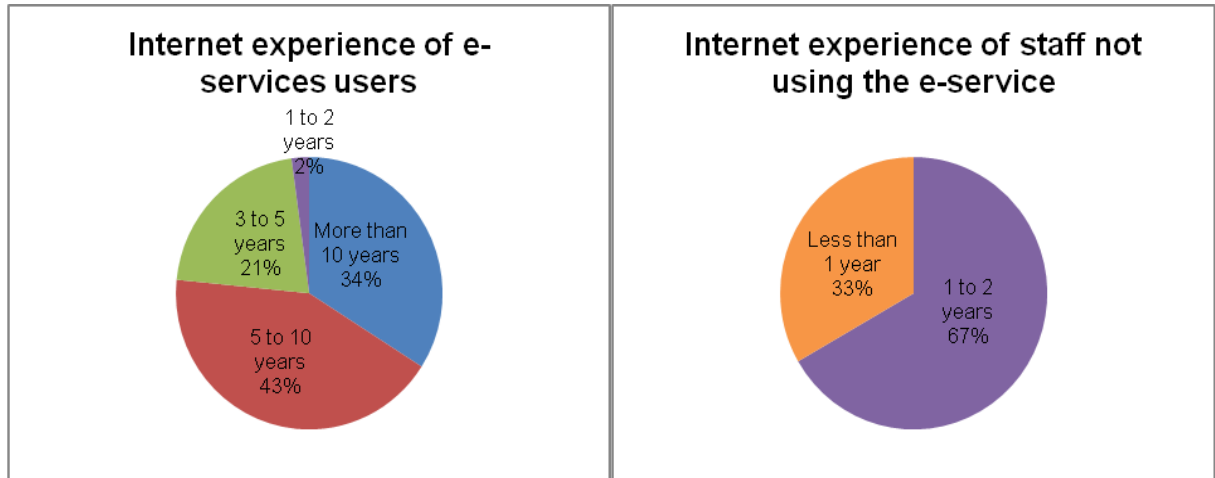
In general, most of the staff members in this department were highly educated and categorised as middle and high level position individuals who were happy with the e-service performance and thought they could rely on it. It was also found that trust towards e-services could be based on the reputation of the services.

### **5.2.2 Case Study 2 (IT & Communications Department)**

In the second case study, 50 staff members (32 males and 18 females) had participated. It was found that about 94% of participants (47/50) used the current e-services. This department was considered having the most e-service users compared to other departments in this study. More details and reasons for this will be provided later in this section. Of the 47 e-service users, 29 were males and 18 were females. It was noticed that all females in this department displayed interest towards and used the various e-services available to ADPF.

When examining the organisational level and e-services use, the overall higher position staff members (8 participants), 16/17 middle level staff and 23/25 low level staff had used the e-services. Therefore, it was concluded that staff members from all levels in this department showed interest in and used the currently offered e-services.

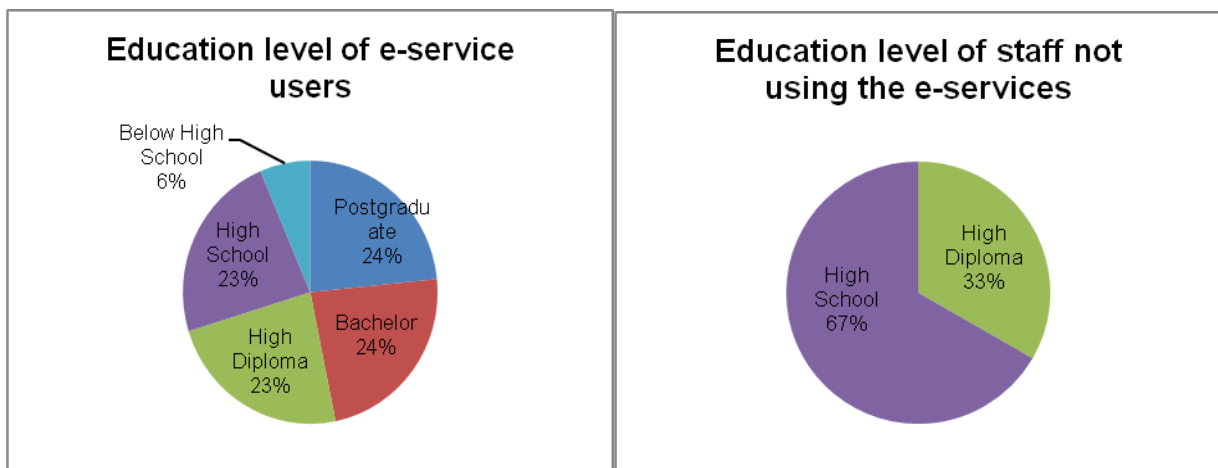
With regards to the participants general internet experience, details are shown in figure 5.4 below.



**Figure 5.4:** Internet Experience of staff members in the ITD

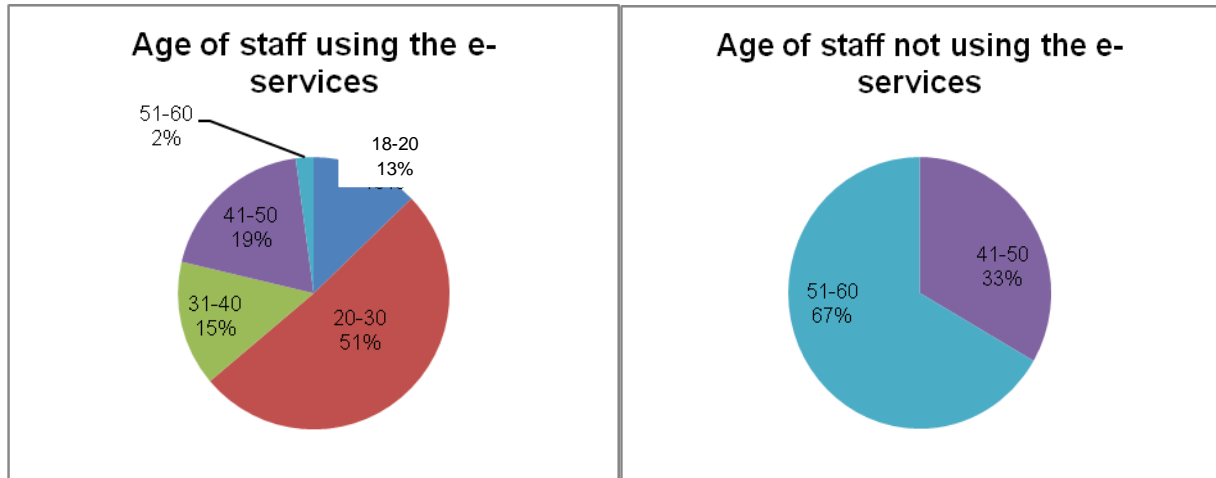
Figure 5.4 shows that the internet experience of e-service users is much higher than non e-service users. Of the three participants not using e-services, two had 1-2 years internet experience and one had never used the internet (male, 51-60 years old, high school degree and considered as a low level staff).

Figure 5.5 below, shows the education level of both e-service users and non-users. It was noticed that solely education levels are not enough to consider when comparing the use of e-services in the IT & communications department. It was found that staff in this department with lower education levels had also used the e-services. This, the research associated with other reasons, such as, compatibility or perceived usefulness and reasons leading to this will be examined later in this chapter.



**Figure 5.5:** Education Level of staff members in the ITD

Figure 5.6 below shows participants' age range and e-services in the IT & communication department.



**Figure 5.6:** Age range of staff members in the ITD

Figure 5.6 shows that the three staff members not using the e-services are older with age ranges ranging from above 41 years old. This shows that age could have an influence on e-service diffusion and adoption of e-services.

The next sections will examine each theoretical construct of the conceptual framework.

### 5.2.2.1 Relative Advantage

Relative advantage is defined earlier as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 2003: 15).

When comparing between enquiring, processing and accomplishing online transactions and paper based procedures, different discussions and themes were identified. As mentioned earlier most of the staff members in this department (47/50) used e-services and strongly support its use. To understand RA the various themes and explanations are provided.

(i) **Confidentiality of data:** table 5.5 shows that most high positioned staff members and with high level of education spoke of a preference towards e-services due to its confidentiality. It was concluded that protection of information is one of the most important things the IT department emphasises. One of the high positioned staff, holding a managerial position said that “...we have details of citizens, like

*their address and telephone numbers, so it should not be allowed for anyone to see it...*” (Male, 41-50, postgraduate, more than 10 years of internet experience). Similar responses from other staff members in the IT department also referred to security of data.

Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	41-50	Postgraduate	High Level	More than 10 years
Male	41-50	Postgraduate	High Level	More than 10 years
Male	41-50	Bachelor	High Level	5 - 10 years
Male	31-40	Bachelor	Middle Level	5 - 10 years

**Table 5.5:** Details of some participants using the e-services in the ITD

(ii) **Transparency of e-services:** it was also concluded that some of the staff members (both genders and of diverse organisational level positions) spoke of equality as transparent transactions can be tracked. This was not the case when paper based transactions existed. *“...when using any e-service nothing is hidden. Everything can be checked and it is difficult to manipulate things, so everyone is treated the same”* (Male, 31-40, bachelor degree, middle level, more than 10 years internet experience).

Some also stated that they can check requests online that can act as a proof of their actions, *“yes e-services are better because you can always have proof with you”* and when asked what does she mean by proof, she replied *“for example I requested using the IT support about a problem I have with my computer and no one replied. So I contacted the technical support again and they said they did not receive any request. From the system I can know who exactly received my request and can talk to him immediately. Before I could not do that...”* (Female, 18-20, high school, low level, 3-5 years internet experience).

(iii) **Speed of e-services:** in most of the interviews in this department, participants spoke of the e-services speed. This was viewed to be one of the main advantages of e-services and based on the experiences of all the e-service users within the staff members of the IT department. It was noticed that time is an important factor for various procedures in ADPF. There were no differences between participant’s level of education, organisational level positions in the organisation, age, gender and internet experience. An example of a response when considering the speed of e-services for enquiry issues was: *“...sometimes I get an order from my direct manager that another department need details about a specific enquiry and they need it now. We can’t tell them to wait, which we had to do before. Now, we can do it, so we feel the importance of e-services...”* (Male, 20-30, undergraduate degree,

middle level, 5-10 years internet experience). Furthermore, another statement by a female participant, who explained that with e-services staff can work with more than one task at a time; “...it is faster than paper procedures because I can work with more than one thing at a time...” (Female, 20-30, high diploma, middle level, more than 10 years internet experience).

(iv) **Remote communications:** similar to the security department, easy communications within different ADPF departments in several locations of AD was also viewed to be an advantage of e-services that was not available with hard copies being used for work purposes. Some male technicians, who are viewed as lower positioned individuals from the IT department spoke of the ability of fixing faults even while they are in their offices. One of the participants stated that “...in my opinion e-services are better, if I received a request from staff about a certain issue for his computer and his network is working fine, I can login to his computer online and fix his problem. If the problem is complicated then I have to go by myself. Sometimes I go to another department and then discover that it is a very simple problem which can be solved quickly; it is a waste of time...” (Male, 18-20, high school, low level, 3-5 years internet experience).

(v) **Availability of e-services:** some of the male staff members of various organisational levels discussed how staff members can access information using the e-services at any time. A high level staff member said that “...we used to face problems with enquiries after working hours. We are police so any information should be available every day at any time. So we gave access to certain people from other departments that can access our database and enquire by themselves online. No need to call us or assign an IT staff just to sit and wait for their calls...” (Male, 51-60, bachelor degree, high level, 5-10 years internet experience).

Similar to the previous statement, another participant who found e-services being better due to availability issues explained that after working hours (working hours in ADPF are until 2:30pm) there will be no one to help, and said that “...if I want something at 2:31pm from the human resources no one will reply because they will be in their cars this time, so I have to wait until the next day. If it was weekend I will wait for two extra days. But by using the human resource e-service I don't need to depend on them...” (Male, 20-30, postgraduate, middle level, more than 10 years internet experience).

### 5.2.2.2 Compatibility

Compatibility is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences and need of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible” (Rogers, 2003: 15).

The question that was asked during the interviews was; *“Can you briefly describe your work routine? Having described your work routine does the e-service fit in with your lifestyle? Or do you prefer other methods?”*

Different responses were given in this department; however, staff member’s main work in this department is to deal with computers, such as software implementation, hardware installation, network connections and technical support. The researcher observed that their work routine is purely technical and compatible with e-service usage due to the environment they work in. This reflects why 47/50 staff members are using the e-services. A note at this point is that the three non e-services staff members and working for the IT department hold administrative positions more than technical; therefore, do not view it important for their work. For example, two of the low level staff are responsible for documentation (filing, photocopying) within the department. The third staff member, who is categorised as a middle level person, is responsible for supervising other staff members in the department; examples include the inspection of staff physical appearance, e.g. military uniforms.

More than 94% of participants in this department displayed compatibility towards e-services. This was concluded based on their existing work practice and prior experience which led to top compatibility. More details are given in this section.

(i) **Existing Work Practice:** As mentioned earlier, most staff members in this department, regardless of their age, gender, education, level in organisation and internet experience, work with computers and e-services for processing different transactions because their work routine forces them to use it. *“Yes it fits with my life style I am a software developer and I test most e-services here...”* (Male, 20-30, high diploma, low level, 5-10 years internet experience).

Another participant who explained earlier about the advantage and benefit of e-services over traditional methods, also explained how his job depends heavily on e-services; hence compatibility towards e-



services: “...if I received a request from a staff about a certain issue for his computer and his network is working fine, I can login to his computer online and try to fix his problem...” (Male, 18-20, high school, low level and 3-5 years internet experience).

(ii) **Prior Experience:** experience with computers, internet and different software applications had also influenced the compatibility of staff with e-services in this department. The reason was that most staff members from different gender, age, education and organisational level had seen e-services similar to previous applications they have been tried and used before. “Yes for sure, I have worked with computers and everything that have a relation with it from more than 10 years...” (Male, 41-50, postgraduate, high level, more than 10 years internet experience).

Some had also talked about their experience which was gained during studying at college or university. “Yes it fit with my lifestyle because I am used to computers and online websites since I was in college, even before when I was in school” (Female, 20-30, high diploma, low level, 5-10 years internet experience).

The researcher concluded based on interviews and observation in this department that compatibility of work practice and experience with e-services has a direct effect on its adoption.

### 5.2.2.3 Image

Image is “the degree to which use of an innovation is perceived to enhance one’s image or status in one’s social system” (Moore and Benbasat, 1991: 195).

The question that was asked during the interviews was: “Do you think staff members using the internal e-services are, (i) more valued in the organisation by colleagues of the same level, (ii) more valued by higher level colleagues and called upon to important decisive meetings, (iii) experienced and knowledgeable in computer and internet usage, (iv) considered smarter than other staff members (v) Or other. And state why?”

Two main themes were discussed and formed from interviews, which are listed in this section.

(i) **Experienced with Computers:** more than 50% of participants (different age, gender, level and education) spoke of e-service users being experienced and knowledgeable in computer and internet. A

statement made by a high positioned e-services individual expressed the view: *“Of course they will be experienced and knowledgeable in computer and internet or how will he use the e-service if he doesn’t know how to use it?”* (Male, 41-50, bachelor degree, high level, more than 10 years of internet experience) Another low position participant also using some of the e-services said that *“You can say experienced and knowledgeable because these e-services need someone who has practice and not scared of computers...”* (Male, 20-30, high diploma, low level, 3-5 years of internet experience).

Based on interviews and observations it was seen that most staff view e-service users not only experienced in computers, but also someone who is capable of doing many things, such as stated earlier *“...someone who have practice and not scared of computers...”*. This could encourage staff not experienced with computers and internet to use the e-services only to show others that they are experienced.

(ii) **Importance of E-services:** some of the participants argued about the importance of e-services for different procedures in ADPF. They were mainly middle and high level individuals, various age groups, different gender, high level of education and internet experience. When these participants were asked about the image question in the interviews, they have thought that it is not necessary that a staff member is smart, or valued in the department or even experienced with computer. One of the staff who sees e-services as a fast method that helps in processing transactions and enquires said that: *“No I don’t agree with you. I will choose other and talk about how I see internal e-services important for everyone, for staff and police procedures. I gave an example before couple of minutes when I said that I need to be ready for any order from my manager when he asks me for any enquiry and process it very quickly in the same day using e-services...”* (Male, 20-30, bachelor degree, middle level, 5-10 years internet experience).

It was concluded that most staff in this department see e-service users experienced in computers and internet which might led them to use the e-services and show other members about their expertise. However, on the other hand, other staff had argued about the importance of e-services and therefore being used in the department.

#### 5.2.2.4 Perceived Ease of Use

It is the “degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1986: 82).

As stated earlier 94% of the participants in this study used e-services and replies in this department were similar to previous ones. That is, all staff members found e-services easy to use regardless of age, gender, education, level in organisation and internet experience.

(i) **Simplicity of e-services:** Most e-service users regardless of their demographics in this department found that e-services are easy to use. The researcher concluded that in all interviews, e-service users claimed they did not struggle with the current e-services and some considered it easier than other online websites. A participant who is categorised as a low position staff member said that “*I refused training because I know how to use it. I tried some websites online, like Etisalat website to pay for my telephone bills, for me it is even more difficult than the IT support e-service. Because in IT support everything is clear and in one page, but in Etisalat you have many pages and options...*” (Male, 20-30, high school, low level, 3-5 years internet experience). Another participant who found e-services easy even from his first attempt said that: “*I used it from the first attempt. It is not difficult at all believe me...*” (Male, 18-20, high school, low level, 3-5 years of internet experience).

(ii) **Prior experience and knowledge:** Some of the staff members, with different age, gender, education and organisational level had also argued that their experience and knowledge taken from universities and college helped them to use the e-service easily. “*...I studied 5 years computer engineering in Al Ain University, and took more complicated courses, so all e-services are easy compared to what I saw and learned...*” (Male, 20-30, bachelor degree, middle level, 5-10 years of internet experience). Another female participant who also talked about her experience from college earlier in the compatibility section, said that “*I am used to computers and online websites since I was in college, even before when I was in school*” (Female, 20-30, high diploma, low level, 5-10 years internet experience). Others had also talked about their experience at work, “*I have worked with computers and everything that have a relation with it from more than 15 years...*” (Male, 41-50, postgraduate, high level, more than 10 years internet experience).

It was also mentioned in different interviews by high level individuals that ADPF and in specific the IT department had considered different backgrounds of staff in ADPF, therefore ensured that the e-

services should be easy for staff in different departments. Furthermore, most of the participants in this department with different demographic details found that e-services are easy to use, which encouraged them to use it.

#### 5.2.2.5 Perceived Usefulness

It is “the degree to which an individual believes that using a particular system would enhance his or her performance” (Davis, 1986: 82). The main aim of this construct is to examine the usefulness of the e-services among ADPF staff members. The majority of staff in this department had used different e-services; the main reason is because of its usefulness and assistance in different work procedures. Some of the main identified themes in this department are listed below.

(i) **Confidentiality of data:** it was also discussed earlier in relative advantage, where most high level staff with high level of education argued that e-services provide secure transactions. This is because access and permit to electronic data and information is given only to certain staff members in ADPF. Furthermore, a high level individual argued that e-services are useful for all staff members in ADPF when it comes to security. *“Yes it is useful...it is enough to say that it protects different police information and give more privacy to it...”* (Male, 41-50, postgraduate, high level, more than 10 years of internet experience).

(ii) **Remote communications:** some of the staff in particular low position males stated that e-services are useful for their roles as computer technicians. Some of these staff can now investigate computer faults online, instead of going to other departments. In addition to this the e-service technical support in ADPF receives requests from users online and this manages and schedules work efficiently and make the task even easier for IT staff members. *“Sanad support e-service assists me to schedule tasks I have for one week in front and by this I will not forget the appointments I have. When? What time? Where? What is the problem? What to prepare?”* (Male, 20-30, high school, low level, 3-5 years of internet experience).

(iii) **Reliability of e-services:** trusting the e-service is crucial for adoption, which will be also looked at in more details in “trust” section. Staff from both gender, categorised as middle and high individuals and with a high level of education explained how they trust the e-service that they can rely on it for processing different enquires. *“Yes it is useful. I don’t double check results when I get them online from the database. I know they are accurate and the computer did not miss something. If it was from anyone*

*else I will not trust him...*” (Female, 20-30, bachelor degree, middle level, 5-10 years of internet experience).

(iv) **Specifications of e-services:** similar to the security department, some of the middle level participants from both genders had talked about the usefulness of e-services in general. Arguing about the specification and ability of the e-service was their main concern. Some talked about the transparency of transactions, speed of enquiring and processing transactions and the searching functionality of documents. Others also talked about the speed of the updates when using the e-services. An example from a male staff member who is categorised as a middle level individual said that: “*...if I got permission from the training department to enrol in training outside my department, I don't have to get a proof and show it to my manager or colleagues. Everyone will be updated and informed online at the same time...not like before when they use to send signed documents and you will have to wait for two days just for the document to go from a department to another department...*” (Male, 20-30, postgraduate, middle level, more than 10 years internet experience).

In conclusion, based on the interviews and different reasons which were explained earlier, the usefulness of e-services was clearly shown. This led about 94% of staff members in the IT department of this study to use these e-services.

#### **5.2.2.6 Trust of E-service and Government**

Trust “in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of three distinct dimensions: integrity, ability, and benevolence” Gefen et al. (2008: 276). The aim of this section is to examine trust towards the e-services and ADPF in general. The majority of staff members in this department had used and trusted the e-services. Different discussions occurred in interviews, which will be looked at in this section.

(i) **Trust of higher management in ADPF:** when the researcher asked if it is safe and confidential to store different details of staff and also citizens in ADPF, they all argued that it is safe, even though they knew that any data can be accessed by certain high level individuals and Abu Dhabi government. However, it was seen that all staff in the organisation worked together as a team, as stated by one of the female participants; “*yes it is safe...we are all working as one team, our aim is the same which is to provide safety and security in Abu Dhabi...we can't work if we don't trust each other...*” (Female, 41-50, postgraduate, middle level, more than 10 years of internet experience).

(ii) **Reliability of e-services:** when the researcher asked staff members in this department about the reliability and performance of e-services, all participants were confident with the current e-services and argued that e-services are reliable and should be trusted. This was also discussed earlier in relative advantage and perceived usefulness, for example, e-services were seen as a method to accomplish transactions faster than paper based procedures, faster in updating of information, can communicate remotely with other branches and department, and can also protect the confidentiality of data.

Based on participant's responses, trust towards e-services and also towards ADPF was clearly shown in this department.

### 5.2.3 Case Study 3 (Strategic Management Department)

In the strategic management department, 50 staff members (26 males and 24 females) had participated in the final study. It was found that approximately 80% of participants (40/50) had used the current e-services. Of the 40 e-service users, 22 were males and 18 were females.

When examining the level of staff members in this department, 6/7 high positioned staff members had used e-services, 16/18 middle level staff used e-services and 18/25 low level staff have used the e-services. It was concluded that high and middle level staff displayed more interest in e-services than low level staff members.

With regards to the participants internet experience in general, details are given in figure 5.7 below.

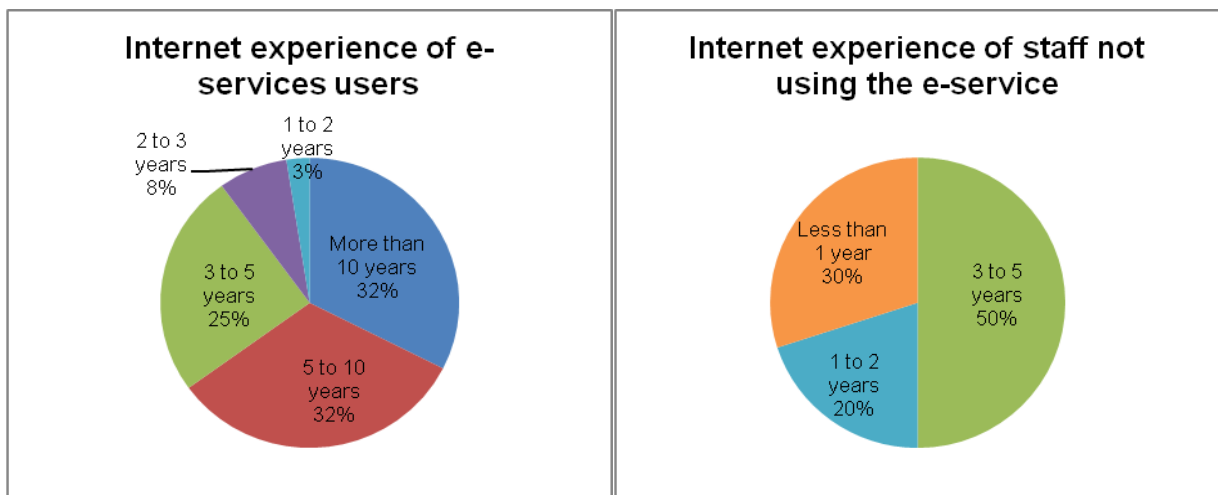
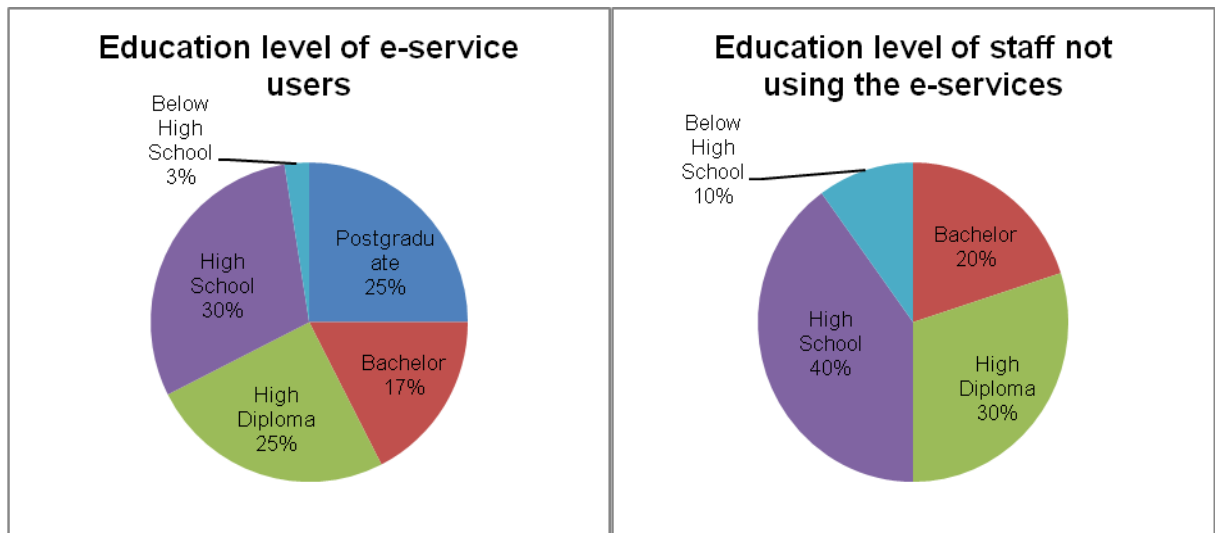


Figure 5.7: Internet Experience of staff members in the SMD

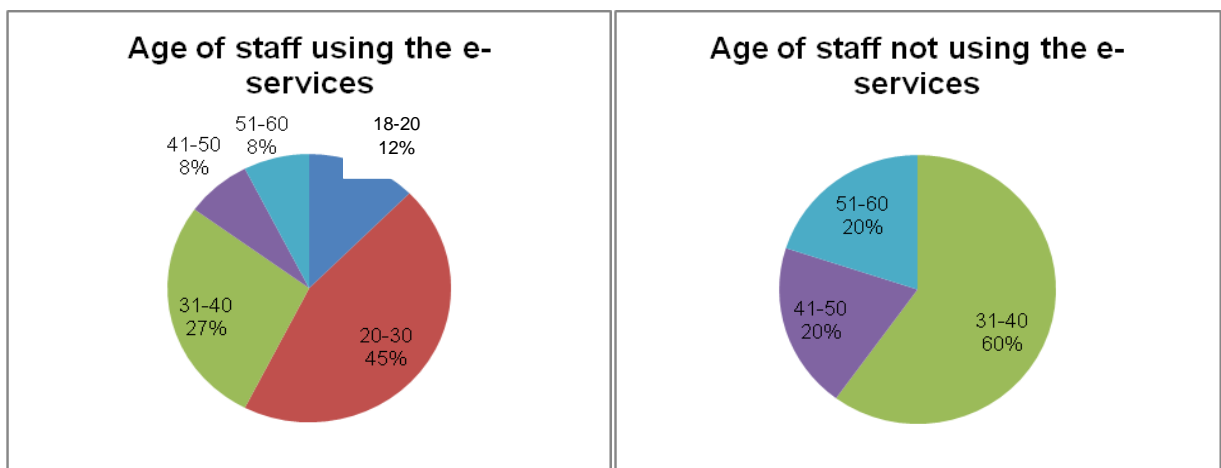
Similar to previous departments, it was concluded that staff members using the e-services had more internet experience in general than staff not using the e-services.

Figure 5.8 below shows the education level of both e-service users and non-users. E-service users had higher levels of education; for example, 25% of the e-service users had postgraduate degrees, whereas, no one from the other category had a postgraduate degree. It was also seen that 10% of participants not using the e-services had lower than a high school certificate, on the other hand, only 3% of e-service users had below a high school certificate.



**Figure 5.8:** Education Level of staff members in the SMD

More about participant's age from the strategic management department is given in figure 5.9 below.



**Figure 5.9:** Age range of staff members in the SMD

As shown in the pie charts in figure 5.9, about 57% of e-service users in the strategic department were aged less than 30 years old. On the other hand, the majority of the non e-service users were older. Similar to previous sections, other theoretical factors may also influence the diffusion, adoption and use of e-services which will be looked at in details in the next sections.

### 5.2.3.1 Relative Advantage

Relative advantage is defined earlier as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 2003: 15).

The majority of participants supported e-services use (40/50 staff members); however, some were against the e-services. Identified themes that supported e-services from the interviews were similar to previous departments, such as, confidentiality of data, remote communications, transparency and speed of e-services. On the other hand those not using the e-services argued that other paper based procedures are better. More details about themes and its explanations are listed below.

(i) **Confidentiality of data:** some of the middle and high positioned male staff members, highly educated individuals of the strategic department claimed that e-services are better than other traditional communication methods due to the high level of security and privacy that e-services provide. “...of course internal e-services are better, from a security wise it is better and also from a practical wise it is better...” (Female, 20-30, bachelor degree, middle level, 5-10 years internet experience). Another statement from a high level officer was: “...we have important and confidential information about all departments in ADPF, like strengths, weaknesses, needs and many things. When they are processed online and online reports are generated you know that they are in a safe place and can't be reached by anyone...” (Male, 41-50, high diploma, high level, 5-10 years internet experience).

(ii) **Transparency of e-services:** some of the male participants aged 31-50, categorised as middle and high positioned staff with higher education levels argued that results and outcomes from using e-services were accessible and transparent for all staff members, which led to new ways of updating the ADPF staff members. One of the participants stated that “...if I will talk about strategic records in our department, they are placed online and all staff from different departments can read it. They can learn from other successful departments and copy them. If they are in paper it will not be updated, information will not be accurate or sometimes have wrong information and we can't make sure everyone have these records...” (Male, 31-40, bachelor degree, middle level, 5-10 years internet



experience). Therefore, there is access to strategies to all staff members that can lead to improvements within the departments as each department is attempting to improve based on prior experiences.

(iii) **Speed of e-services:** speed of processing transactions and enquires using the current e-services was also seen by some participants (details shown below in table 5.6) as an advantage over paper based transactions and other methods, such as, face to face communications.

Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	41-50	Bachelor	Middle Level	More than 10 years
Male	31-40	High Diploma	Middle Level	5 - 10 years
Female	20-30	Postgraduate	Middle Level	5 - 10 years
Female	20-30	High Diploma	Middle Level	More than 10 years

**Table 5.6:** Details of some participants using the e-services in the SMD

It was concluded that most staff members aware of the e-services speeds are middle level staff. Furthermore, they all had above five years of internet experience, therefore, used to using computers and the internet. One of the male participants expressing a preference of using e-services for faster search enquires said: “...we have documents and reports from more than 5 years, and normally we compare this year report with the year before and sometimes compare the last 2 years to see if we are making progress or no. With these new e-services we can search faster and will not waste time” (Male, 41-50, bachelor degree, middle level, more than 10 years).

(iv) **Favouring traditional communications:** as given earlier 10/50 staff members (both genders, categorised as low level staff with low level of education and internet experience) from this department are not using the e-services. Reasons for this are provided in this and subsequent sections. An example of a male participant who never used any of the e-services in ADPF and prefers using telephones and direct conversations rather than e-services said that: “...I am used to enquire by phone, it is easier and I can talk and explain freely what I want. The other person can also discuss with me and get reply in the same time...” (Male, 51-60, high school, low level, 1-2 years internet experience). This will also be discussed in depth later in this chapter, where this participant finds traditional methods also easier to use (perceived ease of use construct).

Furthermore, a female participant who never used the e-services said that she does not prefer using the e-services for daily work routines. The researcher observed that the participant was not confident and

hesitated a lot when answering this question. When asked about e-services, she spoke of “*e-services having many disadvantages*”. When asked of the disadvantages, she replied “*I don’t know, I heard this from my colleague and I never tried it...*” (Female, 41-50, high diploma, low level, 3-5 years internet experience). This suggested that the functions and benefits of e-services in ADPF are not yet known to some of the staff members, which will be discussed late in the thesis (Chapter 7, summary and conclusions).

### 5.2.3.2 Compatibility

Compatibility is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences and need of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible” (Rogers, 2003: 15).

The question that was asked during the interviews was; “*Can you briefly describe your work routine? Having described your work routine does the e-service fit in with your lifestyle? Or do you prefer other methods?*”

Different responses were given, but, it was identified that most e-service users younger in age and with internet experience found e-services compatible with their life style. Two main categories were formed: existing work practice and preferred work style.

(i) **Existing Work Practice:** it was concluded that most of the staff in this department who use e-services and have with internet experience find it compatible because it is part of their work routine. Staff members in the strategic department who dealt with computers in daily work routine showed more compatibility. “*Yes for sure, I consult other departments and this is done by using computers and online internal connectivity. So we do it online for us who are consulting and also in other departments in the police who are being consulted by us...*” (Male, 20-30, postgraduate, middle level, more than 10 years internet experience).

(ii) **Preferred Work Style:** younger staff with internet experience and users of e-services found it compatible as there was a preference to using computers rather than other methods. This is similar to the earlier discussed section on relative advantage. The difference in this case is that with relative advantage the aim was to only examine which method is more preferable and why. In this particular

section, compatibility, it is to examine if the preferred method is compatible with the e-services or not. A female participant who prefers computers than other methods, such as completing paper transactions and use hand written documents said that: *“Yes it fit my life style. I have the choice to choose any method I want in work but I choose doing work with computers...”* (Female, 20-30, bachelor degree, middle level, 5-10 years internet experience).

### 5.2.3.3 Image

Image is “the degree to which use of an innovation is perceived to enhance one’s image or status in one’s social system” (Moore and Benbasat, 1991: 195).

The question that was asked during the interviews was: *“Do you think staff members using the internal e-services are, (i) more valued in the organisation by colleagues of the same level, (ii) more valued by higher level colleagues and called upon to important decisive meetings, (iii) experienced and knowledgeable in computer and internet usage, (iv) considered smarter than other staff members (v) Or other. And state why?”*

**Talented and skilled users:** two main themes emerged in the e-service users and non-users (different gender, various age, different education level and organisational level) in this department. The first theme was that e-services users are more valued by higher level colleagues. The second was that e-service users are considered smarter than other staff members. These were categorised under the theme “talented and skilled users”, and assumed that staff members will be treated differently by their colleagues or managers. A middle level male e-service user had chosen: *“More valued by higher level colleagues and called upon to important decisive meetings. I will tell you something, a friend of mine who works in this department, Strategy, was called by another department to supervise and work with them on an IT project only because he was well known with using online applications and services. He also received a certificate from the manager of the department for his effort...”* (Male, 31-40, high diploma, middle level, 5-10 years internet experience).

Another participant who also uses the e-services in ADPF stated that: *“From my point of view, I consider them smarter. I can easily differentiate between staff from the way they talk and also their knowledge in computers and e-services. These staff members who use e-service and want to improve are smart and they try to copy successful people that use different technologies...”* (Male, 51-60, high school, high level, 3-5 years internet experience).

Based on the interviews, it was concluded that this department valued and respected staff members who were e-services users. An example was given earlier by one of the participants who stated that staff members can get rewarded because of their knowledge and use of e-services. This can also encourage other participants to use the e-services in order to get more appreciation from higher individuals.

#### **5.2.3.4 Perceived Ease of Use**

It is the “degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1986: 82).

(i) **Simplicity of e-services:** Some of the staff members with high education levels and internet experience found e-services simple to use. Most did not attend training courses because of its simplicity. “...*only two or three attempts maximum before I used it, I didn't feel it was difficult...no I learned by myself no one taught me...*” (Female, 20-30, bachelor degree, middle level, 5-10 years of internet experience). Others stated that simplicity of e-services differs from one service to another. “*I don't know how many times, it depends on which e-service you are talking about. Some are easy and others are more difficult...like the e-club have many things and it took me a lot of time to know it, even after attending training. But the human resource was easy...*” (Male, 31-40, bachelor degree, middle level, 5-10 years of internet experience).

(ii) **E-service training:** older participants had spoken of training sessions and how they assisted in improving computer skills for utilising e-services. “*Yes I did training, like International Computer Driving License to know about computers in general and also courses in the training department about new e-services in ADPF... After taking these courses I am fine with most e-services but sometimes I forget about something and ask about it...*” (Male, 51-60, high school, low level, 1-2 years of internet experience). Furthermore, a high level individual who explained that e-service training is important and there are attempts to train all staff in ADPF said that “...*based on our strategy we are always in contact with the training department to have all training courses for our staff, including different IT training that have a connection with Abu Dhabi e-government projects...*” (Male, 51-60, postgraduate, high level, more than 10 years of internet experience).

### 5.2.3.5 Perceived Usefulness

It is “the degree to which an individual believes that using a particular system would enhance his or her performance” (Davis, 1986: 82). Similar to the security and the IT department, most staff in this department (40/50) also emphasised the usefulness of e-services and e-services use specifically for their role in the department or for ADPF staff in general. To prevent repetition of themes and their explanations, a brief description will be given.

(i) **Confidentiality of data:** this theme was also identified in relative advantage section. In relative advantage, e-services were compared to paper based transactions, and some of the staff members (middle and high level male staff, with high level of education) argued that e-services provide more confidentiality of data than paper documents. Therefore, because e-services provide more protection to data it was also considered useful when processing different transactions in the department. This had encouraged staff, especially the male staff members who were categorised as high level individuals, to make sure e-services is used which was also seen extremely important in military organisations.

(ii) **Specifications of e-services:** this theme was identified based on most of the interview replies. It is a general theme that had looked at some of the major benefits of the e-services that encouraged staff to consider it useful based on their opinion. The majority of participants found it useful and especially young male participants with high level of education and internet experience, who talked about the regular updates that can be performed automatically with the use of the e-services. Furthermore, some gave examples on how transactions can be sent for approval electronically to different staff members in different departments; therefore, this led to accomplish more work in a shorter period of time.

