

**The Critical Factors of E-Government Adoption**  
An Empirical Study in the Saudi Arabia Public Sectors

A thesis submitted for the degree of Doctor of  
Philosophy

by  
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## **Abstract**

**Keywords:** E-government, E-government Model, Saudi Arabia, Public Sectors, Adoption, Information Technology

This thesis draws on electronic government (e-government) policy formulation, implementation and execution. It has been enthused by the perceived lack of a model for e-government in Saudi Arabia public sectors. A model for e-government implementation is developed for Saudi Arabia. It examines critical factors that have impacts on e-government implementation in Saudi public sectors by collecting and analysing data in both quantitative and qualitative approaches, and further presenting an extensive review on literature. This exercise is significant, to avoid the pitfalls of imposing universal approaches to research and policy practices. The conclusions and recommendations of this research are significant for both practitioners, in providing guidelines for e-government implementation, and scholars, in suggesting further research in the new area of e-government.



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## **List of Abbreviations**

<b>B2C</b>	<b>Business-to-Customer</b>
<b>BPR</b>	<b>Business Process Re-Engineering</b>
<b>CAG</b>	<b>Comptroller and Auditor General</b>
<b>CEG</b>	<b>Council for Excellence in Government</b>
<b>CDG</b>	<b>Centre for Digital Government</b>
<b>CIO</b>	<b>Chief Information Officer</b>
<b>CRM</b>	<b>Customer Relationship Management</b>
<b>CzRM</b>	<b>Citizen Relationship Management</b>
<b>DF</b>	<b>Degree of Freedom</b>
<b>E-Business</b>	<b>Electronic Business</b>
<b>E-Commerce</b>	<b>Electronic Commerce</b>
<b>E-Government</b>	<b>Electronic Government</b>
<b>E-Service</b>	<b>Electronic Service</b>
<b>G2G</b>	<b>Government-to-Government</b>
<b>G2B</b>	<b>Government-to-Business</b>
<b>G2C</b>	<b>Government-to-Citizen</b>
<b>GAO</b>	<b>General Accounting Office</b>
<b>GCIO</b>	<b>Government Chief Information Office</b>
<b>GOPSC</b>	<b>Government Online Project Service Centre</b>

ICT	Information and Communication Technologies
IS	Information System
ISEC	Information Society of the European Commission
IT	Information Technology
KSA	Kingdom of Saudi Arabia
NII	National Information Infrastructure
NRC	National Research Council
PCIP	Pacific Council on International Policy
SPSS	Statistical Package for Social Science
UN	United Nations
WWW	World Wide Web



# Chapter 1

## Introduction

## 1.1 Background

The advent of Information and Communication Technology (ICT) is viewed as a new paradigm for the Information Age. ICT has substantially influenced the way micro and macro policies are formulated and implemented. One such dimension is the emergence of 'electronic government', referred to as 'e-government'. E-government has attracted substantial attention in the public administration sector for its efficiency and effectiveness in public service decentralisation and improved processes.

Eventually, many countries have viewed e-government as a source of micro and macro development through better delivery of services and information exchange without the constraints of time and space. So ICT has emerged as a driving force to shape public policy matters at a global level. In recent years, public sectors around the globe are embracing e-government initiatives, which can be seen operating in practically all walks of life. This concept includes plans such integration of several public services and organisational functions. For instance, e-commerce, online health, and education, etc. are being integrated. This indicates a shift in the focus of public policy from building cities along the highways and railroads to building cities around technology and information highways of the future (Holmes, 2001).

However, it is not so difficult for people in developed countries to imagine a situation in which all interaction with government can be done through one counter 24 hours a day, 7 days a week, without waiting in lines. As it is difficult to achieve this same level of efficiency and flexibility for developing countries, this is going to be difficult (Basu, 2004).

E-government is gaining wider recognition for its intensity and scope in forming the working practices and models in the public service administration. However, a lot of difficulties and challenges face countries around the world while implementing e-government (Jaeger and Thompson, 2003). E-government can include details of listing services and contact information on the one hand, and the interaction between government and citizens, as well as business transaction, on the other. These possibilities provided further collaborative opportunities among the segments of the economies through the efficiencies and effectiveness of ICT, without time and space barriers. These obvious benefits are considered the drivers to the adoption of the e-government.

Following the success of the Internet and e-government delivery in some countries, the government of Saudi Arabia has taken some initiative in this direction to improve the efficiencies and effectiveness in the public service delivery. Saudi Arabia gained access to the Internet in 1994; however, it was not until 1999 that the general public was able to make use of this service.

Moreover, the connection is still not fast, and Internet service providers are asking the Saudi government to improve the infrastructure (Alsudairy, 2002). Though the number of Internet users is showing an average growth of 8%, and the IT sales in the Kingdom make more than 40% of the region's, it was proven that the general public does not yet trust the concept of e-government (Alsudairy, 2002). This trust problem could be due to many critical factors, such as infrastructure and security (Browne, 2001).

In public service, the government and respective public interact at all levels in order to deliver services. Such a decentralised and efficient governance system triggers a change in the structure of interaction of public institutions, organisations and actors. The beneficiaries of e-government, for example, can access government portals to renew their IDs like a driving licence, pay utility bills, make other financial transactions, and take part in direct communication with the government and among themselves. However, e-government requires a policy to govern consumer security and user information protection.

Furthermore, the connected citizens become more sociable, learned and demanding (Prahalad, 2004). This suggests that the implementation brings profound impact on a society, new technology and institutions, such as regulatory, normative and cognitive (Scott, 1995). So where there are vast benefits of e-government, there remain substantial barriers to the formulation and implementation of the e-



government delivery. That is that the effective launch of e-government depends on effective management of the ICTs and new skills. Inducing new technology and skills affects structures and, in return, it is effected by the structural systems (Giddens, 1984). Based on this interaction, the ICTs and institutional structures are likely to co-evolve (Orlikowski and Mit, 1992).

A lot of researches, recommend future studies on this area (Brandtweiner, 2004; Joia, 2004; Kaaya, 2004; Layne and Lee, 2001; Peters, Janssen and Engers, 2004; Reddick, 2004a). Therefore, this study will contribute by identifying critical factors for e-government adoption and conclude the analysis by providing recommendations.

## **1.2 Implementation**

Implementation has more than one connotation in the literature. Many researchers refer to the final stage of the system development life cycle as the implementation stage. Kown and Zumd (1987) define implementation as the process of development, installation, and maintenance. According to them, the implementation of IT system goes through six stages: initiation, adoption, adaptation, acceptance, use, and incorporation. Many researcher, Cooper and Zmud (1990) and Adul-Gader and Al-Angari (1995), claim that IT implementation can be broken into two stages: Adoption as the first stage and Assimilation as the second stage.

### **1.3 Adoption**

Rogers points out (2003:21) that the innovation-decision process “can lead to either adoption, a decision to make full use of an innovation as the best course of action available, or rejection, a decision not to adopt an innovation”. The adoption is a single-point decision or an act.

Adoption refers to the organizational decision to make use of IT systems to support organization’s functions, decision-making, and management of the business (Thong and Yap, (1995). Adoption involves in both acquisition and subsequent, utilisation of the system.

According to Spence (1994), Adoption of a new technology is the result of a personal mental process which is internal to the adoption individual or organization. In addition, Damanpour (1991) presents the adoption of a new technology is conceived to encompass the generation, development, and implementation of new ideas.

### **1.4 Purpose of Study**

Governments around the world are racing to implement the e-government concept in their country. The development of e-government systems and services is given high priority in governments all over the world, for example the eEurope action plan for the European Union (EU), and at the eGov website for the United States of

America (Folstad, Jorgensen and Krogstie, 2004). However, from the previous studies, the researcher indicates some example of e-government failure (Baark and Heeks, 1999; Braa and Hedberg, 2000; Kitiyadisai, 2000; Moussa and Schware, 1992; Oyomno, 1996).

Beynon-Davies (2005) indicates that many public sector organisations are struggling to implement and construct an e-government. Some of them suffered a number of high failures in delivering its services electronically. Two main types of e-government failure can be identified from the previous studies. In some cases, there is the *total failure* of an initiative never implemented, or in which a new system is implemented but immediately abandoned. Alternatively, there is the *partial failure* of an initiative in which major goals are unattained, or in which there are significant undesirable outcomes. One type of partial failure that particularly seems to affect e-government initiatives is the *sustainability failure* of an initiative that succeeds initially, but then fails after a year or so (Heeks, 2001a).

Aichholzer (2004) indicated that a technical problem causes the failure of implementing e-government initiatives. Moon (2001) asserts that governments have not moved far beyond the early stages of e-government implementation. Furthermore, West (2001) asserts that some e-government initiatives have increased responsiveness to the public through the use of communication technologies (i.e. e-mail), but that many of e-government's purported benefits remain unrealised. According to Heeks (2004), in developing/transitional countries, 35% of e-government projects are total

failures, 50% are partial failures, and only 15% are successes. As for Saudi Arabia, the United Nation Global E-government Readiness Report 2005 ranked them in the 80<sup>th</sup> position, which means that they are late.

In a functionalist sense, perceived problems of the public sector are focused on inputs, where the public sector is seen to require unsustainably large and/or unsustainably increasing public expenditure, with a looming threat or reality of heavy public debt (Adeboye, 1995; Olowu, 1999; Castells, 2000). Then, in the process stage, there is concern about examples of waste, delay, mismanagement and corruption within the public sector, which result in inefficiency in the conversion of public expenditure into public services. Finally, with regard to outputs, concerns relate to the public sector not delivering what it should.

The researcher assumes that Saudi Arabia has its own set of issues and problems. For instance, bureaucratic tendencies in the system of governance, centralised decision-making patterns, complexity of redundancies in the public sector, lack of coordination and information sharing between the public and private sector, lack of technological skills and the lack of an effective ICT infrastructure can be considered as barriers in this context.

Implementing e-government initiatives requires the country to have a unique model that fits its specific environment because despite similarities between e-government initiatives, one model cannot fit all (Miriam, 2001). In addition, Heeks (2001b) agrees with Miriam when he states:



*“There is no one best way: each country, must be helped to find its own best way”*

This study provides a model for e-government implementation for Saudi Arabia public sectors. It examines critical factors that have impacts on successful implementation of e-government. Studying the factors that will lead to e-government delivery is an important issue (Wood-Harper, Ibrahim and Ithnin, 2004). According to Aldrich et al. (2002) a better understanding of the factors that contribute to e-government delivery could inform others as they deploy such programmes. In addition, implementing e-government will help developing countries to reduce their existing gaps with developed countries (Sharifi and Zarei, 2004). Therefore, this study helps the government of Saudi Arabia to implement e-government and therefore help it to reduce the gap with the leading countries in that area.

### **1.5 Aims of the study**

The research has explored the area of e-government adoption. It identified the factors that influence on e-government. In addition, it will seek to understand how literature identified the factors in e-government in order to compare proposed and practical application in the real world setting. The research will also determine the



obstacles and benefits in adopting this concept. In the view of the above points, this study will contribute to both, theoretical as well as practical literature, thereby justifying its worth by bridging the gap in the extant literature about the e-government adoption.

### **1.6 Research Questions**

The aim of the study entails the following questions:

1. What are the critical factors of e-government delivery in terms of implementation?
2. What is the level of validity of the proposed factors in Saudi Arabia in terms of e-government implementation?
3. What implications may emerge in implementing e-government in the context of Saudi Arabia?

### **1.7 Study Objectives**

The study contributes to theory and practice. The findings of this study are to help in understanding the theoretical constructs of the framework in the adoption of e-government. In practice, the findings are to assist the government of Saudi Arabia in understanding the key factors that influence the adoption of e-government services.

The set of questions generates the following objectives for this study:

1. To build and develop a cohesive theory of e-government implementation by reviewing comprehensively previous literature.
2. To explore and explain critical factors of e-government delivery in Saudi Arabia.
3. To adopt an e-government model that will help in implementing e-government in Saudi Arabia.
4. To provide the assessment of the level of familiarity with and understanding of e-government implementation within a sample of government agencies in Saudi Arabia.
5. To explore and validate externally the findings of a survey and a case studies through secondary data, in order to offer possible explanations and comparisons that would help build theories from data.
6. To provide a comparative case study and analysis of best practice application in terms of e-government implementation.
7. To provide level of success on e-government projects in Saudi Arabia public sectors.
8. To draw recommendations that will be useful for both the theoretical as well as the practical side, to provide guidelines that will help to implement e-government delivery, and to raise questions and indicate directions for future research.

### **1.8 Significance of Study**

This research is useful and important for both researcher and practitioners. In the context of Saudi Arabia, the concept of e-government is a relatively new that needs a lot of attention. As a new concept, studies in this area are insufficient and there are rare attempts to study this concept directly, especially in Saudi Arabia. This study will provide conclusions and recommendations to be useful for researchers in future studies, and further raises questions and indicates directions for future research based on the findings from this study. So the findings of the study will be significant to scholars in this area.

On the other hand, the study will adopt an e-government model that identifies essential determinants that can facilitate the initiative of e-government delivery. In addition, the research study introduces the most pertinent barriers and challenges that are expected to be run into during the implementation of e-government projects in Saudi Arabia. It also presents the benefits that emerge from the implementation of e-government. This study will provide guidelines and recommendations for implementing and will increase the knowledge of directors and provide them with useful information on e-government. Implementing e-government successfully will supply a lot of advantages to the beneficiary, and it will contribute to improving the performance of e-government implementation. So it is likely to be significant for the practitioners in Saudi Arabia.

### 1.9 Outline of Thesis

The study presents detailed discussion related to the purpose, structure, methodology, analysis, findings and recommendations of the critical factors of e-government implementation and delivery in both theory and practice. This study is conveniently divided into ten chapters. The description of the chapters is as follows:

*Chapter One* is the introduction of the research study. It provides a general overview of the thesis (e-government concept) and, furthermore, background of the research. The chapter includes purpose, aim, and the research questions. Furthermore, it contains objectives, and the significance of the study.