(iii) **Reliability of e-services:** staff members with high level of education had also talked about the reliability of e-services. Similar to the IT department, some showed confidence and faith towards e-services. This confidence came with time and experience, as one of the participants stated that “...yes it is good for communication...in the beginning I was tense but then after using it for some time I began to feel comfortable...” (Male, 41-50, postgraduate, high level, more than 10 years of internet experience). This theme will be also discussed in trustworthiness section.

A minority of staff members in this department who are older participants, with low education level and categorised as low level individuals, had argued that e-services were not useful them. The main reason that was given by most of them is that they do not need it at work. This was also discussed

earlier in the compatibility section, that e-services were not compatible with some of the staff work routine.

### 5.2.3.6 Trust of E-service and Government

Trust “in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of three distinct dimensions: integrity, ability, and benevolence” Gefen et al. (2008: 276). Similar to previous departments, two main categories were formed in this section which are; trust of higher management and reliability of e-services.

(i) **Trust of higher management in ADPF:** 40/50 have used the e-services, however, most participants whether using the e-service or not showed trust towards ADPF. Some were satisfied by answering that they are not sure about it or they do not have the knowledge to answer this question. Others were confident and talked about faith and loyalty. An example of one of the male participants said that “...I don't know if it is safe, but I trust ADPF, I will be always loyal to them even after I retire...” (Male, 31-40, high school, low level, 2-3 years of internet experience). Trust, faith, loyalty were stated a lot in interviews and showed how staff members trust the organisation and even the government.

(ii) **Reliability and reputation of e-services:** three groups were formed when reliability and performance of the current e-services were discussed. The first group was the choice of the majority of participants who have used the e-services, and have high level of education and internet experience; which showed trust, support and confidence with the e-service performance and outcomes.

The second group are young, low educated levels and uncertain individuals. They claimed not knowing a lot about the performance and outcomes of e-services and not being sure of the use of e-services due to very little use of them.

The third group, which was the minority, belonged to older staff members from both genders, with low levels of education and little internet experience. They emphasised not using e-services due to its reliability; thereby preferring to utilise manual paper procedures or face to face interaction. This was also discussed in previous sections; relative advantage and perceived usefulness.

### 5.2.4 Case Study 4 (Policing Operations Department)

Finally, the last case study in this research is the ADPF operations department that offered 51 staff members (38 males and 13 females) to this research. It was found that only 18% of participants (9/51) used the currently available e-services. This department was considered having the least number of e-service users compared to other departments in this study.

Of the nine e-service users, the majority of e-service users in this department were females (seven females and only two males). Based on observations, the researcher concluded that most male staff members from this department functioned outside their offices and were responsible for field work operations, such as, crime investigations and traffic control. On the other hand, females had a more administrative role and worked in offices; thereby interacting more with classic forms of communication (telephones, faxes) and in some instances, computers that led to use of some of the e-services. More about work routine and compatibility will be discussed later in this chapter.

When examining the level of staff members in this department, 3/8 high positioned, 4/17 middle level and only 2/26 low level staff had used the e-services. More details are shown in Figure 5.10.

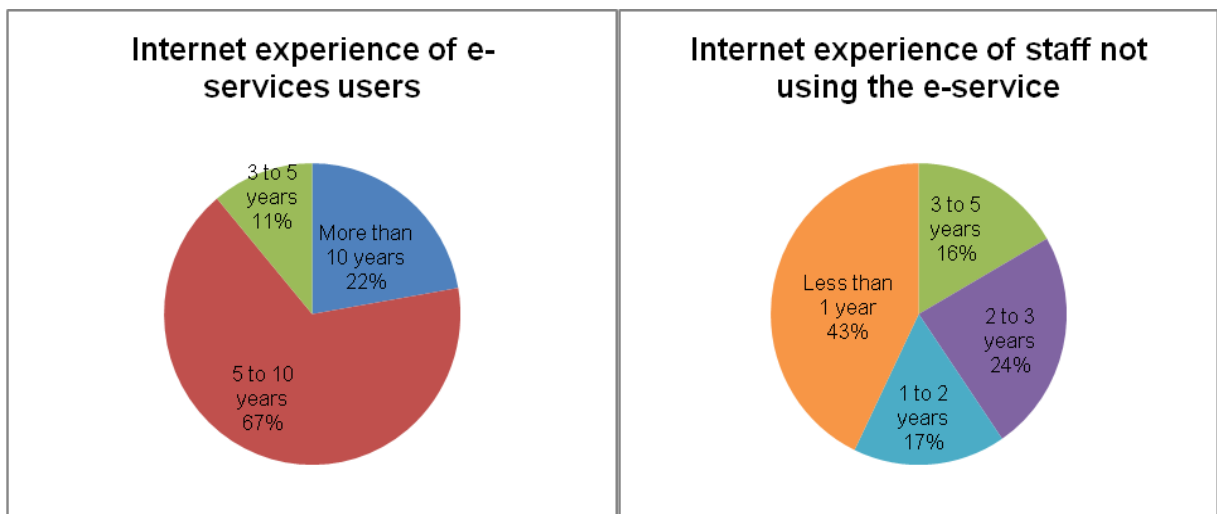


Figure 5.10: Internet Experience of staff members in the POD

As shown in figure 5.10, when comparing between the two categories it is apparent that e-service users possessed more internet experience than non e-service users. For example, 43% of staff in this department were not using the e-services and had internet experience of less than one year.

When examining the educational levels of staff in this department, it was found that staff members with higher education levels used e-services (shown in figure 5.11). For example 78% of e-service users have postgraduate and undergraduate degrees.

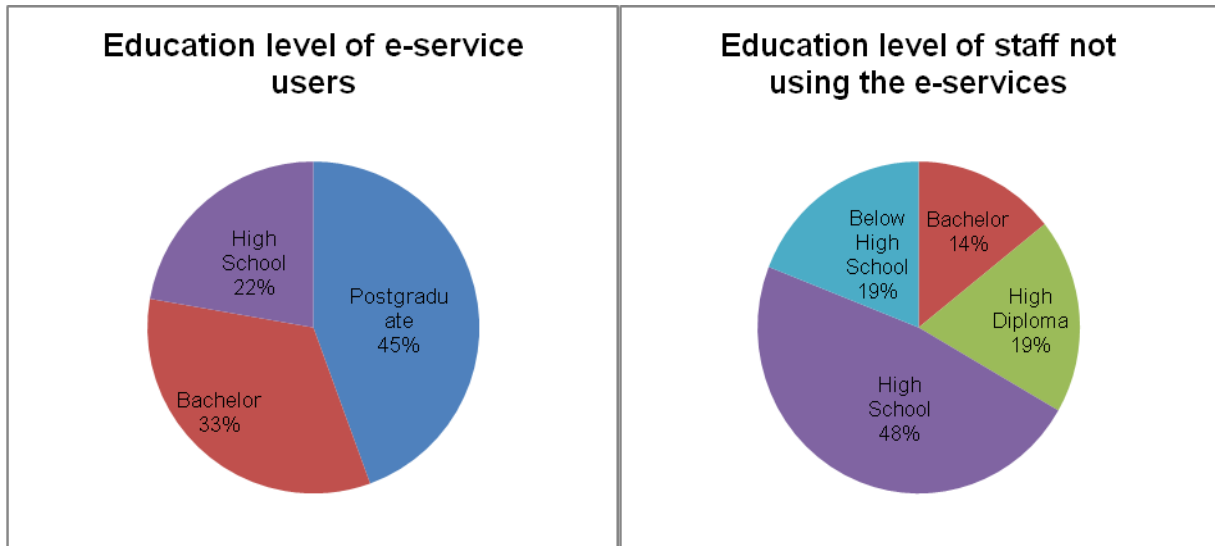


Figure 5.11: Education Level of staff members in the POD

Details of staff age range in this department varied between individuals as shown in figure 5.12.

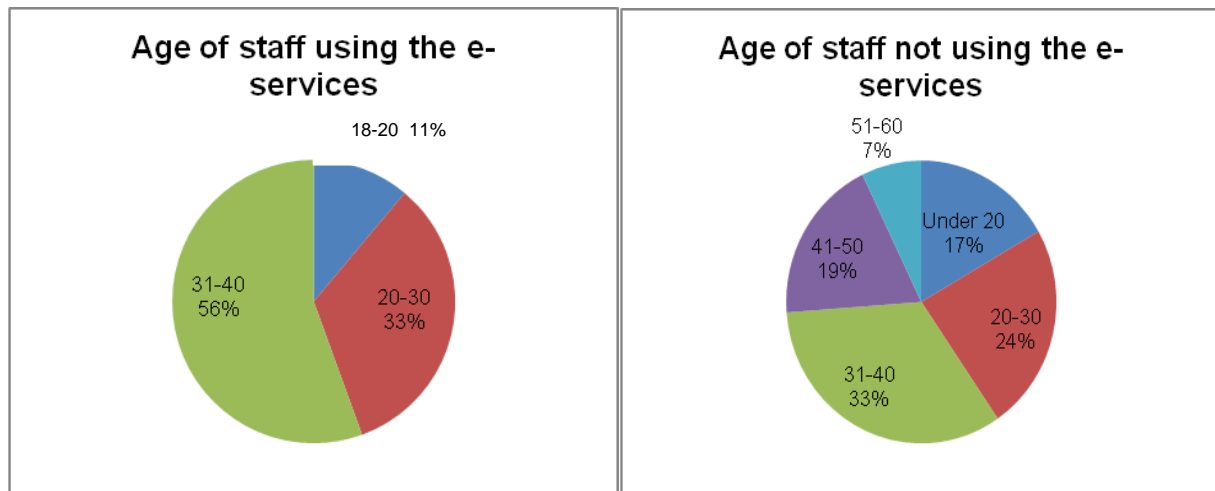


Figure 5.12: Age range of staff members in the POD

As stated previously, more details of the theoretical constructs affecting e-service diffusion, adoption and usage are given in the next sections.



#### 5.2.4.1 Relative Advantage

Relative advantage is defined earlier as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 2003: 15).

Most of the staff members in this department were against e-service usage and displayed resistance. Compared to the previous three departments, different themes were identified when examining relative advantage in the operations department. More details are given in this section (see also appendix XV for data extracts and different level of themes).

(i) **Confidentiality of data:** of the few participants using the e-services, those highly educated individuals with more than five years internet experience and categorised as middle and high positioned staff spoke of the benefits of security and privacy of transactions in comparison to paper transactions. A female participant said that “...no one can steal information or can misuse it” (Female, 20-30, bachelor degree, middle level, and 5-10 years of internet experience). Furthermore, another female participant also stated that “*I prefer my staff to upload details and use e-services for sending information to specified departments about any convict to guarantee privacy. At the end they are humans. You know sometimes even staff here are curious they want to know their names, where are they from? Why are they here?*” (Female, 31-40, postgraduate, high level, more than 10 years internet experience).

E-services were also seen as a way to ensure justice when they are processed online. “...as soon as information is in the system no one can interfere with transactions outcomes because not anyone can reach them, it is safer and better this way...” (Male, 31-40, bachelor degree, high level, 5-10 years internet experience).

(ii) **Social relationships:** Some of the older male participants with low level of education and categorised as low level staff, considered using computers and its e-services as a way that affects relationships between staff. “*I don't prefer using computers. We are humans and we should interact with each other at work, not only sit in front of computers all day. Life is changing us but we have to resist...if you go to any coffee shop now you will see people sitting together in one table but no one talk to each other, they are all playing with their smart phones and all this because of technology...*” (Male, 41-50, below high school, low level, no computer or internet experience).

Another participant has also added that “...do you think everyone here will use the e-services for all procedures? There are procedures that cannot be stopped. You know ‘wasta’ and relations are necessary” (Male, 31-40, high school, low level, 1-2 years internet experience).

(iii) **Limited ability of e-services:** majority of male participants with low level of education and considered as low level staff argued that e-services have a limited ability and they can perform better without using it. A male participant stated that “...the e-services can’t do something imaginary. Maybe it process things fast but in my opinion there is nothing special about it” (Male, 31-40, high school, low level, 6 months of internet experience). Another staff added that “No I don’t prefer e-services, the e-services here are not useful for me and for my work so I depend on myself...” (Male, 18-20, high school, low level, 2-3 years internet experience).

Limited ability and usefulness of e-services will also be looked at in the perceived usefulness section, to examine in depth why some of the staff members do not find e-services useful.

(iv) **Reliability of traditional methods:** some of the participants with low level of education and little internet experience preferred using manual and traditional procedures, such as, paper transactions, written notes, face to face communications and telephone conversations were seen more reliable than e-services. For example it was said that computers might get damaged easily from electricity faults or viruses. A female participant argued that “...e-services and internet are not reliable; do you guarantee that the internet will always work? All transactions will stop if there were problems. I remember before couple of years, my husband had problems with the internet at home and when he called Etisalat telecommunication, they told him they have some faults and they will fix it soon. He had no internet for maybe 1 week...” (Female, 31-40, below high school, low level, no computer and internet experience). Similarly, another male participant had also talked about computer hardware and e-service failure, “...never trust a computer, it can get damaged easily so if suddenly the computer is not working or the e-service was jammed then you will lose everything. So if you compare it with paper transactions, nothing can stop it” (Male, 41-50, high diploma, high level, 3 months of internet experience). It was understood that some of these participants rely and prefer traditional and manual procedures more than e-services.

#### 5.2.4.2 Compatibility

Compatibility is “the degree to which an innovation is perceived as being consistent with the existing values, past experiences and need of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible” (Rogers, 2003: 15).

Similar to the previous sections given earlier, the researcher wanted to examine the compatibility of e-services with staff life style in general and in work, especially that 42/51 of staff members in this department are not using the e-services. Based on observations and interviews it was concluded that the existing work practice of staff in this department regardless of their demographic factors had influenced directly on not using the e-services.

**Existing Work Practice:** The main thing for e-services being not compatible with most staff members (especially male participants) is because their work routine is in charge of field work operations and do not work in offices as other technical or administrative role. This also led them not to have enough knowledge of computers and its e-services, therefore, not using them. One of the participants’ who is in charge of criminal justice and security in this department had also explained how his work depends on face to face observations and investigations more than using computers and its e-services. “...*my work depends on observation and examining things, and should be in contact with people, because I deal with them...*” (Male, 51-60, high diploma, high level, 2-3 years internet experience).

In conclusion, work routine / work practice affects user’s adoption of e-services. The majority of staff members in this department do not depend on computers, internet or e-services and therefore, showed less or no compatibility with e-services.

#### 5.2.4.3 Image

Image is “the degree to which use of an innovation is perceived to enhance one’s image or status in one’s social system” (Moore and Benbasat, 1991: 195).

The question that was asked during the interviews was: “*Do you think staff members using the internal e-services are, (i) more valued in the organisation by colleagues of the same level, (ii) more valued by higher level colleagues and called upon to important decisive meetings, (iii) experienced and*

*knowledgeable in computer and internet usage, (iv) considered smarter than other staff members (v) Or other. And state why?"*

In this department two main themes were identified from interviews, the first discussed how staff members see e-service users as experienced in computers and internet and the second theme examined how some of the staff members argued that e-services are not necessary for their work procedures (this will also be looked at in perceived usefulness section).

(i) **Experienced with Computers:** most of the participants whether using e-services or not, had argued that e-service users are considered experienced and knowledgeable in computer and internet. They were younger participants, categorised as middle and high level individuals, both gender, and education level varied from a person to another. An officer who is expert in law but not in computers and internet said that *"E-service users are considered experienced in computers. It needs someone trained to not only use it but to master it..."* (Male, 31-40, bachelor degree, middle level, 1-2 years of internet experience). Another participant who is an e-service user added that *"...experience is important. Make you work faster than others and if something wrong happened, you will know where to go or what to do and fix it quickly..."* (Female, 20-30, postgraduate, 5-10 years of internet experience).

(ii) **E-services seem unnecessary for department:** some of the participants (14/51) who are not using the e-services, mainly older males and categorised as low level staff, had chosen "other" and stated that there is no relationship between e-service users and the options that were available in the interview. They also talked about how they see e-services as not important, and they refused to even choose one of the options. *"I told you from a while that I don't use e-services and I see them not important. So I don't agree with your choices..."* (Male, 31-40, high diploma, low level, 2-3 years internet experience) Another participant stated that *"It is up to the person to use the e-services or not, but I can't see them special or different from normal procedures..."* (Male, 41-50, high school, low level, no internet experience).

Based on interviews and observations, staff image or status was not clearly identified in this department. This was due that most staff members (42/51) are not using e-services and most had argued that e-services are not necessary for their work. Furthermore, based on some participants it was also found that there is no relation between e-services and staff being valued in the organisation or

even smarter than others. This showed that because e-services are not used by most of the staff members in this department, image had no clear impact on staff.

#### 5.2.4.4 Perceived Ease of Use

It is the “degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1986: 82).

Three main themes were identified from interviews when examining perceived ease of use of e-services in ADPF, which are listed below.

(i) **Complexity of e-services and computers:** E-service users in this department, who were females, with different levels of education and internet experience, found e-services complicated. A female participant who had many attempts before using the e-service said that “...yes I have problems with some of the e-services like the e-club even now after training...I always ask for assistance from the IT department. They are friendly and ready for assistance...” (Female, 31-40, bachelor degree, middle level, 5-10 years of internet experience). Others with less computer and internet experience had argued that regular changes and updates of the e-services affect the users. “Yes I was trained for 3 weeks, but what is the point? Every short period they have a new version the e-service and they change many things so I face problems again. We cannot stop the update because they say it is for security...” (Female, 18-20, high school, low level, 3-5 years internet experience).

(ii) **E-service training:** Other participants had argued that staff members with low level of education and internet experience are not being trained to use these e-services. “...I know it because I took courses in university, but not in this department. My colleagues don’t know anything so how can they use it? I tried to teach my friend but it was difficult for me and for him because I am not professional in teaching and I also have no time at work...” (Female, 20-30, bachelor degree, middle level, 5-10 years internet experience). This concluded that more computer and e-service training is needed for staff members with no computer and internet background.

(iii) **E-service practice:** this theme was similar to “existing work practice” which was discussed earlier in compatibility section. It was found that there are few e-service users in this department because the main work in this department is not administrative like the other departments discussed earlier. Their work routine does not depend on computers and therefore, it is not being used. Most staff felt anxious

and showed fear towards computers, therefore, they have predicted it is difficult to use even before trying it. That was observed in most staff members in this department regardless of age, gender, education, internet experience and level in organisation. It was concluded that if computers are more involved at work this will encourage staff members to get used to it and therefore, influence them to use the e-services. The researcher also observed that some use the e-services because it is considered as a hobby. A male participant stated that “...*I didn't train here, I learned many things about computers and e-services alone, it is my hobby to discover and use different technologies...*” (Male, 31-40, postgraduate, high level, more than 10 years internet experience).

In conclusion, very few participants have used the e-services. Most users had complained about the lack of e-service training in this department which led their colleagues being not interested in trying and knowing more about the e-services. Furthermore, even e-service users found e-services difficult. This is due to the lack of knowledge of computers and e-services, it was argued that e-services are complex to use and not suitable for staff with no experience in computers. Very few had a little knowledge that was mainly learnt at school or university. Therefore, education level had an effect on e-service adoption in this department. Finally, lack of practicing and using e-services at work had also affected the adoption and use of the e-services.

#### **5.2.4.5 Perceived Usefulness**

It is “the degree to which an individual believes that using a particular system would enhance his or her performance” (Davis, 1986: 82). Based on interviews and observations it was seen that majority of staff regardless of their gender, age, education and organisational level considered the e-services to be impractical and useless for them and for their colleagues in the department. Different reasons were given, which are categorised in the themes listed below.

(i) **Existing work practice:** this theme was also discussed in compatibility and ease of use sections. In compatibility section it was explained that the task given for most of the staff members did not require computer usage, therefore, this had an influence on not using the e-services. In ease of use, as stated in the previous sentence, staff did not require using computers and e-services for their different work tasks, this led staff not to use it and therefore, concluding that they are complex because of the lack of knowledge and practice.

In this section work practice also had an influence on perceived usefulness. This was similar to the previous discussion, that because e-services are not being used at the first place and there is lack of practice, staff members are not aware of the importance of the e-services. This made them conclude that e-services are not useful. The majority of male participants, with different level of education and level in the organisation, and who were not using the e-services argued that using e-services will not increase their ability or performance at work. One of the participants who was categorised as a low level individual gave an example when discussed how the e-services are not useful for his job, “...*what can I do with a computer or this e-service while I am in my police car? It will be waste of money...*” (Male, 31-40, high school, low level, 6 months internet experience).

(ii) **Similarity of outcomes:** some of the male participants with low level of education argued that the outcomes of enquires or transactions online are similar to the outcomes of paper transactions. The researcher tried to give them some examples to show that the process can be different, however, most showed resistance. “...*using e-services or not is the same...*” and when asked for the reason, he said that “...*work will be completed doesn't matter what method you choose*” (Male, 51-60, high school, high level, no internet experience). A similar response was also given earlier in relative advantage section, where one of the male participants who is categorised as a low level individual said that “...*the e-services can't do something imaginary. Maybe it process things fast but in my opinion there is nothing special about it*” (Male, 31-40, high school, low level, 6 months of internet experience).

(iii) **Confidentiality of data:** Minority of participants who used the e-services stated that they are useful when it comes to protection of data. They were mainly female participants, categorised as middle and low level staff, and have an average of five years of internet experience. This theme was discussed earlier in relative advantage section. However, in this construct e-services were viewed useful because of its ability to protect different applications processed in the department that could contain staff personal details, therefore this would increase privacy standards.

#### **5.2.4.6 Trust of E-service and Government**

Trust “in online environments is based on beliefs in the trustworthiness of a trustee, which is composed of three distinct dimensions: integrity, ability, and benevolence” Gefen et al. (2008: 276). As given earlier two main questions were asked to examine trust towards e-services and ADPF. The following themes were identified.



(i) **Reliability of traditional methods:** in previous departments (security, IT and strategic) the majority of participants agreed that e-services are reliable; however in this department it was different. Majority of non e-service users showed resistance to use the e-services and argued that the reliability and performance of e-services cannot be trusted. Most of participants with low level of education and less than one year of internet experience preferred to use traditional methods, such as, paper transactions, face to face interaction or telephone communication. One of the male participants stated that “...no I don't trust the reliability of the e-services; I gave you an example before when I answered one of the questions. I said that information on papers is better because computers can get damaged quickly and then all information stored can get lost” (Male, 41-50, high diploma, high level, 3 months of internet experience). Others have also argued that fewer mistakes occur in face to face communication and enquiry because staff can interact with each other and therefore, explain and discuss things clearer.

(ii) **Unfamiliarity towards e-services:** some of the participants from high and middle level of the organisation, with different education levels and gender claimed that they are unfamiliar with e-services. It is still new to their job, which showed that it is considered new and mysterious. They hesitated a lot and did not know if they can trust the reliability and outcomes of the e-services because they did not use it. Therefore they acted neutral and did not comment.

(iii) **Trust of higher management in ADPF:** when the researcher asked participants about the safety of information stored in ADPF and if anyone had access to it, responses were similar to previous departments. Most staff claimed that details are always secure in ADPF and they trust the organisation. This was based on their personal thoughts and because they have never heard of any incident that harmed any of their colleagues or other staff. It was noticed that because of culture issues news spread easily between staff members and if they have heard or faced anything in particular everyone in the organisation will know about it and it would have changed their opinion towards ADPF. However, others (10/51 participants), who were males with low level of education and categorised as low level staff, did not comment and said that they do not have knowledge on security issues in ADPF.



### **5.3 Cross-Case Analysis and Findings of the Final Study**

The above within case analysis provided analysis and findings in terms of each case individually. However, this limited detection of similarities and differences between the diverse departments (Myers, 2009). For this, cross-case analysis was employed. Cross-case analysis also “enhance generalisability” and aims to have a deeper understanding of the case studies (Miles and Huberman, 1994: 173), which led this researcher to utilise this approach.

In order to maintain the word limit in this thesis, a detailed cross-case analysis and explanations of each construct is available in appendix XVI.

### **5.4 Discussion of the Findings**

After analysing the data gathered from interviews and observations, this section will provide a discussion on the main findings of this study. Each construct will be examined individually.

#### **5.4.1 Relative Advantage**

When examining RA in the four case studies, nine themes were identified; confidentiality of data, speed of e-services, transparency of e-services, remote communications, limited ability of e-services, reliability of traditional methods, favour of traditional communications, availability of e-services and social relationships. An explanation of each theme is available in appendix XVI. When examined more closely, all four departments displayed confidentiality of data. This suggests that e-services are viewed as important when compared to paper documents, as they cannot be read by anyone; thereby providing more privacy to data. However, each department had viewed confidentiality based on their work purpose. For example in the strategic department, their aim of privacy is to protect information related to other departments, such as, tasks completed in the year 2012, future goals, financial details about certain projects being implemented and others. In the IT department, they are responsible of a lot of information whether it was related to staff members or citizens. For example, confidentiality of citizen’s detail was considered extremely crucial and sensitive, such as, protection of information related to all citizens who travelled out of the country or information about anyone entering the country.

Other themes, such as availability of e-services were only found in the IT department. Male staff members with different organisational levels discussed how staff members accessed information using the e-services at any time. Another example of a theme is the limited ability of e-services in policing operations department, where the majority of male participants with low level of education and categorised as low level staff argued that e-services have a limited ability for their purpose and they can perform better without using it.

To summarise, RA allowed the research to determine that e-services are safer and secure ways of processing documents within departments. They also expedite the services. However, during the interviews it became apparent that e-services are not viewed beneficial as those who are used to their ways do not want to adopt new ways.

#### **5.4.2 Compatibility**

When examining COMPA in the four case studies, three main themes were identified which was based on Agarwal and Karhanna (1998: 4) dimensions of compatibility; “prior experience (if e-service fit with user experience of technology), existing work practices (if e-service fit with current work) and preferred work style (if e-service is reliable with current work style)”. When examined more closely, all four departments displayed existing work practices as directly influencing e-services use. Furthermore, prior internet experience was identified only in the IT department, which might explain why most e-service users are from this department. The experience of staff members in using computers, internet or other software applications was viewed as influential on e-services adoption. In the operations and the security department it was found that more females used the e-services when compared to males. The reason is because females work processes are more administrative and involve being located in offices that in turn offers opportunities of using computers and e-services. Therefore female personnel’ work routines were associated as being compatible with computer usage. This was unlike most of the males in these departments where work tasks were outside the offices and involved working in outdoor locations.

To summarise, COMPA allowed the research to determine that staff members with work routines related to computer usage are more likely to adopt and use e-services. Other staff members, such as some staff in the security and policing operations department, and working outside offices did not use computers and the internet. In these cases e-services were less likely to be adopted or used. This

concludes that work routine and years of internet experience influenced compatibility and e-service use.

### **5.4.3 Image**

When examining image in the four case studies, four themes were identified. These were talented and skilled users, computer experience, e-services importance and e-service necessities. When examined more closely, staff members in 3/4 departments (all except the strategic department) claimed that e-service users are considered experienced in the organisation. This showed that staff members could be encouraged to use the e-services in order to be viewed as experts and experienced in computer use. Further, in other departments such as, the security and strategic department, e-service users were viewed to be talented and skilled. This had influenced high positioned individuals to consider e-service users from middle and low organisational levels to be more worthy of attention, get rewarded and maybe to get promotion.

Some of the e-services (for example, in the correspondence system) could be tracked online. Therefore, officers could track the progress of any transaction and determine the exact stage of a process along with the staff member responsible for the transaction at a particular stage. However, staff members not using the e-service could not partake in this process; hence, in time non e-service users were recognised as staff members not willing to participate in improving the organisation's process. This was viewed to impact reputation and in turn, promotion. To prevent such situations and to protect ones' status in front of others, staff members attempted to use an e-service even if there was no overall satisfaction.

To summarise, the relation of image with e-service adoption was clearly seen in all departments except in the operations department. Staff from the three departments using e-services was concerned with status or reputation; hence encouraged to use e-services further on. Comparatively, staff members in the operations department were not concerned with image as most of them did not use e-services. Instead they displayed resistance towards use of e-services. However, if high positioned individuals in this department showed more interest in e-service users and appreciate their work, it was noted that staff members could be encouraged to use e-services.

#### **5.4.4 Perceived Ease of Use**

When examining PEOU in the four case studies, five themes were identified: simplicity of e-services, prior experience and knowledge, complexity of e-services and computers, e-service training and e-service practice. When examined more closely, all departments except the IT department, considered e-service training crucial and essential in order for staff members in these departments to use e-services effectively and efficiently. It was also noted within some of the older aged staff members, with little internet experience viewing e-services as being complex. Contrastingly, the only department that found e-services easy and simple to use, and at the same time considered experience in computers as important was the IT department. This could explain the high adoption of e-services in this department.

In the operations department, it was shown that the majority of staff are not using computers and e-services due to lack of practice. However, involving computers in different work tasks will increase practice; thereby encouraging adoption of e-services.

#### **5.4.5 Perceived Usefulness**

When examining PU in the four case studies, six themes were identified: confidentiality of data, specifications of e-services, existing work practices, reliability of e-services, remote communications and similarity of outcomes. When examined more closely, similar to the previous construct (RA), all four departments displayed confidentiality of data. Another theme that was considered useful was related to the specifications of e-services. It was identified by 3/4 departments that the ability of e-services to perform tasks such as, fast updates of information, ability to search for documents easily, retrieving and sending transactions within departments electronically was seen important. Further, themes such as reliability of e-services, remote communications and existing work practices were also identified in some of the departments. This led to more staff members using the e-services.

Other themes, such as similarity of outcomes were only found in the operations department, where some of the male participants with low education levels suggested that the outcomes of enquiries or online transactions are similar to the outcomes of paper transactions.

It was concluded that most staff in ADPF are not aware of the benefits of the e-services; therefore, ADPF should provide more awareness to all staff members regarding the usefulness of the e-services.

This will encourage adoption as shown in the IT department, where the majority of e-service users are in this department and they are aware of the different benefits of the e-services.

#### **5.4.6 Trustworthiness**

When examining trustworthiness in the four case studies, four themes were identified: trust of higher management, reliability and reputation of e-services, unfamiliarity towards e-services and reliability of traditional methods. All four departments displayed trust of higher management. Even staff not using the e-services showed trust, however some of the staff from the operations department claimed that they are not sure if they trust it or not. These individuals were mostly lower positioned individuals with lower education levels. This might be due to them not having sufficient knowledge to judge the surroundings of the organisation and its security policies.

Other themes, such as trust in the reliability and performance of the e-services, was identified in 3/4 departments, except for the operations department. The main reason for e-services not being used in this department was due to staff members finding it difficult to judge the impact of a service that they had never used. In the security and strategic departments only middle and high positioned individuals trusted the reliability of e-services, unlike the IT department, where all staff members showed trust towards the e-service.

Finally, some themes were only identified in the operations department. These were for example, unfamiliarity towards e-services and reliability of traditional methods. In unfamiliarity of e-services, e-services were considered new and mysterious, which led high and middle positioned staff members, who were not e-service users, hesitating in trusting the reliability of e-services. When discussing the reliability of e-services, most stated not trusting e-services and instead relying on traditional methods.

#### **5.4.7 Perceived Behavioural Control**

To understand more about PBC, observation of the ADPF premises was crucial. This was to examine the facilitating conditions in-depth. As explained in chapter 2, facilitating conditions consists of technology and resources. The researcher noticed that ADPF has open budgets for different e-government projects, such as, implementation, research and updates of services. It was concluded that organisations require introducing new e-services and provide regular updates in order to be compatible with all staff from different departments. Studies about each department needs should also be

undertaken from time to time. This will provide useful e-services that will be required by any department and therefore, increase its usage.

In technology facilitating conditions, it was observed that ADPF had up-to-date IT infrastructure that has the latest fibre optics cable networks, with large computer servers that can handle all kinds of traffic loads on the network. This shows that any e-service user will not struggle with the speed of communication because of the IT infrastructure used in ADPF, and therefore, could encourage e-service usage in an indirect way.

Furthermore, computers, laptops and printers are available in most of the offices in the IT and strategy department. However, this was not the case in other departments, such as the operations department. This is also one of the main reasons for not using e-services by most staff in the operations department. This construct was identified important and included in the final framework.

Finally, self-efficacy was examined by asking participants about training sessions when using the e-services. It was noticed that staff with internet experience and high education levels were more confident with e-services and did not need to attend any training sessions. On the other hand, participants with low level of education and no or little internet experience found regular training necessary. Furthermore, some departments, such as the IT provide different training sessions from time to time to all its staff members, unlike staff from other departments where it was noticed that it is more difficult to apply and attend training sessions related to any e-service. This concludes that providing training and increasing the confidence of staff members in using computers and internet will encourage staff to use the e-services.

## **5.5 Propositions and Conceptual Framework**

In chapter 2, section 2.9, theoretical propositions based on the literature were formed. However, after the pilot study some of the propositions were refined and discussed in chapter 4, section 4.9.

In this section pattern matching was conducted where the propositions formed in chapter 4 were compared to the final findings of this research. This assisted in further refinement of some of the propositions. All the propositions and their literature were discussed in depth in chapter 2. To prevent repetition the propositions in this section will be discussed in terms of the findings of this research. The

final research propositions are listed and discussed in section 5.5.1. Section 5.5.2 then provides a refined conceptual framework.

## **5.5.1 Refined Research Propositions**

### **5.5.1.1 Relative Advantage, Compatibility and Image**

When examining relative advantage, it was concluded that it was one of the most important construct that has an influence on staff members to use the e-services. When comparing between the automated and manual procedures most staff members from different departments explained the benefits of e-services. As stated earlier, different themes were identified that led to this conclusion. For example, confidentiality of data was identified based on staff members view on how transactions saved in computers are more secure than paper transactions that can be accessed by any person. Another theme was about the speed of e-services. This was identified based on opinions and examples of different job tasks that use to be done before using the e-services and then compare it with new methods that are able to process, accomplish and update different transactions faster. Based on the interviews and the identified different levels of themes, the advantages of e-services over manual procedures encouraged most staff from different departments to use it.

Furthermore, it was also noticed that demographic factors had an influence on staff attitude and decisions towards using e-services. For example, older staff with low level of education and categorised as low level staff preferred paper transactions rather than having automated transactions. On the other hand, highly educated individuals with internet experience had different thoughts and opinions. Therefore, this had led to the following proposition.

***Proposition 1:** Relative advantage will have a **positive** influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

As discussed earlier in the analysis section, the compatibility of staff members had a direct influence on whether to use the e-services or not. It was concluded that themes related to work routine or experience with computer and internet led staff members to be more comfortable with the e-services and therefore use it.

Staff members who work in offices and depend on computers to process different work related tasks are more likely to use the e-service, as shown in the IT department. On the other hand, staff members who's work depends on physical activities and work out of their offices did not need computers and therefore, this led to not using the e-services, as shown in the policing operations department.

Furthermore, it was also noticed that staff members who are experienced with computers and are used to the internet whether for pleasure, work purposes, studying or others, have better chances to use the e-services.

This research was similar to other studies, who have argued that compatibility is one of the important construct that influences adoption of innovations (Tornatzky and Klien, 1982: 28; Moore and Benbasat, 1993; Taylor and Todd, 1995a; Carter and Belanger, 2005).

Similar to the previous construct, demographic factors had also influenced compatibility. This was also stated earlier in the analysis section, where one of the staff members in the IT department (male, 51-60 years old, high school degree and considered as a low level staff), had no internet experience, this had affected his intention to use the e-services because of his lack of experience in internet. Therefore, this had led to the following research proposition.

***Proposition 2:*** *Compatibility will have a positive influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

Based on the literature review, image was also seen as not an effective construct on adoption of technologies (Slyke et al., 2004; Carter and Belanger, 2005). However, when examining image in this study, most of the staff members were encouraged to use the e-services because of the appreciation, rewards and promotions that they got from their managers. It was observed that staff members using computers and different technologies in ADPF were considered educated, smart, talented and intelligent. This had also led staff to show off and use it. Even non-service users who did not have knowledge to use computers were willing to train and use it.

Barriers such as little internet experience and low level of education were also identified that affecting e-service adoption and usage. Furthermore, older participants were not intending to use the e-services because of their age and habit to work in a certain style for years. This showed that demographics such



as, age, internet experience and education had an influence on image. In conclusion, this had led to the following research proposition.

***Proposition 3:*** *Image will have a positive influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

### **5.5.1.2 Perceived Ease of Use and Perceived Usefulness**

Examining if the current e-services are simple and easy to use by any staff member from all the departments, was the main aim for this construct (PEOU). Based on this study, the majority of e-service users found that they are easy to use and did not attend any training sessions. Some of the e-service users from security and strategic management, who had no computer background, attended few e-service training courses and that was sufficient for them to know how to use the e-services. Most claimed that with more practicing and using the e-services they gained more experience and knowledge; therefore, find any e-service simple.

On the other hand some of the participants from the policing operations argued about the difficulty in getting approvals to attend training session. One reason was, because they had a lot of work, it was difficult for them to find a suitable time. Others also talked about their managers and how the e-services are considered as one of the low priorities in this department.

As stated earlier in chapter 2, that factors such as lack of training led to not using e-services because users may find it difficult to use and none or less training capabilities are available (Kumar and Best, 2006; Dada, 2006). This was also found in some of the departments and therefore, led them to think that e-services are complicated and did not use it.

When comparing between e-service users who found the e-services easy and others who found it complicated, it was found that there were differences in their demographic details. For example, most male participants using the e-services found it easy, unlike females. Reasons could be that males are more into technology than females, which led them to have more experience to different technologies. Age factor was also important, where younger participants found it easy; this maybe because of their interest and therefore, use it more often and had got used to it. Unlike older participants who were introduced to computers and internet at a late stage of their life. Furthermore, when it came to the level of education, it was noticed that participants with higher levels found e-services easy; this might be

because of the involvement of computers for online reading and searching in colleges or universities and therefore, had more experience when using similar online procedures. More about the demographics and the literature review was discussed earlier in chapter 2, section 2.9.

In conclusion, ease of use of the e-services encouraged and attracted staff members, because at the end everyone wants to choose an easy and effective method to deal with different issues at work, however, it was affected by demographic details. This led to the following proposition.

***Proposition 4:*** *Perceived ease of use will have a positive influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

As discussed in chapter 2, the usefulness of an innovation influences its adoption (Agarwal and Karahanna, 1998). This was also the case in this study; where the majority of e-service users found that the current services are useful for their daily work tasks. Some of the examples given was about the ability of the e-services to communicate remotely within police departments, others had also talked about the how e-services can process transactions efficiently. Therefore, it was considered that e-service is crucial at work.

However, when examining this construct in-depth, it was noticed that PU was influenced by some of the demographic factors. For example, some of the older staff members with little or no internet experience and with low level of education did not have the knowledge or experience to use the e-services. This led them to conclude that e-services are not useful. Therefore, based on the research findings the following proposition was formed.

***Proposition 5:*** *Perceived usefulness will have a positive influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

### **5.5.1.3 Trust of E-services and Government**

Trust towards e-services was examined by looking at staff member's opinion about the reliability and performance of the e-services. It was noticed that majority of e-service users from different departments trust the e-service. This was identified based on themes such as reliability and reputation. Participants argued that they trust the e-service because they did not hear any negative incident that

occurred in ADPF. This led most participants to trust the e-service even if they had used the e-services rarely.

On the other hand, non e-service users were categorised into two groups. The first group which was the majority who did not trust the outcomes of the e-services and insisted that paper based procedures, social connections and face to face communications are always needed to process different enquires and transactions in ADPF. The second group did not comment because they have not used the e-services and had no experience.

In conclusion, participants with high level of education and internet experience showed more trust towards e-services. Further, some of the demographic factors did not have an influence on the trustworthiness of e-services. For example, older participants from the security and policing department preferred traditional methods of communication because they trust people more, by talking to them face to face or by telephone, rather than online communication. However, older participants in the IT department had different views and showed trust towards the reliability of e-services. This led the researcher to conclude that not all demographic details have an influence on the e-service adoption and usage. Therefore, based on this research the following proposition was concluded.

***Proposition 6:*** *Trust of the e-services will have a positive influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

As given earlier, most of the participants regardless of their demographic details were confident and argued that they trust ADPF and the government of AD. Even non e-service users had trust and faith in the government but still did not use the e-services. However, this might not be the case in other civilian organisations. ADPF is considered a military organisation with a military environment and its trust to higher management comes as a first priority (this will also be discussed in chapter 7). Therefore, this construct should be further examined in other civilian organisations. However, based on literature trust of government was considered important when using online government services (Colesca, 2009; Lee et al., 2011), therefore to ensure that this research would also be applicable to other civilian organisations this study will rely on literature findings.

***Proposition 7:*** *Trust of the government will have a positive influence on the behavioural intention to adopt and use e-services.*

#### 5.5.1.4 Facilitating Conditions and Self-Efficacy

Another construct that was not influenced by demographics was facilitating conditions (technology and resource). These two constructs were examined based on the researcher's observations of ADPF. One of the responsibilities of organisations is to provide a suitable environment for its staff in order to be able to access and use all means of technology, such as, providing different hardware, software, network and all other technology needs. In this study it was observed that not all departments provided computers to its staff, such as the policing operation, and this had affected the number of users. On the other hand in the IT and the strategic department, computers and internet were considered important and gave access to all its staff members. It was also seen that some of the non e-service users from the policing operations and security department were willing to try and use the e-services; however they did not have computers and the reasons were because they did not need it for work procedures.

Furthermore when it came to resource facilitating conditions, new and useful e-services should be regularly implemented and updated in order to encourage staff to use it. For example, the strategic department has a service that can manage all projects in ADPF. This encouraged staff in that department to use this e-service. This shows that when the right resources are available this could assist in implementing new e-services that departments will need and rely on.

Therefore, facilitating conditions were seen important to influence the behavioural intention, which was also similar to the study by Awadhi and Morris (2008) in Kuwait, where they found the facilitating conditions influences adoption of e-government services. Therefore, the following propositions were formed.

***Proposition 8:*** *Technology facilitating conditions will have a **positive** influence on the behavioural intention to adopt and use e-services.*

***Proposition 9:*** *Resource facilitating conditions will have a **positive** influence on the behavioural intention to adopt and use e-services.*

Self-efficacy was defined earlier as the “degree of confidence the adopter has in her/his ability to make use of the innovation” (Taylor and Todd, 1995a: 144). Therefore, increasing the confidence of staff members will result in more adoption (Taylor and Todd, 1995b; Macredie and Mijinyawa, 2011). The confidence of staff could increase by having more computer and e-service training sessions; this will

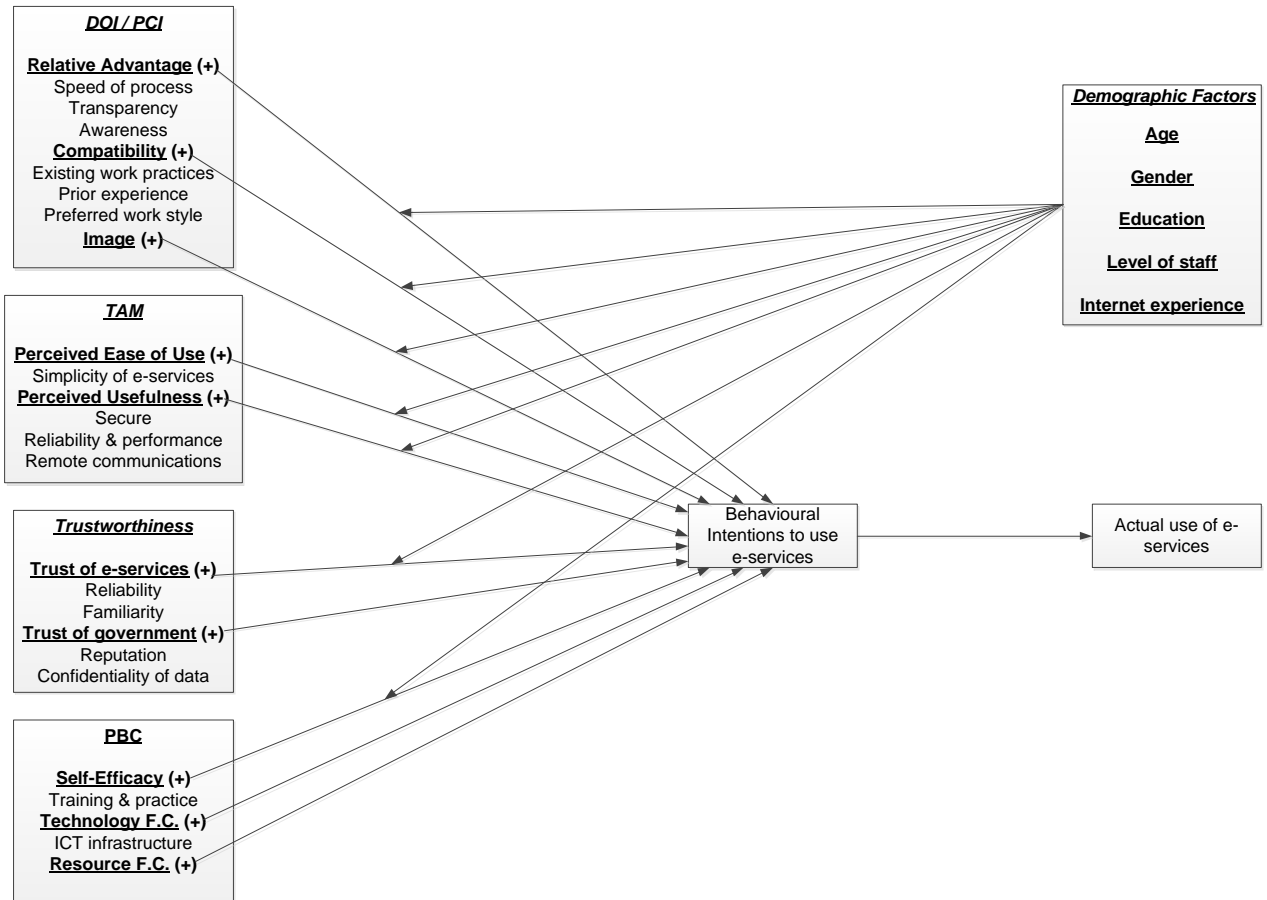
increase their knowledge and therefore, use the e-services. This was also examined in the theme “e-service training” that was discussed earlier in PEOU construct, where some of the non e-service users argued about the difficulty in getting approvals in order to attend different training sessions with relation to computer, internet and e-services. This led users with low education or experience in computer to be less confident and, therefore, prevent using any of the e-services.

It was also observed that in some departments older staff member with low level of education needed more training to use the e-services than younger members with higher level of education. Therefore self-efficacy differs from one person to another. This concluded that demographic factors can also influence self-efficacy.

***Proposition 10:*** *Self-efficacy will have a **positive** influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

### 5.5.2 Refined Conceptual Framework

Based on the discussion in the findings section and the refinement of the propositions following the final study, the updated conceptual framework is shown in figure 5.13 below.



**Figure 5.13:** Conceptual framework after the final study to understand the adoption, diffusion and use of e-services in public sector organisations

The conceptual framework is similar to the framework refined after the pilot study in chapter 4; however, the main changes pertain to the demographic factors and their relation towards the different construct. Based on the theoretical framework that was discussed earlier, the demographic details were linked directly to the actual use, which was inappropriate for this research. Some of the earlier discussed main themes were also added to the framework. This resulted in showing some of the examples that may occur when examining the adoption and use of government services in other public sector organisations.

## **5.6 Summary**

This chapter described the outcomes of the data analysis conducted during the final phase of this research study. A description of the four case studies and details of participants were also given. Each case study was analysed individually along with a cross-case analysis. This allowed the researcher to acquire an improved understanding of this research. Based on the findings, the research propositions and framework were re-examined. To validate and verify that the findings of this research are in line with practice, the next chapter provides an evaluation of the research findings and a discussion in light of the literature.

# *CHAPTER 6*

## *EVALUATION AND DISCUSSION*

### **6.0 Introduction**

Following the analysis and findings phase an evaluation of the findings and analysis provided in the entire research is crucial to ensure the trustworthiness of the findings (Pozzebon, 2003). The evaluation and validation process was explained in chapter 3, section 3.9. To obtain a better picture of the evaluation of the research, this chapter will describe and discuss the research findings acquired using the research methods that are true and accurate as well as realistic. Thereafter, a discussion of the research findings in terms of the literature will also be presented.

### **6.1 Evaluation of the Research**

As stated earlier in chapter 3, Lincoln and Guba (1985) listed four main criteria to judge interpretive qualitative research, which are: (i) Credibility (ii) Transferability (iii) Dependability and (iv) Confirmability. Pozzebon (2003: 10) argued that “respecting these four criteria would guarantee the trustworthiness of findings from studies using qualitative methods”. To ensure that this research has pursued these principles, a description is given in the next section.

Furthermore, since ADPF is implementing e-services and this study attempted to determine the adoption, use and diffusion, the next phase involves determining whether the acquired findings are realistic, or just theoretical in nature.



### 6.1.1 Credibility

As discussed earlier in chapter 3, four triangulation methods were used in this research, which are: data triangulation, investigator triangulation, theory triangulation and methodological triangulation (Patton, 2002; Yin, 2009).

Furthermore, to increase the level of credibility it is also possible to use the participants in the study to analyse and validate the findings (Hoepfl, 1997). Bryman and Bell (2003: 290) stated that “respondent or member validation is a process whereby a researcher provides the people on whom he has conducted with an account of his findings, in order to seek corroboration”. In this research, this was achieved by discuss the research findings. For this, interviews were conducted with a total number of 12 participants from ADPF. Participants were chosen from the four departments used earlier in this research study. Different levels of staff participated in this research study and for the interviews the same process was followed. This allowed this researcher to obtain suggestions and views regarding the research findings from different levels of staff in ADPF. Details of the participants used in this phase are given in tables 6.1, 6.2, 6.3 and 6.4.

Levels in organisation	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department	Total
Supervision (High Level)	1	1	1	1	4
Administrative (Middle Level)	1	1	1	1	4
Front line / Office work (Low Level)	1	1	1	1	4
Total	3	3	3	3	12

**Table 6.1:** Level of participants in ADPF

Age Ranges	Security Information Department		IT & Communications Department		Strategic Management Department		Policing Operations Department		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
20-30	-	-	-	1	1	1	2	-	5
31-40	1	1	-	1	-	-	-	-	3
41-50	1	-	1	-	1	-	-	-	3
51-60	-	-	-	-	-	-	1	-	1
Total	2	1	1	2	2	1	3	-	12

**Table 6.2:** Age and gender of participants

Education Level	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department	Total
High School	-	-	-	2	2
Higher Diploma	1	1	1	-	3
Bachelor	2	1	2	1	6
Postgraduate	-	1	-	-	1
Total	3	3	3	3	12

**Table 6.3:** Education level of participants

Internet Experience	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department	Total
Less than 1 year	1	-	-	1	2
1-2 years	-	-	-	1	1
2-3 years	1	-	-	1	2
3-5 years	-	-	1	-	1
5-10 years	-	1	2	-	3
More than 10 years	1	2	-	-	3
Total	3	3	3	3	12

**Table 6.4:** Internet experience of participants

Please note, at this phase of the research, the researcher was not able to conduct face to face interviews with the participants. This was due to the time limits and distance issues. Eight of the interviews were conducted online using Skype or Windows live messenger (MSN) and four were conducted using a telephone.

For this phase, e-mails were sent prior to the interviews. Two of the participants did not have an email; therefore, one of the researcher's colleagues from ADPF printed the questions and delivered them by hand to the participants. The colleague who had delivered the questionnaire had also assisted the researcher during the interviews and was familiar with the research. This individual also supervised the questionnaire completion; thereby, verifying and validating the results. This individual also assisted in organising and arranging the Skype and MSN messenger calls and ensured that this phase would be expedited and easier for all the concerned parties. A sample of the interview verification and validation questions is given in appendix XVII.

### 6.1.1.1 Verification and Validation of the Research Findings

As stated earlier in chapter 5, the research propositions were formed on the basis of the literature and obtained data; therefore, ensuring their application in real life was crucial. Ten overall research propositions were formed. These are listed in this section with a summary of the research findings. This is then followed by the replies in the form of views and opinions of the participants who participated in the verification and validation process.

#### **Relative Advantage, Compatibility and Image**

*Proposition 1: Relative advantage will have a **positive** influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

As revealed earlier, when considering RA comparisons of work procedures using e-services and manual methods it was found that, in some departments, a majority of the younger staff members and highly educated members of staff spoke of the benefits of e-services. When identifying the benefits of RA, the speed of processes when an automated system is applied and e-services providing security for diverse information, confidential, or non-confidential were the main identified themes. Comparatively, older staff members, with little or no internet experience and categorised as low positioned individuals / front line staff, displayed resistance towards using e-services. Instead, such individuals suggested that there are no benefits offered by e-services since work processes are accomplished in a better manner manually; hence there was no reason for an e-service provision. This led to the conclusion that awareness of staff to e-services potentials and of the advantages of e-services should be increasingly emphasised in the police force. This will assist in increasing the use of e-services. From this result, it was also deduced that the demographic details of participants can impacts perceptions of using e-services.

The entire number of participants (12) agreed with this finding and supported the view that understanding the benefits of e-services over other methods will motivate staff members in ADPF to use e-services. One of the participants said that “*yes, I agree with that view. It is very important to know why you are choosing this path and doing this procedure. You have to be satisfied, because if you are not satisfied then you will not use it or maybe use it for some time then ignore it, but if you are satisfied and have the background and knowledge about why and what you are doing, you will always*

*use it*” (Male participant from the IT department, 41-50 years old, postgraduate degree, high level individual, has more than 10 years of internet experience).

Another participant talked of the involvement of staff themselves in this process “*you also need to try as an experienced e-service user, to tell other staff with no experience about the e-services and invite them to use it. Show them how their work will improve and the benefit they will gain from using the e-service.*” (Male participant from the strategic department, 20-30 years old, bachelor degree, middle level individual, 5-10 years of internet experience).

***Proposition 2:*** *Compatibility will have a positive influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

Most staff members using e-services also utilised computers for most of their daily tasks; therefore, they were used to an online service and environment. They also found computers, the internet and e-services are in line (compatible) with their roles and responsibilities at work. However, some of the low positioned staff did not use e-services because they said their work is not related to computers and has nothing to do with it. Therefore, introducing more e-services for assisting with new work roles and responsibilities will encourage staff to use them and should and will lead staff to be more open to the idea of the e-services.

The 12 participants also agreed with the above finding and supported the view that compatibility of e-services and staff work roles has an influence on the use of the e-services. Some also gave reasons for low positioned staff displaying more anxiety and becoming concerned when considering e-services. For example one of the participants said “*All staff has responsibilities at work and they are evaluated by higher individuals. So the work has to be completed or this will affect the yearly evaluation report. What I want to say is, most low positioned staff will not risk trying to change their work procedures and use the e-services if they are not used to it. They do not have time to test things. What if the outcome standard was different than what is expected, or because they are not used to this procedure it will take them more time so it will be wasting their time. But if e-services are related with their work and they are used to it, this definitely means they are not losing anything and will use it*” (Male participant from the policing operations department, 20-30 years old, high school degree, low level individual, 1-2 years of internet experience).

Another participant (female, security department, 31-40 years old, undergraduate, middle level individual, with 2-3 years of internet experience) argued that in order for e-services to be compatible with staff work they need to be trained. She said that “*maybe, what if low positioned staff does not know how to use the e-services and need training?*” The researcher then explained that training issues will be discussed later and in this finding the main concern is only to examine how compatible the current e-services are compared to staff work procedures in ADPF. However, after understanding the researcher’s point, the interviewee agreed with this view.

***Proposition 3:*** *Image will have a positive influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

It was found that most staff members in the study considered e-service users as being smart, intelligent and talented in the organisation. In turn, this led managers to appreciating their efforts some more and getting promotion. Staff from the IT department had different views and argued that e-service users are considered experienced, but not smart, intelligent or talented in computers. This experience, they were willing to share with other staff members. Other e-service users said that e-services are used due to their importance to work related procedures and gave examples and benefits of e-services that were discussed earlier. For example, speed of e-services to accomplish different transactions. Therefore, it was concluded based on the majority of responses, the status of a person can be judged by using new technologies such as using e-services.

However, during the verification and validation interviews, participants agreed with the researcher’s findings and argued that using new procedures or new things (innovations) in general will make an individual different and special to others. Some referred to the culture in the UAE and how it may affect the status of the person. For example one of the participants stated that “*I agree with you. If someone said that using computers is difficult and very few know how to use it, the next day you will see that everyone is using it. I know it is not good, but this is how most of us think. Even if it is not good, like if there is a new smart phone in the market and the battery will not last for five min, everyone will not care and they will still buy it only because it is new*” (Male participant from the strategic department, 20-30 years old, bachelor degree, middle level individual, 5-10 years of internet experience).

### **Perceived Ease of Use and Perceived Usefulness**

**Proposition 4:** *Perceived ease of use will have a **positive** influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

When considering the perceived ease of use factor, ADPF staff members were investigated for their finding the e-services easy to use or not. The majority of users found e-services easy to use because they were used to it. This led them to use the e-services even though there were no provided training sessions. Some older staff with low education levels and no internet experience, in departments other than IT, found e-services difficult. This discouraged them and led to them not using e-services. Some of the participants faced difficulties when using a computer itself. This weakness was associated with barriers to using e-services. Therefore it is concluded that, having easy and user friendly e-services, computer skills and computer experience will increase the numbers of e-services users.

Similar to previous discussions, all the verification and validation participants strongly supported this finding. All of the participants were confident and agreed to the view that having computer experience and knowledge will increase the number of e-service users. However, in addition to experience and knowledge, a participant revealed that attractiveness of the e-services web pages is an enticing factor. That is, one of the participants commented on the web pages of the e-services and spoke of having simple and colourful web pages when attracting users. “*Having professional web designers can also add things to the e-services. Having nice colours and images make others think it is easy and fun to use it.*” (Male participant from the security department, 31-40 years old, high diploma degree, low level individual, has less than 1 year of internet experience).

Another participant who referred to the age issue said that “*it is something normal for older staff to find computers difficult because they did not learn and use it when they were young because their life was different than now, but this is not a reason. If someone wants to learn, age is not a barrier, they can learn about it now. ADPF support and encourage anyone who wants to learn. There are many who continued their studies at a later stage. I am not talking only about e-services studies, but I mean in general.*” (Male participant from the strategic department, 41-50 years old, bachelor degree, high level individual, 5-10 years of internet experience).

**Proposition 5:** *Perceived usefulness will have a **positive** influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

Perceived usefulness is another issue of this research. For this, the research asked whether e-services are useful to individuals. The majority of staff members agreed that they are useful. However as stated earlier, due to difficulties associated with its use, some did not use it. Some individuals were also not aware of e-services benefits. This suggested that the majority who found e-services useful are those using e-services. Therefore, if ADPF focuses on spreading awareness and showing the benefits of e-services to staff in all departments then non e-service users will know more about the e-services. However, it was found that the more useful the e-service at work, the more staff will use it.

Most participants also agreed with this view and argued that anything useful will attract people. One of the participants was surprised and was not sure why some staff members who find e-services difficult are not using them. He said that “*everyone should use the e-services if it is useful even if they find it difficult. Difficulty can be challenged with hard work and practice. They can learn so this is not an excuse.*” (Male participant from the strategic department, 41-50 years old, bachelor degree, high level individual, has 5-10 years of internet experience).

Further, another participant stated that “*this is the priority when implementing any project. It should be useful not only for certain category but everyone so that everyone will benefit from it. ADPF spends a lot of money yearly in different projects and one of the most important things the higher management will ask before giving approval if it is useful and do we really need it.*” (Male participant from the policing operations department, 51-60 years old, bachelor degree, high level individual, 2-3 years of internet experience).

### **Trust of E-services and Government**

***Proposition 6:*** *Trust of the e-services will have a positive influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

***Proposition 7:*** *Trust of the government will have a positive influence on the behavioural intention to adopt and use e-services.*

Some of the staff members who were not e-services users expressed scepticism towards e-services in terms of being able to perform various simple and difficult tasks. These views were brought about due to the negative opinions expressed by colleagues who had bad experiences when using e-services. This led the researcher to conclude that if staff members trusted e-services, then there would be more of its

use and concurrently, other staff members would be encouraged to use it. Trust of e-services it was found, can be increased with more awareness, encouragement from managers of e-services, training and practice relating e-services with the roles and responsibilities of individuals.

Furthermore, staff members should be aware that the relation of AD government with the government e-services in ADPF is to monitor different transactions for improvement purposes and to ensure transparency. They should be also aware that staff personal details and citizen information will never be misused by the government. This is important when building trust between staff members and the government, which will lead and encourage staff members to use the e-services.

Based on the interviews, participants supported the researcher's view and agreed that increasing staff trust towards e-services would increase staff confidence; subsequently, usage would be increased. One of the participants argued that it is difficult to increase staff trust only by lecturing or encouraging them, as that would not increase satisfaction. Therefore it was suggested that future research should examine this issue in depth and find solutions. *“Yes if staff members trust the e-service they will use it, but the problem here is how to have a safe environment, you might tell them it is safe but still you have to show and give them a proof. It is difficult to trust something unless you are sure that nothing bad will happen. The security department should find ways on how to guarantee this and then all staff will trust e-services.”* (Male participant from the policing operations department, 20-30 years old, high school degree, middle level individual, less than one year of internet experience).

### **Facilitating Conditions and Self-Efficacy**

***Proposition 8:*** *Technology facilitating conditions will have a **positive** influence on the behavioural intention to adopt and use e-services.*

***Proposition 9:*** *Resource facilitating conditions will have a **positive** influence on the behavioural intention to adopt and use e-services.*

To access e-services requires an infrastructure more in the form of computers and network cables. If staff members have no access to computers then e-services will not be used. A majority of the departments in ADPF did have devices and equipment; but, there are an equivalent number of staff members who work outside their offices and are responsible for different security tasks. However, it was learnt that these individuals did not have access to any computer. Therefore, if computers, training,



and opportunities to use e-services and computers are provided to all staff members, e-services use within ADPF would increase.

An added finding was that support from ADPF and the IT department to provide sufficient budgets (money) and employees to implement new e-services and regular updates are crucial. This will lead to better e-services standards and suitable environments encouraging all staff members from different departments to use the e-services.

This finding was also accepted by participants and most argued that without the right IT infrastructure e-services will not operate effectively. *“Yes I understand what do you mean, because if everyone had their own computer they will use it even if they were curious and only want to try it. And about the second point if there are no faults and problems with the e-services and network and it work perfectly then no one will complain that it is slow or the server is down, this will encourage them to use it.”* (Female participant from the IT department, 31-40 years old, bachelor degree, middle level individual, has more than 10 years of internet experience).

One of the participants (male, from the policing operations department, 51-60 years old, bachelor degree, high level individual, has 2-3 years of internet experience) did not agree with the technology facilitating conditions. He argued that some of the tasks in the police are not administrative and using computers or e-services will not help. *“You said that some staff work outside their offices and in charge of different security tasks. So this person does not need it even if you give him access to any computer.”* The researcher then explained that changes to work tasks in the police can be applied in the near future and new e-services can also be implemented that can target staff working outside their offices; for example, for live reporting of incidents that can be sent directly to the police central operations an e-service would be effective and efficient. Therefore, the current research is considering the adoption of e-services from a general view; however, the next phase should examine each department in ADPF individually and then improvements can occur so that all staff can benefit from the advantages of the e-services. What is learnt from this is that there was agreement with some of the researcher’s findings, but not completely.

***Proposition 10:*** *Self-efficacy will have a positive influence on the behavioural intention to adopt and use of e-services. However, this influence is moderated by some of the demographic factors.*

Training seemed to be extremely important to increase staff knowledge and confidence when using e-services. It was found that most of the e-service users learned to use e-services after attending some training and informing sessions. However, some with no or little computer and internet experience needed more training than others. Some also said that using e-services required new computer skills that they did not have. It was concluded that increasing staff computer skills will increase their confidence; thereby, influencing staff to use the e-services.

With regards to this view, all 12 participants had agreed and spoke of the importance of training and its being mandatory to all staff members in ADPF.

### **6.1.2 Transferability**

As stated earlier by Devers (1999: 1165) transferability is “the extent to which findings can be transferred to other settings. In order for findings to be transferable, the contexts must be similar”. Walsham (1995) argued that generalisation could occur even when examining single case studies. However, to have more reliable findings that can be generalised, this study has formed a theoretical framework to examine e-government adoption and tested it in four different case studies. Furthermore, findings could also be used in other cases with similar context, such as other public organisations in UAE, Gulf Region or even in the Middle East. This research has used Yin’s recommendations and examined multiple case studies. Yin (2009: 44) gave an example about a case study that examined a specific neighbourhood and stated that findings of this study should also be tested in a second or third neighbourhood to find out if the findings are also applicable to the other neighbourhoods to ensure generalisation.

Lee and Baskerville (2003: 241) added that whether qualitative or quantitative research was being utilised, generalisation can occur after being “empirically tested and confirmed”. Furthermore, Lee and Baskerville (2003: 241) also argued that to ensure generalisation in new settings, another method is that “scientific researchers and practitioners can work as a team, share responsibility, regard the theory, apply it and then improve it over successive cycles of application and reflection until the practitioner-defined problem is adequately addressed”. This method will be applied to other ADPF departments following the completion of this PhD. By doing so, generalisations of the findings can be obtained.

This explanation has now concluded the evaluation aspect of this research. For this chapter the researcher also examined the research findings and compared them with other e-government adoption

studies. At that point, it was also noted that some of the findings in this research were similar to others in developing countries. This also proves that similarities in findings within different e-government studies, whether they were in the Middle East or in other developing countries, assures generalisation.

However, “it is not the researcher’s task to provide an index of transferability; rather, he or she is responsible for providing data sets and descriptions that are rich enough so that other researchers are able to make judgments about the findings’ transferability to different settings or contexts” (Zhang and Wildemuth, 2009: 313).

### **6.1.3 Dependability**

Dependability is “the extent to which the research would produce similar or consistent findings if carried out as described, including taking into account any factors that may have affected the research results” (Devers, 1999: 1165).

Dependability was discussed in chapter 3, section 3.9.3, where it was suggested that dependability can be ensured by clearly illustrating the pursued process of a project. This thesis provided important details of the research process, analysis, findings and discussion; therefore, this can guide other researcher undertaking similar studies and prevent errors (Yin, 2009).

Furthermore, this research followed Yin’s (2009) guidance when ensuring dependability and formed a set of case study protocols, which were described in chapter 3.

### **6.1.4 Confirmability**

Confirmability is “the extent to which findings are free from bias” (Devers, 1999: 1157). This was overcome by involving 12 participants to verify the findings of the research. This led the participants to propose confirmation or differing views and suggestions. This ensured that a bias arising only from the researcher’s understanding was reduced to a minimum.

Based on previous discussion, and after ensuring that this research followed the criteria for evaluating qualitative research, the next section will identify similarities and differences of the research findings compared to other studies examining e-government adoption.

## 6.2 Discussion

This research is considered unique, as the context is a public sector organisation in the UAE, i.e. ADPF. Previous research examining the adoption and use of e-services in the Gulf region and Arab states was either based upon citizens (Al-Shafi and Weerakkody, 2007a; Alsobhi et al., 2010), or if on organisations, public sector ones that are not law enforcing organisations (Awan, 2007; Zaied et al., 2007; Al-Busaidy and Weerakkody, 2009). Furthermore, e-government research on public sector organisations in the UAE and the Gulf region had looked at e-government implementation or adoption in general (Al-Busaidy and Weerakkody, 2010; Alfarraj et al., 2011). However, in this study, an in depth research has been done, where the researcher had examined specific e-government services in ADPF and also different departments within this organisation and its staff members. This assisted in understanding and examining what departments and the demographic details of staff members who are using the e-services or not and reasons for their choices.

Due to the nature of the organisation and its structure as a law enforcement organisation, the adoption and use issues were diverse to others. Furthermore, the Arab region and the UAE has a culture of high power-distance (Hofstede and Hofstede, 2005) where a large number of staff members have few rights when the decision making is made. Before proceeding further, organisational culture is defined as a “collective programming of the mind which distinguishes the members of one organisation from another” (Hofstede and Hofstede, 2005: 402). This was shown when examining ADPF where their work procedures were different than in other public sector organisations, which was related to culture issues. “Culture gives organisations a sense of identity and determines, through the organisation’s legends, rituals, beliefs, meanings, values, norms and language” (O’Donnell and Boyle, 2008: 4).

This implies, that in the context of ADPF only higher level individuals have that authority. Therefore, if a high level individual in a certain department was not interested in e-services and viewed it as non-essential, then whether an end-user (low level) individual considers it as important for either his/her role or for the organisation, that decision cannot be made. Comparatively, if a high level individual was interested in implementing e-services then most low level staff in this department will be encouraged to use these different e-services. This shows that adoption can be affected based on higher management and levels of staff.

Furthermore, the communication procedure within staff members is also different than in not law enforcing organisations. That is, in the culture of ADPF, the practice within law enforcement

organisations is that certain protocols have to be followed. For example, if a staff member wanted to discuss a certain issue about using the e-services with another staff member from different department or from a higher level in the same department, then the staff member should be granted permission from his direct manager. Therefore, the hierarchy of staff members plays a big role on communication procedures.

As discussed earlier some staff members in ADPF role is to work in fields and deal with certain circumstances outside their offices. This affected the use of e-services because of the limited accessibility to computers and internet. However, to encourage these type of staff categories, providing them with new technologies such as ipads and smart phones where they can connect online and provide reports anywhere and at any time.

Finally, an interesting and unique point in this research is that it concluded that image of staff was considered extremely important in this organisation. It was seen that most e-service users are considered smart and intelligent. They can also be promoted to higher positions because of their use of these e-services. This meant that this environment creates a good opportunity in order to adopt new technologies whether they were related to e-services or not.

As discussed earlier this research identified several factors affecting the adoption and use of e-services in a developing country's public sector organisation. However, to provide better explanations of the findings and to increase its generalisability, examining other e-government adoption studies in similar contexts, such as studies in some of the Arab States of the Gulf region was important. This ensured that similarities and differences between research studies of the Arab region and this study, which is also based on the Arab region, could be made. This also allows an understanding of the distinction and contribution that this research provides to be proffered. More details are given in this section.

### **6.2.1 Relative Advantage, Compatibility and Image**

When examining RA, and considering the benefits of e-services over manual procedures, e-service users gave examples such as, speed, transparency and confidentiality of data. On the other hand, non e-service users showed unfamiliarity with e-service benefits. This led to the conclusion that some of the staff members were lacking knowledge and awareness of the benefits of e-services. RA was also found in a number of e-government adoption studies of the Arab region; namely in Oman, Saudi Arabia and Kuwait (Awadhi and Morris, 2009; Alshehri and Drew, 2010; Alsobhi et al., 2010; Al-Rashidi, 2010).

Therefore, similarities in terms of the factor of RA can be drawn, but differences between this study and the others occurred due to the other studies being quantitative and being mainly citizen centric. Al-Rashidi (2010) was organisational.

Furthermore, it was also mentioned earlier that some of the staff in ADPF were not convinced with e-services and preferred paper procedures, and concluded that some staff are resisting any changes in the organisation. A study by Al-Rashidi (2010) in the Gulf region and specifically Kuwait examined internal barriers when implementing e-government and identified several factors that affect adoption, such as resistance to change. Reasons for resistance could be from a psychological view because of lack of knowledge or related to culture. This finding of resistance to change was also found by this research and the older participants replies of negativity towards e-services were interpreted by this research as resistance to change.

Factors affecting e-government adoption in the Gulf that are related to compatibility and image were not mentioned in Gulf region literature. Factors identified in this study were that e-services are not compatible with individuals' life styles. With regards to image it was noticed that the status of a person can be affected due to the knowledge or experience of e-services; hence a unique aspect of this research.

### **6.2.2 Perceived Ease of Use and Perceived Usefulness**

Factors identified in this study related to perceived ease of use were that e-services are viewed as complex, which is overcome by intensive training for some of its users. Complexity of e-services was related either with the design of the e-service (web page design) or the large number of functions and details of some of the e-services. This was also supported by some of Gulf region studies on e-government adoption (Qatar, UAE, Kuwait, Saudi Arabia and Oman). The previous studies argued that e-government services should be simple and user-friendly to attract as many users as possible and does not create any barrier between the e-services and people intending to use it. Most studies were conducted based on citizens views toward their government (Al-Shafi and Weerakkody, 2007a; Awan, 2007; Awadhi and Morris, 2009; Alfarraj et al., 2011).

Furthermore, because this study is based on a police force organisation, all staff were keen to have e-services that can provide all type of security and confidentiality of personal details; therefore, usefulness of e-services was measured by how secure the service is. More details about security in

other e-government studies in the gulf will be available in the next section, particularly in terms of trust of e-services and government. Another factor related to the usefulness of e-services was providing more e-services that can be useful to the majority of people and not focusing on a certain category. This was also discussed in studies that argued for the need of more e-government services for citizens to use, such as, studies by Al-Shafi and Weerakkody (2007a) in Qatar and Alfarraj et al. (2011) in Saudi Arabia.

Another factor that was identified in this research but not discussed in previous studies was the availability of reliable services that satisfies users in the sense that the e-service works efficiently and free of faults. This ensures that the e-service is useful and efficient to deal with different tasks and work load.

### **6.2.3 Trust of E-services and Government**

Most of the studies of e-government adoption identified the importance of having secure online transactions (Al-Shafi and Weerakkody, 2007a; Hamner and Alqahtani, 2009; Awadhi and Morris, 2009; Alsobhi et al., 2010; Al-Rashidi, 2010). This was also identified in this study, and it was concluded that increasing the level of e-services security will increase the level of trust; thereby, encouraging an increase in the adoption of e-services. Further, it was also identified that users should be aware of the ability of higher management and government to protect all documents, transactions and personal data. With users being aware of the higher security protection measures, the level of trust in the services will increase. This was also identified in a Gulf region study of Oman where regression analysis tests recommended that top management support is crucial to fill the gap between e-services and its users (Al-Busaidy and Weerakkody, 2010).

Based on the current study's results, trust is built upon the reputation of e-services and government. Reputation from current or previous users, whether in terms of positive or negative incidents, clearly affect e-government adoption; hence identified as one of the factors that affect e-government adoption, diffusion and use in public sector organisations.

#### **6.2.4 Facilitating Conditions and Self-Efficacy**

As discussed earlier in the research findings, facilitating conditions were considered important in order to provide a suitable environment that allows access to and use of different e-government services. This was also identified in some of the e-government adoption studies in the Gulf region. For example, Zaied et al. (2007) examined e-readiness in Kuwait's public sector organisations and identified that only 47% of organisations have suitable internet connectivity and infrastructure. This created barriers to e-government service adoption in organisations with no suitable infrastructure.

Furthermore, similar to trust towards e-services, most of the e-government adoption studies in the Gulf region raised concerns related to education, skills and knowledge of using computers, internet and e-services (Sahraoui, 2005; Zaied et al., 2007; Hamner and Alqahtani, 2009; Alshehri and Drew, 2010; Alshehri and Drew, 2010; Al-Rashidi, 2010; Al-Busaidy and Weerakkody, 2010). These studies also made recommendations and suggestions towards increasing training sessions for users. This was not limited to only public sector organisations staff members, but citizens alike.

#### **6.2.5 Demographics**

This study found that some demographics can indirectly affect e-government adoption due to the various constructs, such as, compatibility, image and perceived ease of use. However, what was also found is that in the Gulf region e-government adoption literature, minimal research has examined the combined demographic factors of age, education, gender, or organisational positions. For example, a study by Hamner and Alqahtani (2009) in Saudi Arabia examined the accessibility of e-government, and identified factors such as age and education having a direct impact on e-government adoption. An example was given earlier about age not being generalised. However, in this study it was found that older staff in the IT department had knowledge to use e-services whereas older staff in the policing operations department did not have knowledge and skills to use e-services and instead advocated against use and adoption of e-services. This was explained later by the presence of the factor of compatibility. This research has attempted to differentiate itself by identifying that demographics are important for the consideration of e-government and the various constructs surrounding adoption, use and diffusion.



### **6.3 Implications of the Research Findings**

It is anticipated that the research findings will offer various implications that are now discussed.

#### **6.3.1 Implications to Academia**

E-government is still advancing and alongside it, e-services. This research developed a conceptual model based on a public sector organisation in Abu Dhabi. Therefore, the implication for academia is that a conceptual model based upon theory and practice associated with a public sector organisation in Abu Dhabi has been developed and implemented. This can be useful to understand the current stage of the e-government programme. What this also implies is that there is now a conceptual model that can be utilised to understand e-services, applicable to the police force, and allows academics interested in understanding and exploring similar types of public sector organisations to have a reference point now. This might have been warranted in the past and from this research such a model can now be used by ADPF personnel.

#### **6.3.2 Implications to Practice**

Organisations from industry interested in providing supplies, in the form of novel technologies necessary for an e-services infrastructure, can now refer to some or all of the results from this research; thereby, understanding the adoption, use and diffusion of e-services in ADPF. Therefore, this study can be used as an initial benchmark measure for private or public sector organisations interested in e-services development, adoption, use, diffusion and implementation.

#### **6.3.3 Implications to Policy Makers**

Policies to further develop e-services in ADPF are being regularly implemented. By referring to this research, policymakers can get an initial idea of the impact of their policies or to determine what measures are required to achieve successful or improved adoption, use and diffusion of e-services in public sector organisations in ADPF. For example, training was found to be crucial for staff members when using the e-services. From this research it can be suggested that strict and scheduled training programmes should be employed throughout the organisation in order to raise awareness. By doing so, staff confidence could be improved. By having a knowledgeable and confident workforce, policies could also attain success such that financial budgets may not raise, but either brought to a standstill or

lowered. That is, with a better informed police force, training may not be required as often as before when people were confused or at a loss about the application of certain e-services. This implies that budgets assigned to a large number of training and educational programmes may be reduced or remain at a stationary position.

#### **6.4 Summary**

The main purpose of chapter 6 was to evaluate the research findings based on certain qualitative criteria. Discussion of the verification and validation process based on ADPF staff member's views were also given. Finally, identifying the similarities and differences between this research and others in literature was viewed important in order to illustrate the novelty of this research and included in this chapter. The next chapter, which is the final chapter of this thesis will summarise the entire research, along with the conclusions, contributions, limitations and future research.

# *CHAPTER 7*

## *SUMMARY AND CONCLUSIONS*

### **7.0 Introduction**

After the evaluation process which was discussed in the previous chapter, the final chapter in this dissertation summarises and concludes the entire research. This chapter will begin by offering an overview of all the chapters of this thesis and the research conclusions. Research contributions to theory and practice, and limitations are also given. Finally, recommendations to ADPF and other similar public sector organisations based on the research findings are listed in this chapter.

### **7.1 Dissertation Review**

As mentioned, this section provides an overview of each of the chapters now that the applied aspect of this research has concluded, for now.