*Chapter Two* is the first part of the in-depth literature review. At the beginning of this chapter, the researcher provides background and fundamentals of e-government delivery. This chapter discusses the e-government concept definitions and its benefits. Furthermore, it includes the stages that e-government goes through and the challenges that it faces during the implementation. In addition, this chapter contains an exploration and a discussion of the 'Governing' dimension of factors of e-government adoption.

*Chapter Three* is the second part of the in-depth literature review. This chapter is mainly divided into two parts. The first part consists of background information related to Information Technology (IT). It focuses on the definitions in the context of the IT. Furthermore, the discussion continues with a description of the



importance and significance of IT. It also includes the problems and failure of IT. However, in the second part, the researcher explores the ‘Technical’ dimension of factors for e-government adoption. Finally, the chapter presents a technical factors model for e-government implementation.

*Chapter Four* is the third part of the in-depth literature review. This chapter explores and indicates the ‘Organisational’ dimension of factors for e-government implementation. This chapter includes a model to show the organisational factors for e-government adoption. Furthermore, at the end of this chapter, the researcher presents a conceptual model for e-government implementation.

*Chapter Five* is the introduction of the research methodology of this study. The chapter starts with a general overview of research methodology. It discusses one of the important stages in any research project which is selection of an appropriate methodology. Then, this chapter discusses the research design for this study, including qualitative and quantitative research methodologies. It furthermore includes a comparison between their methods and their strengths and weaknesses, and a discussion about the triangulation method. The chapter also addresses both the quantitative approach using questionnaire-based survey (development, pilot study, translation, and the sample), and the qualitative approach using case study. Furthermore, it contains the tests for the reliability and validity of the gathered data.

*Chapter Six* is a discussion of several secondary case studies. It contains rich examination of the literature review. This chapter discusses in detail some e-government initiatives in different countries that have been presented in the literature.

*Chapter Seven* is the quantitative data analysis. The researcher uses the Statistical Package for Social Sciences (SPSS) software to run tests on the questionnaires. The chapter contains the data collection techniques used in questionnaires distributed to Saudi Ministries, Public Commissions and Institutions, and Regional Emirates. Furthermore, it includes descriptive statistics such as frequencies and percentages. It further contains a comprehensive discussion of the quantitative analysis used in this study.

*Chapter Eight* is the qualitative data analysis. This chapter shows the implementation of the qualitative method using interviews in government organisations such as ministries and regional emirates. It presents a comprehensive investigation of the critical factors for e-government implementation in Saudi Arabia through eight case studies.

*Chapter Nine* presents discussion and key findings of the research, with a comprehensive discussion of the results analysis and findings from both the quantitative method using questionnaire-based survey, and the qualitative method using case study, as well as examination of best practice. As a result, a proposed model for e-government implementation in Saudi Arabia is presented.

*Chapter Ten* gives the conclusion and recommendations of this study. This chapter presents a discussion of the implications of the conclusions and findings, added by using a triangulation method (quantitative, qualitative), for both researchers and practitioners. The chapter also contains a discussion on the limitations of the study and suggestions for further research.

### **1.10 Summary**

This chapter presents the subject of this study by describing the background to the study. Moreover, the purpose of this study is comprehensively discussed. Following that, this chapter shows the aim of the study and the research questions. In addition, the chapter provides the objectives and the significance of the study. This is followed by an outline of the thesis. The next three chapters cover the literature review from which this thesis is built.

# Chapter 2

## Literature Review (I)

### E-Government Fundamentals & Governing

#### Factors for E-Government Adoption



## 2.1 Introduction

Successful diffusion of information and communication technologies (ICT) has triggered the usage of Internet, e-commerce, and eventually electronic government (e-government). Tat-Kei Ho (2002) explains that an explosive growth in Internet usage and rapid development of e-commerce in the private sector have put growing pressure on the public sector to serve citizens electronically. Electronic government initiatives have often sounded very promising but have been difficult to implement.

The challenge lies in the implementation of e-government successfully. One likely barrier is that e-government is approached as if in a universal context, which can be generalised across the globe. On the other hand, the individual countries' contextual imperatives and conditions vary. Therefore, a universal approach is less likely to be effective in all contextual settings.

E-government is being implemented in Saudi Arabia, and the aim has been to serve the public and government officials via multiple channel service access led by technological advancement, to create integrated service systems that could be used effectively for internal government processes and external government service delivery. Since Saudi Arabia is context-dependent, the case of e-government is specific to its setting.

The literature review chapters discuss the area of e-government and its fundamentals. In addition, they discuss the factors that lead to the adoption of e-government services delivery in the context of Saudi Arabia. In the review, the chapters focus on scholars' and researchers' attempts to examine the adoption of e-government in the government's organisations. It provides a basis for both the theoretical and empirical studies of this research.

The literature review has five parts. The first part is background information on the e-government concept. In the second, the 'Governing' factors for e-government adoption. The third part is the 'Technical' adoption factors. The fourth part covers the 'Organisational' factors for its adoption. The fifth and final part concludes with a conceptual model for e-government implementation. The development of the conceptual model is drawn from the second, third and fourth parts of the literature review, each of which outlines the generic aspects and then those specific to the case in this research.

In this chapter, the first section provides background information on e-government, which includes its definitions, benefits, stages and challenges. In the second part, it focuses on exploring and discussing the Governing factors for e-government adoption. It recognises that there are situation-specific factors for each e-government project which will determine success and failure and, hence, strategies for success (Heeks, 2002). Finally, the chapter will end with a summary and a concluding model that presents the Governing factors for e-government implementation.

## 2.2 E-Government Characteristics

### 2.2.1 E-Government Definition

Governments are embarking on providing e-access to their citizens for the public service delivery; it is on the agenda of many governments to benefit from the emerging shift from the conventional methods of paper work to the digital age. This agenda is triggered by the efficiencies and effectiveness attributed to the e-government perspectives. Such attributes have dual purpose: cost and time efficiencies from the suppliers' perspectives, and the satisfaction of recipients of the quality services. Therefore, enhancing citizens' satisfaction through quality service delivery in terms of time and space is the paramount concern in this direction.

Citizens as users of the e-access interact with various services without hierarchical obstacles and in the absence of bureaucratic barriers. Therefore, being able to access all different kinds of services without time and space constraints can achieve such objectives in terms of the customers' (citizens') requirements (Munson et al., 2001).

The e-service contributes to the overall systems' success in the customer satisfaction, and it enables the services providers to achieve long-term goals of user retention and expansion into other areas (Das, Soh and Lee, 1999). For such defined goals, governments need to devise and implement the strategy of e-service adoption (Saanen et al., 1999). This suggests that the e-service is a critical resource to achieving multifaceted goals. Despite its importance, e-service definition varies. The Boyer et al. (2002) view is that "the e-service encounter starts in the initial landing on homepage until the requested



service has been completed or the final product has been delivered and it is fit for use.”

Although they add to our understanding of the e-service, these definitions are grounded in the private sector service delivery. E-service comprehension in terms of the public sector begs understanding of e-government. E-government itself is surrounded by several definitions (Joia, 2002). Research reveals that e-government has been defined in various ways (Wassenaar, 2000; Howard, 2001; Tambouris et al., 2001). For instance, Lieber (2000) defines it as “implementing cost-effective models for citizens, industry, federal employees, and other stakeholders to conduct business transactions online”. The focus of this definition lies in strategy, process, organisation and technology.

Another definition is proposed by Gartner (2000) as “the transformation of public sector internal and external relationships through net-enabled operations, IT and communications, in order to improve government services delivery, constituency participation, and internal government operations”. The flux of the definitions of the e-government continues. For example, the ISEC (Information Society of the European Commission) defines e-government as “the use of information and communication technology in public administrations combined with organisational change and new skills in order to improve public services and democratic processes and strengthen support to public policies” (ISEC, 2001).

Apart from the functional dimension of e-government, it is suggested to be considered as “the application of the internet and related technologies to provide more convenient and effective government services to individual citizens and



businesses” (Mitretek Systems, 2002). Some parsimonious yet comprehensive definitions are associated with Norris, Fletcher and Holden (2001) who describe e-government as “the delivery of services and information, electronically, to business and residents, twenty-four hours a day, seven days a week”.

In this endeavour, West (2001b) goes a step further to simplify it as “the delivery of the information and services online through the internet”. This is followed by Taoscott’s (1997) explicit inclusion of e-services in e-government and e-citizens by suggesting that “connected in net, the government can surpass barriers of time and distance, and offer to the public services of better quality, at the lowest costs”. E-Government is sometimes referred to as a revolution in public management, and according to Dow et al. (2002), it will transform not only the way in which most public services are delivered, but also the fundamental relationship between government and citizen.

E-government is electronic services offered by Government (G), including Public or Regional/Local Administration agencies, to Businesses (B) and Citizens (C), in the form of G2G, G2B, G2C Schemes (Gouscos, Mentzas and Georgiadis, 2001), and that the services should be characterised as follows:

- Offering any service to any citizen or business, in any place, at any time (24x7 availability), through any communication channel, in any native language, and independently of IT skills.
- Single point of service for all cases, single sign-on for all services, single session for any service, transparent complexity, virtual integration (true one-stop approach).
- No paper documents, no paper money, no physical transport, no physical waiting.

- Maximum reliability of results, maximum quality of service, minimum time of completion, minimum difficulty of access, minimum cost of use.

In common understanding, e-government focuses upon relatively simple transactions between identifiable customers (citizens, enterprises), on one side, and a multitude of government organisations in charge of registering objects, issuing passports, collecting taxes or paying benefits, on the other (Lenk, Traunmuller, 2002).

In this study, the researcher defines this concept as the use of Information and Communication Technologies (ICTs) by providing different government's services to all beneficiaries, such as citizens or businesses including lower incomes and disability individuals, electronically from a single point twenty-four hours, seven days a week with a high efficiency and quality, and lower access difficulty and time.

### **2.2.2 E-Government Benefits**

Implementing e-government will gain its government a lot of benefits and opportunities. No government wants to be left behind in the movement to improve government through electronic delivery of information and services to citizens. In general, some of these benefits include reducing time and cost (supply and demand) of providing service to the general public, empowering employees, reducing bureaucracy, and increasing the efficiency and effectiveness of the public sectors.

However, while implementing the vision of e-government, the government should pay attention to the complex realities. E-government initiatives are complex mixtures of technological, managerial and policy-related challenges. The risk of not understanding and addressing these complexities is costly failure (Pardo, 2000). E-Government adoption provides the following benefits (Heeks, 2001b; Reynolds and Regio, 2001):

- Deliver electronic and integrated public services from a single point of access (One-stop portal).
- Available 24 hours a day, 7 days a week.
- Speed up decision making and service delivery.
- Bridge the digital divide.
- Save costs and capture revenue.
- Provide government with efficient and effective decision making.
- Improve quality of service delivery to citizens and businesses, and other arms of government.
- Re-build government-citizen relationship.
- The education does not end when a person finishes school can be realised through the wide spread of e-learning. An ensuing society of knowledge workers will continue to access sophisticated and personalised education tools online.
- Governments can help businesses to move online and assist them to use online tools and foster economic development.
- Enable innovative approaches to governance.
- Disseminate information about government procedures and rules.



Furthermore, the UK Comptroller and Auditor General (2002) indicates three benefits:

- The public can access information and advice online.
- The public can interact on-line with departments to apply for and receive a wide range of services, and
- Significant improvements in the departments' operational efficiency are possible.

According to Dawes (1996), implementing e-government can lead to timely and accurate information for better decision making and problem solving, reduced costs and increased productivity, centralised source and support for current information, expanded professional networks, improved public image, and greater integration and coordination of government services which are found to be among some of the benefits of interagency information sharing.

Finally, according to Sharifi and Zarei (2004), implementing e-government will help developing countries to reduce their existing gaps with developed countries and vice versa. Therefore, e-government adoption is considered as an opportunity for the developing countries to catch up on the developed countries and reduce the gap between them.

#### **2.2.4 E-Government Stages**

According to what Layne and Lee (2001) propose, e-government can be adopted in four stages of development and the following is a summary of those stages.



1. In the first or early (cataloguing) stage, government establishes an online presence of presentation. It also should include in this stage downloadable forms where citizens and businesses have come to expect it. The cataloguing stage has been documented empirically by a number of studies (Gant and Gant, 2002; Gefen et al., 2002). In this stage, a single or a few independent government websites emerge. The websites provide a user with static information, e.g. addresses, phone numbers, office hours, calendars, etc. The functionality of the cataloguing stage encompasses the providing least but efficient amount of information to users, and the cataloguing should be organised at first on the basis of departments, and then by services, actions, or events. The benefits of cataloguing involve increased convenience to citizens and businesses, reduced workload of government, established departmental presence of government functions, and a learning tool for citizens for processes and procedures.
2. After that come the transaction stage, with enhanced and expanded web presence, where services are made available for online use and databases are readied for the support of such transactions (Huang and Chao, 2001; Gant and Gant, 2002). Users can access dynamic and specialised information. An official government web site may serve as an entry point linking users to other branches. Furthermore, government publications, legislation, newsletters and other useful documents can be downloaded or ordered online. It could include formal interactions between citizens and service providers taking place on a more

sophisticated level. Users can search specialised databases, and download forms and applications online. It includes allowing for dealing with the government directly through on-line interfaces with live databases. It provides the beginning of e-government as an entity changing the way people interact with their government. The functionality of the transaction stage encompasses government moving from providing only facts to becoming an active respondent, i.e. two-way communication, forms are filled out, and government responds with confirmation and receipts, citizens move from passive to active role and can participate in online forums, and the one stop portal provides service needs rather than having citizens traverse numerous sites to find the correct information. The benefits of the transaction stage involve empowering citizens through availability, paper work, travel, improved efficiency, and increased savings.