**Chapter 1** began the thesis where a background of the research problem was discussed and issues such as, the problems facing government (public sector) organisations with regards to employees and the low adoption rate of new government e-services (Venkatesh and Bala, 2008) were explained and introduced. Reasons for the barriers between staff and adoption were also proffered. This led to the identification of problems such as, cultural issues, inexperienced staff or resistance from staff in different organisations being reasons leading to the low adoption rates in public sector organisations (Hesson, 2007). This allowed the researcher to determine that an in depth understanding of these barriers in a public sector organisation are critical for research. Therefore, questions such as, what are the barriers (if any) for low adoption in public sector organisations and how to overcome them, emerged in the research study's understanding. As e-services are related to e-government an

introduction to e-government was also provided in this chapter along with introductions to adoption, diffusion and use. To acquaint readers to the pursued research approach of this study, an introduction was also proffered. The overall information of this chapter then led to the formation of the research question driving this research, the main aim and objectives and a research scope surrounding this research study.

A theoretical understanding of the main topics surrounding this research, adoption, use, diffusion and the Gulf region along with e-government, e-services was needed to identify a gap in this research. **Chapter 2** provided an overview and critique of the main topics providing the theoretical foundations of this research. There was an emphasis not only on e-government literature, but technology adoption and diffusion theories. E-government is still considered a novel topic; therefore, there was also a need to understand how other ICTs studies were using these theories. This led to the formation of a theoretical framework that identified and understood the factors affecting the adoption, diffusion and use of e-services in a public sector organisation. Following the development of a conceptual framework, the research propositions to be employed in this study were detailed.

To apply, understand and validate the newly developed theoretical framework in chapter 2, data is required. Therefore, a research methodology chapter was crucial before conducting any data.

**Chapter 3** began with describing the differences between qualitative and quantitative research and gave reasons for using qualitative research. This led to examine the qualitative philosophical assumptions where due to the nature of this research, the research question and aim, an interpretive research was viewed to be most appropriate. Further, an explanation was also given regarding the need for this research to conduct a multiple case study. Research techniques were also introduced and justifications for pursuing certain techniques were provided. This led to selecting the interview as the main technique for gathering data, with an additional method of observations. Finally, the research analysis and the evaluation approach to be used in this research were also briefly explained and discussed in this chapter.

From the data collection findings and analysis emerged that are proffered in chapters 4 and 5.

**Chapter 4** discussed and explained the findings and analysis pursued for the pilot study, which was not a pre-test, but more a gauge for understanding.

**Chapter 5** then detailed the analysis and results of the final phase of this research. The chapters consist of the various themes and codes applied in this research. These outcomes also led to the refining of the research propositions and framework based on the pilot and final phase of this research.

**Chapter 6** includes the results of the evaluation phase of this research. This assisted in increasing the reliability and trustworthiness of the study overall and research findings (Pozzebon, 2003). Lincoln and Guba (1985) criteria to judge interpretive qualitative research was used for evaluation since it is closely associated with and leads to evaluation methods for qualitative research. Evaluation also allows the generalisability of findings, and ensured that the research findings are applicable in practice. This was then followed by a discussion section where a comparison between the research findings and other studies in the Gulf region allowed the positioning of this research to occur.

Finally, **chapter 7** provides an overview of the chapters and draws the research to a close. Also included in this chapter, are the contributions of this research, the limitations, future directions and recommendations to this research.

## **7.2 Research Conclusions**

In order to adopt, diffuse and use e-government services in public sector organisations it was concluded that certain constructs should be taken into consideration. These constructs were; demographic details, relative advantage, compatibility, image, perceived ease of use, perceived usefulness, perceived behavioural control, trust of government and trust of the e-services. Further, these constructs led the researcher to identify and understand factors affecting the adoption, diffusion and use of e-services in a public sector organisation (discussed in chapter 5) which was the main aim of the study.

Based on the researcher interviews and observations it was learnt that immense work should be undertaken in ADPF to ensure the use of e-services within their staff members. Even though there are some users, mainly categorised as staff with IT backgrounds, ADPF staff are still considered at an early stage of adoption and diffusion of e-services. This implies that organisations, which always include staff from diverse educational back grounds, interests and life style need to address the different needs and requirements. Therefore the challenge is to find ways and techniques to understand them and convince them to adopt and use these e-services. Using different e-services means improvements in the work process and transparency of the organisation; therefore, organisations

should consider such issues as they would benefit the utmost. This then suggests that understanding and identifying the adoption and diffusion of e-services is an urgent, extremely important and serious matter, one that should be considered at the initial phase of organisational process improvement.

Using interviews as a research technique was important for this type of research in this country. Most of the participants had never been involved in any research before and initially did not understand the reasons for the interviews or the purpose behind them. Therefore, if a quantitative research approach is pursued and a questionnaire technique is used, due to the scepticism and confusion regarding such research, replies may be incomplete or none at all; hence the interview technique was followed.

In conclusion, this research was completed by having a clear scope, research aim, reliable literature, and appropriate research method and data analysis approach to pursue. However, in the future, cultural and organisational aspects should also be considered when such research is conducted.

### **7.3 Research Challenges**

The main challenges faced by the researcher were during the applied stages of this research, which are the pilot and final phases. Most of the staff members in ADPF were busy at work; therefore it was difficult to find the right time to interview them. However, during the final study, the researcher had learnt from the pilot study stage that connections and an established network were required; therefore, social connections in the organisation to gather responses easily from a larger population was necessary. Furthermore, the majority of participants found that the interviews were long, with a preference towards short questions in a questionnaire format. This was overcome by the researcher convincing participants that the gathered data will assist research, which in turn will assist ADPF.

A second challenge was in the form of the language utilised for the data collection. Arabic was the first language of most of the participants; therefore, the researcher had to translate the questions from English into Arabic. This was made possible with the assistance of a professional translation company. After conducting the research in Arabic, the researcher had to translate it again into English as the readership is English speaking and had to analyse and understand the results. This was a difficult task and time consuming that emerged as an indirect challenge.

A major obstacle was the confidentiality of data. As the participants were drawn from ADPF and sensitive information could emerge, the researcher had to convince participants that no one,

particularly from ADPF would be able to view their details and views expressed in the interviews. This was also formally declared in the introductory letter and strictly enforced by the University and school's ethics department. Additionally, participants did not agree to have photographs or names inserted in the thesis. Most of the participants also did not feel comfortable when speaking of their main jobs, responsibilities and tasks in ADPF. When such points arose, quick changes to other general discussions were made by the participants, but due to the pilot, the researcher had learnt that a focus to the conversation had to be made.

## **7.4 Research Contributions**

To qualify as a PhD, a gap has to be identified and a novel research also has to be provided. This was viewed as the contributions of this research, which are explained below.

### **7.4.1 Contributions to Theory**

The contributions from this research are anticipated to be a better understanding of the diffusion, adoption and use of e-services in the UAE region. For theory, this research study provided a diverse approach in an organisational context, the development of a novel e-services conceptual framework specific to Abu Dhabi's public sector department and finally, there is research conducted on government to employee (G2E) e-services in Abu Dhabi, a rare occurrence. Minimum research emphasising Abu Dhabi and its neighbouring emirate, Dubai are evident in literature. Therefore, this research could serve as a beginning to research encouraging more adoption and diffusion research undertaken in the UAE.

Previous adoption studies have revealed citizens awareness and acceptance of innovation, but largely in a quantitative manner. This research study selected a diverse approach that was based on opinions and thoughts arising due to qualitative research. This led to gathering rich and in depth data, that was possible from face to face interviews. By doing so, an understanding that quantitative data would not have been offered, was possible. That is, for instance, although the strength of the constructs drawn from TPB or TRA would be possible, a deeper level of themes and their impact would not be possible, which this research allowed.

#### **7.4.2 Contributions to Policymakers and Practice**

As e-government and e-services are being developed and implemented globally, and the Gulf and Arab region are also considering them, this research will be useful in an important way. For policymakers, the contribution of this research is that the research can understand the impacts of policies and strategies used for developing and implementing e-services. Therefore, provide an insight into strategies and policies that can be accepted in various diverse public sector organisations.

For practice the contribution can be in the form of results that organisations providing external consultancy services in the UAE can identify and understand. This could motivate and encourage adoption and use of e-services within government departments; thereby achieving more success in e-services implementation and adoption. Therefore, results such as, lower positions individuals in departments not utilising e-services emerged and suggest that awareness should be inherent within the organisation. By doing so, fewer risks and waste of resources in the form of time and personnel can be avoided.

#### **7.5 Research Limitations**

The prime limitation in carrying out this research is the issue of distance. That is, the data collection involved a travel to the UAE in order to interview and question the employees of ADPF. This had forced the researcher to gather data in a limited time, knowing that it will be difficult to come back to the respondents once he had travelled back to the UK.

Lack of literature in e-government and the Gulf region was also an issue in this research. Therefore it was difficult to compare this research with other similar research from the same region. Most studies consider a demand perspective that examines e-government services with citizens focus (G2C). This research is different as it examined a public sector organisation and looked at e-services within the organisation (G2E).

Another limitation is that this study examined only one public sector organisation, which is ADPF. The work environment in ADPF is different from other public sector organisations due to the nature of work conducted within ADPF. Also, when joining the ADPF, staff members are provided with military style training; thus differences with other public sector organisations in Abu Dhabi will be evident.



Therefore, examining other public sector organisations could be useful which is also stated in the future research section.

As only one organisation was used and research on Abu Dhabi's public sector is scant, this limited the ability to compare the research findings with other similar public sector organisations. In turn, this prevented inferences to other Abu Dhabi public sector organisations and testing of the factors to be undertaken.

## **7.6 Future Research**

This research is only considered as a starting point for the researcher. The researcher is willing to undertake more studies in future to examine public sector organisations in AD and the UAE, more details are given in this section.

This research had examined the adoption, diffusion and use of e-government services within different departments in ADPF, which was an organisation perspective. However, future research could also use the conceptual framework formed in this research and examine the adoption, diffusion and use of e-government services provided by ADPF to the citizens of AD, therefore, examining adoption from a citizen perspective. This may identify new factors that affect the adoption, diffusion and use of the e-services that are different from this study.

Furthermore, other public sector organisations in AD that provide different services to citizens could also be examined in future research. For example, to compare citizen's adoption of e-government services provided by health, education, banking, telecommunications service providers and the police force. This will give the researcher an opportunity to compare between different public sector organisations, which will form more generalisable findings.

As stated earlier, further understanding from an organisational perspective of organisational change and culture because of resistance to change of some of the staff members could also lead to novel research not evident in e-government academic research.

With regards to the research method, as given in chapter 3 (research methodology), because of the time limit and the formation of an understanding could be provided a case study method was used. However, future studies could involve the researcher in a more proactive role (as being a police officer in ADPF) and to have the opportunity to participate in meetings with staff members in ADPF.

Therefore, an action research method could also be used in future studies to, not only examine the adoption and diffusion of e-services, but also to be part of the research. Myers (2009) stated that action research is different from other research methods, because other research methods only seek to understand and study the situation, but action research involves applying changes too.

## **7.7 Recommendations**

As this research is based on ADPF and there are lessons that can be provided, some recommendations for future success of the e-services programme are suggested.

1. Computers and e-services use depend on staff work routines. By involving computers in the diverse work routines and work tasks will increase usage. Therefore, organisations should examine all the available tasks in the organisation and introduce e-services in an incremental manner. By doing so, individuals can cope with the tasks, familiarise themselves with the technology and perform and deliver outputs to assigned tasks. However, it also has to be understood that changes to diverse organisational processes may also be required.

2. It was concluded that staff members who are aware of the benefits and advantages of e-services are the ones who had prior experience or knowledge of the e-services. Therefore, increasing staff awareness will increase e-service usage. There are many ways organisations could increase their staff awareness. For example, organisations can form and post different types of posters within the premises. These posters should illustrate and explain the various advantages offered by the e-services. They could also show how easy to use the new application is. There also could be the arrangements for regular lectures from user's experiences where challenges and experiences of using the e-services could be spoken of. Finally, ADPF could also consider designing and printing brochures / flyers that would be widely disseminated amongst the entire staff members of the organisation. By doing so, curiosity and interest within those who had, or were considering employing the e-services web pages could be achieved.

3. For e-services implementation two main issues should be addressed. The first issue relates to the simplicity of the e-services. It was learnt that easier to understand and visualise web pages, and not complex e-services will attract users. The second issue is the design of the e-service. Web page designers should be aware of the users about to utilise the e-service. Therefore, the designers should know that staff members from diverse backgrounds, with limited use of the computer, internet or e-

service experience will be employing the e-service; therefore the novel web page should be, in the instance of ADPF, colourful and should have a user friendly interface.

4. As the research findings suggested, there is a vital need for regular training and improvements to the computer skills of staff members in every department of the organisation. Therefore, everyone should be trained without an emphasis on specific departments. Further, to encourage staff attending training, organisations should link the training sessions with staff yearly evaluation reports and failing to attend training sessions could affect staff promotion. This will lead all staff to consider these training sessions seriously.

5. For ADPF, staff members in all departments should be treated equally. This includes providing all staff members with desktops, laptops or any other device that is capable of providing online connections and use of the e-services. Furthermore, computer and e-services training sessions should not only be for certain staff where factors such as, age, gender, education, organisational level or internet experience may have been considered. Instead, online products and services should be available for everyone in the organisation. Particularly, since the government's aim is to be the best in its provision of e-government.

6. From the conversations it was also realised that an IT infrastructure and the proffered e-services should always be most up-to-date and being able to cope with the latest technology standards. For instance, having fast and reliable fibre optics network cables, computer server reliable to handle high volume of users, latest and updated antivirus, Microsoft Office and other similar software. However, to ensure that the applications will work successfully, training and knowledge diffusion is vital, otherwise, faults could occur that will affect e-service adoption.

## **7.8 Summary**

This is the final chapter of the dissertation. It aimed to summarise the research by giving a brief overview of each chapter in section 7.1. The research contribution to theory and practice was also given. Further, the limitations, challenges and future research were also included in this chapter.

Based on the research findings, this research also proposed a list of recommendations for public sector organisations and ADPF that can help in reducing problems associated with factors affecting the adoption, diffusion and use of e-services.

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## Appendices

### Appendix I – Review of some e-government research in Arab States of the Gulf

Author / Year	Research Context	Research Topic	Publication	Summary / Conclusion
Sahraoui (2005)	Arabian Gulf	Challenges of e-government in Arabian Gulf countries	E-government Workshop. Brunel University	Talked about challenges that e-government projects in the gulf region are facing or will face in future, such as, no clear vision for e-government implementation, no integration between Gulf States, no research or evaluation on current situations. Recommendations were also made to overcome these issues, e.g. investing on skills rather than only investing on technologies.
Awan (2007)	United Arab Emirates	Evaluation of Government to Business (G2B) websites in Dubai	Journal of Internet Commerce	Examined several organisation websites, such as, Emirates Airlines, Emar, Etisalat, Dubai Police. Tests were conducted based on website graphic design, allowance for disabled, more than one language, regular updates, user friendly etc. Result: communication should be improved (faster response by emails), options of more languages are needed, improve security.
Al-Shafi and Weerakkody (2007a)	Qatar	Challenges facing e-government adoption (citizen perspective) and investigate the current stage of e-government in Qatar	Electronic Government, An International Journal	This paper looked at several challenges of e-government adoption. Interviews were conducted with 6 government workers involved in Qatari e-government. Furthermore, a survey was also distributed to 100 citizen. Results: citizens level of trust was high, some were not satisfied with the current e-services because it is not 100% online. Websites should be more user-friendly.
Zaied et al. (2007)	Kuwait	E-Readiness in the State of Kuwait	The Electronic Journal of E-government	Examine 20 public organisations in Kuwait. Only 47% stated that organisations have suitable connectivity, infrastructure and skills. Recommendations: Training of employee to implement and use e-government, more collaboration between organisations and more investigations are needed.
Sethi and Sethi (2009)	United Arab Emirates	E-government initiative in Dubai from 2001 to 2008	E-governance in Practice	Talked about different e-services in 20 organisations in Dubai (such as, Dubai municipality, Dubai electricity and water authority) and how they are improving. E.g. of e-services implemented are: e-pay, e-job,

				e-library. In 2007, more than 2000 e-services were launched and available in Dubai e-government portal. A list of lessons learnt were also available so that other developing countries could follow, e.g. flexible infrastructure, strong leadership and vision, development of human resource.
Awadhi and Morris (2009)	Kuwait	Factors influencing e-government adoption	Journal of Software	Concluded several factors that can affect e-government adoption, such as, usefulness of e-government services, ease of use, cultural and social influences, technical issues, gender, awareness and trust.
Al-Busaidy and Weerakkody (2009)	Oman	Factors influencing the development and diffusion of e-government in Oman (employee perspective)	Transforming Government: People, Process and Policy	Looked at 3 public sector organisations; Information Technology Authority, Tender Board and Ministry of Man Power. Survey was conducted, 105 participants with IT backgrounds were involved in the study. Concluded some barriers for e-government development, such as, low information exchanges between governments existed.
Hamner and Alqahtani (2009)	Saudi Arabia	Accessibility of e-government by individuals	Government Information Quarterly	Developed a model (Resident decision model) to understand how users will accept or reject e-services. Furthermore, concluded factors that can affect e-government use, such as, age, education, security and internet knowledge.
Alshehri and Drew (2010)	Saudi Arabia	Challenges of E-government adoption	World Academy of Science, Engineering and Technology	Looked at issues they could face when adopting e-government. E.g. issues related to technology, culture and social. Recommendations were also made such as, train government employees to understand more about e-government, increase level of awareness of citizens, collaboration between government agencies.
Alsobhi et al. (2010)	Saudi Arabia	Examine e-government implementation	American Conference on Information Systems 2010 Proceedings	Examined a public sector organisation in Madina City that implemented some e-services for citizens (khadamatec). Concluded some factors that effected the adoption of e-services in this city, such as unawareness and trust between citizens and government.
Al-Rashidi (2010)	Developing countries, Gulf States and Kuwait	Challenges to e-government implementation	European and Mediterranean Conference on Information Systems	This study focused on developing countries and in specific the Gulf region. They have looked at internal barriers when implementing e-government and proposed a framework that will be tested at a later stage. Several factors that could affect the implementation process were concluded, such as, awareness, trust, political desire, training, resistance to change, security.

<p>Al-Busaidy and Weerakkody (2010)</p>	<p>Oman</p>	<p>Examine e-government implementation in Oman</p>	<p>European and Mediterranean Conference on Information Systems</p>	<p>This study examined 3 public sector organisations that have started e-government implementation; ministry of interior, ministry of higher education and ministry of manpower. The aim was to compare the past and current challenges facing these organisations during e-government implementation. Recommendation: Top management support, integration between public agencies, and IT skills are need.</p>
<p>Alfarraj et al. (2011)</p>	<p>Saudi Arabia</p>	<p>Examining ministries websites for readiness of e-government</p>	<p>International Journal of Advanced Computer Science and Applications</p>	<p>Two out of 28 ministries still have no website. A comparison of e-government readiness was made between Saudi Arabia and Bahrain ministries. Based on 2010 UN e-government readiness survey Bahrain was ranked the 8<sup>th</sup> on the world on online service index, were as, Saudi Arabia ranked 75<sup>th</sup>, therefore, a comparison was made to see the gap and see how to improve it in future. It was recommended that all Saudi ministries should take this issue more seriously and develop portals that can communicate with citizens, residents and businesses and have more comprehensive online services.</p>

## Appendix II – Ethics Committee Approval

From: "Jordan, Christine M" <[c.m.jordan@herts.ac.uk](mailto:c.m.jordan@herts.ac.uk)>  
To: "[h.alzaabi1@herts.ac.uk](mailto:h.alzaabi1@herts.ac.uk)" <[h.alzaabi1@herts.ac.uk](mailto:h.alzaabi1@herts.ac.uk)>  
Date: Mon, 10 May 2010 12:37:59 +0100  
Subject: Ethics Protocol Number

Dear Student

Protocol No: BS/P/514-10: Ethics Approval Primary Research

Your ethics application has been considered by the Ethics committee and approved. Please note that this approval is based on the information provided in the application and allows you to carry out the research methodology as detailed in that application. Should you decide to change your research methodology then you will have to reapply for additional ethics approval.

Allocation of this Ethics number does not imply approval of the methodology, as this must be discussed with your supervisor, only that there are no ethical issues which need resolving.

Please also note that although your application has been approved in principle, the detailed implementation of your research must comply with all University procedures and protocols. Remember, too, that any communication with an external individual or organisation (whether hard copy or electronic) MUST be approved by your supervisor before distribution.

Please make sure you keep a record of your ethics number in an appropriate place, as University e-mails are deleted automatically every few months.

Sent on behalf of  
Jane Hardy (Chair)  
Ethics Committee



**University of Hertfordshire**  
**Business School**  
**Application for Ethics Approval for Research**

For official use only Protocol Number Date emailed to student
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Where any research involves the use of human subjects there is always the possibility that the subjects may be exposed to procedures, which may be harmful to them. These possibilities might include; exploitation, physical harm, emotional harm or intrusion of their privacy. The University must ensure that these possibilities do not occur. This application form enables the Ethics Committee to monitor your research so that it complies with the University of Hertfordshire ethical protocols.

It is important to note that you should not proceed with your research without clearance from the University. The assignment for which the research is carried out will not be processed for examination without Ethics Committee approval.

Your application for ethical approval should be completed as early as is practicable whereupon you will be supplied with a protocol number or referred to your supervisor. The above is an abridged version of the University's regulations regarding "...studies involving the use of human subjects". Please refer to UPR AS/A/2 for a full explanation.

**SECTION A. THIS SECTION SHOULD BE COMPLETED BY ALL APPLICANTS.**

**A1 Details**

Name of Applicant: Hassan Al-Zaabi  
Student Number (if appropriate): 5115377  
UH Email address: h.alzaabi1@herts.ac.uk  
Programme (if appropriate):  
Name of Academic Supervisor: Dr Jyoti Choudrie  
Proposed research title: A Cultural, E-Governance and ICTs aspect: The case of Abu Dhabi  
Reasons for research: Doctoral Thesis  
If other please explain?

**A2 Applicants' declaration**

I confirm that I have read and understand that the instructions and guidelines for conducting research which accompanied this form. Yes

A3 Is your research to be based solely on secondary information? No

**If the answer to A3 above is YES, proceed to SECTION C. and certify the declaration. If the answer is NO, complete the rest of the application, and then certify the declaration.**

**SECTION B: ONLY COMPLETE THIS SECTION IF YOU ARE CONDUCTING PRIMARY RESEARCH**

**B1 DESCRIPTION OF STUDY**

Briefly describe the study: E-government is assisting governments to save costs in administration and improve accountability and transparency (UN report, 2008). To obtain the required e-government changes, e-governance, which is associated with the process changes needed to bring about e-government changes is needed. The UN report (2008) found most developing countries are still struggling with E-government implementation. The United Arab Emirates (UAE) located in the Middle East region, a leading developing country is also aware of the various changes occurring in the relationship between citizens and government due to Information Systems. However, this stage of transformation faces many obstacles such as cultural issues, not experienced staff, and resistance from citizens and staff in different organisations (Hesson, 2007). The aim of this research is to examine E-Governance initiatives in a developing country. To achieve this, there will be an examination of the cultural aspects and Business Process Changes that are obtained by implementing an electronic system in a public sector organisation (some departments of Abu Dhabi Police) of a developing country. The researcher will form two pilot questionnaires (soft copy) and will disseminate the questionnaire amongst 10 experts. One version will be for citizens and the other will be for the organisational perspective. Once results will be obtained, preparation of the final questionnaire will occur and the research will use both hard and soft copies for the questionnaire. These will disseminate amongst 1000-1500 participants (approximately). For this, participants will be sought from citizens of Abu Dhabi and staff in Abu Dhabi Police.

Note: The researcher will declare that he is a police officer and a PhD student at University of Hertfordshire. Further, an introductory letter will be sent out to the citizens of Abu Dhabi and staff in Abu Dhabi Police. Researcher will take photographs of some facilities in Abu Dhabi police such as, computer servers and posters, however, participants will not be photographed. The researcher will also wear his student identity card at all times. The researcher is still in his first year so the questionnaire will be developed at a later stage (end of this year).

**References:**

Hesson, M. (2007) 'Business process reengineering in UAE public sector: A naturalization and residency case study'. Business Process Management Journal. 13(5) pp. 707-727.

United Nations Report (2008) 'UN E-Government Survey 2008: From E-Government to Connected Governance'. ISBN 978 - 92-1-123174-8, UN White paper [Online]. Available at: <http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028607.pdf> [Accessed: 06 October, 2009].

**B2 INFORMED CONSENT**

This is a process whereby a participant voluntarily agrees to willingly participate in a piece of research once they have been fully informed of what it entails and its purpose. The Applicants should give details of the purpose of the research and how long an interview/ questionnaire will take. Further, the participant should be assured of anonymity and informed that they can

withdraw at any time. These details can be given by letter. In the case of questionnaires, telephone interviews or focus groups a verbal explanation can be given, but MUST be supported by written information about the project that is offered to participants. Written information must be available for participants in research via the internet.

**B2 (i) Applicants declaration**

I confirm that I have read and understand the instruction that informed consent needs to be obtained from each individual participant for all primary research. Yes

**B2 (ii) Participants - selection, approach and informed consent.**  
Complete the table;

Method	Proposed Sample Size?	How will informed consent be obtained from <b>each individual participant</b> ?
Paper / Postal Questionnaires	1000	A letter explaining the purpose of this research will be attached to the questionnaire. If someone is in doubt, the researcher's personal contact details will be provided.
Face to face interviews / questionnaires	100	Explanation of the purpose of research and how long will the interview take, will be provided before interviews commences. In order to obtain the findings, the researcher will wear western attire -jeans, shirt and jacket; or the traditional men' Arab gown. The researcher will also ensure that the questionnaire will not be distributed in an area where colleagues of the Police force will be present. No assistance of police force colleagues in uniform when obtaining replies in the public place will be sought, this is to encourage participation and not intimidate participants from freely expressing their thoughts and opinions. To ensure that a balanced view is obtained, both genders will be questioned. Interviews focusing on staff will take place in Abu Dhabi Police department on the other hand; questionnaire focusing on citizens will take place in public areas such as, shopping malls (one visited by national and local citizens). To distribute the questionnaire, the researcher will seek initial permission from the management of the mall/s. Friends will also help in distributing the questionnaires. The female participants will be obtained using the researchers female network of friends and relatives.
Telephone Interviews	50	Verbal explanation of the purpose of research will be provided before telephone interviews commences.
Focus groups	5	Letter or explanation of purpose will be given prior to commencement of research.
Email	500	Letter of purpose of research will be provided before the questionnaire will be answered.
Web based / On line Questionnaires	500	Letter of purpose of research will be provided before the questionnaire will be answered.
Other	50	
If other please explain:	"Observation", letter or explanation of purpose will be given prior to commencement of research.	

**B3 RESEARCH IN ORGANISATIONS**

B3 (i) Do you intend conducting research in; private firms, public sector organisations, charities or NGOs? Yes

If NO, proceed to B4

**B3 (ii) Permissions**

**Applicant's declaration**

I agree to get written permission from an appropriate senior manager if I intend collecting data from employees in any organisation. Yes

**B4 MINORS AND VULNERABLE GROUPS**

You are advised not to include minors (under 18 years) and/or members of other vulnerable groups in your research. Do you intend including minors and/or member of other vulnerable groups? No

Please be aware that if the answer is YES you will be required to present a justification report to the Ethics Committee. Your supervisor may be asked to attend for that item of business.

**B5 ANONYMITY**

Do you agree to preserve the anonymity of participants both individuals and organisations? Yes

If the answer is NO, discuss with your supervisor and detail reasons:

**B6 ACCESS TO DATA**

Do you intend to allow access to the data to anyone other than; the University, the organisations, or the participants involved in the research? No

If the answer is YES, discuss with your supervisor and detail the reasons:

**B7 CONFIDENTIALITY**

Will anything contained in your proposed research be of a confidential nature? No

(Note that it usually in exceptional circumstances that a piece of work will be kept confidential)

If YES, please detail the reasons:

**SECTION C. THIS SECTION SHOULD BE COMPLETED BY ALL APPLICANTSS**

**SIGNATURES AND DECLARATIONS**

**C1 Applicant's Declaration**

I undertake to inform my supervisor at every stage of the research and to gain approval for each part of the research process (i.e. questionnaire/interview design) and that I have read and will abide by the ethical guidelines of the University of Hertfordshire. Yes

Date: 18-02-2010

**APPLICANTS SHOULD NOW RETURN THE FORM AS PER INSTRUCTIONS.**

**C2 Academic Supervisor's Declaration**

I acknowledge that I have examined the above application and pass it to the ethics committee for approval. Further, I undertake to monitor the methodology and data collection throughout the research project.

Academic Supervisor: Date:

**C3 Host Organisation Supervisor's Declaration (if applicable).**

Appropriate communication from the host organisation supervisor confirming permission to proceed has been sighted by Academic Supervisor. NB This must be appended to this ethics form.

Academic Supervisor: Date:

**C4 Ethics Committee Decision (please circle)**

Accepted

Accepted with conditions (See below)

Referred (See below)

Signed on behalf of the Ethics Committee: Date:

C4 (i) Ethics Committee Comments

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C4 (ii) The applicant has read and accepted the conditions as laid out above:

Signature: Date:

C4 (iii) Conditions have been met: Yes / No

Signed on behalf of the Ethics Committee: Date:

**Appendix III – Permission letter to conduct study in ADPF**

بسم الله الرحمن الرحيم



الإمارات العربية المتحدة  
**United Arab Emirates**

**LONDON EMBASSY  
ABU DHABI POLICE OFFICE**

سفارة لندن  
مكتب شرطة أبوظبي

To: Hertfordshire University  
Ethics Committee

Re: Mr. Hassan Juma Al-Zaabi  
Date: 2/11/2009

We are pleased to confirm that Mr. Hassan Juma Al-Zaabi is sponsored by Abu Dhabi Police Office in the Embassy of United Arab Emirates in London. We are also pleased to agree his research title: A cultural, E governance and ICTs aspect: The case of Abu Dhabi, We also agree that the above named student to conduct his primary research in Abu Dhabi police.

**Head of Office**

**Lt. Col. Saif Rqait Al Ghafli**

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*ADP Office, Embassy of The United Arab Emirates, 48 Princes Gate, London SW7 2QA*  
*Telephone: 0207 808 8366, Facsimile: 0207 823 7716, email: [melashiry@eduae.org.uk](mailto:melashiry@eduae.org.uk)*  
سفارة الإمارات العربية المتحدة - لندن

## Appendix IV – Interview questions during the pilot study (English Version)

**Dear Sir/Madam,**

You are kindly requested to participate in a pilot interview that is being conducted by Hassan Al-Zaabi, a PhD candidate in University of Hertfordshire, Systems Management Research Unit (SymRU), under the supervision of Dr Jyoti Choudrie, Reader of Information Systems, Business School, University of Hertfordshire, United Kingdom.

The aim of this research is to “identify, explain and understand the diffusion, adoption and use of e-services in a public sector organisation in a developing country”. To achieve this, there will be an examination of some internal e-services currently used in Abu Dhabi Police.

The interview consists of a number of questions that should take approximately 45 minutes to complete. This research complies with the Ethics protocols at the University of Hertfordshire. Any data provided will be treated with total confidence and personal details will remain anonymous. You should also be aware that participation is absolutely voluntary, you may omit any question that you do not wish to answer, you have the right in not participating and you may also withdraw at any time. The obtained data will be kept with the researcher and will be destroyed after completion of this research. If you have any questions about this study, please contact the researcher on the following email: h.alzaabi1@herts.ac.uk or his supervisor, Dr Jyoti Choudrie, j.choudrie@herts.ac.uk Thank you in anticipation for your cooperation.

**[1] To what age group do you belong to?**

- 18-20                       20-30                       31-40                       41-50                       51-60

**[2] Gender**

- Male                       Female

**[3] Highest level of education**

- Below High school     High school                       High Diploma                       Bachelor  
 Postgraduate (Masters / PhD)

**[4] What is your monthly income?**

- Below 10,000 Dhs                       10,000 – 19,000 Dhs                       20,000 – 29,000 Dhs  
 30,000 – 39,000 Dhs                       40,000 – 49,000 Dhs                       More than 50,000 Dhs

**[5] What is your current position?**

.....

**[6] Length in this position?**

- Less than 1 year                       1 - 2 years                       2 - 3 years  
 3 - 4 years                       4 - 5 years                       More than 5 years

**[7] Length of employment in this organisation?**

- Less than 1 year                       1 - 2 years                       2 - 3 years  
 3 - 4 years                       4 - 5 years                       More than 5 years

**[8] Years of internet experience? (Personal use)**

- |   |                                       |   |
|---|---------------------------------------|---|
| <input type="checkbox"/> Less than 1 year | <input type="checkbox"/> 1 - 2 years  | <input type="checkbox"/> 2 - 3 years        |
| <input type="checkbox"/> 3 - 5 years      | <input type="checkbox"/> 5 - 10 years | <input type="checkbox"/> More than 10 years |

If less than 1 year, how long has it been?

.....

**[9] Years of internet experience? (Work purpose)**

- |   |                                       |   |
|---|---------------------------------------|---|
| <input type="checkbox"/> Less than 1 year | <input type="checkbox"/> 1 - 2 years  | <input type="checkbox"/> 2 - 3 years        |
| <input type="checkbox"/> 3 - 5 years      | <input type="checkbox"/> 5 - 10 years | <input type="checkbox"/> More than 10 years |

If less than 1 year, how long has it been?

.....

**TOI [10a] Do you use the internet for online shopping?**

- Yes  No

If yes, how often? Do you search online and then go to the real life store and make purchases, or do you buy items online? Do you use the internet to contact government offices, or do you go to the office and prefer to speak with personnel there?

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If no, can you please state why?

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**TOI [10b] Do you believe the internet is safe in your own lifestyle? How do you know that? Could you please provide some examples?**

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.....

**[11] Are you using any of Abu Dhabi Police internal e-services at present?**

- Yes [go to question 13]  No [go to question 12]

**BI [12]** Why are you not using any of the e-services? Do you intend to use it within the next 6 months and why? [go to question 16]

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**AU [13a]** What e-service do you normally use?

- E-club
- Human Resource self-service system
- Finance system
- IT support system
- Other, please specify .....

**AU [13b]** Why? How do you find it useful?

.....  
.....  
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**AU [13c]** How did you get convinced to use any of the e-services? Was it an order from a superior officer or a policy statement that made you use the e-service or personal choice? Did a colleague help you to use this e-service?

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**AU [14a]** When did you begin using the e-services (Year or date if you remember)? Was it adopted immediately after it was introduced in Abu Dhabi Police or did it take you some time to use? Why?

.....

**AU [14b]** Based on question 13a, do you use the e-service for work purposes or personal use?

.....

**AU [14c]** How often do you use this e-service for personal use?

In a day: .....  
In a week: .....  
In a month: .....

**AU [14d]** How often do you use this e-service for work purposes?

In a day: .....  
In a week: .....  
In a month: .....

**RA [15a]** When you first began using the e-service, did you find it easy, average or difficult to use compared to previous methods of communication?

Easy

Average

Difficult

If difficult, then how did you convince yourself that this was going to be better?

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**RA [15b]** If you face any problem while using the internal e-services, will you get the help you need immediately? If yes, how and whom do you turn to? Is it better and faster than the traditional way when seeking help, such as, completing a paper form or using a telephone?

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**BI [16]** If a new online service is to be introduced in the organisation, such as, online social networks, would you; (choose 1 of the following)

- be the first to use it
- wait to see if others will use it and then use it
- wait for an order to come and then use it
- refuse to use it and find other ways to overcome using it

Please state why?

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**RA [17]** Do you think the internal e-services are better than the traditional communication channels of the telephone or face-to-face interaction? Why do you think so? Can you give me an example please?

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**COMPA [18]** Can you briefly describe your work routine? Having described your work routine does the e-service fit in with your work lifestyle? Or do you prefer other methods? And why do you think so?

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**IMG [19a]** Do you think staff using the internal e-services are;

- more valued in the organisation by colleagues of the same level
- more valued by higher level colleagues and called upon to important decisive meetings
- experienced in the organisation and considered a higher level individual
- considered smarter than other staff members
- Other, please specify .....

**IMG [19b]** Please state why do you think so and how did you determine this? Can you give me any example?

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**PEOU [20a]** If you have tried any of the e-services, how many attempts did you have before you began using the e-service? Did you need any training courses before using any of the e-services? If so, what training courses did you attend and how did they help you with using the e-services?

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**PEOU [20b]** If you have done and completed any training course before using these e-services, do you know how to use all the functions of the e-service or you still need more training?

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.....

**PEOU [20c]** How often do you seek help or advice regarding the e-services in a week?

- Always
- Often
- Sometimes
- Rarely
- Never

**PU [21a]** In general are the internal e-services useful for Abu Dhabi police staff? Why do you think so? How? Please give examples.

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.....  
.....

**PU [21b]** Are the e-services useful to you in your current role? How? Are you spending less time on task(s) that took a long time before? Are you able to refer to documents online? Does this help you? How?

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**TOI [22a]** Do you think it is safe and confidential to use the internal e-services? How did you know about it? Did you discover this by yourself? Can you give me an example?

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**TOI [22b]** Did you have any good or bad incidents with internal e-services? Could you please cite them? Are there any records that you could refer to?

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**Thank you for your time and patience for completing this pilot interview**

**Appendix V – Interview questions during the pilot study (Arabic Version)**

دائرة الإدارة والقيادة والتنظيم  
كلية إدارة الأعمال  
جامعة هيرتفوردشير  
هاتفيلد  
هيرتفوردشير  
المملكة المتحدة

تحية طيبة وبعد

يرجى منكم التكرم بالمشاركة في الاستبيان الذي تم إعداده من قبل حسن الزعابي، مرشح لنيل شهادة الدكتوراه من جامعة هيرتفوردشير (SymRU) تحت إشراف الدكتور جيوتي تشودري، مدقق نظم المعلومات، كلية إدارة الأعمال، جامعة هيرتفوردشير، المملكة المتحدة .

يهدف هذا البحث إلى "تقييم مبادرة الحوكمة الإلكترونية التي تطلقها شرطة أبوظبي لتقديم خدمات حكومية إلكترونية أفضل". ولتحقيق ذلك، سيتم تقييم النواحي الثقافية والتغييرات التي تطرأ على إجراءات العمل .

يتألف الاستبيان من عدد من الأسئلة التي يتوقع أن تستغرق الإجابة عليها 45 دقيقة تقريباً. إن هذا البحث يمثل للقواعد الأخلاقية لجامعة هيرتفوردشير، إذ سيتم التعامل مع أية معلومات يتم تقديمها بكامل الثقة ولن يتم الإفصاح عن هوية كل من أدلى بأي تفاصيل شخصية. كما ونود إعلامكم بأن المشاركة طوعية، وبأن بإمكانكم ترك أي سؤال لا ترغبون بالإجابة عليه، ولكم الحق أيضاً بعدم المشاركة أو الانسحاب في أي وقت. ستبقى المعلومات التي يتم الحصول عليها بحوزة الباحث وسيتم التخلص منها بعد إتمام البحث .

في حال كان لديكم أية استفسارات حول هذه الدراسة، يرجى التواصل مع الباحث على عنوان البريد الإلكتروني التالي : h.alzaabi1@herts.ac.uk أو مع المشرف الدكتور جيوتي تشودري على عنوان البريد الإلكتروني التالي : j.choudrie@herts.ac.uk .  
شكراً لكم ونرتقب تعاونكم .