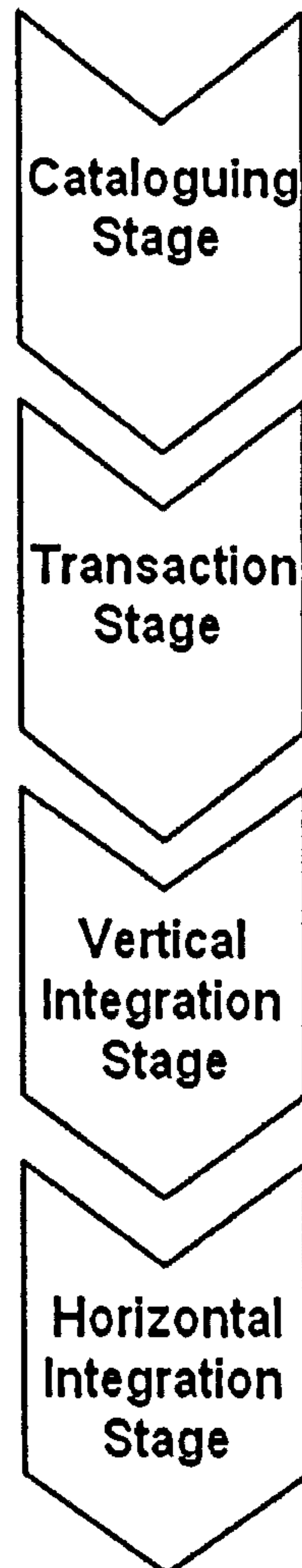
3. In the vertical integration stage, systems in all branches of government (legislative and executive) serving similar functions are linked together. In this stage, the ability to conduct complete and secure transactions online, like obtaining visas, passports, birth and death records, licences, permits, or specialised government services. It includes the government to be connected for different functions and services of government which will have permanent changes in government processes and concepts of government. The functionality of vertical integration encompasses counterpart systems to communicate with each other, a central database or connected web of databases, and seamlessly integrate the government for cross-referencing and checking. The benefits of vertical integration



involve allowing citizens to access the service from a portal, emerging into a government-to-government interaction for consistency and accuracy of data, availability of knowledge to all levels of government and continued improved efficiencies.

4. Finally, in the horizontal integration phase, systems of all levels and branches and across functions are linked in a one-stop shop. All transactional services offered by government will be available online. By clicking on the government's official site, users will have the ability to instantly access any service made available. A single government website will allow the user to customize a secure one stop portal that will enable direct access to services based on a user's specific need. The functionality of horizontal integration encompasses databases across functional areas to communicate and share information, information obtained by one agency will propagate through out all government functions. The benefits of horizontal integration include citizens have on-line access to ubiquitous government services with levels of government and the functional walls inside government transparent to them, recognises the full potential of IT from citizen's perspective, citizens can conduct business across a wide variety of requirements and eliminates redundancies and inconsistencies in government information bases for citizens.

The four-stage Layne and Lee (2001) model for e-government adoption is shown in Figure 2.1.

**Figure 2.1: E-Government Stages Model**

**Source: Adopted from Layne and Lee (2001)**

Following this, e-government can be displayed in the following points: (1) e-communication between the government departments, (2) e-procurement, (3) e-payment for social welfare recipients and the respective government departments, (4) e-commerce, (5) Databases, (6) e-documents, (7) e-taxation, (8) Digital confirmation of personal identity cards (GOPSC, 2000).



The Layne and Lee (2001) model bears a certain resemblance to the original IT growth model presented by Gibson and Nolan (1974), and also with its revised and more frequently cited version by Nolan (1979). While the first Layne and Lee stage does not yet require any business process change or change management, more fundamental, complex and substantial changes become the norm in subsequent stages.

### **2.2.5 E-Government Challenges**

All that sounds promising is not free from challenges. In order to implement an e-government programme, the government needs to develop specific and reasonably attainable goals, and understand what resources are available to achieve them. Only then will it be able to formulate a plan that can be implemented in full, rather than being cut short before any gains are realised due to lack of resources. Once governments commit to strategies transforming their processes, significant challenges will arise during their implementation.

E-government initiatives present a number of challenges (Wimmer et al., 2001; GAO, 2001; McClure, 2000; Tapscott, 1996). The most pertinent challenges that are expected to be encountered during the implementation of an e-government are indicated in previous study, some of which are as follows:

- A lot of countries do not have the Information Technology (IT) infrastructure necessary to immediately deploy e-government services; developing IT Infrastructure is an important component in e-government implementation (Wimmer and Bredow, 2002; GAO, 2001).

- E-literacy refers to those who are unable to make use of ICT because they are computer literate (UNPA&ASPA, 2001).
- Protecting the privacy of citizens' personal information stored on these databases after they collect vast quantities of their data (GAO, 2001; Wimmer and Bredow, 2002).
- Developing an information management framework is necessary to make sense of available data. Without it, government could not derive useful analysis quickly enough to react to social and economic developments (GAO, 2001).
- Lack of communication infrastructure that affects on government integration and citizen access to e-government services (Wimmer and Bredow, 2002; GAO, 2001).
- Security is costly, but must be addressed in the design phase, as security breaches can shatter public trust in e-government (Wimmer and Bredow, 2002; GAO, 2001).
- The application of ICT to government may encounter legal or policy barriers. While implementing e-government those responsible must consider the impact of law and public (Borins, 2002; Jaeger, 2002; Wimmer and Bredow, 2002).
- E-government services are only useful if people are familiar about them; education will be needed (UNPA&ASPA, 2001).
- E-government involves changes; according to Mabin, Forgeson and Green (2001), change may fail due to what is often termed 'resistance to change'.

## 2.3 Governing Factors for E-Government Adoption

This section explores and discusses the governing factors for e-government implementation and execution. Each governing factor was discussed, in details, as follows.

### 2.3.1 Vision

#### 2.3.1.1 Background

Vision has become one of the buzz-words of the 1990s. Every organisation from the biggest multinational right down to the corner shop has a 'vision'. First, what do we mean by the word 'vision'? According to Info-Line (1991), visioning evolved from two planning concepts from the 1950s and 1960s: management by objectives and strategic planning.

These concepts were rather dry and failed to enthuse employees because they relied heavily on facts and figures handed down from above. Visioning is designed to correct these flaws by participation involving the mind and spirit of each member. A vision is a *picture* of where the organisation wants to be in the future. By describing the future in emotional rather than measurable terms, a vision can exert a strong pulling force which helps to keep the organisation aligned (Wills, 1994).

A good way to define a vision more formally is to examine its functional role. A vision can provide a road map for future direction and generate excitement about that future. A vision can also create order out of chaos and, last but not least, it can offer a criterion for measuring success. According to Allen (1995), we have stated what a vision can do, but to be really effective, a vision must:

- Be coherent enough to create a recognisable picture of the future.
- Be powerful enough to generate commitment to performance.



- Emphasize what realistically can be.
- Clarify what should be.