[1] ما المجموعة العمرية التي تنتمي إليها؟  
تحت 20 عاماً  20-30 عاماً  30-40 عاماً  40-50 عاماً  50-60 عاماً  60 عاماً

[2] النوع :  
ذكر  أنثى

[3] أعلى مستوى تعليمي وصلت إليه :  
 دون الثانوية العامة  ثانوية عامة  دبلوم عالي  بكالوريوس  دراسات عليا (ماجستير/ دكتوراة)

[4] كم يبلغ دخلك الشهري ؟  
 أقل من 10000 درهم  10000-19000 درهم  19000-29000 درهم   
 29000-39000 درهم  39000-49000 درهم  49000-50000 درهم  يزيد عن 50000 درهم

[5] ما هو العمل المسند الحالي :

[6] مدة بقاؤك ضمن العمل المسند الحالي ؟

أقل من سنة  2-1 سنة  3-2 سنة   
4-3 سنة  5-4 سنة  أكثر من 5 سنوات

[7] مدة الخدمة :

أقل من سنة  2-1 سنة  3-2 سنة   
4-3 سنة  5-4 سنة  أكثر من 5 سنوات

[8] عدد سنوات الخبرة في استخدام الإنترنت و أجهزة الحاسب الآلي بشكل عام (الإستخدام الشخصي) :

أقل من سنة واحدة  2-1 سنة  3-2 سنة   
5-3 سنة  10-5 سنة  أكثر من 10 سنوات

إن كان عدد السنوات أقل من سنة واحدة ، كم بلغت هذه الخبرة؟

[9] عدد سنوات الخبرة في استخدام شبكة الإنترنت و الشبكة الداخلية لجهة العمل (الأغراض العمل) :

أقل من سنة واحدة  2-1 سنة  3-2 سنة   
5-3 سنة  10-5 سنة  أكثر من 10 سنوات

إن كان عدد السنوات أقل من سنة واحدة ، كم بلغت هذه الخبرة؟

[10a] هل تستخدم شبكة الإنترنت لشراء حاجاتك الشخصية؟ أو أنك تستخدم الإنترنت للمطالعة فقط ومن ثم تفضل الشراء عبر المحلات التجارية؟ أو إذا إحتجت الاستفسار عند أي جهة حكومية هل تفضل الاستفسار عن طريق الإنترنت أو الذهاب شخصياً؟ ولماذا؟

[10b] هل تعتقد إن شبكة الإنترنت آمنة لنمط حياتك الخاص؟ هل يمكنك إيراد بعض الأمثلة؟

[11] هل تستخدم أي من خدمات شرطة أبوظبي الإلكترونية الداخلية في الوقت الراهن ؟

نعم (إذهب إلى السؤال 13)  لا (إذهب إلى السؤال 12)

[12] لماذا لا تستخدم أي من الخدمات الإلكترونية حالياً ؟ هل تنوي استخدامها خلال الشهر الست القادمة ؟ و لماذا ؟  
[إذهب إلى السؤال 16]

**[13a]** ما الخدمات الإلكترونية التي تستخدمها عادةً ؟

- النادي الإلكتروني  
 نظام الموارد البشرية الذاتية  
 النظام المالي  
 نظام الدعم الفني  
 عدا ذلك ، يرجى تحديدها .....

**[13b]** لماذا تستخدمها؟ كيف تجدها مفيدةً ؟

.....  
.....  
.....

كيف اقتنعت باستخدام أي من الخدمات الإلكترونية ؟ هل كان أمر من مسؤولك أم كان خيار شخصي ؟ وهل كان هناك شخص

**[13c]**

ساعدك في استخدام هذه الخدمة الإلكترونية مثل زميل عمل ؟

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.....  
.....

متى بدأت باستخدام الخدمات الإلكترونية ؟ هل تم ذلك بعد تبني استخدامها في شرطة أبوظبي مباشرة أم إنها استغرقت

**[14a]** بعض

الوقت منك لاستخدامها ؟ ولماذا ؟

.....

**[14b]** هل تستخدم الخدمات الإلكترونية بغرض العمل أم بغرض الاستخدام الشخصي ؟

.....

**[14c]** ما مدى استخدامك لها لغرض شخصي ؟

- في اليوم : .....
- في الأسبوع : .....
- في الشهر : .....

**[14d]** ما مدى استخدامك لها لأغراض العمل ؟

- في اليوم : .....
- في الأسبوع : .....
- في الشهر : .....

عندما بدأت استخدام الخدمة الإلكترونية لأول مرة ، هل وجدت استخدامها سهلاً أم صعباً مقارنة بوسائل الإتصال التقليدية ؟

**[15a]**

- سهلة  متوسطة  صعبة

فإن وجدتتها صعبة ، كيف تمكنت من إقناع نفسك إن هذا الأمر سيصبح أفضل فيما بعد ؟

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.....

**[15b]** في حال مواجهتك لأية مشكلة خلال استخدامك للخدمات الإلكترونية الداخلية ، هل تحصل عادةً على المساعدة التي تحتاجها على الفور؟ فإن كان الجواب بنعم فكيف ولمن تلجأ لطلب المساعدة ؟ وهل الاستجابة لطلب المساعدة أفضل و أسرع من الاستجابة لطلبك للمساعدة عند استخدام الطريقة التقليدية كتعبئة بيانات نموذج ورقي أو استخدام هاتف ؟

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**[16]** في حال إدراج استخدام خدمة شبكية (إنترنت) جديدة في مؤسستك كشبكة تواصل اجتماعي على الإنترنت ، هل اختر أحد الخيارات التالية) :

- تكون أول من يستخدمها.  
 تنتظر حتى ترى إن كان الآخرون سيستخدمونها ثم تستخدمها بعد ذلك.  
 تنتظر حتى يأتي الأمر باستخدامها و من ثم تستخدمها.  
 ترفض استخدامها و تجد طرق أخرى لتجاوز استخدامها.

نرجو منك توضيح السبب.

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هل تعتقد إن الخدمات الإلكترونية الداخلية أفضل من قنوات / وسائل الإتصال التقليدية المتمثلة في الهاتف أو البريد الإلكتروني  
**[17]** أو التفاعل / التواصل وجهاً لوجه ؟ لماذا تعتقد ذلك ؟ هل يمكنك أن تقدم لي مثال على ذلك من فضلك ؟

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هل يمكنك ان تصف باختصار طبيعة عملك ؟ وهل تتوافق الخدمات الإلكترونية الداخلية مع عملك و نمط حياتك ؟ أم إنك تفضل وسائل أخرى مناسبة أكثر منها لك؟ ولماذا تعتقد ذلك؟ (يرجى التفصيل)[18]

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**[19a]** هل تعتقد إن الموظفين الذين يستخدمون الخدمات الإلكترونية الداخلية هم:

- يحصلون على تقدير أكبر في المؤسسة من قبل زملائهم في نفس المستوى الوظيفي.  
 يحصلون على تقدير أكبر من قبل زملائهم ذوي المستوى الوظيفي الأعلى و يدعون لاجتماعات هامة و حاسمة.  
 ذوو خبرة في المؤسسة و يعتبرون أفراداً ذوي مستوى أعلى.  
 يعتبرون أذكى أو أفطن من بقية الموظفين.  
 عدا ذلك ، يرجى تحديدها

**[19b]** نرجو منك تحديد سبب اعتقادك لذلك ؟ هل يمكنك أن تقدم لي مثلاً ؟

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**[20a]** إن كنت قد حاولت استخدام أي من الخدمات الإلكترونية ، كم محاولة بذلت قبل أن تبدأ باستخدام الخدمة الإلكترونية؟ هل تحتاج إلى أي دوراتٍ تدريبية قبل استخدام أي من الخدمات الإلكترونية ؟ هل يمكنك أن تقدم لي مثالاً على دورة التحقت بها؟

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**[20b]** إن كنت قد خضعت لأي دورة تدريبية أو أكملتها قبل استخدام هذه الخدمات الإلكترونية ، هل أصبحت ملماً لكل المهام المتعلقة بهذا الصدد أم لا تزال بحاجة إلى مزيدٍ من التدريب ؟

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**[20c]** كم يبلغ عدد المرات التي تحتاج فيها إلى مساعدة أو نصيحة بخصوص الخدمات الإلكترونية في الأسبوع الواحد ؟

<input type="checkbox"/> دائماً	<input type="checkbox"/> غالباً	<input type="checkbox"/> في بعض الأحيان
<input type="checkbox"/> نادراً	<input type="checkbox"/> أبداً	

**[21a]** هل تعتقد إن الخدمات الإلكترونية بشكلٍ عام مفيدة لأفراد / موظفي شرطة أبوظبي ؟ ولماذا تعتقد ذلك ؟ وكيف ذلك ؟ نرجو منك إيراد أمثلة عن ذلك.

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.....

هل الخدمات الإلكترونية مفيدة لك في مجال العمل الذي تعمل به ؟ كيف يكون ذلك ؟ قارن ذلك بالماضي. هل تمضي وقتاً أقل للقيام بعملٍ كان يستغرق وقتاً طويلاً من قبل ؟ هل يمكنك الرجوع إلى وثائق على شبكة الإنترنت ؟ هل يساعدك ذلك ؟ وكيف يساعدك ؟

**[21b]**

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.....  
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.....

**[22a]** هل تعتقد إن استخدام الخدمات الإلكترونية الداخلية آمن ويحفظ السرية والخصوصية ؟ كيف عرفت عن ذلك ؟

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.....

**[22b]** هل مررت بأية تجارب / أحداث جيدة أو سيئة من خلال استخدامك للخدمات الإلكترونية ؟ هل يمكنك أن تذكرها من فضلك ؟

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## Appendix VI – Sample of an interview extract (highlights with codes) during the pilot study

**Researcher:** Do you use the internet for online shopping?

Participant: Yes sometimes.

(USING THE INTERNET, IT-Int/Yes)

**Researcher:** Do you search online and then go to the real life store and make purchases, or do you buy items online?

Participant: It depends, if I want electronic devices I order it online because I already know the specification and everything. But if it was a watch or something I wear I can check it online and have an idea about different models and prices. Then I buy it from a shop to see if it suits me or not.

(USING THE INTERNET AND ORDER ONLINE, IT-Int/Yes)

**Researcher:** Do you believe the internet is safe to use in your own lifestyle, that you can buy things online?

Participant: Yes.

(INTERNET IS SAFE, IT-Int/Safe)

**Researcher:** How do you know about that?

Participant: I buy many things online and nothing happened. The internet is always safe to use if you don't download any suspicious file from the internet, or you use an update antivirus.

(INTERNET IS SAFE, IT-Int/Safe) (AWARENESS FROM VIRUSES, IT-Int/Awareness)

**Researcher:** Are you using any of Abu Dhabi Police internal e-services at present?

Participant: Yes.

(USING E-SERVICES IN ADPF, IT-Eservice/Yes)

**Researcher:** What e-service do you normally use?

Participant: Mostly, Human Resource self-service  
(HR SERVICE)

**Researcher:** Why? How do you find it useful?

Participant: I use it because of many things, like it is fast. You get things you need fast and no need to wait for someone to reply. I am always busy at work so if I need something from the human resource department it is very difficult for me to go there and leave my work.

(HR SERVICE IS USEFUL) (HR SERVICE IS FAST) (NO NEED TO WAIT) (WORK FROM OFFICE) RA-IT/E-service

**Researcher:** How did you get convinced to use this e-service? Was it an order from a superior officer or a policy statement that made you use the e-service or personal choice and why?

Participant: No one told me to use it. I think it is good for me that is why I use it.

(E-SERVICE - PERSONAL CHOICE, IT-Eservice/Personal-Choice)

**Researcher:** When did you begin using this e-service (Year or date if you remember)?

Participant: I don't know. But not long time ago. Maybe 2-3 years.

**Researcher:** Was it adopted immediately after it was introduced in Abu Dhabi Police or did it take you some time to use? Why?

Participant: It is not about using is immediately or not. It is about you don't know about it. I heard about some of the online services, but no one tells you about it. I don't know why. Tell us and we will use it!

(NO ANNOUNCEMENT / ADVERTISEMENT ON E-SERVICES IN ADPF)



**Researcher:** So you are saying if u knew about it you will use it immediately?

Participant: Well if I know about it, I will try it at least.

**Researcher:** Do you use the human resource e-service for work purposes or personal use? And how often do you use?

Participant: Work purpose only. I use it when I need it, like when I need to check my annual leave and want to know how many days left. If I want to apply also for leave, I use it.

**Researcher:** When you first began using the human resource e-service, did you find it easy, average or difficult to use compared to previous methods?

Participant: You can't compare between the two methods, because in my opinion the human resource e-service is better, easier and faster than previous paper based.

(E-SERVICE BETTER, FASTER AND EASIER TO USE THAN PAPER BASED, RA-IT/E-service/faster)

**Researcher:** Can you give me an example of why is it better, easier and faster?

Participant: You can apply or inquire while you are in your office and even working with other things. My work will not get affected and my manager will not get annoyed because I am not leaving the office and go for hours to the human resource department to apply for things there.

(WORK FROM OFFICE) (E-SERVICES DOES NOT INTERFERE WITH OTHER WORK, RA-IT/E-service)

**Researcher:** If you face any problem while using the human resource e-service, such as a technical fault or you want to inquire about something, will you get the help you need immediately? If yes, how and whom do you turn to?

Participant: You might laugh, but there is no one who can help. You can call the development department and ask them but they never answer the phone. If I face a problem, I just restart the computer and use the e-service later and if I am lucky it works.

(NO AVAILABLE SUPPORT, PEOU-IT/E-service)

**Researcher:** I know that there is an IT support system, why don't you contact them?

Participant: I never heard of the IT support system. I will try to find out about it maybe it can help. Thank you.

(NO ANNOUNCEMENT / ADVERTISEMENT ON E-SERVICES IN ADPF)

**Researcher:** Ok.

**Researcher:** If a new online service is to be introduced in the organisation, such as, online social networks, would you; (choose 1 of the following, given in the interview)

Participant: I would "be the first to use it". But they have to tell us about it.

(MOTIVATION TO USE NEW E-SERVICES, IT-Eservice/Yes)

**Researcher:** Ok if they told you about it, why will you be the first to use it?

Participant: I want to check and see if it will be useful for me. If I like it then it is good to use it.

(PERSONAL ATTRACTION TO E-SERVICE DUE TO USEFULNESS, PU-IT/E-service)

**Researcher:** Can you briefly describe your work routine?

Participant: As you can see my office is in the server room, and I do regular backups and checks for the servers.

**Researcher:** Having described your lifestyle at work, does the e-service fit in with your lifestyle? Or do you prefer other methods?

Participant: I think so. I have my laptop with me all the time and it is always connected to the internet so it encourages me to use the online service in my free time and when I need it.

(ENCOURAGEMENT TO USE E-SERVICES DUE TO WORKSTYLE, COMPA-IT/E-service)

**Researcher:** Do you think staff members using the internal e-services are (choose 1 of the following, given in the interview):

Participant: “experienced and knowledgeable in computer and internet usage” .

**Researcher: Why do you think so and how did you determine this?**

Participant: In my opinion you need to be experienced to use these online services. Not necessary an expert but at least someone who have basic knowledge in computers.

(KNOWLEDGE NEEDED TO USE E-SERVICES, IMG-IT/E-service)

**Researcher: How many attempts did you have before you began using the e-service?**

Participant: I tried it many times to understand what options there are and how to apply for things.

(MANY ATTEMPTS TO USE THE E-SERVICE) (A LOT OF OPTIONS IN THE E-SERVICE, PEOU-IT/E-service)

**Researcher: Did you need any training courses before using any of the e-services? If so, what training courses did you attend and how did they help you with using the e-services?**

Participant: Training is useful; you will learn new things no matter what knowledge you have. But in my case and because I am familiar with computers I did not need training.

(NO TRAINING NEEDED, PEOU-IT/E-service/Easy)

**Researcher: You have said that you tried the e-service many times to understand its options and then you said you don't need training, can you please explain more?**

Participant: Ok, the human resource e-service is easy but there are many options in it.

(EASY TO USE E-SERVIC, PEOU-IT/E-service/Complex) (A LOT OF OPTIONS IN THE E-SERVICE)

**Researcher: So to know all the options it is better to get training than trying out things?**

Participant: Yes, you are right training courses will let you understand things faster than trying by yourself, but sometimes your manager will not let you go to training because of work load so what can we do?

(TRAINING COURSES ARE IMPORTANT, PEOU-IT/E-service/Complex) (NO ACCESS TO TRAINING DUE TO MANAGER)

**Researcher: How often do you seek help or advice regarding the e-services in a week?**

Participant: Now I know many things, so it is rarely.

**Researcher: In general are the internal e-services useful for Abu Dhabi police staff? Why do you think so? How?**

Participant: Yes, because I noticed that many employees waste time so that they go and finish different procedure related to work or for personal use and they leave their office for hours and sometimes days. So if we have everything online, no one will leave his work and can focus more on it.

(E-SERVICES ARE USEFUL, IT-Eservice/Usefulness) (WORK FROM OFFICE) (E-SERVICES DOES NOT INTERFERE WITH OTHER WORK)

**Researcher: Are the e-services useful to you in your current role? How?**

Participant: Well, I work with backup so the e-service will not help me with my direct work, but indirectly with other things like I said before in this interview yes.

**Researcher: Do you think it is safe and confidential to use the internal e-services?**

Participant: Yes.

(E-SERVICES ARE SAFE, Trust-IT/E-service/Trust)

**Researcher: How did you know that? Could you please provide, or show me an example?**

Participant: We employees in ADPF are like one big family. So I don't see any reason why we should get worried about confidentiality. But at the same time especially I have background in these things, everything is secure here.

(GOOD RELATIONS AMONG STAFF IN ADPF) (E-SERVICES ARE SECURE, Trust-IT/E-service/Trust)

**Appendix VII – Data analysis and identified themes in the pilot study**

**Case Study 1**

<b>Relative Advantage – Security Information Department</b>				
<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
Communication	Easier communication when using traditional methods	Traditional methods preferable by males, education High Diploma and under, and categorised as low level staff	<i>“...using a telephone or communicating face to face is much easier to explain things...” (Male, aged 41-50, with a high school certificate and categorised as a low level staff)</i>	Code: RA/SID-traditional easier  Suggests that easy methods of communication, such as talking by telephone or face to face communications are more preferable. Therefore, users are looking for easier methods; more will be looked at later in PEOU construct.
Speed of e-services	E-services send documents and processed faster between departments	E-services are fast and preferable by more educated participants, and categorised as middle and high level staff	<i>“...it is a fast way to send documents, so any transaction will be processed faster...” (Male, 20-30, Bachelor, middle level staff)</i>	Code: RA/SID-e-service fast  Suggests that using e-services is a fast delivery service, were documents are send from one section to another in the same second. After that the process might take time, however, at least the delivery will be fast. Therefore, characteristics of e-services such as speed are crucial.
Work routine	Fear of changing to new procedures	Paper based procedures are reliable by males, education High Diploma and under, and categorised as low level staff	<i>“I never used a computer and my work is always submitted on time and perfect so what is the point of all this ...” (Male, 31-40 years old, with a high school certificate and categorised as a low level staff)</i>	Code: RA/SID-no point of e-service  Suggests that he is used to a certain way of dealing with things and not ready to change his routine. More about work routine will be looked at in compatibility section.

Compatibility – Security Information Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Work Style	Work style have a clear influence on e-service usage	Work style affected e-service usage by staff members, such as, male participant, 41-50 years old, who have a high school degree and categorised as low level staff	<i>“...my work deal with reading documents and correcting them if there are any mistakes, therefore, I don't need any of the e-services”</i>	Code: Compa/SID-Work Task, Reading document . Suggested that not all jobs in this department are compatible with e-service usage.

Image – Security Information Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Talented and skilled users	E-service user is seen as a role model in security information department	Higher level staff in this department believe e-service users are smart and skilled	<i>“Not everyone is capable of learning new things especially if he/she is old in age and is used to a certain procedure, let's say for 20 years. So I think that only smart employees will have the creativity, talent and skills to use new e-services immediately”. (Male, 41-50, postgraduate, high level staff)</i>	Code: Image/SID-Smart  Users of e-services are smart, creative and talented compared to other staff members
Competition	Someone willing to improve different issues in the department to compare with others	Different staff members had seen e-services as a way for faster transactions and compete with other departments	<i>“Staff using the e-services are willing to improve the organisation and work with the police strategy, which show that they deserve to be different than others who doesn't want to improve” (Female, 20-30, bachelor degree, middle level staff)</i>	Code: Image/SID-different than others  The use of e-services to compete progress with other departments

Perceived Ease of Use – Security Information Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Simplicity of e-services	Users of e-services in Security Information Department finds it easy to use	Most staff from different age group, education level and gender does not need training to use e-services because of its simplicity; however this was noticed the most among young members.	<p><i>“You have to try it by yourself and look at the options and functions you have. It took me couple of hours to know everything”. (Male, 41-50, postgraduate, high level staff)</i></p> <p><i>“I didn’t need any training to use these e-services, it was simple...”</i></p> <p><i>“...the e-service is easy to use so you don’t need to ask anyone...”</i></p> <p><i>(Male, 20-30, bachelor degree, middle level staff)</i></p>	<p>Code: PEOU/SID-easy, no training needed</p> <p>Suggested by all employees using the e-services that it is easy and does not need any training</p>

Perceived Usefulness – Security Information Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Search and retrieve Data	Staff in Security Information Department use e-services and see it as a useful procedure	Most staff members, different age, gender, education, organisational level; argued that e-service is useful when it comes to searching for documents	<i>“Because documents are online, you can search for anything you need easily, rather than search for papers that can be in different folders, on my desk or even lost...” (Female, 20-30, High Diploma, middle level staff)</i>	<p>Code: PU/SID-searching</p> <p>Suggested by all employees using the e-services can easily search for documents online</p>
Confidentiality of Data	Online documents are preferable more than paper documents due to security in SID.	Most staff members from different age groups, gender, education and organisational level claimed the importance of confidentiality in e-services	<i>“...even from a security perspective, it is safer for documents to be online, rather than leaving them on your desk that anyone can read them even the office boy” (Male, 20-30, bachelor, middle level staff)</i>	<p>Code: PU/SID-safe</p> <p>Documents online are much safer than paper documents</p>
Work Style	Work style have a clear influence on e-service usage	Work style affected e-service usage by staff members, such as, male participant, 20-30, low educated.	<i>“...e-services might be useful in some occasions and for certain staff, but not for everyone and for my current role it is not important”.</i> <p><i>(Male, 20-30, high diploma, middle level staff)</i></p>	<p>Code: PU/SID-work routine</p>

Trustworthiness – Security Information Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Safe Network (Trust of Government)	Support of security functions in ADPF	All staff in Security Information Department showed trust of internal security within the organisation	<i>“all data are important, so we always make sure that the network is safe and up to date, that’s why we monitor everything 24/7”. Another statement was “our team is qualified and can manage all sort of security issues”. (Female, 31-40, bachelor degree, middle level staff)</i>	Code: TRUST/SID-Government  Complete trust of security issues in ADPF
General Use (Trust of Internet)	Lack of trust in internet within staff members of Security Information Department	Most staff do not trust online payments	<i>“I use the internet for searching only, but not for buying. What if a hacker took my bank details? They can steal and no one can stop them. I always read articles about how these hackers come out with new ways to hack online shoppers”. (Male, 31-40, high school, low level staff)</i>	Code: TRUST/SID-Internet  Fear of hacking when using online payments

Perceived Behavioural Control – Security Information Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Simplicity of e-services	Staff members in the security information department are confident when it comes to the use of e-services	Training was not needed by most staff members from different gender, age, education and organisational level.	<i>“I didn’t need any training to use these e-services, it was simple...” (Male, 20-30, bachelor degree, middle level staff)</i>	Code: PBC/SID-confidence

**Case Study 2**

Relative Advantage – IT & Communications Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Confidentiality of Data	E-services protects user data	E-services are trusted by most employees in the IT department	<i>"...impossible for someone to see your details unlike paper documents..." (Female, 20-30, bachelor, middle level staff)</i>	Code: RA/IT-privacy  Suggest that e-service helps in protecting user details more than paper documents
Faster transactions / enquiry	E-services send documents and processed faster between departments	E-services are fast and preferable by most employees in the IT department	<i>"...very fast when you want to enquire about work or personal thing..."</i>  <i>"...one of the other departments asked me to get statistics for a certain police report that we prepared in less than 30 minutes, while it could take months or even more in the past". (Male. 41-50, bachelor degree, high level staff)</i>	Code: RA/IT-fast  Using e-services is a fast way for enquire and process transactions
Easier Procedure	E-services lead to process different transactions easily	E-services lead to useful and easier procedures by most staff in the IT department.	<i>"...I don't face any difficulty with using computers..." "..."but in general yes most e-services are better and make procedures easier..."</i>	Code: RA/IT-no difficulty  Claiming that e-services led to easy procedure when dealing with different tasks at work



Compatibility – IT & Communications Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Existing Work Practices	Work related to computer usage leads to using e-services	All staff members in this department from different organisational level, gender and educating use computers related to their work task	<i>“We sit in front of computers from 7:30am to 2:30pm, 5 days a week, we implement e-services, therefore, to test the system and fix faults we have to use and try all kind of e-services even if we don’t need them. Our main job is to use computers, so from my point of view this encourages us to use all functions of it”</i>	Code: Compa/IT-Work Task Suggested that all jobs in this department are compatible with e-service usage.
Prior Experience	Experience with computer and e-service usage	Most staff in the IT are experienced with computers either from work, university or training sessions	<i>“I am used to different online services here at Abu Dhabi Police so I don’t have any reason not to try new e-services when they are introduced for the staff”</i> (female, 20-30, High Diploma, middle level)	Code: Compa/IT-Experience Suggested that computer experience led to compatibility of e-services.

Image – IT & Communications Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Importance of e-services	E-service can deal with different issues and problems	Staff members with different age groups and high level of education argued for importance of e-services.	<i>“Staff using e-services have enough knowledge to judge that these e-services are beneficial for work procedures. We are now in 2012, everyone needs a quick way to deal with different issues or problems will occur. I use these e-services regularly, not to show others that I am smart or an expert in computers. I use it because I think they are important”.</i> (Male, 31-40, postgraduate, high level staff)	Code: Image/IT-Knowledge, Beneficial Image status was seen not important by staff members in the IT. They focused on the importance of e-service usage for dealing with different issues related to their work.
Reliability and trust of e-services	E-service are trusted within staff in the IT department	Middle and high level staff, with high level of education trust e-services	<i>“...if something is reliable, in this case e-service, then it is a good choice for staff to use it...”</i> (female, 20-30, bachelor degree, middle level staff)	Code: Image/IT-Reliable Similar to the above statement



Perceived Ease of Use – IT & Communications Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Simplicity of e-services	Users of e-services in IT Department stated that it only needs common sense to use the services	Most staff from different age group, education level and gender find it easy to use and needs common sense	<i>“I don’t remember how many attempts exactly but all I know is that some services need common sense, for example, if you look at the finance system you just need to enter your military number and then choose a specific option from here and you will get the response of your enquiry immediately” (male, age between 31-40, education level below high school, and considered as a low level staff)</i>	Code: PEOU/IT-easy, common sense  Suggested by all employees using the e-services that it is easy and does not need any training
Prior Experience	Computer experience replace training for e-service usage in IT department	Staff members with different educational level, age, gender are experienced with computers, therefore, expert in e-service usage	<i>“Because I have computer experience I did not need any training course, however, if the user have no experience at all I think it is important to take basic courses on how to use a computer at least” (male, 20-30 years old, high diploma, middle level staff)</i>	Code: PEOU/IT-experience  Suggested that computer experience supports the usage of e-service

Perceived Usefulness – IT & Communications Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Reliability	Most staff from the IT department confirmed the usefulness and reliability when using e-services	High level staff with a high level of education argued that e-services keep staff members updated and reliable for communication	<i>“...so to be up to date it is important to keep an eye on this service. I can also make comments and post questions that may help me at work. The correspondence system is reliable for communicating with other staff regarding work procedures, which I think is useful”. (Male, 41-50, bachelor degree, high level staff)</i>	Code: PU/IT-reliable  Based on experience was suggested that most staff find the e-services reliable to deal with different work procedures
E-services Trial	Convincing other staff to use e-services to find its usefulness comes by testing and using the e-service	Low level staff with a low level of education, discovered e-service usefulness by trying it	<i>“...I am sure if they only tried it once or twice they will always use the e-service. I don’t know why they still use different procedures while they can check many things easily online” (Male, 31-40, below high school, low level staff)</i>	Code: PU/IT-trial  Testing and trying to use any of the e-services will show users how useful the e-services are

Search and retrieve Data	Staff in IT Department use e-services and see it as a useful for searching and organising data	Most staff members, different age, gender, education, organisational level; argued that e-service is useful when it comes to searching for documents	<p><i>“Yes, e-services are extremely useful...it makes the work much easier...organises all types of polices and letters which will make it easy if you want to retrieve any data in future”.</i> (Female, 18-20, high school certificate, low level staff)</p> <p><i>“...a lot of data were missing and it was very hard to find these data because of large amount of files. Now you can even get statistics in seconds...”</i> (Male, 41-50, bachelor degree, high level staff)</p>	Code: PU/IT-searching  Suggested by all employees using the e-services can easily search for documents online
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Trustworthiness – IT & Communications Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Reliability of e-services	Reliability and trust in e-services in the IT department	All staff members with no exceptions trust all online services in ADPF	<i>“...yes of course e-services are safe here, I have never heard of any online breach. Don’t forget we have a whole department that deal with security issues which is the security information department...”</i> (Male, 31-40, below high school, low level staff)	Code: TRUST/IT-Government  Complete trust of security issues in ADPF
Fear of online payments	Age played a big role in the IT department when examined about trusting the internet, its online payments and security issues	Younger staff members (18-20 and 20-30) with different educational level and gender showed more interest and trust in internet	<i>“If I find something I like and did not have time to go shopping I will order it online”</i> (Female, 18-20, high school, low)	Code: TRUST/IT-Internet  Concluded that younger participants showed trust in online payments more than older participants

### Case Study 3

Relative Advantage – Strategic Management Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Faster / Easier Communication	Faster and easier communication when using e-services in Strategic Department	E-services opportunity to communicate faster suggested by both genders, age between 20-40 years old, with high level of education, middle and high level of staff.	<i>"...after trying and using e-services when dealing with different policing issues, I will never go back to manual ways. I don't like to go to other staff offices and wait for them if they are busy. Communicating online is faster and I can do whatever I want while sitting in my office..."</i>	Code: RA/SMD-Online is fast  Suggests that users of e-services can communicate faster with other staff members.
Remote Communication	Communicate remotely within departments and branches by members of Strategic Management Department	E-services are better than traditional communication methods because of remote communication, suggested by both genders, with high level of education, middle and high level of staff.	<i>"Abu Dhabi police is getting bigger year by year, and some departments are located in different areas in Abu Dhabi, therefore, it is impossible to communicate with different departments or branches face to face. It takes a lot of time and effort. There are other procedures that we should follow which is using the new technologies available for the staff in Abu Dhabi police". (Male, 31-40 years old, postgraduate, high level staff)</i>	Code: RA/SMD-Communication issues  Suggests that users of e-services can communicate with other staff members easily and remotely.

Compatibility – Strategic Management Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Existing Work Practices	Work related to computer usage leads to using e-services	Most staff members in this department from different organisational level, gender and education use computers related to their work task, especially middle level staff	<i>"Strategies should be built based on important facts and when creating a vision you should have made a complete research of the situation you are currently in. Information should be taken from other departments, therefore, online links between departments is very important to get all needed information that will be always updated" (Female, 20-30, postgraduate, middle level staff)</i>	Code: Compa/IT-Work Task  Staff work depends mainly on e-services.

Image – Strategic Management Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Talented users and valuable	E-service user is seen as a role model in strategic management department	Most staff from middle and higher level believe e-service users are smart and have better chance to get promoted	<i>“...a lot of staff in the police are not capable of using all functions in a computer, so when your direct manager knows that you are using it this means that you have a better chance to be promoted or considered smarter than your colleagues from the same department. You will notice that everyone wants to learn new things these days because they don't want to stay behind”.</i> (Male, 41-50, bachelor degree, high level staff)	Code: Image/SMD-Smart, Promotion  Suggest using e-services show others how they are capable of using computers and can lead to promotion

Perceived Ease of Use – Strategic Management Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
E-service Training	Users of e-services in Strategic Management Department stated that training are important	Most staff from different age group, education level and gender find it easy to use, however, recommends training	<i>“...even though my background is in strategic studies, I have little knowledge with computers but I find out that these e-services are easy. I took 1 or 2 training sessions for using the correspondence system because it had a lot of different functions. When the system is being updated I notice few changes and I immediately ask the technical team about it”</i> (Female, 20-30, bachelor, middle level staff)	Code: PEOU/SMD-Training  Suggested that most employees are in need of e-services training
Complexity of E-services	A lot of members in ADPF are still beginners when it comes to computer usage	Older participants struggle with computer and e-service usage	<i>“...still a lot of staff in the police are not capable of using all functions in a computer...”</i> (Male, 41-50, bachelor, high level staff)	Code: PEOU/SMD-difficult  This shows that some staff find e-services are difficult for them to use

Perceived Usefulness – Strategic Management Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Advantages of e-services	Most staff from the IT department confirmed the usefulness and reliability when using e-services	High level staff with a high level of education argued that e-services advantages are more than its disadvantages	<i>“Advantages are more than disadvantages when it comes to using technologies and in specific e-services in organisations, for example, the IT support system is used by most staff in Abu Dhabi police”. (Male, 31-40, bachelor degree, high level staff)</i>	Code: PU/SMD-useful  High level of staff, with high education level find the e-services useful
Similar procedures	Some staff members from the strategic management department claimed that e-services and paper based procedures are similar	Older participants, 51-60 years old, with a low level of education argued that e-services are not useful and are similar to other paper based procedures	<i>“E-services might be useful for some of the staff, but not for me”. And when the researcher asked for the reason. He said that “e-services is only another method of dealing with different transactions, but it does not create something new” (Male, 51-60, high diploma, middle level).</i>	Code: PU/SMD-similarity  Older participants with a low level of education found that there is no difference between e-services and previous manual procedures

Trustworthiness – Strategic Management Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Reliability of e-services	Reliability and trust in e-services in the Strategic Management Department	All staff members with no exceptions trust all online services in ADPF	<i>“I always hear that the IT department is updated with latest technologies, therefore, I don’t think anyone can hack into the system”. (Male, 31-40, postgraduate, high level staff)</i>	Code: TRUST/SMD-Government  Complete trust of security issues in ADPF. Most argued that they are safe and they never heard of any hacking issues
Fear and lack of trust towards internet	Fear of online payments in Strategic Management Department	Majority of staff from different gender, age, education and organisational level showed lack of trust of online payments	<i>“...get nervous when I buy things online, I just don’t trust paying online...check my bank account immediately after online transactions to check how much money is exactly deducted from my account”. (Male, 31-40, bachelor, high level staff) “...I have another visa card with a low limit just for the internet...” (Female, 20-30, bachelor, middle level staff)</i>	Code: TRUST/SMD-Internet  Few trusted the internet (2 out of 10), unlike when asked about trusting government services.

Perceived Behavioural Control – Strategic Management Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
E-service Training	Users of e-services in Strategic Management Department stated that training are important	Most staff from different age group, education level and gender recommends training, especially low and middle level staff	<i>“...I was waiting to enrol in a training first. I applied for training and after couple of months got accepted. The training was for the correspondence system and after completing the training maybe after 1 week, I used it immediately before I forget what I learned...” (Female, 20-30, bachelor middle level)</i>	Code: PBC/SMD-training  Suggested that it might take couple of months to get training which affect the adoption of e-services

#### Case Study 4

Relative Advantage – Policing Operations Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Social Relationship	Relationships between staff members for special procedures occurs face to face or by telephone	Special procedures for specific staff members are processed differently than others, claimed by a male participant, 41-50 years old, education level below high school and considered as a low level staff	<i>“... if a transaction needs approval, it is better face to face. You can discuss everything in details and might be treated as a special case. Sometimes you need to know the person in charge or you will never finish”.</i>	Code: RA/POD-Relationships  Special case. Different procedures are required, because e-services will process transactions equally, therefore, not suitable for them.
Training Challenges	Resistance of attending training sessions in Policing Operations Department	Training to use e-services is unwanted by some staff members in policing department, such as older male members, 51-60 years old, education level below high school, categorised as a middle level staff	<i>“...when talking about computers, this means new knowledge and requires training. Do you think everyone have time for training? Sometimes, at a certain age you can't learn new things. I have worked for more than 20 years in a certain way and I am happy with the way I work and not interested in using computers at the end of my career. I always hear from colleagues that a lot of problems occur when using computers and sometimes documents gets automatically deleted. So why bother with new technologies and training, while you can accomplish tasks without using them”.</i>	Code: RA/POD-Training  The feel that training for new procedures and e-services is a waste of time. On the other hand, traditional procedures such as paper based needs no training.

#### Compatibility – Policing Operations Department



First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Existing Work Practices	Work environment forces staff members for certain attitude	Access to online services are limited to most staff members in Policing Operation Department	<i>"...my work environment is to deal with security issues; we work in different shifts. Sometimes at night or in the morning. If I want to enquire about things I can either call by phone or maybe go during my break."</i> (Male, 18-20, with High School Certificate, low level staff)	Code: Compa/IT-Work Task  Suggested that not all jobs in this department are compatible with e-service usage.

Image – Policing Operations Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Talented users	E-service user is seen as a role model in policing operations department	30% of staff from different levels, gender and education in this department belief e-service users are smart	<i>"I don't have the skills and knowledge to use a computer, it needs an educated person so I think yes using e-services means that the person is smarter..."</i> (Male, 41-50, below high school certificate, low level staff)	Code: Image/POD-Skills, knowledge
Different methods	Preference of other methods to deal with transactions other than e-services	50% of staff, low level of education, both genders belief that e-services are not important	<i>"I don't use e-services and my direct manager trust my work and depend on me in every task. I still don't think e-services are important and it have nothing to do with being smarter or closer to high level colleagues"</i> (female, 41-50, high school certificate, middle level staff)	Code: Image/POD-resistance  Suggested that most find their way of dealing with procedures are ideal and not willing to change.

Perceived Ease of Use – Policing Operations Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
E=service Training	Some staff from policing operations department need training and more awareness on e-services in ADPF	Younger staff, (aged 20-30), educated (bachelor degree), middle level staff are desperate to be trained in order to use all e-services	<i>"When they first introduced e-services in the police I knew by chance from a colleague. No one told us about it or trained us on using them. We tried by ourselves when we had free time but didn't know the purpose, how and why to use them. Whenever we asked for help, the technical team told us that the system is still new and you will be trained soon. It took a lot of time (about six months) until we had our first training".</i> (male, 20-30, bachelor degree, middle level staff)	Code: PEOU/PO-Training, Difficulty  Suggested that there are needs for training sessions.
More Practice	Implementation	Most staff	<i>"I had attended one training session</i>	Code:

	and use of e-services are rare in policing operations department	members who got the chance to train cannot use the e-services due to their work routine. This leads them to forget things easily.	<i>and learned basic functions in it, but I have forgot about it because I didn't use it after the training. It wasn't easy and if you asked me to work on it now I will not know". (Male, 31-40, high school certificate, low level staff)</i>	PEOU/PO-difficulty  Even if some staff got training, they still do not have the chance to practice and implement due to field work.
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Perceived Usefulness – Policing Operations Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Resistance to use	Most staff in policing operation department show resistance to use new e-services and prefer usual methods	Resistance to use e-services by both genders, that have low level of education and age between 41-50	<i>"...I still don't think e-services are important and it has nothing to do with being smarter or closer to high level colleagues". (Female, 41-50, high school certificate, middle level staff)</i>	Code: PU/PO-unimportant  Suggested that e-services are not important for police procedures
Traditional methods	Other methods are more preferable than e-services in policing operation department	Both genders that have low level of education and age between 41-50 argued that e-services can be replaced	<i>"...there are other ways you can still enquire about things or apply for different transactions, for example, using the telephone". (Male, 41-50, high school certificate, middle level staff)</i>	Code: PU/PO-similarity  Suggested that e-services could be replaced by other traditional methods, such as paper works and telephone.

Trustworthiness – Policing Operations Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
Trust of ADPF services	Trust ADPF general services in the Policing Operations Department	Most staff showed more trust towards security in general in ADPF	<i>"I am not a security expert but I do trust Abu Dhabi police in general and I trust everything they provide". (Female, 31-40, high diploma, high level staff)</i>	Code: TRUST/POD-Government  Very few used the internet, however, from these few participants it showed that they trust ADPF
Lack of trust	Lack of trust towards internet in Policing Operations Department	All staff from different gender, age, education and organisational level showed lack of trust of online payments	<i>"I heard once in the news that a lot of theft occurs because of online usage" (Male, 51-60, below high school, middle level staff)</i>	Code: TRUST/POD-Internet  Talked about the thefts in online environment which affect the trust of internet



<b>Perceived Behavioural Control – Policing Operations Department</b>				
<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
E-service Training	Users of e-services in Policing Operations Department stated that training are important to improve their computer skills	Low level staff had no skills in using computers and e-services	<i>“I don’t have the skills and knowledge to use a computer; it needs an educated person...” (Male, 41-50, below high school certificate, low level staff)</i>	Code: PBC/POD-training  Lack of self-efficacy especially in low level staff in the department. This is due to the field work.
E-services Access	Most staff in Policing Operations Department had no access to computers	Most staff who work in fields had no access to computers	<i>“...we don’t have and don’t need a computer...” (Female, 41-50, high school certificate, middle level staff)</i>	Code: PBC/POD-access  Access issues to computers in order to use different e-services

**Appendix VIII – Cross-case analysis for the pilot study**

Cross-Case Analysis of Compatibility					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
Existing Work Practices	Work routine and work style influences staff members to use or not to use the e-services	✓	✓	✓	✓
Prior Experience	Experience with computer and internet leads to using e-services		✓		

As discussed in compatibility sections in chapter 4, work routine in each department influenced staff members whether to use or not to use the e-services. It was concluded that if staff members existing practices needs and relies on computers and e-services then this will encourage e-service usage (as seen in Security, IT and Strategic departments). On the other hand, if the existing practices do not rely on computers and do not have access to computers then there will be less or no e-service adoption (i.e. policing operation department). Furthermore, experience in computers and IT in general had also encouraged the adoption of e-services, which was clearly shown among most staff members in the IT department.

Cross-Case Analysis of Image					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
Talented and skilled users	E-service user is seen as smart and intelligent	✓	✓	✓	✓
Uniqueness	Seen as special person among staff, such as a role model and has a better chance to get a promotion	✓		✓	✓
Importance of e-services	Image status was seen not important by some staff members. They focused on the importance of e-service usage for dealing with different issues related to their work		✓		

Image was categorised into two main categories in this pilot study. The first category focused on behaviour and attitude of staff members. This concluded that most staff in security, strategic and policing operations department, believes that staff using e-services are unique and have a better chance to get promoted, therefore, encourage them to use e-services. The other category concluded that most staff members in the IT department were influenced to use the e-services because of the reliability and usefulness of it rather than caring about what others may think about them.

Cross-Case Analysis of Perceived Ease of Use					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
Simplicity of E-services	Users of e-services finds it easy to use and do not need training	✓	✓		
Prior Experience	Computer and internet experience supports the usage of e-service		✓		
Complexity of E-services	Some staff members find e-services difficult for them to use			✓	✓
E-service Training	Suggested that most employees are in need of e-services training			✓	✓
E-service Practice	Some staff required more practice to use the e-services so they do not forget how to use it				✓

Analysis of Perceived ease of use had identified some themes, such as, simplicity of e-services, prior experience, complexity of e-services, e-service training and practice. When examining the complexity and simplicity of e-services, most staff in the security and the IT found e-services easy to use because of prior experience with computers, were as in strategic and policing operations some older staff members found e-services difficult to use and required training sessions. Furthermore, most staff in policing operations did not only require training, they also wanted to practice and use the e-services and therefore, their work environment could be modified in order to have the chance to use the e-services. For example, smart phones could be issued to connect to different applications while they are out of the office.

Based on literature and interviews, it was seen that ease of use of an innovation is an important factor that can influence adoption. Therefore, e-services in ADPF should be easy and simple for all staff members in order to use it.

Cross-Case Analysis of Perceived Usefulness					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
Confidentiality of Data	E-services are useful because data is kept secure	✓	✓	✓	✓
Search and Retrieve Data	E-services are useful especially for searching and retrieving documents	✓	✓		
Existing Work Practices	E-service usage depends on the work routine of the staff. If their work routine do not need a computer then e-services are not useful for them	✓			✓
Reliability of E-services	Suggested that e-services are reliable to deal with different work procedures		✓	✓	
Similar procedures	E-services and paper based procedures are similar			✓	✓

Themes identified in cross-case analysis of perceived usefulness are: confidentiality of data, search and retrieve data, existing work practices, reliability of e-services and similar procedures. It was concluded that in all four departments, it was agreed that e-services will increase the level of privacy of data. Furthermore, some staff members in the security and IT department explained that e-services are useful in terms of reliability and for searching purposes. It was seen also as a tool for organising data. In some departments, such as in strategic and security, it was noticed that older staff showed resistance towards e-services and argued that other methods such as paper based transactions are similar to e-services and that e-services do not provide something new to them.

Based on literature, it was concluded that in order for an innovation to be adopted, the usefulness of the innovation is important. E-services in ADPF was seen useful by most staff members from different departments, however, there are still others who see that e-services are not useful (especially staff from policing operations with work routine not related to computers).

Cross-Case Analysis of Trustworthiness					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
Trust of ADPF	Showed trust towards AD government and ADPF	✓	✓	✓	✓
Reliability of E-services	Trust towards the reliability and performance of e-services	✓	✓	✓	
Fear of Online Payments	Lack of trust towards internet in general, especially when using bank details	✓	✓	✓	✓

All four departments showed similar responses when it came to trustworthiness. For example, most staff from different departments admitted fear of internet in general when paying online. Furthermore, they all showed trust of e-services regarding security and network issues. However, when it came to reliability and performance of e-services, most staff from security, IT and policing operations trusted the e-services except the policing operations. This was predicted, because most staff not using the e-services in this department do not have background and information regarding the e-service, therefore, they cannot trust something they do not know about.

Cross-Case Analysis of Perceived Behavioural Control					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
Simplicity of e-services	Users of e-services finds it easy to use, therefore, more confident when using e-services (high self-efficacy)	✓	✓		
Open budgets	Suggests that IT projects with respect to e-government have open budget for implementation (Resource facilitating conditions)		✓	✓	
IT Infrastructure	Availability of up to date technology and networks (Technology facilitating conditions)	✓	✓	✓	
E-service Training	Suggested that most employees are in need of regular e-service training (Increase self-efficacy)	✓		✓	✓
E-services Access	Lack of access to computers in order to use different e-services (low technology facilitating condition)				✓

When examining perceived behavioural control, it means considering three main constructs: self-efficacy, resource and technology facilitating conditions. The IT department, and some staff from the security department, showed that they had a high level of self-efficacy which showed confidence when using the e-services. At the same time some departments required more training to increase the knowledge and skills of staff members to use computers and e-services, which was considered when interviewing staff from policing operations, strategic management and security department. When examining resource facilitating conditions, which mainly looks at time and money issues, it was noticed that e-government projects are well supported and there were no issues that could stop or straggle implementation of new e-services and use.

Finally, departments such as policing operations department did not have access to computers, which had an effect on adoption. Therefore, technology facilitating conditions in this department had affected e-service adoption and usage. Unlike other departments who had full support from the IT department to supply all technology equipment needed.

**Appendix IX – Summary of main findings from the pilot study**

Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
<ul style="list-style-type: none"> <li>• Most of the participants (6 out of 9) use current e-services and prefer automated communication channels</li> <li>• Few showed resistance to change and use the e-services (3 participants)</li> </ul> <p>This is similar to Al-Rashidi (2010) study in the Gulf region, where he has stated that there are some barriers that can affect the implementation of e-government, such as resistance to change.</p>	<ul style="list-style-type: none"> <li>• All of the participants (10 out of 10) use current e-services and prefer automated communication channels</li> <li>• No resistance within staff members in using e-services.</li> </ul>	<ul style="list-style-type: none"> <li>• Most of the participants (8 out of 10) use current e-services and prefer automated communication channels</li> <li>• Few showed resistance to change and use the e-services (2 participants)</li> </ul> <p>This is similar to Al-Rashidi (2010) study in the Gulf region, where he has stated that there are some barriers that can affect the implementation of e-government, such as resistance to change.</p>	<ul style="list-style-type: none"> <li>• Few of the participants use e-services (4 out of 10), therefore, most prefer manual communication channels.</li> <li>• Most showed resistance to change and use the e-services (5 participants).</li> </ul> <p>This is similar to Al-Rashidi (2010) study in the Gulf region, where he has stated that there are some barriers that can affect the implementation of e-government, such as resistance to change.</p>
<ul style="list-style-type: none"> <li>• Most of the participant's lifestyle was compatible with computer and e-service usage.</li> </ul>	<ul style="list-style-type: none"> <li>• All participants' lifestyle was compatible with computer and e-service usage.</li> </ul>	<ul style="list-style-type: none"> <li>• Most of the participant's lifestyle was compatible with computer and e-service usage.</li> <li>• Security issues with regards to internet usage</li> </ul> <p>Hamner and Alqahtani (2009) developed a model to understand user acceptance or rejection of using e-services in Saudi Arabia. However, factors such as security were one of the main concerns that can affect user adoption.</p>	<ul style="list-style-type: none"> <li>• Most of the participant's lifestyle was not compatible with computer and e-service usage.</li> <li>• Security issues with regards to internet usage</li> </ul> <p>Hamner and Alqahtani (2009) developed a model to understand user acceptance or rejection of using e-services in Saudi Arabia. However, factors such as security were one of the main concerns that can affect user adoption.</p>
<ul style="list-style-type: none"> <li>• Most claimed e-services easy to use and useful.</li> </ul>	<ul style="list-style-type: none"> <li>• Most claimed e-services easy to use and useful.</li> </ul>	<ul style="list-style-type: none"> <li>• Most claimed e-services easy to use and useful.</li> </ul>	<ul style="list-style-type: none"> <li>• Most claimed e-services are complex.</li> </ul>



<ul style="list-style-type: none"> <li>• Image had an effect on users because of culture and social influences. This was similar to the study of Awadhi and Morris (2009) in Kuwait, were they showed that these factors could affect the adoption of e-government.</li> </ul> <ul style="list-style-type: none"> <li>• Lack of trust towards the internet.</li> </ul> <p>A study by Alsobhi et al. (2010) in Saudi Arabia concluded that e-government adoption can be affected by trust and awareness between citizens and the government. In this study participants showed trust between staff and the government, however, there was little or no trust towards internet usage.</p>	<ul style="list-style-type: none"> <li>• Image did not affect users in this department. Most thought of e-services as a tool to improve work procedures.</li> </ul> <ul style="list-style-type: none"> <li>• Lack of trust towards the internet.</li> </ul> <p>A study by Alsobhi et al. (2010) in Saudi Arabia concluded that e-government adoption can be affected by trust and awareness between citizens and the government. In this study participants showed trust between staff and the government, however, there was little or no trust towards internet usage.</p>	<ul style="list-style-type: none"> <li>• Image had an effect on users because of culture and social influences. This was similar to the study of Awadhi and Morris (2009) in Kuwait, were they showed that these factors could affect the adoption of e-government.</li> <li>• Age and education affected e-service usage.</li> </ul> <p>Hamner and Alqahtani (2009) developed a model to understand user acceptance or rejection of using e-services in Saudi Arabia. However, factors such as age and education can also affect user adoption of e-services.</p> <ul style="list-style-type: none"> <li>• Lack of awareness and trust towards the internet.</li> </ul> <p>A study by Alsobhi et al. (2010) in Saudi Arabia concluded that e-government adoption can be affected by trust and awareness between citizens and the government. In this study participants showed trust between staff and the government, however, there was little or no trust towards internet usage.</p>	<ul style="list-style-type: none"> <li>• Image had an effect on users because of culture and social influences. This was similar to the study of Awadhi and Morris (2009) in Kuwait, were they showed that these factors could affect the adoption of e-government.</li> <li>• Age and education affected e-service usage.</li> </ul> <p>Hamner and Alqahtani (2009) developed a model to understand user acceptance or rejection of using e-services in Saudi Arabia. However, factors such as age and education can also affect user adoption of e-services.</p> <ul style="list-style-type: none"> <li>• Lack of awareness and trust towards the internet.</li> </ul> <p>A study by Alsobhi et al. (2010) in Saudi Arabia concluded that e-government adoption can be affected by trust and awareness between citizens and the government. In this study participants showed trust between staff and the government, however, there was little or no trust towards internet usage.</p>
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## Appendix X – Final interview questions (English Version)

**Management, Leadership & Organisation Department  
Business School  
University of Hertfordshire  
Hatfield  
Hertfordshire  
AL10 9AB  
United Kingdom**

**Dear Sir/Madam,**

You are kindly requested to participate in an interview that is being conducted by Hassan Al-Zaabi, a PhD candidate in University of Hertfordshire, Systems Management Research Unit (SymRU), under the supervision of Dr Jyoti Choudrie, Reader of Information Systems, Business School, University of Hertfordshire, United Kingdom.

The aim of this research is to “identify, explain and understand the diffusion, adoption and use of e-services in a public sector organisation in a developing country”. To achieve this, there will be an examination of some internal e-services currently used in Abu Dhabi Police.

The interview consists of a number of questions that should take approximately 45 minutes to complete. This research complies with the Ethics protocols at the University of Hertfordshire. Any data provided will be treated with total confidence and personal details will remain anonymous. You should also be aware that participation is absolutely voluntary, you may omit any question that you do not wish to answer, you have the right in not participating and you may also withdraw at any time. The obtained data will be kept with the researcher and will be destroyed after completion of this research.

If you have any questions about this study, please contact the researcher on the following email: [h.alzaabi1@herts.ac.uk](mailto:h.alzaabi1@herts.ac.uk) or his supervisor, Dr Jyoti Choudrie, [j.choudrie@herts.ac.uk](mailto:j.choudrie@herts.ac.uk)

Thank you in anticipation for your cooperation.

**[1] To what age group do you belong to?**

- 18- 20                       20-30                       31-40                       41-50  
 51-60                       Above 60

**[2] Gender**

- Male     Female

**[3] Highest level of education**

- Below High school                       High school                       High Diploma  
 Bachelor                                       Postgraduate (Masters / PhD)

**[4] Under which category is your current job?**

- Top level (Holding a position of G. Manager / Directorate Manager / Division Chief)  
 Middle level (Holding a position of Branch Manager / Officer Rank Lt to Major / Expert)  
 Lower level (Others)

**[5] Length of employment?**

- Less than 1 year                       1 - 2 years                       2 - 3 years  
 3 - 4 years                               4 - 5 years                       More than 5 years

**[6] Years of internet experience in general?**

- Less than 1 year                       1 - 2 years                       2 - 3 years  
 3 - 5 years                               5 - 10 years                       More than 10 years

If less than 1 year, how long has it been?

.....

**[7] Are you using any of Abu Dhabi Police internal e-services at present?**

- Yes [go to question 9]                       No [go to question 8]

**BI [8] Why are you not using any of the e-services? Do you intend to use it within the next 6 months and why? [go to question 11]**

.....  
.....  
.....  
.....

**AU [9a] What e-service do you normally use?**

- E-club  
 Human Resource self-service system  
 Finance system  
 IT support system  
 Other, please specify .....

**AU [9b] Why? How do you find it useful?**

.....  
.....  
.....  
.....

**AU [9c] How did you get convinced to use any of the e-services? Was it an order from a superior officer or a policy statement that made you use the e-service or personal choice and why?**

.....  
.....  
.....  
.....

**AU [10a]** When did you begin using the e-services (Year or date if you remember)? Was it adopted immediately after it was introduced in Abu Dhabi Police or did it take you some time to use? Why?

.....

**AU [10b]** Based on question 10a, do you use the e-service for work purposes or personal use?

.....

**AU [10c]** How often do you use this e-service for personal use? Example?

In a day: .....

In a week: .....

In a month: .....

**AU [10d]** How often do you use this e-service for work purposes? Example?

In a day: .....

In a week: .....

In a month: .....

**BI [11]** If a new online service is to be introduced in the organisation, such as, online social networks, would you; (choose 1 of the following)

- be the first to use it
- wait to see if others will use it and then use it
- wait for an order to come and then use it
- refuse to use it and find other ways to overcome using it

Please state why?

.....  
.....  
.....

**RA [12]** Do you think the internal e-services (give an example) are better than the traditional communication channels of the telephone or face-to-face interaction? Why do you think so? Can you give me an example please?

.....  
.....  
.....

**COMPA [13]** Can you briefly describe your work routine? Having described your work routine does the e-service fit in with your lifestyle? Or do you prefer other methods? What other methods? Why do you view them as better fitting with your life style?

.....  
.....  
.....

**IMG [14a]** Do you think staff members using the internal e-services are;

- more valued in the organisation by colleagues of the same level
- more valued by higher level colleagues and called upon to important decisive meetings
- experienced and knowledgeable in computer and internet usage
- considered smarter than other staff members
- Other, please specify .....

**IMG [14b]** Please state why do you think so and how did you determine this? Can you give me any example?

.....  
.....  
.....  
.....

**PEOU [15a]** If you are using any of the e-services, how many attempts did you have before you began using the e-service? Are they easy to use compared to internet usage in general? How? Could you give me an example?

.....  
.....  
.....  
.....

**PEOU [15b]** Did you need any training courses before using any of the e-services? If so, what training courses did you attend and how did they help you with using the e-services?

.....  
.....  
.....  
.....

**PEOU [15c]** If you have completed any training course before using these e-services, do you know how to use all the functions of the e-service well, or do you still need more training?

.....  
.....  
.....  
.....

**PEOU [15d]** How often do you seek help or advice regarding the e-services in a week?

- Always
- Often
- Sometimes
- Rarely
- Never

**PU [16a]** In general are the internal e-services useful for Abu Dhabi police staff? Why do you think so? How? Please give examples.

.....  
.....  
.....

**PU [16b]** Are the e-services useful to you in your current role? How? Please compare this to the earlier service and the difficulties encountered there and how e-services have overcome them. Are you spending less time on task(s) that took a long time before? Could you give me an example of a task, or show me an example please?

.....  
.....  
.....  
.....

**TOE [17]** Do you trust the reliability and performance of the current e-services? How did you know that? Could you please provide, or show me an example.

.....  
.....  
.....  
.....

**TOG [18]** Do you think staff personal details and other information are kept safe and confidential when using the internal e-services? How did you know that? Could you please provide, or show me an example.

.....  
.....  
.....  
.....

**Thank you for your time and patience for completing this interview**

Appendix XI – Final interview questions (Arabic Version)

كلية إدارة الأعمال (الإدارة والقيادة والتنظيم)  
جامعة هيرتفوردشير  
هاتفيلد  
هيرتفوردشير  
المملكة المتحدة

تحية طيبة وبعد  
يرجى منكم التكرم بالمشاركة في الاستبيان الذي تم إعداده من قبل حسن الزعابي، مرشح لنيل شهادة الدكتوراه من جامعة هيرتفوردشير (SymRU) تحت إشراف الدكتور جيوتي تشودري، مدقق نظم المعلومات، كلية إدارة الأعمال، جامعة هيرتفوردشير، المملكة المتحدة .

يهدف هذا البحث إلى "تقييم مبادرة الحوكمة الإلكترونية التي تطلقها شرطة أبوظبي لتقديم خدمات حكومية إلكترونية أفضل". ولتحقيق ذلك، سيتم تقييم النواحي الثقافية والتغييرات التي تطرأ على إجراءات العمل .

يتألف الاستبيان من عدد من الأسئلة التي يتوقع أن تستغرق الإجابة عليها 45 دقيقة تقريباً. إن هذا البحث يمثل للقواعد الأخلاقية لجامعة هيرتفوردشير، إذ سيتم التعامل مع أية معلومات يتم تقديمها بكامل الثقة ولن يتم الإفصاح عن هوية كل من أدلى بأي تفاصيل شخصية. كما ونود إعلامكم بأن المشاركة طوعية، وبأن بإمكانكم ترك أي سؤال لا ترغبون بالإجابة عليه، ولكم الحق أيضاً بعدم المشاركة أو الانسحاب في أي وقت. ستبقى المعلومات التي يتم الحصول عليها بحوزة الباحث وسيتم التخلص منها بعد إتمام البحث .

في حال كان لديكم أية استفسارات حول هذه الدراسة، يرجى التواصل مع الباحث على عنوان البريد الإلكتروني التالي :  
h.alzaabi1@herts.ac.uk أو مع المشرف الدكتور جيوتي تشودري على عنوان البريد الإلكتروني التالي :  
j.choudrie@herts.ac.uk  
شكراً لكم ونرتقب تعاونكم .

[1] ما المجموعة العمرية التي تنتمي إليها؟

تحت 20 عاماً  20-30 عاماً  30-40 عاماً  40-51 عاماً  50-60 عاماً  فوق 60 عاماً

[2] النوع :

ذكر  أنثى

[3] أعلى مستوى تعليمي وصلت إليه :

دون الثانوية العامة  ثانوية عامة  دبلوم عالي  بكالوريوس  دراسات عليا (ماجستير/ دكتوراة)

[4] ما هو تصنيف العمل المسند الحالي ؟

إشرافي (منصبك ضمن هذه الأعمال : مدير عام \ مدير إدارة \ رئيس قسم)  
 إداري (منصبك ضمن هذه الأعمال : مدير فرع \ ضابط من رتبة ملازم إلى رائد \ خبير)  
 صف أمامي \ أعمال مكتبية

[5] مدة الخدمة :

أقل من سنة  1-2 سنة  2-3 سنة  3-4 سنة  4-5 سنوات  أكثر من 5 سنوات

[6] عدد سنوات الخبرة في استخدام شبكة الإنترنت و أجهزة الحاسب الآلي بشكل عام ؟

أقل من سنة واحدة  1-2 سنة  2-3 سنة  3-5 سنوات  5-10 سنوات  أكثر من 10 سنوات

إن كان عدد السنوات أقل من سنة واحدة ، كم بلغت هذه الخبرة؟

.....

**[7]** هل تستخدم أي من خدمات شرطة أبوظبي الإلكترونية الداخلية في الوقت الراهن ؟

لا (إذهب إلى السؤال 8)

نعم (إذهب إلى السؤال 9)

**[8]** لماذا لا تستخدم أي من الخدمات الإلكترونية حالياً ؟ هل تنوي استخدامها خلال الشهور القادمة ؟ ولماذا ؟  
[ إذهب إلى السؤال 11 ]

.....  
.....  
.....

**[9a]** ما الخدمات الإلكترونية التي تستخدمها عادةً ؟

النادي الإلكتروني

نظام الموارد البشرية الذاتية

النظام المالي

نظام الدعم الفني

عدا ذلك ، يرجى تحديدها .....

**[9b]** لماذا تستخدمها؟ كيف تجدها مفيدةً ؟

.....  
.....

**[9c]** كيف اقتنعت باستخدام أي من الخدمات الإلكترونية ؟ هل كان أمر من مسؤولك أم كان خيار شخصي ولماذا؟

.....  
.....  
.....

متى بدأت باستخدام الخدمات الإلكترونية ؟ هل تم ذلك بعد تبني استخدامها في شرطة أبوظبي مباشرة أم إنها استغرقت  
**[10a]** بعض الوقت منك لاستخدامها ؟ كم استغرقت حتى استخدمتها ولماذا ؟

.....  
.....

**[10b]** هل تستخدم الخدمات الإلكترونية بغرض العمل أم بغرض الاستخدام الشخصي ؟

.....

**[10c]** ما مدى استخدامك لها لغرض شخصي ؟

..... كم ساعة في اليوم :

..... كم يوم في الأسبوع :



**[10d] ما مدى استخدامك لها لأغراض العمل ؟**

كم ساعة في اليوم : .....

كم يوم في الأسبوع : .....

**[11] في حال إدراج خدمة شبكية جديدة في إدارتك (كشبكة تواصل بين الموظفين)، هل؟  
(اختر أحد الخيارات التالية) :**

- تكون أول من يستخدمها.
- تنتظر حتى ترى إن كان الآخرون سيستخدمونها ثم تستخدمها بعد ذلك.
- تنتظر حتى يأتي الأمر باستخدامها و من ثم تستخدمها.
- ترفض استخدامها و تجد طرق أخرى لتجاوز استخدامها.
- نرجو منك توضيح السبب.

.....

.....

.....

.....

**هل تعتقد إن الخدمات الإلكترونية الداخلية أفضل من قنوات / وسائل الإتصال التقليدية المتمثلة في الهاتف أو البريد الإلكتروني  
[12] أو التفاعل / التواصل وجهاً لوجه ؟ لماذا تعتقد ذلك ؟**

.....

.....

.....

**هل يمكنك ان تصف باختصار طبيعة عملك ؟ وهل تتوافق الخدمات الإلكترونية الداخلية مع عملك و نمط حياتك ؟ أم إنك تفضل  
وسائل أخرى مناسبة أكثر منها لك؟ ولماذا تعتقد ذلك؟ [13]**

.....

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**[14a] هل تعتقد إن الموظفين الذين يستخدمون الخدمات الإلكترونية الداخلية هم:  
 يحصلون على تقدير أكبر في المؤسسة من قبل زملائهم في نفس المستوى الوظيفي.  
 يحصلون على تقدير أكبر من قبل زملائهم ذوي المستوى الوظيفي الأعلى و يدعون لاجتماعات هامة و حاسمة.  
 ذوو خبرة ومعرفة واسعة في استخدام الكمبيوتر والانترنت.  
 يعتبرون أذكى أو أفطن من بقية الموظفين.**

عدا ذلك ، يرجى التحديد.....

**[14b] نرجو منك تحديد سبب اعتقادك لذلك ؟**

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**[15a]** إذا استخدمت أي من الخدمات الإلكترونية ، كم محاولة بذلت قبل أن تبدأ باستخدام الخدمة الإلكترونية؟ هل هي سهلة الاستخدام مقارنة مع استخدام الانترنت بشكل عام؟ ولماذا تعتقد ذلك؟

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**[15b]** هل تحتاج إلى أي دوراتٍ تدريبية قبل استخدام أي من الخدمات الإلكترونية ؟ هل يمكنك أن تقدم لي مثالاً على دورة التحقت بها وكيف ساعدتك الدورة على استخدام الخدمة الإلكترونية؟

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**[15c]** إن كنت قد خضعت لأي دورة تدريبية أو أكملتها قبل استخدام هذه الخدمات الإلكترونية ، هل أصبحت ملماً لكل المهام المتعلقة بهذا الصدد أم لا تزال بحاجة إلى مزيدٍ من التدريب ؟

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**[15d]** كم يبلغ عدد المرات التي تحتاج فيها إلى مساعدةٍ أو نصيحة بخصوص الخدمات الإلكترونية في الأسبوع الواحد ؟

<input type="checkbox"/> دائماً	<input type="checkbox"/> غالباً	<input type="checkbox"/> في بعض الأحيان
<input type="checkbox"/> نادراً	<input type="checkbox"/> أبداً	

**[16a]** هل تعتقد إن الخدمات الإلكترونية بشكلٍ عام مفيدة لأفراد / موظفي شرطة أبوظبي ؟ ولماذا تعتقد ذلك ؟

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هل الخدمات الإلكترونية مفيدة لك في مجال العمل الذي تعمل به ؟ كيف يكون ذلك ؟ قارن ذلك بالماضي. هل تمضي وقتاً أقل للقيام بعملٍ كان يستغرق وقتاً طويلاً من قبل ؟

**[16b]**

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**[17]** هل تتقن بقدرات الخدمات الإلكترونية الداخلية في التعامل مع جميع الظروف في شرطة أبوظبي؟ كيف عرفت عن ذلك ؟

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هل تعتقد إن استخدام الخدمات الإلكترونية الداخلية آمن ويحفظ السرية والخصوصية ويمكن الوثوق به؟ كيف عرفت عن ذلك ؟

**[18]**

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**Appendix XII – Details of the participants in final study**

**Case Study 1 - Security Information Department**

Details of participants in “Security Information Department” using current e-services				
Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	51-60	Bachelor	High Level	5 - 10 years
Male	41-50	Postgraduate	High Level	More than 10 years
Male	41-50	Postgraduate	High Level	More than 10 years
Male	41-50	Postgraduate	High Level	More than 10 years
Male	31-40	Postgraduate	High Level	More than 10 years
Male	41-50	Bachelor	Middle Level	5 - 10 years
Male	31-40	Postgraduate	Middle Level	More than 10 years
Male	31-40	Postgraduate	Middle Level	More than 10 years
Male	20-30	Postgraduate	Middle Level	5 - 10 years
Male	20-30	Postgraduate	Middle Level	5 - 10 years
Male	20-30	Bachelor	Middle Level	5 - 10 years
Male	41-50	Below High School	Low Level	3 - 5 years
Male	31-40	High Diploma	Low Level	More than 10 years
Male	31-40	High Diploma	Low Level	More than 10 years
Male	18-20	High School	Low Level	2 - 3 years
Female	41-50	Postgraduate	Middle Level	More than 10 years
Female	41-50	Bachelor	Middle Level	More than 10 years
Female	31-40	Postgraduate	Middle Level	More than 10 years
Female	31-40	Bachelor	Middle Level	5 - 10 years
Female	20-30	Postgraduate	Middle Level	5 - 10 years
Female	31-40	High School	Low Level	2 - 3 years
Female	31-40	High School	Low Level	2 - 3 years
Female	20-30	Bachelor	Low Level	5 - 10 years
Female	20-30	Bachelor	Low Level	5 - 10 years
Female	20-30	High Diploma	Low Level	3 - 5 years
Female	20-30	High Diploma	Low Level	3 - 5 years
Female	20-30	High Diploma	Low Level	3 - 5 years
Female	20-30	High Diploma	Low Level	3 - 5 years
Female	20-30	High School	Low Level	3 - 5 years
Female	41-50	Below High School	Low Level	Less than 1 year (0)
Female	18-20	High School	Low Level	2 - 3 years
Female	18-20	High School	Low Level	1 - 2 years

Details of participants in “Security Information Department” not using current e-services				
Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	51-60	High School	Low Level	2 - 3 years
Male	41-50	Bachelor	High Level	3 - 5 years
Male	41-50	Bachelor	Middle Level	3 - 5 years
Male	41-50	High Diploma	Middle Level	5 - 10 years
Male	41-50	High Diploma	Low Level	3 - 5 years

Male	41-50	High School	Low Level	2 - 3 years
Male	41-50	Below High School	Low Level	Less than 1 year (0)
Male	31-40	Bachelor	Middle Level	5 - 10 years
Male	31-40	High School	Low Level	Less than 1 year (0)
Male	20-30	High Diploma	Low Level	3 - 5 years
Male	20-30	High Diploma	Low Level	3 - 5 years
Male	20-30	High Diploma	Low Level	3 - 5 years
Male	20-30	High School	Low Level	1 - 2 years
Male	20-30	Below High School	Low Level	Less than 1 year (6)
Female	41-50	High School	Low Level	Less than 1 year (0)
Female	31-40	High Diploma	Low Level	3 - 5 years
Female	31-40	High Diploma	Low Level	3 - 5 years
Female	20-30	High School	Low Level	2 - 3 years

### Case Study 2 - IT & Communications Department

Details of participants in "IT & Com. Department" using current e-services				
Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	51-60	Bachelor	High Level	5 - 10 years
Male	41-50	Postgraduate	High Level	More than 10 years
Male	41-50	Postgraduate	High Level	More than 10 years
Male	41-50	Postgraduate	High Level	More than 10 years
Male	41-50	Postgraduate	High Level	More than 10 years
Male	41-50	Bachelor	High Level	5 - 10 years
Male	41-50	Bachelor	High Level	More than 10 years
Male	41-50	High Diploma	High Level	More than 10 years
Male	41-50	Postgraduate	Middle Level	More than 10 years
Male	31-40	Postgraduate	Middle Level	More than 10 years
Male	31-40	Bachelor	Middle Level	More than 10 years
Male	31-40	Bachelor	Middle Level	More than 10 years
Male	31-40	Bachelor	Middle Level	5 - 10 years
Male	31-40	High Diploma	Low Level	5 - 10 years
Male	31-40	High School	Low Level	5 - 10 years
Male	31-40	Below High School	Low Level	3 - 5 years
Male	20-30	Postgraduate	Middle Level	More than 10 years
Male	20-30	Postgraduate	Middle Level	More than 10 years
Male	20-30	Bachelor	Middle Level	5 - 10 years
Male	20-30	Bachelor	Middle Level	5 - 10 years
Male	20-30	High Diploma	Low Level	5 - 10 years
Male	20-30	High Diploma	Low Level	3 - 5 years
Male	20-30	High School	Low Level	3 - 5 years
Male	20-30	High School	Low Level	3 - 5 years
Male	20-30	Below High School	Low Level	3 - 5 years
Male	18-20	High School	Low Level	3 - 5 years
Male	18-20	High School	Low Level	3 - 5 years
Male	18-20	High School	Low Level	3 - 5 years
Male	18-20	High School	Low Level	5 - 10 years
Female	41-50	Postgraduate	Middle Level	More than 10 years
Female	20-30	Postgraduate	Middle Level	5 - 10 years

Female	20-30	Postgraduate	Middle Level	5 - 10 years
Female	20-30	Bachelor	Middle Level	More than 10 years
Female	20-30	Bachelor	Middle Level	5 - 10 years
Female	20-30	Bachelor	Middle Level	5 - 10 years
Female	20-30	High Diploma	Middle Level	More than 10 years
Female	20-30	High Diploma	Low Level	5 - 10 years
Female	20-30	High Diploma	Low Level	5 - 10 years
Female	20-30	High Diploma	Low Level	5 - 10 years
Female	20-30	High Diploma	Low Level	5 - 10 years
Female	20-30	High Diploma	Low Level	5 - 10 years
Female	20-30	High Diploma	Low Level	5 - 10 years
Female	20-30	High School	Low Level	3 - 5 years
Female	20-30	High School	Low Level	More than 10 years
Female	20-30	Below High School	Low Level	1 - 2 years
Female	18-20	High School	Low Level	5 - 10 years
Female	18-20	High School	Low Level	3 - 5 years

Details of participants in "IT & Com. Department" <b>not using</b> current e-services				
Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	51-60	High School	Low Level	Less than 1 year (0)
Male	51-60	High School	Low Level	1 - 2 years
Male	41-50	High Diploma	Middle Level	1 - 2 years

### Case Study 3 - Strategic Management Department

Details of participants in "Strategic Department" <b>using</b> current e-services				
Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	51-60	Postgraduate	High Level	More than 10 years
Male	51-60	High School	High Level	3 - 5 years
Male	41-50	Postgraduate	High Level	More than 10 years
Male	41-50	High Diploma	High Level	5 - 10 years
Male	31-40	Postgraduate	High Level	More than 10 years
Male	31-40	Postgraduate	High Level	More than 10 years
Male	41-50	Bachelor	Middle Level	More than 10 years
Male	31-40	Postgraduate	Middle Level	More than 10 years
Male	31-40	Bachelor	Middle Level	5 - 10 years
Male	31-40	Bachelor	Middle Level	5 - 10 years
Male	31-40	Bachelor	Middle Level	5 - 10 years
Male	31-40	Bachelor	Middle Level	More than 10 years
Male	31-40	High Diploma	Middle Level	5 - 10 years
Male	31-40	High Diploma	Middle Level	5 - 10 years
Male	20-30	Postgraduate	Middle Level	More than 10 years
Male	20-30	Postgraduate	Middle Level	More than 10 years
Male	51-60	High School	Low Level	1 - 2 years
Male	31-40	High School	Low Level	2 - 3 years
Male	31-40	High Diploma	Low Level	More than 10 years
Male	20-30	High Diploma	Low Level	5 - 10 years

Male	20-30	High School	Low Level	2 - 3 years
Male	20-30	Below High School	Low Level	2 - 3 years
Female	20-30	Postgraduate	Middle Level	More than 10 years
Female	20-30	Postgraduate	Middle Level	More than 10 years
Female	20-30	Postgraduate	Middle Level	5 - 10 years
Female	20-30	Bachelor	Middle Level	5 - 10 years
Female	20-30	Bachelor	Middle Level	5 - 10 years
Female	20-30	High Diploma	Middle Level	More than 10 years
Female	20-30	High Diploma	Low Level	3 - 5 years
Female	20-30	High Diploma	Low Level	3 - 5 years
Female	20-30	High Diploma	Low Level	3 - 5 years
Female	20-30	High Diploma	Low Level	5 - 10 years
Female	20-30	High School	Low Level	3 - 5 years
Female	20-30	High School	Low Level	3 - 5 years
Female	20-30	High School	Low Level	3 - 5 years
Female	18-20	High School	Low Level	5 - 10 years
Female	18-20	High School	Low Level	5 - 10 years
Female	18-20	High School	Low Level	3 - 5 years
Female	18-20	High School	Low Level	3 - 5 years
Female	18-20	High School	Low Level	3 - 5 years

Details of participants in "Strategic Department" <b>not using</b> current e-services				
Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	51-60	High Diploma	High Level	3 - 5 years
Male	31-40	Bachelor	Middle Level	3 - 5 years
Male	51-60	High School	Low Level	1 - 2 years
Male	31-40	High Diploma	Low Level	3 - 5 years
Female	41-50	Bachelor	Middle Level	3 - 5 years
Female	41-50	High Diploma	Low Level	3 - 5 years
Female	31-40	Below High School	Low Level	Less than 1 year (0)
Female	31-40	High School	Low Level	Less than 1 year (0)
Female	31-40	High School	Low Level	1 - 2 years
Female	31-40	High School	Low Level	Less than 1 year (0)

#### Case Study 4 – Policing Operations Department

Details of participants in "Policing Operations Department" <b>using</b> current e-services				
Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	31-40	Postgraduate	High Level	More than 10 years
Male	31-40	Bachelor	High Level	5 - 10 years
Female	31-40	Postgraduate	High Level	More than 10 years
Female	31-40	Postgraduate	Middle Level	5 - 10 years
Female	31-40	Bachelor	Middle Level	5 - 10 years
Female	20-30	Postgraduate	Middle Level	5 - 10 years
Female	20-30	Bachelor	Middle Level	5 - 10 years
Female	20-30	High School	Low Level	5 - 10 years
Female	18-20	High School	Low Level	3 - 5 years

Details of participants in "Policing Operations" <b>not using</b> current e-services				
Gender	Age	Education level	Level of staff in organisation	Internet experience
Male	51-60	High Diploma	High Level	2 - 3 years
Male	51-60	High School	High Level	Less than 1 year (0)
Male	51-60	Below High School	High Level	Less than 1 year (0)
Male	41-50	Bachelor	High Level	3 - 5 years
Male	41-50	High Diploma	High Level	Less than 1 year (3)
Male	41-50	High School	Middle Level	Less than 1 year (0)
Male	41-50	High School	Middle Level	Less than 1 year (0)
Male	41-50	Below High School	Middle Level	Less than 1 year (0)
Male	31-40	Bachelor	Middle Level	1 - 2 years
Male	31-40	Bachelor	Middle Level	3 - 5 years
Male	31-40	High School	Middle Level	Less than 1 year (0)
Male	31-40	High School	Middle Level	Less than 1 year (0)
Male	31-40	High School	Middle Level	Less than 1 year (0)
Male	31-40	Below High School	Middle Level	Less than 1 year (0)
Male	20-30	Bachelor	Middle Level	1 - 2 years
Male	20-30	Bachelor	Middle Level	1 - 2 years
Male	20-30	Bachelor	Middle Level	2 - 3 years
Male	20-30	High Diploma	Middle Level	Less than 1 year (6)
Male	41-50	High School	Low Level	Less than 1 year (0)
Male	41-50	High School	Low Level	Less than 1 year (0)
Male	41-50	Below High School	Low Level	Less than 1 year (0)
Male	31-40	High Diploma	Low Level	2 - 3 years
Male	31-40	High School	Low Level	1 - 2 years
Male	31-40	High School	Low Level	Less than 1 year (6)
Male	31-40	High School	Low Level	3 - 5 years
Male	31-40	High School	Low Level	1 - 2 years
Male	31-40	High School	Low Level	Less than 1 year (6)
Male	20-30	High School	Low Level	3 - 5 years
Male	20-30	Below High School	Low Level	2 - 3 years
Male	20-30	Below High School	Low Level	1 - 2 years
Male	18-20	High School	Low Level	2 - 3 years
Male	18-20	High School	Low Level	2 - 3 years
Male	18-20	High School	Low Level	1 - 2 years
Male	18-20	High School	Low Level	3 - 5 years
Male	18-20	High School	Low Level	3 - 5 years
Male	18-20	Below High School	Low Level	2 - 3 years
Female	31-40	High Diploma	Low Level	Less than 1 year (0)
Female	31-40	Below High School	Low Level	Less than 1 year (0)
Female	20-30	High Diploma	Low Level	2 - 3 years
Female	20-30	High Diploma	Low Level	2 - 3 years
Female	20-30	High Diploma	Low Level	2 - 3 years
Female	18-20	High School	Low Level	3 - 5 years



### Appendix XIII – Samples of interview extracts (highlights with codes) during the final study

#### Transcript #3

Location: Abu Dhabi Police, IT Department.