According to Lee (1993), “The concept of vision has never been more important than in today’s world of flattened, delayed, decentralized organisations”. Bennis and Nanus (1985) pointed out that “A vision is a mental image of a possible and desirable future state of the organisation; it may be as vague as a dream or as precise as a goal or mission statement”. Furthermore, “Vision refers to an idealised goal that the leader wants the organisation to achieve in the future” (Conger and Kanungo, 1987).

The excellent work of Synder and Graves (1994) on leadership and vision building defines vision and its delivery as: A target towards where the leader aims their energy and resources. The constant presence of the vision keeps the leader moving despite the various forces for resistance: fear of failure, emotional hardships such as negative responses from superiors, peers and employees, or the real hardships such as the practical difficulties or problems in the industry. Vision is the force within the leader that spreads like wildfire when properly communicated to others.

Vision refers to an image of the future that can be discussed and perfected by those with an interest in it. It is the glue that binds individuals together into a common goal. Vision is the primary integrating sense within learning and development (Kelley, Sanspree and Davidson, 2000; Levtzion-Korach et al., 2000). Vision utilises nearly half the human brain, and approximately 70% of its



sensory capacity is dedicated to processing visual information (Shepherd, 2001).

### **2.3.1.2 Vision related to E-Government Adoption**

The purpose of government is to further the shared goals of a society. Therefore, the planning process should begin by establishing a broad vision of e-government. This broad vision should flow from the large goals or concerns of a society (PCIP, 2002). Citizens also should be included in the e-government vision. For example, government support and assistance should be anywhere and at any time available to aid the citizen as a valuable customer, reflecting the fact that a government respects the citizen.

In addition, business as the demand side should also be in the e-government vision. For example, government support and assistance should again be available at anywhere and any time to aid businesses succeed, and regulate the environment for a healthy electronic market economy (Stamoulis and Georgiadis, 2000). A vision is a commitment to establishing rethinking and reviewing who we are and what we are here to do (Allen, 1995). Hitchcock (1996) indicated Rules for how the vision should be framed:

- It must be phrased positively; it should be stated in terms of moving towards something that is wanted.
- It should be as specific as possible; preferably, the evidence should be in a form that is sensory-based, that is, what could be seen, heard or felt.
- It must be possible to have an input into the achievement of the vision, to have ownership.

E-government should not be a strategy exclusively for reducing the cost of government, though this can be one valuable result. Saving money is an easy way to 'sell' e-government to political leaders and the public. However, with few exceptions, e-government applications do not lower costs in the short term for government itself, though they may reduce costs for citizens and business.

E-government must be about meeting the needs of citizens and improving quality of life. Borrowing a lesson from the private sector, e-government must be customer-driven and service-oriented. This means that a vision of e-government implies providing greater access to information, as well as better, more equal services and procedures for the public and businesses too. Even when e-government projects seek to improve internal government processes, the end goal should be making government serve citizens better (PCIP, 2002).

According to Heeks (2001b), vision is developed for the e-government initiative in different areas. For the Administration, managing performance, by making strategic connections within government, by creating empowerment, and by improving government processes by cutting costs. For the Citizens and Services area, connecting citizens to government by talking to them and supporting accountability by listening to them, and by improving public services. Finally, the Society, building interactions beyond the boundaries of government by working better with business, by developing communities, by building government partnerships, and by building civil society.

The e-government may not materialise without an explicit vision for the public sectors. The vision gives direction, magnitudes and the destination in the provision and improvements of the services to the public. Vision includes the roadmap on how to reach the intended objectives, which becomes the goal for all decisions and plans in the whole organisation. In clarifying the vision for change or the introduction of new ideas, Kotter (1996) has identified six important characteristics in terms of vision:

- **Imaginable:** indicates what the future will look like.
- **Desirable:** Appeals to all stakeholders. This includes all employees in the organisation, other organisations, concerned partners, and the general public.
- **Feasible:** attains realistic and accomplishable goals.
- **Focused:** helps provide guidelines in the decision-making process.
- **Flexible:** allows individuals to provide their initiatives and alternative responses in light of changing conditions.
- **Communicable:** is easy to be communicated to others in a short period of time.

By the end of 2001, Singapore managed to get 92% of all public services deliverable online. Singapore's success can be attributed to the commitment and persistence to turn a promising vision fully into reality (Ke and Wei, 2004). The need for a clear vision is important at all levels, from entire organisations to each individual in them. It is fair to ask why it is so important to establish a



clear vision. Research and practical experience answers that by telling us that vision (Allen, 1995):

- Inspire and motivates.
- Provides direction and fosters success.
- Is essential to the organisation of the future.
- Enables to benchmark the progress and evaluate outcomes.

Furthermore, non successful result of previous projects was blamed on the failure of the organisation to communicate its vision to the parties concerned. Generally, in the public sectors, the vision is implicit, and is known only to the senior management. Communicating the vision of the e-government to all employees involved in the implementation process is vital.

Once the vision for e-government is established, the vision and key objectives should be communicated across government and to the public. A communications strategy has to ensure that people understand the vision, the changes that will occur, and the tangible benefits for them from e-government (PCIP, 2002).

The vision has to be established within each public sector to enable employees to work towards realising the goals and objectives of the organisation, and has to be recognised at the national level to ensure that all public sectors work towards achieving the essential goal of reducing cost and improving delivery of services to the general public (Ke and Wei, 2004).



## 2.3.2 Strategy

### 2.3.2.1 Background

The presentation here is based primarily on Mintzberg's (1978) definition of strategy as "a pattern in streams of decisions", later used by Hayes and Wheelwright et al (1984) in their definition of manufacturing strategy as the "patterns of decisions" in manufacturing decision areas. From this viewpoint, the strategy a firm 'realised' (or implemented) could 'emerge', apparently informally, as well as being 'intended' or formally planned in advance (Mintzberg, 1978).

Quinn (1980) defines strategy as a pattern or plan that integrates an organisation's major goals, policies and action sequences into a cohesive whole. Webster (1994) calls this the building block of strategic management, and notes that a secure foundation (strategy) is needed if the process (strategic management) is to function properly. In this sense, strategy provides the link between where the organisation is at present and where it would like to be in the future.

Mintzberg (1994) portrays strategy as a plan (a direction, a guide or course of action into the future) and as a pattern, that is, consistency in behaviour over time. Organisations began their strategic planning cycle by updating and revising their business objectives in relation to performance reviews in key areas (such as people, standards and business development), achieved results, and development priorities (Storey and Teare, 1991; Teare et al., 1992).

Implementing strategies successfully is vital for any public or private organisation. Without implementing the strategy, even the superior strategy is useless. However, transforming strategies into action is a far more complex and difficult task. There is an old Japanese proverb that goes “Strategy without action is only a day-dream, but action without strategy is a nightmare”.

Organisations seem to have difficulties in implementing their strategies. According to Zairi (1999), “Most organisations would notice the importance of strategic planning in gaining desired business results and retaining the required levels of performance. However, most strategic planning efforts remained as blueprints locked away in senior executives’ filing cabinets”, therefore it fails to deliver.