Date: Sunday, 29<sup>th</sup> July, 2012.

Time: 12:45 - 13:30

**Researcher: Introduction**

**Researcher: To what age group do you belong to?**

Participant: 20-30 years old.

**Researcher: Gender?**

Participant: Female.

**Researcher: What is your highest level of education?**

Participant: High Diploma.

**Researcher: What category is your current job?**

Participant: Front line / office work LOW LEVEL STAFF

**Researcher: Length of employment in Abu Dhabi Police?**

Participant: 1-2 years.

**Researcher: Years of internet experience?**

Participant: 5-10 years.

**Researcher: Are you using any of Abu Dhabi Police internal e-services at present?**

Participant: Yes. USE OF E-SERVICES

**Researcher: What e-service do you normally use?**

Participant: I have used the Human Resource system, correspondence system, finance system.

**Researcher: Why? How do you find it useful?**

Participant: All of them are useful. The main thing about them is that you can enquire without leaving your desk, you just use your computer and that's it. No need to go and talk or ask others about anything. At the same time you can track things easily, so nothing can get lost. PU/IT-REMOTE COMMUNICATION, PU/IT-ORGANISE DATA, PU/IT-TRACK TRANSACTIONS

**Researcher: How did you get convinced to use any of the e-services? Was it an order from a superior officer or a policy statement that made you use the e-service or personal choice and why?**

Participant: No one ordered me to use them; I have seen my colleagues in this department using them so when I used it I liked it. USED E-SERVICES WITHOUT PRESSURE, COMPA/IT-PREFERRED USE STYLE

**Researcher: When did you begin using this e-service (Year or date if you remember)?**

Participant: Beginning of this year. USED IT FOR 1 YEAR

**Researcher: Was it adopted immediately after it was introduced in Abu Dhabi Police or did it take you some time to use?**

Participant: I was employed in 2011, so you can say I tried these e-services after a year.

**Researcher: Why?**

Participant: I was a fresh graduate in 2011, so it took me some time to learn and understand work procedure, so I did not have much time to know about these e-services.

PEOU/IT-TOOK SOME TIME

**Researcher: So you have not used any of the e-services when you started work because you did not have an idea about them?**

Participant: Yes.

**Researcher: Do you use the e-service for work purposes or personal use?**



Participant: Work purpose.

Researcher: How often do you use this e-service for work purposes?

Participant: I don't know but a lot. COMPA/IT-USE IT A LOT, PU/IT-USEFUL, THEREFORE USED A LOT

Researcher: If a new online service is to be introduced in the organisation, such as, online social networks, would you; (choose 1 of the following, given in the interview)

Participant: "Be the first to use it".

Researcher: Why?

Participant: I will not lose anything if I tried it. If I find it useful I will continue using it, if not then finish. PU/IT-USE IT IF USEFUL, TRIAL-NOTHING TO LOSE

Researcher: Do you think the internal e-services are better than the traditional communication channels of the telephone or face-to-face interaction? Why do you think so?

Participant: I have answered the same question before, when I said you can depend on yourself, no need to go and ask others and do everything by your own using your computer. RA/IT-DEPEND ON YOURSELF, RA/IT-PREFER E-SERVICES, REMOTE COMMUNICATIONS

Researcher: Yes but the main question here is to compare e-services and traditional communication methods. Which one you think is better? Why?

Participant: E-services of course and the reason same as what I said before.

Researcher: Can you briefly describe your work routine?

Participant: Design webpages suitable for Abu Dhabi police departments.

Researcher: Having described your lifestyle at work, does the e-service fit in with your lifestyle? Or do you prefer other methods? Why?

Participant: Yes it fits well. I use the e-services many times a week and I always receive design requests from different sections online. COMPA/IT-RELATED TO WORK ROUTINE AND DESIGN WEBITES OR APPLICATION PAGES, ACCESS TO COMPUTERS

Researcher: Do you think staff members using the internal e-services are (choose 1 of the following, given in the interview):

Participant: "more valued by higher level colleagues and called upon to important decisive meetings". IMG/IT-MORE VALUED IN ORGANISATION

Researcher: Why do you think so and how did you determine this?

Participant: I have seen some staff members who support introducing and using the e-services to be involved in meetings with higher management. Maybe because to use their ideas and experience to improve the work procedure in Abu Dhabi Police. IMG/IT-USE IDEAS FROM USERS OF E-SERVICES FOR IMPROVEMENTS, IMG/IT-INCREASE IMAGE STATUS, ENCOURAGEMENT

Researcher: How many attempts did you have before you began using the e-service?

Participant: I am not sure how many attempts but it took me about a month to know more about using them. PEOU/IT-TOOK TIME

Researcher: Are they easy to use compared to internet usage in general? How?

Participant: The e-services available at Abu Dhabi Police are easy to use, however, the user need to use it regularly so that they don't forget some of the functions. PEOU/IT-EASY, NEED PRACTICE

Researcher: Did you need any training courses before using any of the e-services? If so, what training courses did you attend and how did they help you with using the e-services?

Participant: Yes, it was a brief training that took place in our section and was only for a week. We were told about different e-services available, their purpose, benefits and how to use them. PEOU/IT-TRAINING AVAILABLE FOR STAFF MEMBERS, AWARENESS IN IT DEPARTMENT

Researcher: Do you know how to use all the functions of the e-service well, or do you still need more training?

Participant: Yes I know how to use the e-services and don't need more training. PEOU/IT-EASY, COMPA/IT-USE E-SERVICES SO NO NEED FOR TRAINING

Researcher: How often do you seek help or advice regarding the e-services in a week?

Participant: None. PEOU/IT-EASY, NO NEED FOR SEEKING HELP

Researcher: In general are the internal e-services useful for Abu Dhabi police staff? Why do you think so? How?

Participant: Yes useful. Most important thing you can complete your work while you are sitting in front of your computer. PU/IT-USEFUL, REMOTE COMMUNICATION

Researcher: Are the e-services useful to you in your current role? How?

Participant: Yes. Receive design requests, send designs and get approvals and opinions from my direct managers. PU/IT-USEFUL, COMPA/IT-EXISTING WORK PRACTICE

Researcher: Please compare this to the earlier service and the difficulties encountered there and how e-services have overcome them. Are you spending less time on task(s) that took a long time before? Could you give me an example of a task, or show me an example please?

Participant: Yes there is a big difference, as I said I did not know about the e-services when I started working here, so to find out about things or need to finish something it was not easy. You have to call other staff by phone all the time, or go to their offices etc. Now it is easier and yes I am spending less time now. RA/IT-EASIER FOR COMMUNICATION, PU/IT-FASTER

Researcher: Do you trust the reliability and performance of the current e-services?

Participant: Yes TOE/IT

Researcher: How did you know that?

Participant: I used it and I tried it and saw how well it performs things. TOE/IT-TESTED IT WITH TRIAL AND EXPERIENCE, TOE/IT-RELIABLE

Researcher: Do you think staff personal details and other information are kept safe and confidential when using the internal e-services? How did you know that?

Participant: Yes. I don't know it is my personal opinion. TOG/IT-SAFE BASED ON PERSONAL OPINION

Researcher: Thank you for your time.

Participant: You are welcome.

Transcript #52

Location: Abu Dhabi Police, Strategy Department.

Date: Sunday, 2<sup>nd</sup> September, 2012.

Time: 09:05 - 09:50

**Researcher: Introduction**

**Researcher: To what age group do you belong to?**

Participant: 31-40 years old.

**Researcher: Gender?**

Participant: Male.

**Researcher: What is your highest level of education?**

Participant: Bachelor.

**Researcher: What category is your current job?**

Participant: Middle level.

**Researcher: Length of employment in Abu Dhabi Police?**

Participant: More than 5 years.

**Researcher: Years of internet experience?**

Participant: More than 10 years.

**Researcher: Are you using any of Abu Dhabi Police internal e-services at present?**

Participant: Yes. USE OF E-SERVICES

**Researcher: What e-service do you normally use?**

Participant: Human Resource self-service, correspondence system and Project Management.

**Researcher: Why? How do you find it useful?**

Participant: These e-services get information needed efficiently and very fast. I can enquire about my personal details, training, and annual leave balance from the Human resource service. And the correspondence system was made to share information and finish enquiries between all departments; in addition I can view projects progress in one simple interface which helps my job. PU/SMD-EFFICIENT, FAST (ENQUIRE ABOUT PERSONAL DETAILS, TRAINING, ANNUAL LEAVE, COMMUNICATION, VIEW PROCESS PROGRESS)

**Researcher: How did you get convinced to use any of the e-services? Was it an order from a superior officer or a policy statement that made you use the e-service or personal choice and why?**

Participant: it was a policy statement; anyone can realize the difference that e-services can make in the work flow. COMPA/SMD-EXISTING WORK PRACTICE, MANAGER AWARENESS OF THE IMPORTANCE OF E-SERVICES FOR WORK PROCEDURE

**Researcher: When did you begin using this e-service (Year or date if you remember)?**

Participant: when they first came to the GHQ, End of 2008.

**Researcher: Was it adopted immediately after it was introduced in Abu Dhabi Police or did it take you some time to use? Why?**

Participant: it took me one day to learn them and start using them, so I can say immediately PEOU/SMD- CONSIDERED EASY AND WAS USED IMMEDIATELY

**Researcher: Do you use the e-service for work purposes or personal use?**

Participant: I use them for both.

**Researcher: How often do you use this e-service for personal use? Can you give me an example?**

Participant: I use it daily but only for browsing and for social media like twitter, but not for shopping because I don't trust things aren't physically in front of me. TOI/SMD-for do not trust shopping websites

**Researcher:** How often do you use this e-service for work purposes? Can you give me an example?

Participant: Every day since 2008, for correspondence and once or twice a week. PU/SMD-USE CORRESPONDENCE SYSTEM EVERYDAY

**Researcher:** If a new online service is to be introduced in the organisation, such as, online social networks, would you; (choose 1 of the following, given in the interview)

Participant: I would "be the first one to use it" .

**Researcher:** Why?

Participant: I find using the e-services very productive and this is why I use them at work. PU/SMD-E-SERVICE PRODUCTIVE

**Researcher:** Do you think the internal e-services are better than the traditional communication channels of the telephone or face-to-face interaction? Why do you think so?

Participant: Yes, they are reliable, fast, efficient and doesn't lose data value like interviewing. RA/SMD-E-SERVICE RELIABLE, FAST, EFFICIENT. (DOES NOT LOSE VALUE) PREFER MORE THAN TRADITIONAL COMMUNICATIONS

**Researcher:** Can you briefly describe your work routine?

Participant: I am a Chief of Project Management office. I handle and monitor all development projects in the GHQ which are done on Microsoft Projects interface.

**Researcher:** Having described your lifestyle at work, does the e-service fit in with your lifestyle? Or do you prefer other methods?

Participant: Yes for sure it fits with my work lifestyle. We use different e-services a lot to complete our work. We send daily reports and it should be through the system to be easily overviewed and managed. PU/SMD-E-SERVICE DAILY REPORTS, COMPA/SMD-EXISTING WORK PROCURES

**Researcher:** Do you think staff members using the internal e-services are (choose 1 of the following, given in the interview):

Participant: "experienced and knowledgeable in computer and internet usage" .

**Researcher:** Why do you think so and how did you determine this?

Participant: all workers take training before they start here in my division and once they come to work they never face difficulties. COMPA/SMD-E-SERVICE TRAINING, PEOU/SMD-E-SERVICE NO DIFFICULTIES, PBC/SMD-STAFF GET TRAINING

**Researcher:** How many attempts did you have before you began using the e-service?

Participant: I do not remember, but maybe few times. PEOU/SMD-E-SERVICE FEW ATTEMPTS, SIMPLICITY OF E-SERVICES

**Researcher:** Are they easy to use compared to internet usage in general? How?

Participant: they are easy but different still, because our systems based for other purposes. PEOU/SMD-E-SERVICE PRODUCTIVE

**Researcher:** Did you need any training courses before using any of the e-services? If so, what training courses did you attend and how did they help you with using the e-services?

Participant: Yes I did take only one in order to use Project Management and it helped a lot to use it. It shares the Projects information on a web base interface. PEOU/SMD-E-SERVICE ONE TRAINING, PBC/SMD-STAFF GET TRAINING

**Researcher:** Do you know how to use all the functions of the e-service well, or do you still need more training?

Participant: After using these e-services for 4 years, I am experienced. PEOU/SMD-E-SERVICE NO DIFFICULTIES, COMPA/SMD-STAFF ROUTINE FOR 4 YEARS, PU/SMD-USED FOR 4 YEARS, PRIOR EXPERIENCE

**Researcher:** How often do you seek help or advice regarding the e-services in a week?

Participant: None. PEOU/SMD-EASY, NO NEED FOR SEEKING HELP

**Researcher:** In general are the internal e-services useful for Abu Dhabi police staff? Why do you think so? How?

**Participant:** Yes they are useful. They are more efficient and faster resources, that makes all data available for everyone involved. PU/SMD-MORE EFFICIENT, SPEED, RESOURCES ALWAYS AVAILABLE

**Researcher:** Are the e-services useful to you in your current role? How?

**Participant:** Yes. I view progress in projects and follow needs from other departments. PU/SMD-CONTROL PROGRESS, TRACKING PROJECTS UPDATES

**Researcher:** Please compare this to the earlier service and the difficulties encountered there and how e-services have overcome them. Are you spending less time on task(s) that took a long time before? Could you give me an example of a task, or show me an example please?

**Participant:** I have been working in Abu Dhabi Police for 10 years; I have seen the difference when introducing some of the e-services. Projects were not shared and to get information about their progress used to take time and was paper printed. RA/SMD-MORE TEAM WORK BETWEEN MEMBERS, DETAILS ARE UP TO DATE, E-SERVICE SPECIFICATIONS

**Researcher:** Do you trust the reliability and performance of the current e-services?

**Participant:** Yes sure TOE/SMD-RELIABILITY AND PERFORMANCE

**Researcher:** How did you know that?

**Participant:** From my experience it can handle different transactions and enquires so it shows that the performance is good. If we have any thoughts about the system we will immediately contact the IT department and they can adjust and improve it even more. TOE/SMD-EXPERIENCE, SUPPORT FROM IT DEPARTMENT REGARDING ANY ISSUES

**Researcher:** Do you think staff personal details and other information are kept safe and confidential when using the internal e-services? How did you know that?

**Participant:** Yes sure. Who will take our details? You should forget asking this question here. TOG/SMD-TRUST ADPF

**Researcher:** Why?

**Participant:** Because we are working in police, no one here will try to take others details just like that. We all know this and we trust this place. TOG/SMD-TRUST ADPF

Transcript #101

Location: Abu Dhabi Police, Security Department.

Date: Thursday, 13<sup>th</sup> September, 2012.

Time: 08:00 - 09:00

**Researcher: Introduction**

**Researcher: To what age group do you belong to?**

Participant: 20-30 years old.

**Researcher: Gender?**

Participant: Male.

**Researcher: What is your highest level of education?**

Participant: Bachelor.

**Researcher: What category is your current job?**

Participant: Administrative - Middle level.

**Researcher: Length of employment in Abu Dhabi Police?**

Participant: More than 5 years.

**Researcher: Years of internet experience?**

Participant: 5-10 years.

**Researcher: Are you using any of Abu Dhabi Police internal e-services at present?**

Participant: Yes. USE OF E-SERVICES

**Researcher: What e-service do you normally use?**

Participant: Human Resource and correspondence system.

**Researcher: Why? How do you find it useful?**

Participant: I can read and send documents. I can also apply for personal things from the human resource which gives me more privacy and a quick way while I am in my office finishing my work rather than going to the human resource department. PU/SID-PRIVACY-CONFIDENTIALITY OF DATA, PU&RA/SID-REMOTE COMMUNICATION, PU/SID-FASTER

**Researcher: How did you get convinced to use any of the e-services? Was it an order from a superior officer or a policy statement that made you use the e-service or personal choice and why?**

Participant: No one ordered me to do so. PU, COMPA

**Researcher: When did you begin using this e-service (Year or date if you remember)?**

Participant: I told you before, about a year or 2.

**Researcher: Was it adopted immediately after it was introduced in Abu Dhabi Police or did it take you some time to use?**

Participant: No, most e-services are implemented long time ago, I don't know when. But as I just said I used it before a year or 2.

**Researcher: Why?**

Participant: I didn't know about it. My colleagues and I were in Police College, and after we graduated we heard by chance about the e-services from another colleague who works in the IT department. So we tried and used it, COMPA/SID-HEARD OF IT BY CHANCE, DIDN'T USE IT BEFORE, AWARENESS NEEDED

**Researcher: Do you use the e-service for work purposes or personal use?**

Participant: Work purpose.

**Researcher: How often do you use this e-service for work purposes? Can you give me an example?**

Participant: Everyday, a lot of documents should be send to specific staff to be approved and you can track the document where did it stop. Nothing could be forgotten or lost. PU/SID-TRACK DOCUMENTS AND APPROVAL, PU/SID-DOCUMENTS CANNOT BE LOST



**Researcher:** If a new online service is to be introduced in the organisation, such as, online social networks, would you; (choose 1 of the following, given in the interview)

Participant: I would “wait to see if others will use it and then use it” .

**Researcher:** Why?

Participant: I am always busy with work and I don’ t have time for trying things. I can ask my colleagues about it later. What if it the e-service was not helpful? What if is a waste of time? I can know all this later without trying it. WILL NOT USE IT IMMEDIATELY, PU

**Researcher:** Do you think the internal e-services are better than the traditional communication channels of the telephone or face-to-face interaction? Why do you think so?

Participant: E-services are better, but I advise my colleagues to lock their laptop or desktop when they finish, we all know that it is more secure to save them in our computers but what is the point if our computers are switched on and not locked. Anyone can read or even print information without anyone noticing him. Easy RA/SID-MORE SECURE, RELIABILITY OF E-SERVICES THAN MANUAL PAPER PROCEDURES

**Researcher:** Can you briefly describe your work routine?

Participant: We track projects being implemented and finalised. Like a supervision and make sure everything is on time, budget and there are no problems.

**Researcher:** Having described your lifestyle at work, does the e-service fit in with your lifestyle? Or do you prefer other methods?

Participant: For sure, managing different projects in different locations is difficult and I don’ t know what I will do without computers and services online. COMPA/SID-WORK DEPEND ON E-SERVICE - EXISTING WORK PRACTICE, PU/SID-GET AND TRACK INFORMATION

**Researcher:** Do you think staff members using the internal e-services are (choose 1 of the following, given in the interview):

Participant: “considered smarter than other staff members” . IMG/SID-USERS ARE SMART

**Researcher:** Why do you think so and how did you determine this?

Participant: Smart people can learn new things easily, because when I studied in the university they did not teach us anything about e-services, you should know and update your skills by yourself. If a person is not smart how can he learn things by himself? IMG/SID-NOT EVERYONE IS ABLE TO HANDLE E-SERVICES

**Researcher:** How many attempts did you have before you began using the e-service?

Participant: I never counted my attempts, but it took me time. PEOU/SID-TOOK TIME

**Researcher:** Are they easy to use compared to internet usage in general? How?

Participant: Not really, you have a lot of options especially in the correspondence system so you should know about them before you use it. If I compare another website, like auto trader it is much easier. PEOU/SID-A LOT OF OPTIONS IN E-SERVICE, COMPARE TO INTERNET WEBSITES IT IS MORE DIFFICULT

**Researcher:** Did you need any training courses before using any of the e-services? If so, what training courses did you attend and how did they help you with using the e-services?

Participant: Yes I needed training. It was a 2 week course in training department; they helped and taught us how to use the correspondence system and all functions of it.

PEOU/SID-NEED TRAINING, PBC/SID-ATTEND 2 WEEKS TRAINING

**Researcher:** Do you know how to use all the functions of the e-service well, or do you still need more training?

Participant: I am not sure, but I think yes I know it all. PEOU/SID-KNOWN AFTER TRAINING

**Researcher:** How often do you seek help or advice regarding the e-services in a week?

Participant: Never. PEOU/SID- EASY, NO NEED FOR SEEKING HELP OR ADVICE

**Researcher:** In general are the internal e-services useful for Abu Dhabi police staff? Why do you think so? How?

Participant: Yes, they are useful. Less paper work means more organise work. This means nothing gets lost. PU/SID-LESS PAPER WORK, ORGANISED, NOTHING GET LOST

Researcher: Are the e-services useful to you in your current role? How?

Participant: I can't say 100%, but yes it is useful.

Researcher: Why not 100%?

Participant: Because still not everything is included in e-services, there is still work that should be done in papers, like comparing reports etc. PU/SID-NOT FULLY USEFUL, COMPA/SID-NOT FULLY COMPATIBLE (THIS MEANS MORE E-SERVICES ARE NEEDED) ADPF SHOULD INTRODUCE NEW E-SERVICE TO DEPARTMENT.

Researcher: So if there is an e-service that can compare reports in your department you will use it?

Participant: Yes I will be the first to use it. (SHOWS THAT WORK ROUTINE AND BENEFITS OF E-SERVICES IS IMPORTANT TO ATTRACT USERS) COMPA/SID AND PU/SID

Researcher: Please compare this to the earlier service and the difficulties encountered there and how e-services have overcome them. Are you spending less time on task(s) that took a long time before? Could you give me an example of a task, or show me an example please?

Participant: I have answered the same thing before.

Researcher: When?

Participant: I said that managing different projects in different locations is difficult and I don't know what I will do without computers and services online. PU/SID-REMOTE COMMUNICATION

Researcher: So are you spending less time now?

Participant: Yes I can manage things while I'm sitting in my office, rather than going around with my car, this will be a waste of time. RA/SID-FASTER

Researcher: Do you trust the reliability and performance of the current e-services?

Participant: Yes TOE/SID-RELIABILITY OF E-SERVICES

Researcher: How did you know that?

Participant: I have many friends in IT and I know how they work hard to make these services work 100%. It has been a long time we use them and have no complains. TOE/SID-EXPERIENCE AND RELATIOSHIPS FROM COLLEAGUES, REPUTATION OF E-SERVICES

Researcher: Do you think staff personal details and other information are kept safe and confidential when using the internal e-services? How did you know that?

Participant: You know this department is in charge of security. Our policy is to have a very safe environment from staff and citizens. No one can read and know about other details. We have strict rules in these things. TOG/SID-SAFE BASED ON WORK PRACTICE AND ROUTINE, STRICT RULES FROM ADPF

Researcher: So you are saying that no one can get details even if they were high individuals from ADP?

Participant: Of course no one can do what they want, there are rules. But if it was something formal and we got a formal letter from a specific department then they have the right to check everything. But these things happen very rarely. TOG/SID-CONFIRMATION OF CONFIDENTIALITY OF DATA

Researcher: Thank you for your time.

Participant: You are welcome.



Transcript #151

Location: Abu Dhabi Police, Policing Operations Department.

Date: Thursday, 27<sup>th</sup> September, 2012.

Time: 08:00 - 08:35

**Researcher: Introduction**

**Researcher: To what age group do you belong to?**

Participant: 51 - 60 years old.

**Researcher: Gender?**

Participant: Male.

**Researcher: What is your highest level of education?**

Participant: high diploma.

**Researcher: What category is your current job?**

Participant: High level - Manager

**Researcher: Length of employment in Abu Dhabi Police?**

Participant: more than 5 years.

**Researcher: Years of internet experience?**

Participant: 2 - 3 years.

**Researcher: Are you using any of Abu Dhabi Police internal e-services at present?**

Participant: No. NOT USING ANY OF THE CURRENT E-SERVICES

**Researcher: Why?**

Participant: I do not have a main reason for the need to use these e-services. Our work is always accurate and organised. We always improve the way we work and have good staffs that works very hard. PU/POD-NOT NEEDED, RESISTANCE TO CHANGE, RA/POD-PREFFER OTHER METHODS THAN USING E-SERVICES

**Researcher: If a new online service is to be introduced in the organisation, such as, online social networks, would you; (choose 1 of the following, given in the interview)**

Participant: I would "refuse to use it and find other ways to overcome using it" by letting some of the staff member do the job and print out the needed documents out of this e-service.

**Researcher: Why?**

Participant: I find myself better without it. I am happy with the way I am used to work from more than 30 years. PU/POD-NOT NEEDED, RESISTANCE TO CHANGE BECAUSE 30 YEARS HE IS USING SIMILAR METHODS

**Researcher: Do you think the internal e-services are better than the traditional communication channels of the telephone or face-to-face interaction? Why do you think so?**

Participant: No I think the human expressions and face to face communication is better in my line of work, because the other methods like telephone and internet doesn' t support social life which is very required in my opinion. RA/POD-FACE TO FACE COMMUNICATION SUPPORT SOCIAL LIFE, SOCIAL COMMUNICATIONS

**Researcher: Can you briefly describe your work routine?**

Participant: I am a police director and responsible of the criminal justice and security.

**Researcher:** Having described your lifestyle at work, does the e-service fit in with your lifestyle? Or do you prefer other methods?

**Participant:** No it doesn't, my work depends on observation and examining things, and should be in contact with people, because I deal with them. COMPA/POD-NOT COMPATIBLE WITH WORK ROUTINE

**Researcher:** Do you think staff members using the internal e-services are (choose 1 of the following, given in the interview):

**Participant:** considered smarter than other staff members. IMG/POD-E-SERVICE USERS ARE SMARTER THAN OTHERS

**Researcher:** Why do you think so and how did you determine this?

**Participant:** because the type of job they do requires skills which makes them professionals. IMG/POD-E-SERVICE REQUIRES SKILLS, PEOU/POD-DIFFICULT AND REQUIRES SKILLS

**Researcher:** In general are the internal e-services useful for Abu Dhabi police staff? Why do you think so? How?

**Participant:** they are not very useful, because police was always good even before technology came and we used to deliver our work properly same as now without this large investment of human resources. PU/POD-NOT USEFUL, BASED ON PRIOR EXPERIENCE E-SERVICES ARE NOT NEEDED

**Researcher:** Are the e-services useful to you in your current role? How?

**Participant:** it does not, I still get all my work manually and printed out in Memos which is more efficient and carries a signature which reduce the risks might come with technology. PU/POD-NOT USEFUL, TOE/POD-PAPER ARE MORE SECURE THAN E-SERVICES, EXAMPLE OF SIGNATURE

**Researcher:** Do you trust the reliability and performance of the current e-services?

**Participant:** No, why do I trust something, I am sure we can work better without it. TOE/POD-RESISTANCE

**Researcher:** How can you work better without e-services?

**Participant:** Teamwork, if we work as a team and we know what we are doing then we are better than any system. We human created these e-services, so we can work better than it. TOE/POD-RESISTANCE, CAN'T RELY ON E-SERVICES

**Researcher:** Do you think staff personal details and other information are kept safe and confidential when using the internal e-services? How did you know that?

**Participant:** I don't know. TOG/POD-NOT SURE

**Researcher:** Thank you for your time.

**Appendix XIV – Some photographs taken during the final study**



A photograph taken while the researcher is observing a police officer using one of the e-services in ADPF



A photograph of the computer server room in ADPF

**Appendix XV – Data analysis and identified themes in the final study**

**Case Study 1**

<b>Relative Advantage – Security Information Department</b>				
<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
<b>Confidentiality of data</b>	Information is more secure when using automated services	More privacy when using e-services, this is more preferable by males, different age groups, high level of education, high level individuals with internet experience	<i>“It is important to secure the data, sometimes we have secret reports that no one should read or see them and when they are stored in our database it is better than old methods of storing files in shelves”</i> (Male, 41-50, postgraduate, high level, more than 10 years internet experience).	Code: RA/SID-protects data  Suggests that using e-services protects data more than using other paper based methods.
<b>Speed of e-services</b>	E-services are fast when it comes to the communication between staff either for updating or retrieving certain confidential information	E-services are fast and preferable by both genders, middle aged (20-40), with a high level of education, middle levels and have more than 5 years of internet experience	<i>“...because of the pressure I have at work, everything should be completed quickly before getting more work the next day ...”</i> (Female, 31-40, bachelor, middle level, 5-10 years internet experience).	Code: RA/SID-e-service fast  Suggests that using e-services is a fast delivery service, were documents are send from one section to another in the same second. Therefore, characteristics of e-services such as speed are crucial.
<b>Remote communications</b>	Confidential documents can be send and received easier even to/from different locations	Low level staff with internet experience argued about the benefits and speed of remote communication.	<i>“...before, we used to go to different police stations to send and receive security documents that were so confidential that only specific staff members are allowed to do this job. This used to take time, unlike now when they are dealt online”</i> (Male, 31-40, high diploma, low level, more than 10 years internet experience).	Code: RA/SID-send and receive remotely  Suggests that online procedures for sending confidential documents are faster and takes no time.
<b>Social relationships</b>	Prefer face to face communication to be recognised and known by other staff members	“Wasta” was supported mainly by older male participants, with low level of education and categorised as low level staff.	<i>“...no I prefer face to face communications because it is faster to deal with things when the other person recognises you and knows who you are, you will get more help from him ...”</i> (Male, 51-60, high school, low level, 2-3 years internet experience)	Code: RA/SID-more help when recognising the person  Manual methods are better than automated especially when you are known to get respect.



<b>Favouring traditional communications</b>	The use of manual procedures especially if it was based on personal choice	Participants with low level of education, low level staff and with little or no internet experience favour manual procedures	<i>"...I work based on what my manager tell me, he never tell me to use e-services so I don't use it..."</i> (Male, 20-30, below high school, low level, 6 months internet experience)	Code: RA/SID-not using e-services  Showed a neutral attitude towards e-services. If it was not compulsory then they will not use it.
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**Compatibility – Security Information Department**

First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>Existing work practice</b>	Work encourages using e-services	Using e-services at work, mainly by staff members who have internet experience	<i>"I make presentations for my direct manager in the department using MS PowerPoint...Yes it fit with my work. It make me comfortable with using computers and different e-services because I know how to use it"</i> (Female, 20-30, high diploma, low level, 3-5 years internet experience).	Code: Compa/SID-use e-services at work  Suggests that using e-services at work is comfortable
<b>Preferred work style</b>	Enjoyment when using e-services at work	Highly educated staff, categorised as middle level individuals and have internet experience enjoy using e-services at work	<i>"I don't know if it fits or not, but I like using e-services so I use it for work. I wish if we have more e-services, I will use them more. But now I am forced to do some things without computer, like some inspection procedures"</i> (Female, 41-50, postgraduate, middle level, more than 10 years internet experience).	Code: Compa/SID-like to use e-services / enjoy  Suggests if more e-services are available, there will be more usage because it is more comfortable to use

**Image – Security Information Department**

First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>Talented and skilled users</b>	E-service users are seen as skilled and educated in new technologies	Different levels of staff, both gender think that staff who use e-services show others they are educated and skilled	<i>"...I know some personally, that use e-services so that their names is given and stored in the system to show others they are educated and know how to use new technologies..."</i> (Female, 20-30, postgraduate, middle level, 5-10 years internet experience)	Code: Image/SID-show others they are educated  Suggests that some staff uses e-services only for showing off
<b>Experienced with computers</b>	Able to use e-services because of computer and internet experience	Middle and high level staff members and highly educated individuals argued that e-service users are experienced	<i>"...because they have the ability to use e-services easily and this comes purely from their experience with computers and internet"</i> (Male, 31-40, bachelor, middle level, 5-10 i.e.)	Code: Image/SID-experienced  Suggests that e-service users have a lot of experience with computers

Perceived Ease of Use – Security Information Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>E-service training</b>	E-service training is not needed	Staff from both gender, with high level of education, middle and high level individual and have internet experience did not need to attend any training to use the e-services	<i>“I don’t remember how many attempts but it was only few times...No, I didn’t need training courses because I know how to use it...” “I ask other colleagues for help very rarely when I first used the e-services, but not now...”</i> (Male, 31-40, postgraduate, middle level, more than 10 years internet experience)	Code: PEOU/SID-No training  Help needed at the beginning, however, it is easy to use and no need for training session.
<b>Complexity of e-services and computers</b>	Training is not enough, e-services are difficult to use	Older staff from both genders, with low level of education and categorised as low level staff found e-services difficult even after attending training courses	<i>“...it took me time to learn and understand about some e-services. Yes of course, training courses are important and I have attended one about the correspondence system...I understood it better after training but not everything. It is difficult to know about it only from training and lecturing. It is better when you use it by yourself later at work”</i> (Male, 41-50, below high school, low level, 3-5 years internet experience)	Code: PEOU/SID-Difficultly of e-services  Training is important, however it is not enough to know everything about e-services

Perceived Usefulness – Security Information Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>Confidentiality of data</b>	Provide high level of security for all information	Most male participants, different age groups, with high level of education and categorised as high level individuals talked about the usefulness of e-services for privacy issues	Participants had explained how using e-services provides a higher level of security to information, where different transactions are stored in computers rather than storing them in paper files.	Code: PU/SID-protects data  Suggests that using e-services protects data more than using other paper based methods.
<b>Remote communications</b>	Important for online data exchange	Most staff categorised as low level staff with internet experience argued how e-services are useful when it comes on online data exchange	Talked about the benefit and speed of the process when using e-services rather than sending and enquiring about different transactions manually.	Code: PU/SID-send and receive remotely  Suggests that online procedures for confidential documents are faster, therefore, useful.

<b>Existing work practice</b>	Lack of usefulness of e-services led to not using it at work	Staff members whether they were using or not using the e-services, categorised as low and middle levels argued that not all e-services are useful	<i>“No it is not useful for everyone; there are few e-services comparing to the work we have. Maybe because we are still new and in future when there are more new e-services it will be better...”</i> (Male, 41-50, bachelor, middle level, 3-5 years of internet experience).	Code: PU/SID-few number e-services  E-services seem useful only to specific departments because of the few number of e-service.
<b>Specifications of e-services</b>	The important options that e-service provides are useful for staff	Most participants regardless of demographic details had discussed the benefits and usefulness of e-services when it came to its specifications.	<i>“...it is like avoiding unneeded steps in the process, so it should be faster”</i> (Female, 31-40, postgraduate, middle level, more than 10 years internet experience).	Code: PU/SID-less steps e-services  Less steps therefore, faster when using the e-services.

**Trustworthiness – Security Information Department**

<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
<b>Trust of higher management</b>	Staff were comfortable with e-services and talked about their trust towards ADPF	All participants whether using or not using the e-services, and regardless of their demographics argued that details processed by means of e-services are safe.	<i>“Yes it is safe, I don’t know if you met them but we have a full subdivision only for security in internal networks and communications...”</i> (Male, 31-40, postgraduate, high level, more than 10 years of internet experience)	Code: TRUST/SID-trust of ADPF  Information are kept safe therefore, being trusted
<b>Reliability and reputation of e-services</b>	Discussions about the reliability of e-services and also how reputation can affect the adoption	Younger participants talked about how e-services are reliable for their work. However, some of the older participants did not trust the e-services because of what they heard from their colleagues	E-services are reliable and can deal with different transactions efficiently. On the other hand, some of the older participants said that they have not use the e-services because they have heard that sometimes the internet connection is slow and this could affect some of the transactions being processed	Code: TRUST/SID-trust of e-services Code: TRUST/SID-reputation of e-services  Some trust the reliability and others are not sure but influenced by its reputation

Case Study 2

Relative Advantage – IT Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>Confidentiality of data</b>	E-service provides more security to data	Most high level staff members and with high level of education discussed how they prefer e-services than previous traditional methods because of more confidentiality	“...we have details of citizens, like their address and telephone numbers, so it should not be allowed for anyone to see it...” (Male, 41-50, postgraduate, more than 10 years of internet experience).	Code: RA/IT-protects data  Suggests that using e-services protects data more than using other paper based methods
<b>Speed of e-services</b>	Faster processing of transactions	Regardless of participant details, staff members assure the speed of transactions that be processed quickly	“...sometimes I get an order from my direct manager that another department need details about a specific enquiry and they need it now. We can't tell them to wait, so in similar occasions we feel the importance of e-services...” (Male, 20-30, bachelor, middle level, 5-10 years internet experience)	Code: RA/IT- e-service fast  Suggests that using e-services is a fast delivery service to send information for other departments quickly when needed
<b>Remote communications</b>	Online and technical support between departments within different locations	Low level staff technicians argued that technical support can be processed online with e-services	“...if I received a request from a staff about a certain issue for his computer and his network is working fine, I can login to his computer online and fix his problem...” (Male, 18-20, high school, low level, 3-5 years internet experience)	Code: RA/IT-send and receive remotely  Suggests that technical faults could be fixed online
<b>Transparency of e-services</b>	Transactions can be monitored	Staff from both genders and with different levels in the department argued about staff treated the same	“...when using any e-service nothing is hidden. Everything can be checked and difficult to manipulate things, so everyone is treated the same” (Male, 31-40, bachelor, middle level, more than 10 years internet experience).	Code: RA/IT-nothing hidden  Fairness in processing details
<b>Availability of e-services</b>	Access to the services at anytime	Male staff members with different organisational level discussed how they can enquire even after working hours	“...if I want something at 2:31pm from the human resource no one will reply because they will be in their cars this time, so I have to wait until the next day. If it was weekend I will wait for 2 extra days. But by using the human resource e-service I don't need to depend on them...” (Male, 20-30, postgraduate, middle level, more than 10 years internet experience)	Code: RA/IT-working 24/7  E-services are available at anytime



Compatibility – IT Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>Existing work practice</b>	Current work of most staff depends on computer usage	Work task of staff members, regardless of their gender or age is compatible with the e-services	<i>“Yes it fits with my life style I am a software developer and I test most e-services here...”</i> (Male, 20-30, high diploma, low level, 5-10 years internet experience)	Code: Compa/IT-implementation of e-services  Some of the IT work is to implement and test the e-services
<b>Prior experience</b>	Work tasks forces staff to use computers long time ago, even before introducing e-service	Most staff regardless of their demographic details are used to computers, internet and e-services	<i>“Yes for sure, I have worked with computers and everything that have a relation with it from more than 10 years...”</i> (Male, 41-50, postgraduate, high level, more than 10 years internet experience)	Code: Compa/IT-computer expert  Most staff are experts with computer, internet and e-services

Image – IT Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>Importance of e-services</b>	E-services are used to improve work in the department	Middle and high level individuals, various age groups, different gender, high level of education and internet experience view e-service as a tool to increase work performance	<i>“...I see internal e-services important for everyone. For staff and police procedures...I need to be ready for any order from my manager when he asks me for any enquiry and process it very quickly...”</i> (Male, 20-30, bachelor, middle level, 5-10 years internet experience)	Code: Image/IT-important  It is important for all staff members in ADPF
<b>Experienced with computers</b>	E-service users are expert	Staff with different age, gender, level and education argued that e-service users are expert	<i>“Of course they will be experienced and knowledgeable in computer and internet or how will he use the e-service if he doesn't know how to use it?”</i> (Male, 41-50, bachelor, high level, more than 10 years of internet experience)	Code: Image/IT- experienced  Suggests that e-service users have a lot of experience with computers

Perceived Ease of Use – IT Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>Simplicity of e-services</b>	Most e-services are easy to use and does not need training	Most e-service users regardless of their demographics in this department found that e-services easier than other online applications available for public	<i>“I refused training because I know how to use it. I tried some websites online, like Etisalat website to pay for my telephone bills, for me it is even more difficult than the IT support e-service. Because in IT support everything is clear and in one page, but in Etisalat you have many pages and options...”</i> (Male, 20-30, high school, low level, 3-5 years internet experience)	Code: PEOU/IT-no need for training Refused training because in his opinion it is a waste of time because e-services are simple
<b>Prior experience and knowledge</b>	Have knowledge to use the e-services based on their computer experience	Most staff with internet experience, different organisation level had talked about their experience that led them to easily user the e-services	<i>“I have worked with computers and everything that have a relation with it from more than 15 years...”</i> (Male, 41-50, postgraduate, high level, more than 10 years internet experience)	Code: PEOU/IT-experience Using computers and get used to technologies from 10 years

Perceived Usefulness – IT Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>Confidentiality of data</b>	Access of data only given to certain high level individuals	Most high level staff with high level of education explained how useful the e-services when it comes to protection and giving access to certain staff	<i>“...it is enough to say that it protects different police information and give more privacy to it...”</i> (Male, 41-50, postgraduate, high level, more than 10 years of internet experience)	Code: PU/IT-privacy of data E-services provide protection od data
<b>Remote communications</b>	Organising and communicating online within sections, branches or departments	Younger staff with lower education in this department argued about organising tasks and producing schedules of tasks when using e-services	<i>“Sanad support e-service assists me to schedule tasks I have for one week in front and by this I will not forget the appointments I have. When? What time? Where? What is the problem? What to prepare?”</i> (Male, 20-30, high school, low level, 3-5 years of internet experience).	Code: PU/IT-organise tasks online SANAD service assist in organising tasks for staff in IT
<b>Reliability of e-services</b>	Efficient processing of transactions that are useful and can be trusted	Staff from both gender, categorised as middle and high individuals and with a high level of education said that e-services process transactions efficiently	<i>“Yes it is useful. I don’t double check results when I get them online from the database. I know they are accurate and the computer did not miss something. If it was from anyone else I will not trust him...”</i> (Female, 20-30, bachelor, middle level, 5-10 years of internet experience)	Code: PU/IT-efficient processing Suggests that data retrieved online are trusted and reliable

<b>Specifications of e-services</b>	E-service provides online updates regarding any of staff circumstances	Some of the middle level participants from both genders talked about fast online updates when using e-services	<i>"...if I got permission from the training department to enrol in training outside my department, I don't have to get a proof and show it to my manager or colleagues. Everyone will be updated and informed online at the same time..."</i> (Male, 20-30, postgraduate, middle level, more than 10 years internet experience).	Code: PU/IT-online confirmation  Quick updates when using e-services
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<b>Trustworthiness – IT Department</b>				
<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
<b>Trust of higher management</b>	Staff and management work together as one team	All staff regardless of demographic details argued about how staff in ADPF all work as a team which faith and trust is spread between them	<i>"yes it is safe...we are all working as one team, our aim is the same which is to provide safety and security in Abu Dhabi...we can't work if we don't trust each other..."</i> (Female, 41-50, postgraduate, middle level, more than 10 years of internet experience).	Code: TRUST/IT-trust of ADPF  Suggests that it is impossible to work if staff does not trust their management. Therefore, all staff should trust ADPF
<b>Reliability of e-services</b>	E-services have a lot of benefits and therefore reliable	All staff showed trust and reliability of e-services and listed some of its main benefits	E-services were seen as a method to accomplish transactions faster than paper based procedures, faster in updating of information, can communicate remotely with other branches and department, and can also protect the confidentiality of data.	Code: TRUST/IT-trust of e-services  Summarised the benefits of e-services which led to trusting and using it

Case Study 3

Relative Advantage – Strategic Management Department				
First Level Themes	Second Level Themes	Third Level Themes	Example of Data Extract	Codes and more Details
<b>Confidentiality of data</b>	Online reports are more secure	Middle and high level male staff members, with high level of education in this department talked about the security that e-services provides for reports comparing to previous paper reports	“...we have important and confidential information about all departments in ADPF, like strengths, weaknesses, needs and many things. When they are processed online and online reports are generated you know that they are in a safe place and can't be reached by anyone...” (Male, 41-50, high diploma, high level, 5-10 years internet experience)	Code: RA/SMD-protects data  Reports generated for the strategic department are kept secure when using e-services
<b>Transparency of e-services</b>	Monitor strategic progress of departments online by staff members	Male participants aged 31-50, categorised as middle and high level staff with high level of education argued how current strategic reports can be checked and tracked online by any staff member	“...if I will talk about strategic records in our department, they are placed online and all staff from different departments can read it. They can learn from other successful departments and copy them. If they are in paper it will not be updated, information will not be accurate or sometimes have wrong information and we can't make sure everyone have these records...” (Male, 31-40, bachelor, middle level, 5-10 years internet experience)	Code: RA/SMD-nothing hidden  All staff can check and read strategic records online and know more about their departments and other departments, which can be easily compare and progress could be monitored
<b>Speed of e-services</b>	Fast update and retrieve of online data than paper documents	Middle level staff with internet experience showed interest on the speed of updates and retrieve functionality of the e-services	“...we have documents and reports from more than 5 years, and normally we compare this year report with the year before and sometimes compare the last 2 years to see if we are making progress or no. With these new e-services we can search faster...” (Male, 41-50, bachelor, middle level, more than 10 years)	Code: RA/SMD-faster search  Talked about online reports how they can be updated quickly. The search mechanism are also faster than when search paper reports
<b>Favour of traditional communications</b>	Enquiring using phone is easier	Older staff, low level in organisation, with low education in this department argued that traditional methods are more preferable than online procedures	“...I am used to enquire by phone, it is easier and I can talk and explain freely what I want. The other person can also discuss with me and get reply in the same time...” (Male, 51-60, high school, low level, 1-2 years internet experience)	Code: RA/SMD-no using e-services  Suggested that talking by phone for example is easier than using different online applications for communication

<b>Compatibility – Strategic Management Department</b>				
<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
<b>Existing work practice</b>	Work dependable on e-service usage	Most staff with internet experience needs e-services and are using them for daily job tasks	<i>“Yes for sure, I consult other departments and this is done by using computers and online internal connectivity. So we do it online for us who are consulting and also in other departments in the police who are being consulted by us...”</i> (Male, 20-30, postgraduate, middle level, more than 10 years internet experience).	Code: Compa/SMD-using online services at work  The process of consultation can be processed online
<b>Preferred work style</b>	Prefer dealing with computers at work	Younger staff, with internet experience, found it compatible because they prefer to use computers rather than other methods	<i>“Yes it fit my life style. I have the choice to choose any method I want in work but I choose doing work with computers...”</i> (Female, 20-30, bachelor, middle level, 5-10 years internet experience)	Code: Compa/SMD-prefer using online services  Prefer working with computer when processing transactions at work

<b>Image – Strategic Management Department</b>				
<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
<b>Talented and skilled user</b>	E-service users are smart and successful people	All staff regardless of their demographic details said that e-service users are smarter than others not using the e-services	<i>“From my point of view, I consider them smarter. I can easily differentiate between staff from the way they talk and also their knowledge in computers and e-services. These staff members who use e-service and want to improve are smart and they try to copy successful people that use different technologies...”</i> (Male, 51-60, high school, high level, 3-5 years internet experience)	Code: Image/SMD-users are smart  E-service users copy successful people and have knowledge therefore seen smarter than others

<b>Perceived Ease of Use – Strategic Management Department</b>				
<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
<b>E-service training</b>	Gaining necessary skills to find e-services easy and manageable to use	Older staff argued that training to use different e-services is important, in order to understand and know how to use it.	<i>“Yes I did training, like International Computer Driving License to know about computers in general and also courses in the training department about new e-services in ADPF... After taking these courses I am fine with most e-services but sometimes I forget about something and ask about it...”</i> (Male, 51-60, high school, low level, 1-2 years of internet experience)	Code: PEOU/SMD-training  After training sessions staff found e-services easier to use. Still not perfect but easier
<b>Simplicity of e-services</b>	Experience and education has an influence on the simplicity of the e-services	High level of staff with internet experience finds e-services easy. Other staff argued that some e-services are complex even after attending training sessions	<i>“I don’t know how many times, it depends on which e-service you are talking about. Some are easy and others are more difficult...like the e-club have many things and it took me a lot of time to know it, even after attending training. But the human resource was easy...”</i> (Male, 31-40, bachelor, middle level, 5-10 experience)	Code: PEOU/SMD-level of ease of e-services  Not all e-services are easy, some are difficult and needs time in order to understand all of its functions
<b>Perceived Usefulness – Strategic Management Department</b>				
<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
<b>Confidentiality of data</b>	Encouragement of staff to use e-services because of its protection to data	Male staff members who were categorised as high level individuals argued about protection of data when using e-services	E-services provide more protection to data it was also considered useful when processing different transactions in the department.	Code: PU/SMD-data protection
<b>Specifications of e-services</b>	The benefits of e-services ability	Young male participants with high level of education and internet experience in this department support the benefits of e-services such as its speed	A general theme that had looked at some of the major benefits of the e-services and how transactions can be sent for approval electronically to different staff members in different departments; therefore, this led to accomplish more work and faster.	Code: PU/SMD-benefits of e-services  Several benefits of e-services were discussed
<b>Reliability of e-services</b>	E-services can be trusted in communications procedures	Staff with higher education in this department use and prefer e-services for communication methods	<i>“...yes it is good for communication...in the beginning I was tense but then after using it for some time I began to feel comfortable...”</i> (Male, 41-50, postgraduate, high level, more than 10 years of internet experience)	Code: PU/SMD-comfortable when using e-services. Suggested that using e-services make users feel tense, however they feel better later.

<b>Trustworthiness – Strategic Management Department</b>				
<b>First Level Themes</b>	<b>Second Level Themes</b>	<b>Third Level Themes</b>	<b>Example of Data Extract</b>	<b>Codes and more Details</b>
<b>Trust of higher management</b>	Loyalty to ADPF	All staff regardless of demographic details argued about how staff in ADPF trust its management	<i>“...I don’t know if it is safe, but I trust ADPF, I will be always loyal to them even after I retire...”</i> (Male, 31-40, high school, low level, 2-3 years of internet experience)	Code: TRUST/IT-trust of ADPF  Participant did not have enough knowledge, however showed loyalty
<b>Reliability of e-services</b>	Trust towards e-service ability is influenced by demographics	High educated staff argued about trust of e-service outcome, others did not have enough knowledge	Different opinions were given for reliability of e-services. Minority did not comment, others showed lack of trust, however, the majority argued about the trustworthiness	Code: TRUST/IT-trust of e-services

**Appendix XVI – Cross-case analysis for the final study**

**Cross-case analysis of RA**

Cross-Case Analysis of Relative Advantage					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
<b>Confidentiality of data</b>	E-service users suggests that all data whether processed or enquired is always secure	✓	✓	✓	✓
		Most male participants, different age groups, with higher level of education and categorised as high level individuals argued that the use of e-services guarantees confidentiality and privacy of data, unlike paper based transactions.	Most high level staff members and with high level of education discussed how they prefer e-services than previous traditional methods because of more confidentiality	Some of the middle and high level male staff members, with high level of education claimed that e-services are better than other traditional communication methods because it is more secure	Few participants using the e-services who were highly educated individuals with more than 5 years internet experience and categorised as middle and high level staff; talked about the benefits of security and privacy of transactions when are processed online
<b>Transparency of e-services</b>	E-services provide more transparency to transactions where staff members can track the process and progress of transactions easily online		✓	✓	
			Staff members (both genders and with different levels in the department) talked about being treated equally because of transparent transactions that can be tracked, which was not the case in previous methods of paper based transactions	Male participants aged 31-50, categorised as middle and high level staff with high level of education had claimed that results and outcomes from using e-services were seen accessible and transparent for all staff members	
<b>Speed of e-services</b>	E-services lead to process, accomplish and update different transactions faster than other manual procedures	✓	✓	✓	
		Different staff members, both genders, middle aged (20-40), with a high level of education, categorised as middle levels and have more than 5 years of internet experience, argued about the speed of transactions and enquiry that used to take a lot of time before using the e-services.	It was noticed that time factor is important for different procedures in ADPF. There were no differences between participant's level of education, level in organisation, age, gender and internet experience	Middle level participants, both gender and have more than 5 years of internet experience said that speed of processing transactions and enquires using the current e-services is an advantage over paper based transactions and other methods	



<b>Remote communications</b>	E-services can communicate remotely with departments and branches, whether sending, receiving, tracking or enquiring different information	✓	✓		
		Some of the participants who were categorised as low level staff with internet experience, talked about the advantage and ability of e-services to communicate remotely in different geographic locations	Most males who were categorised as low level staff talked about the advantage of e-services because of its remote communication benefit that they are using for their daily work routines		
<b>Favour of traditional communications</b>	Prefer using traditional communications, such as, face to face, telephone because it does not require learning new computer skills	✓		✓	
		Some of the participants, with low level of education, categorised as low level individuals, little internet experience, different age and gender argued that they do not prefer using e-services because it requires new skills, therefore, training is crucial and they do not want to learn new things		10/50 staff members (both genders, categorised as low level staff with low level of education and internet experience) from this department are not using the e-services and prefer other traditional methods	
<b>Social relationships</b>	Relationship between staff members (wasta) was seen important. It was concluded that special procedures can only be processed by face to face communication or by telephone, which could not be possible to perform using computers	✓			✓
		Older male participants, with low level of education and categorised as low level staff considered social relationships very important to enquire and process some transactions			Some of the older male participants with low level of education and categorised as low level staff, considered using computers and its e-services as a way that affects relationships between staff
<b>Availability of e-services</b>	To be able to enquire, retrieve or process different transactions even after working hours		✓		
			Male staff members with different organisational level discussed about how staff members can access information using the e-services at any time		

<b>Reliability of traditional methods</b>	Manual and traditional procedures, such as, paper transactions, written notes, face to face communications and telephone conversations were seen more reliable than e-services. For example it was said that computers might get damaged from electricity faults or viruses				✓
					Some of the participants with low level of education and little internet experience rely and prefer using paper based transactions rather than computers and e-services
<b>Limited ability of e-services</b>	E-services is seen by some of the staff members as a restricted and limited method to deal with different issues in ADPF.				✓
					Majority of male participants with low level of education and considered as low level staff argued that e-services have a limited ability and they can perform better without using it

When examining RA in the four case studies, nine themes were identified; confidentiality of data, speed of e-services, transparency of e-services, remote communications, limited ability of e-services, reliability of traditional methods, favour of traditional communications, availability of e-services and social relationships. An explanation of each theme is also given in the above table. When examined more closely, all four departments displayed confidentiality of data. Which showed that it is considered important when compared to paper documents that can be read by anyone, therefore provide more privacy to data. Other themes, such as availability of e-services were only found in the IT department. Male staff members with different organisational level discussed about how staff members can access information using the e-services at any time. Another example of a theme is the limited ability of e-services in the policing operations department, where the majority of male participants with low level of education and categorised as low level staff argued that e-services have a limited ability for their purpose and they can perform better without using it.

The cross-case analysis of RA also show different level of themes in each department, such as, age, gender, education, level in organisation and internet experience. This helps in identifying and examining the differences and similarities between departments and staff members.

To summarise, RA allowed the research to determine that e-services are safer and secure ways of processing documents within departments. They also expedite the services. However, during the interviews it became apparent that e-services are not viewed beneficial as those who are used to their ways do not want to adopt new ways. Therefore, although RA is beneficial, they are viewed to be negative as they make individuals change that is not liked within certain individuals in departments of the ADPF. This shows that with a qualitative approach not only is the presence of RA evident, but it allows a deeper understanding of how e-services are viewed to be better or not.

**Cross-case analysis of COMPA**

<b>Cross-Case Analysis of Compatibility</b>					
<b>Main Themes</b>	<b>Explanation of Themes</b>	<b>Security Information Department</b>	<b>IT &amp; Communications Department</b>	<b>Strategic Management Department</b>	<b>Policing Operations Department</b>
<b>Existing work practices</b>	Current work routine and work style influences staff members to use or not to use the e-services	✓	✓	✓	✓
		Most staff from different organisational levels and have more than 2 years of internet experience depends on computers for daily work routine. Example of activities were writing documents using MS Word, MS PowerPoint for presentations and other computer applications that are connected to the data base for storing records.	Most staff members regardless, of age, gender, education, internet experience and level in organisation work with computers and e-services for processing different transactions because their work routine forces them to use it.	It was concluded that most of the staff in this department who use e-services finds it compatible because it is part of their work routine. Staff members in the strategic department who dealt with computers in daily work routine showed more compatibility.	The main thing for e-services being not compatible with most staff members (especially male participants) is because their work routine is in charge of field work operations and do not work in offices as other technical or administrative role. This also led them not to have enough knowledge of computers and its e-services, therefore, not using them.
<b>Prior experience</b>	Experience with computer and internet leads to using e-services		✓		
			Experience with computers, internet and different software applications had also influenced the compatibility of staff with e-services in this department. The reason was that most staff members from different gender, age, education and organisational level had seen e-services similar to previous applications they have been tried and used before.		

<b>Preferred work style</b>	Staff members preferred and favoured work style influenced whether to use e-services or not	✓		✓	
		Some of the staff had also showed interest in e-services and computers. They were highly educated with more than 5 years of internet experience. It was concluded that based on these staff desire, this had let them to use the e-services.		Other staff that were younger in age, with internet experience and had also used e-services, found it compatible because they prefer to use computers rather than other methods.	

When examining COMPA in the four case studies, three main themes were identified which was based on Agarwal and Karhanna (1998: 4) dimensions of compatibility; “prior experience (if e-service fit with user experience of technology), existing work practices (if e-service fit with current work) and preferred work style (if e-service is reliable with current work style)”. When examined more closely, all four departments displayed existing work practices. Which showed that the current work routines of staff members have a direct influence on whether to use the e-services or not. Furthermore, prior experience was identified only in the IT department, which might explain why most e-service users are from this department. The experience of staff members in using computers, internet or other software applications had shown a clear influence on the adoption of the e-services.

To summarise, COMPA allowed the research to determine that staff members with work routines related to computer usage are more likely to adopt and use e-services. Other staff members, such as staff in the policing operations, that work outside their offices and not used to computers and internet, are less likely to adopt and use the e-services. Therefore, work routine and also the number of years of internet experience had influence on compatibility with e-services.

**Cross-case analysis of Image**

Cross-Case Analysis of Image					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
<b>Talented and skilled users</b>	Some of the staff members assumed that e-service users are considered talented and skilled because of their knowledge and ability to use computers and its e-services	✓		✓	
		Most of the staff members (43/50 participants, both e-service users and non-users) from different age, gender, education, level in the organisation and internet experience in this department, considered that e-service users are more valued in the organisation and smarter than other members.		Most staff regardless of their demographics showed more value and respect to staff members who use the e-services. Staff members can also get rewarded because of their knowledge and use of e-services. This can encourage other participants to use the e-services in order to get more appreciation from higher individuals.	
<b>Experienced with computers</b>	E-service users are considered experienced in computer and internet usage	✓	✓		✓
		7/50 participants who were staff not using the e-services (4/7) and are categorised as low level staff, low education and few internet experience had stated that e-service users are experienced and knowledgeable in computer and internet usage.	More than 50% of participants (different age, gender, level and education) have chosen that e-service users are experienced and knowledgeable in computer and internet.	Most of the participants had argued that e-service users are considered experienced and knowledgeable in computer and internet. They were younger participants, categorised as middle and high level individuals, both gender, and education level varied.	
<b>Importance of e-services</b>	Staff members use the e-services because it is considered extremely important and helpful for their daily tasks and enquires		✓		
			Some of the participants argued about the importance of e-services for different procedures in ADPF. They were middle and high level individuals, various age groups, different gender, high level of education and internet experience.		

<p><b>E-services being unnecessary</b></p>	<p>E-services were seen unnecessary for some of the staff members in ADPF. Transactions were always handled manually before introducing e-services, so it is seemed as a not important service</p>				<p style="text-align: center;">✓</p> <p>Some of the participants (14/51) who are not using the e-services, mainly older males and categorised as low level staff stated that there is no relation between e-services and staff being valued in the organisation or even smarter than others. This showed that because e-services are not used by most of the staff members in this department, image had no clear impact on staff.</p>
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When examining image in the four case studies, four themes were identified; talented and skilled users, experienced with computers, importance of e-services and e-services being unnecessary. When examined more closely staff members in 3/4 departments (all except strategic department) have claimed that e-service users are considered experienced in the organisation. This showed that staff members could be encouraged to use the e-services just to be treated as an expert and experienced in computers. Furthermore, in other departments such as, in the security and strategic department, e-service users were also considered talented and skilled. This had influenced high level individuals to consider that e-service users from middle and low levels deserve more attention, get rewarded and even get promoted.

To summarise, the relation of image with e-service adoption was clearly seen in all departments except in policing operations. This led to encourage staff from these three departments to use the e-services. On the other hand, staff members in the policing operations were not concerned about image because most of them did not use the e-services and they were resisting the idea to use it. However, if high level individuals in this department showed more interest in e-service users and appreciate their work, this will definitely encourage other staff members to use these e-services.

**Cross-case analysis of PEOU**

Cross-Case Analysis of Perceived Ease of Use					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
<b>Simplicity of e-services</b>	Some of the staff members from these departments consider e-services easy and simple to use.		✓	✓	
			Most e-service users in this department found that e-services are simple. The researcher concluded that in all interviews, e-service users claimed they did not struggle with the current e-services and some considered it easier than other online websites.	Staff members with high level of education and internet experience in specific found e-services simple. Most did not attend training courses because of its simplicity.	
<b>Prior experience and knowledge</b>	Experience with computer and internet leads to using e-services. Experience got be from work or maybe studies from school and universities		✓		
			Staff members, with different age, gender, education and organisational level had also argued that their experience and knowledge taken from universities and college helped them to use the e-service easily.		
<b>Complexity of e-services and computers</b>	Staff members considered e-services as a complex procedure that requires computer knowledge, experience and training	✓			✓
		Most participants, who were older staff, mainly females, with low level of education and categorised as low level staff had talked about the complexity of e-services they faced before attending training courses.			E-service users in this department, who were mainly females, with different levels of education and internet experience, found e-services complicated.
<b>E-service training</b>	The need to train staff members from different departments in order to use the e-services efficiently	✓		✓	✓
		Most participants, who were mainly younger males, with different level of education and organisational level argued that e-services are easy to use; however, more training are also important.		Older participants had talked about training sessions and how it helped them to improve their computer skills in order to use the e-services.	Other participants had argued that staff members with low level of education and internet experience are not being trained to use these e-services.



<b>E-service practice</b>	The need to practice and involve computers and internet at work in order to encourage staff members to use the e-services				 There are few e-service users in this department because of their work routine that does not need or depends on computers and internet. This was observed in most staff members in this department regardless of age, gender, education, internet experience and level in organisation.

When examining PEOU in the four case studies, five themes were identified; simplicity of e-services, prior experience and knowledge, complexity of e-services and computers, e-service training and e-service practice. When examined more closely, all departments except the IT department considered e-service training crucial and needed in order for staff members in these departments to use them efficiently. It was also seen by some of the staff members who were older in age and have a little internet experience in these departments that the e-services are complex. On the other hand, the only department that found e-services easy and simple to use, and at the same time considered experience in computers important was the IT department. This can explain the high adoption of e-services in this department specifically.

In the policing operations department, it was shown that the majority of staff members are not using computers and e-services because of the lack of practice. However, involving computers in different task and work routine may encourage adoption.

**Cross-case analysis of PU**

<b>Cross-Case Analysis of Perceived Usefulness</b>					
<b>Main Themes</b>	<b>Explanation of Themes</b>	<b>Security Information Department</b>	<b>IT &amp; Communications Department</b>	<b>Strategic Management Department</b>	<b>Policing Operations Department</b>
<b>Confidentiality of data</b>	E-service users suggests that all data whether processed or enquired is always secure	✓	✓	✓	✓
		E-services was seen useful by most male participants, different age groups, with high level of education and categorised as high level individuals.	Most high level staff with high level of education argued that e-services provide secure transactions. This is because access and permit to electronic data and information is given only to certain staff members in ADPF.	Some of the middle and high level male staff members, with high level of education claimed that e-services are useful because it is protects and secure transactions and its details	Minority of participants who used the e-services stated that they are useful when it comes to protection of data. They were mainly female participants, categorised as middle and low level staff, and have an average of 5 years of internet experience.
<b>Specifications of e-services</b>	Specifications include the ability of e-services to perform tasks such as, fast updates of information, ability to search for documents easily, retrieving and sending transactions within department and to other departments electronically	✓	✓	✓	
		Most participants regardless of their age, gender, education and level in organisations had discussed the benefits and usefulness of e-services when it came to its specifications.	Some of the middle level participants from both genders had talked about the usefulness of e-services in general. Some talked about the transparency of transactions, speed of enquiring and processing transactions and the searching functionality of documents.	The majority of participants found it useful and especially young male participants with high level of education and internet experience, who talked about the regular updates that can be performed automatically with the use of the e-services.	
<b>Existing work practices</b>	Current work routine and work style influences staff members to use or not to use the e-services	✓			✓
		Most of the staff members whether they were using or not using the e-services, categorised as low and middle levels argued that not all e-services are useful to them as a department. They have linked the usefulness of e-services with their work routine, which was also examined in compatibility section.			The majority of male participants, with different level of education and level in the organisation, and who were not using the e-services argued that using e-services will not increase their ability or performance at work.

<b>Reliability of e-services</b>	The trust of e-services that it is capable to complete different transactions successfully and efficiently. This increase the reliability within staff members towards e-services		✓	✓	
			Staff from both gender, categorised as middle and high individuals and with a high level of education explained how they trust the e-service that they can rely on it for processing different enquires.	Staff members with high level of education had also talked about the reliability of e-services. Similar to the IT department, some showed confidence and faith towards e-services.	
<b>Remote communications</b>	E-services can communicate remotely with departments and branches, whether sending, receiving, tracking or enquiring different information	✓	✓		
		Most staff mainly categorised as low level staff with internet experience talked about the benefit and speed of the process when using e-services rather than sending and enquiring about different transactions manually.	Some of the staff in particular low level males argued that the e-service is useful for their roles as computer technicians. Some of these staff can now investigate computer faults online.		
<b>Similarity of outcomes</b>	The belief that whether using the e-services or not, the outcomes of enquires or transactions are the same				✓ Some of the male participants with low level of education argued that the outcomes of enquires or transactions online are similar to the outcomes of paper transactions. Most showed resistance.

When examining PU in the four case studies, six themes were identified; confidentiality of data, specifications of e-services, existing work practices, reliability of e-services, remote communications and similarity of outcomes. When examined more closely, similar to previous construct (RA), all four departments displayed confidentiality of data. This was one of the main reasons for finding the e-services useful based on most staff members in the four departments, where it was argued that the privacy and security of information is important in ADPF. Furthermore, this theme was also discussed by few members in the policing operations, where it was noticed that it has the least number of e-service users. Another theme that was considered useful was related to the specifications of e-services. It was identified by 3/4 department that the ability of e-services to

perform tasks such as, fast updates of information, ability to search for documents easily, retrieving and sending transactions within departments electronically was seen important. This led to more staff members using the e-services.

Other themes, such as similarity of outcomes were only found in the policing operations department, where some of the male participants with low level of education argued that the outcomes of enquires or transactions online are similar to the outcomes of paper transactions. Furthermore, themes such as reliability of e-services, remote communications and existing work practices were also identified in some of the departments. These themes had also been examined in previous constructs, such as in RA and COMPA.

The cross-case analysis of PU helped in comparing between different departments easily. For example, when looking at confidentiality of data; in the IT department it was concluded that all staff members argued that e-service ensure privacy in all transactions. In the security department, only high level individuals with high level of education confirmed confidentiality using e-services. In the third department, security, middle and high level staff members with high level of education argued about the security when using e-services. Finally, in the policing operations only few participants, mainly female participants, categorised as middle and low level staff, and have an average of five years of internet experience, found e-services useful when it comes to the protection of data. This shows that age, gender, education, level in organisation and internet experience can be easily identified between departments and therefore, having the possibility to examine details in-depth.

**Cross-case analysis of Trustworthiness**

Cross-Case Analysis of Trustworthiness					
Main Themes	Explanation of Themes	Security Information Department	IT & Communications Department	Strategic Management Department	Policing Operations Department
<b>Trust of higher management</b>	Staff members regardless of using or not using the e-services claimed that they trust the government of AD and ADPF	✓	✓	✓	✓
		All participants whether using or not using the e-services, and regardless of their gender, age, education, level in organisation and internet experience argued about the confidentiality of any information in the organisation.	They all argued that it is safe, even though they knew that any data can be accessed by certain high level individuals and Abu Dhabi government. However, it was seen that all staff in the organisation work together as a team.	40/50 have used the e-services, however, most participants whether using the e-service or not showed trust towards ADPF. Some were satisfied by answering that they are not sure about it or they do not have the knowledge to answer this question. Others were confident and talked about faith and loyalty.	10/51 participants, who were mainly males with low level of education and categorised as low level staff, did not comment and said that they do not have knowledge on security issues in ADPF. However, others talked about how they have faith in ADPF.
<b>Reliability and reputation of e-services</b>	The trust of e-services that it is capable to complete different transactions successfully and efficiently. This increase the reliability within staff members towards e-services. Reputation of e-services had also spread within organisations	✓	✓	✓	
		Most of the staff members in this department who were highly educated and categorised as middle and high level individuals were happy with the e-service performance and thought they can rely on it. Unlike older participants.	All participants were confident with the current e-services and argued that e-services are reliable and should be trusted.	Majority of participants who have used the e-services, and have high level of education and internet experience; showed trust, support and confidence with the e-service performance and outcomes. The second group were mainly young participants and with low level of education, who were uncertain of it. The third group, that was the minority, was formed from older staff members, both genders, low level of education and little internet experience argued that that they cannot rely on it.	

<b>Unfamiliarity towards e-services</b>	E-services were considered new and mysterious, this led staff who did not use the e-services to be unsure on whether to trust the reliability of e-services or not.				✓
					Some of the participants from high and middle level of the organisation, with different education levels and gender claimed that they are unfamiliar with e-services. It is still new to their job, which showed that it is considered new and mysterious.
<b>Reliability of traditional methods</b>	Manual and traditional procedures, such as, paper transactions, written notes, face to face communications and telephone conversations were seen more reliable than e-services. For example it was said that computers might get damaged from electricity faults or viruses				✓
					Most of participants with low level of education and less than 1 year of internet experience preferred to use traditional methods, such as, paper transactions, face to face interaction or telephone communication.

When examining trustworthiness in the four case studies, four themes were identified; trust of higher management, reliability and reputation of e-services, unfamiliarity towards e-services and reliability of traditional methods. An explanation of each theme is also given in the above table.

When examining more closely, all four departments displayed trust of higher management, this showed that staff members even from different departments trust ADPF. Even staff not using the e-services showed trust, however some of the staff from the policing operations claimed that they are not sure if they trust it or not, most were low level individuals and have low level of education. This might be because they have no sufficient knowledge to judge the surroundings of the organisation and its security policies.

Other themes, such as trust in the reliability and performance of the e-services, was identified in 3/4 departments, all except policing operations. The main reason was that e-service are not used in this department, therefore, it was impossible for these staff members to judge a service they have never used. Furthermore, in the security and strategic department only middle and high level individuals trusted the reliability of e-services, unlike the IT, where all staff members showed trust towards the e-service.

Finally, some of the themes were only identified in the policing department, for example, unfamiliarity towards e-services and reliability of traditional methods. In unfamiliarity of e-services: it was considered new and mysterious, this led high and middle level staff who did not use the e-services to hesitate on whether to trust the reliability of e-services or not. And when discussed about the reliability of e-services, most argued that they cannot trust the e-services and they would rather rely on traditional methods. This was explained earlier in the trustworthiness section and also given in the table above.

The cross-case analysis of trustworthiness helped in comparing findings of departments. The researcher can compare arguments and even demographic details of staff members between all four departments.

## **Appendix XVII – Sample of interview verification and validation questions**

*Email sample and questions sent to some of ADPF staff to participate in the verification and validation process.*

Dear Sir/Madam,

You are kindly requested to participate in verifying and validating my research findings.

This study aims to identify and understand factors affecting the use of e-services in Abu Dhabi Police Force. Some factors were identified in this study; however, the researcher would like you to comment on these findings. By doing so, you can determine if these results are true and accurate representations of the ADPF e-services and their adoption, use and diffusion.

Any data provided will be treated with total confidence and personal details will remain anonymous. If you would like to participate please reply to this email by 10/02/2013.

I am currently in the United Kingdom, so if you agree to participate we can discuss the research findings online (using Skype or Windows live messenger) if that is convenient with you. If not then we can discuss by telephone to know your views and suggestions about these findings.

I will be waiting for your reply.

Yours faithfully,

Hassan Al-Zaabi

PhD student in University of Hertfordshire

United Kingdom



**[i] To what age group do you belong to?**

- 18-20                       20-30                       31-40                       41-50  
 51-60                       Above 60

**[ii] Gender**

- Male     Female

**[iii] Highest level of education**

- Below High school                       High school                       High Diploma  
 Bachelor                                       Postgraduate (Masters / PhD)

**[iv] Under which category is your current job?**

- Top level (Holding a position of G. Manager / Directorate Manager / Division Chief)  
 Middle level (Holding a position of Branch Manager / Officer Rank Lt to Major / Expert)  
 Lower level (Others)

**[v] Years of internet experience in general?**

- Less than 1 year                       1 - 2 years                       2 - 3 years  
 3 - 5 years                                       5 - 10 years                       More than 10 years

**[vi] Which department are you in?**

- Security Department                       IT & Communications Department  
 Strategic Department                       Policing Operations Department

**Results**

**Comment:**

Please state yes, no or maybe and please explain your answer. E.g. If yes, I agree with that view. Why do you?

1. It was found in this study that comparisons of work procedures using e-services and using manual methods revealed that in some departments a majority of the younger staff members and highly educated spoke of the benefits of e-services. This included, speed of processes and e-services protecting diverse information, confidential, or non-confidential. Comparatively, older staff members, with little or no internet experience and categorised as low positioned individuals / front line staff displayed resistance towards using e-services. Instead, suggesting that there are no benefits offered by e-services as work processes can be accomplished manually and there was no reason for an e-service. Therefore, it was concluded that awareness of staff to e-services potentials and of the advantages of e-services should be emphasised in the police force. This will assist in increasing the use of e-services. From this result, it was also deduced that the demographic details of participants can impacts perceptions of using e-services.

**2.** Most staff members using e-services also utilised computers for most of their daily tasks, so were used to an online service and environment. They also found computers, the internet and e-services are in line (compatible) with their roles and responsibilities at work. However, some of the low positioned staff did not use e-services because they said their work is not related to computers and have nothing to do with it. Therefore, introducing more e-services that can assist new work roles and responsibilities, will encourage staff to use them and will lead staff to be more open to the idea of the e-services.

**3.** It was found that most staff members in the study consider e-service users as being smart, intelligent and talented in the organisation which might lead to more appreciation by their managers and get promotion. Staff from the IT department had different views and argued that e-service users are considered experience in computers; however, they were willing to show other staff their expertise. Other e-service users said that e-services are used because of its importance in work related procedures and gave examples and benefits of e-services that were discussed earlier. For example, speed of e-services to accomplish different transactions. Therefore, it was concluded based on the majority of responses, the status of a person can be judged by using new technologies such as using e-services.

**4.** The research examined whether ADPF staff members found e-services easy to use or not. The majority found e-services easy to use because they were used to it. This led them to use the e-services even without training sessions. Some older staff with low education levels and no internet experience, in departments other than the IT, found e-services difficult. Therefore, did not use e-services. Some of the participants faced difficulties in using a computer itself. This associated with barriers to using e-services. Therefore it is concluded that having easy and user friendly e-services, computer skills and computer experience will increase the numbers of e-services users.

**5.** The research also asked whether e-services are useful. The majority of staff members agreed that they are useful. However as given earlier, due to difficulties associated with its use, some did not use it. Some individuals were also not aware of e-services benefits. This suggested that the majority who found e-services useful were those using e-services. Therefore, if ADPF focuses on spreading awareness and showing the benefits of e-services to staff in all departments, then non e-service users will know more about the e-services. However, it was found that the more useful the e-service at work, the more staff will use it.

**6.** Some of the staff members who were not e-services users expressed scepticism towards e-services being able to perform various simple and difficult tasks. These views were brought about due to the negative opinions expressed by colleagues who had bad experiences when using e-services. This led the researcher to conclude that if staff members trusted the e-services, then they will use it more and at the same time this may encourage other staff to use it. Trust of e-services, can be increased with

more awareness, encouragement from managers of e-services, training and practice relating e-services with the roles and responsibilities of individuals.

Furthermore, staff members should be aware that the relation of AD government with the government e-services in ADPF is to monitor different transactions for improvement purposes and ensure transparency. They should be also aware that staff personal details and citizen information will never be misused by the government. This is important in order to build trust between staff and the government, which will lead and encourage staff members to use the e-services.

**7.** Accessing the e-services requires computers and network cables. If staff members have no access to computers then e-services will not be used. A majority of the departments in ADPF did have devices and equipment; but, there are numbers of staff members who work outside their offices and responsible for different security tasks and did not have access to any computer. Therefore, if computers, training, and opportunities to use e-services and computers are provided to all staff members, e-services use within ADPF will increase.

Furthermore, support from ADPF and the IT department to provide sufficient budget and employees to implement new e-services and regular updates are crucial. This will lead to better e-services standards and suitable environment that can encourage all staff members from different departments to use the e-services.

**8.** Training seemed to be extremely important to increase staff knowledge and confidence when using e-services. Most of the e-service users learned to use the e-services after attending some sessions. However, some with no or little computer and internet experience needed more training than others. Some also said that using e-services required new computer skills that they did not have. It was concluded that increasing staff computer skills will increase their confidence and therefore, it will influence staff to use the e-services.