Researchers have revealed a number of problems in strategy implementation, e.g. weak management roles in implementation, lack of communication, lacking a commitment to the strategy, unawareness or misunderstanding of the strategy, unaligned organisational systems and resources, poor coordination and sharing of responsibilities, inadequate capabilities, competing activities, and uncontrollable environmental factors (Alexander, 1991; Giles, 1991; Galpin, 1998; Beer and Eisenstat, 2000).

### **2.3.2.2 Strategy related to E-Government Adoption**

Any project that involves change should develop a specific plan of action, and include a strategy to motivate the organisation towards achievement of the goals (Burn and Robins, 2003). Several technical/economic conditions are relevant for the design and formulation of e-government strategy. A good strategy



needs to first assess the current condition as the first step to developing a path to the desired results. The Information and Communication Technology (ICT) infrastructure is the first critical element for assessment. In particular, the UN/ASPA report has pointed out the importance of network availability (UN/ASPA, 2002).

The availability of a high-speed network for both government and private use is an important indicator of the maturity of an infrastructure. Second, computer availability and use determine whether the information and communication infrastructure is utilised. Citizens and businesses need to have computers and Internet service providers for them to get access to government information and services online. Wide disparity is seen among countries around the world. Third, the distribution of use and accessibility among various groups also shapes e-government strategy. Digital divide is usually the term used to capture this issue. Different groups have unique needs and uses for e-government.

Electronic government should be planned and deployed, taking into consideration strategic objectives like the following (Gouscos, Mentzas and Georgiadis, 2001):

- Provide first and foremost for citizen and business needs, and support 'e-citizen' and 'e-business'.
- Facilitate access, provide through quality of results, and minimise problems, errors and dissatisfaction.



- Exploit information content, add value to offered services, promote shift of culture towards quality and effectiveness and, create prestige for public service.

A strategic plan needs to identify and anticipate those uncertainties such as technology. A leading technology today may be obsolete tomorrow. As a result, the cost projection for Information Technology (IT) may be incorrect. Moreover, a strategic plan needs to allocate necessary resources to critical programme.

One main challenge of e-government initiatives is finding the resources. A plan without committed resources is very likely to fail. One main resource that most countries are short of is skilled technical expertise. A strategic plan needs to address the recruiting and training of IT expertise for critical programme.

Security control of government information resources is at the centre of any successful e-government strategic plan. Ensuring the security of information is the necessary groundwork for disseminating government information and providing government services online. E-government strategy needs to address both privacy and security to win the trust and willingness of citizens and businesses to submit personal information and conduct transactions online. If privacy is not adequately protected to facilitate such transactions with government online, e-government strategy needs to include efforts to pass relevant laws and regulations. E-government strategy should also address gaps in the area of security. Some countries have launched the Public Key Infrastructure Initiative and other security measures to address this issue.

For example, Singapore's success in providing public service online can be attributed to the strategies that it has adopted (Ke and Wei, 2004). Furthermore, many governments developed an online strategy such as the Western Australian Government. The major aim of this strategy is to develop a 'technology-enriched community'. In this social environment, the technology is used to its full advantage to enrich the lives of its citizens, the 'digital divide' is replaced with 'digital inclusion'.

For instance, children are skilled to take charge of the future and reap its benefits, and made it easier for the citizen by interacting with the social, economic and political environment. Furthermore, the technology flows to all members of the community and is available for all to use if they so desire, and communities embrace technology to improve their ability to interact and to communicate. This suggests that the elements of a system are an essential consideration for e-government.

If the Singaporean case is taken as a hallmark, there are five e-government strategic thrusts: reinventing the government, delivering integrated electronic services, being proactive and responsive, using ICT to build new capabilities and capacities, and innovating with ICT. The plan also provided government public sectors with specific guiding principles to follow in e-government development (Ke and Wei, 2004).

### **2.3.3 Top Management Support**

#### **2.3.3.1 Background**

The adoption of a new way of doing business or of a new technology is unlikely to succeed if it does not have widespread organisational support and acceptance from the top management. According to Cavaness and Manoochehri (1993), top management is defined as not only the president and CEO, but also all managers who have the authority to establish and enforce policies and guidelines.

Furthermore, top management is defined as the person, or group of people, who directs and controls an organisation at the highest level. As for top management support, Holland, Light and Gibson (1999) have defined it as the positive commitment, enthusiasm and support of senior management for the project.

Literature from various disciplines has suggested that top management support is crucial for organisations to deal effectively and efficiently with new concepts, processes, and/or technologies. In addition, much has been written about the critical importance of top management support, and this is surely necessary.

In the Kingdom of Saudi Arabia, the public sectors are hierarchically structured, and all decision-making processes are transmitted from the top management to the middle management, and at the base, to the concerned group or individuals responsible for the implementation.



For projects to be successful in the public sectors they have to be endorsed by top management. Also, from the previous projects, middle management played a major role in the adoptions which were designed to improve the work process. Such a state is common in other contexts.

Top management support is needed throughout the implementation. The project must receive approval from top management (Bingi, 1999; Buckhout, 1999; Sumner, 1999), and align with strategic business goals (Sumner, 1999). This can be achieved by tying management bonuses to project success (Wee, 2000).

#### **2.3.3.2 Top Management Support related to E-Government Adoption**

Top management support is familiar to be considered as a critical success factor for public sector e-government adoption. In the UK context of e-government adoption, initiatives are under the supervision of the office of a special minister, who holds a cabinet position in the British government. Membership of the cabinet ensures appropriate political support, and the ability to enforce the adoption of e-government initiatives throughout the UK.

In the US, the E-government Act, which was introduced by the Senate in May 2001, and signed by President Bush into law in 2002, established a Chief Information Officer (CIO) position in the Office of Management and Budget to provide leadership, vision and coordination between public sectors at the federal level. In addition, the e-government initiative is one of the five management reforms on President Bush management agenda.

Furthermore, the Singapore government earmarked \$932 million for the years 2000 to 2003 to ensure the programme objectives of the E-government Action Plan became a reality. Top management needs to publicly and explicitly identify the project as a top priority (Wee, 2000). Senior management must be committed with its own involvement and willingness to allocate valuable resources to the implementation effort (Holland et al., 1999). This involves providing the needed people for the implementation and giving an appropriate amount of time to get the job done (Roberts and Barrar, 1992).

Managers should legitimise new goals and objectives. A shared vision of the organisation and the role of the new system and structures should be communicated to employees. New organisational structures, roles and responsibilities should be established and approved. Policies should be set by top management to establish new systems in the organisation. At times of conflict, managers should mediate between parties (Roberts and Barrar, 1992).

The e-government initiatives need the organisation's top management support. Also the middle management can play a major role in the adoption of e-government initiatives. Finally, the development of e-government requires a political decision from top management. Governments need to set objectives in realising their e-government.

Due to insufficient project support or understanding by top management, the project may receive low priority. The resulting delays can mean time and cost overruns which in turn yield negative publicity, decreased support from top management, and negative perceptions of the overall value of the effort.

Lack of top management support is a very serious issue. Lack of support can mean the failure and end of the project, which is very huge problem, especially with a large project such as e-government implementation. The system of e-government and its objectives and vision should have the support of top management. Not having sufficient support and ignoring the project causes failure of the adoption.

Therefore, the acceptance of the e-government projects throughout the top management in the organizations is important, in order to gain their support. To gain their acceptance, it is crucial for them to understand the project, and to know what it needs and how to implement it.

However, it is not that easy to implement for several reasons. One of the reasons is the pressure of time from the top management side. Therefore, it is often more difficult to achieve. However, providing the top management with benefits that they can gain through implementing the project, and its importance, can help to gain the top management interest and, therefore, their support.

Securing top management participation in a project up-front can be difficult and usually adds time to the start-up phase of projects, but it goes a long way to ensure successful project completion. Understanding and enhancing support reduces or limits risks.

The project that has a considerable top management support gives the people who are working to implement it more confidence that the project will proceed to a successful conclusion.



Top management support is considered to be a requirement and critically important for all project stages, especially in the early ones, in order to provide direction and necessary resources for it. Top management support is critical to overcome the project problems with frequency of usage, and to ensure adequate skill and training for users. It is essential to engender commitment, provide project structures, and reporting mechanisms.

### **2.3.4 Leadership**

#### **2.3.4.1 Background**

According to Zairi (1994), “Nowadays leadership is considered as a must for survival. It comes from the level of inspiration, commitment generated and corporate determination to perform”. Organisations and researchers have been obsessed over the last four decades with leadership (Kets De Vries, 1993; Goffee and Jones, 2000; Conger and Toegel, 2002, Higgs et al., 2003).

Leadership has been described as a process, but most theories and research on leadership look at a person to gain understanding (Bernard, 1926; Blake, Shepard and Mouton, 1964; Fiedler, 1967; House and Mitchell, 1974; Drath and Palus, 1994).

Morden (1996) simply comments that leadership means getting things done through people. Leadership is typically defined by the traits, qualities, and behaviours of a leader. According to Klagge (1996), leadership refers to a phenomenon similar to trailblazing, where individuals are out in front of others exploring virgin territories, mapping new pathways, and setting the pace.

Leadership requires front-running behaviours from individuals, and therefore has its roots in human diversity. Furthermore, Bennis (1995:6) says leaders are people who do the right things, and managers are people who do things right. Leaders are interested in direction, vision, goals, objectives, intention, purpose, and effectiveness, the right things. Managers are interested in efficiency, the how-to, the day-to-day, the short run of doing things right.

Cole (1996) defines leadership as a dynamic process in which one individual influences others to contribute to the achievement of the group task. This influence will be perceived as fully legitimate by those people who are responding to the leadership process. Murphy (1996) defines leaders as people “to whom others turn when missions need to be upheld, breakthroughs made, and performance goals reached on time and within budget”. Murphy suggests that leaders “transcend the problems of the moment to reveal the possibilities of human nature through intelligence and perseverance”.

#### **2.3.4.2 Leadership related to E-Government Adoption**

As time moves on, e-government adoption comes more and more important for every country around the globe. In order to adopt and implement the concept of e-government, there are several crucial requirements to be considered. Leadership remains at the core of success, starting with the definition itself. Leaders who know what e-government is in a limited sense, through just simply moving government services online, miss larger opportunities in the long term.



Leadership is one of the critical factors upon which the e-government success hinges. A critical pre-condition in e-government adoption is a strong leadership with vision (Heeks, 2002). Furthermore, Ke and Wei (2004) indicated that strong leadership with vision is a crucial factor for e-government success.

In order to achieve the e-government transformation, administrators and executives are needed at all levels of government who understand the technology and the policy goals, and who will push reform. A strong leadership can precipitate the increase of other resources required to formulate, implement and advance e-government set-up.

In addition, strong leadership can guarantee the long-term commitment of resources, expertise, and the collaboration of disparate groups. Leadership can also articulate a unifying theme that can push the e-government initiative through all the needed steps.

A lot of challenges are going to face leaders who are committed in implementing e-government in their countries or organisations. In order to pass all these challenges, it requires strong leadership where without it the e-government concept is impossible to implement and the implementation will lead to failure.

Visionary, firm and persuasive leadership is an important requirement and critical factor for e-government implementation that cannot be ignored. Empirical examples of how leadership articulates vision and motivates all stakeholders to share that vision can be seen with references to two cases:



First is Singapore, which has become a hallmark for research and practice. Singapore provides a great variety of dynamically integrated public services online. By the end of 2001, Singapore managed to get 92% of all public services deliverable online. The other example is Hong Kong, another developed Asian economy, which is comparatively far behind Singapore and had only 80% of its public services online by the end of 2002.

Hong Kong joined the bandwagon later, even though its IT infrastructure is as advanced as Singapore's, and its government as highly computerised. Singapore's success can be attributed to the commitment and persistence of its government leadership to fully turn a promising vision fully into reality, and perhaps more importantly, to the strategies that it has adopted (Ke and Wei, 2004).

Following these premises, it is asserted that leaders should focus on collective issues rather pursuing their personal agendas, and developing the vision and defining the mission for their organisations (Drucker, 1990). Oakland (1993) emphasise the five requirements for effective leadership to be clear and firm about:

- Beliefs and objectives in the form of a mission statement.
- Effective strategies and supporting plans.
- Critical success factors and critical process.
- An appropriate management structure.
- Employees participation through empowerment, and the EPDCA (evaluate, plan, do, check, amend) helix.

Armstrong (1990:165) suggests that leadership happens when there is an objective to be achieved, or a task to be carried out, and when more than one person is needed to do it. All managers are by definition leaders, in that they can only do what they have to do with the support of their team, who must be inspired or persuaded to follow them. Leadership is therefore about encouraging and inspiring individuals and teams to give their best to achieve a desired result. Leadership is required because someone has to point the way, and ensure that everyone concerned gets there, a leader's aim is to get people to do what he wants by obtaining willing cooperation, not grudging submission.

In addition, strong leadership provides a chance and opportunity for working people with leadership potential to build up a series of managerial skills, knowledge, capabilities and behaviours that are critical to gain success. Furthermore, the leadership is responsible for developing a vision. The vision should be communicated across government and to the organisation, ensuring that people understand the vision. E-government adoption needs a leader who puts e-government onto the agenda, who sets e-government within a broader reform agenda, and who makes it happen (Heeks, 2002).

### **2.3.5 Citizen-Centric**

#### **2.3.5.1 Background**

Many industries use e-commerce to facilitate and improve the passage of their goods to market. Customer expectations are now predicated on speed combined with excellent service. The same service is expected from the public sector. If a citizen can access twenty-four hours, seven days per week banking,

then why are public services not available on a twenty-four hours, seven day per week basis?

Osbourne and Gaebler (1992), for instance, proposed that citizens should be regarded and treated as customers, suggesting that the delivery of government services should be redesigned with a customer focus. This view is challenged by Mintzberg (1996), who usefully distinguishes customers from citizens.

Mintzberg points out that we do not have to call someone a customer in order to treat them well or ensure that services are designed with them in mind. Customers buy products or services, but citizens have rights “that go far beyond those of customers” (Mintzberg, 1996).

Furthermore, citizens not only have rights, also have duties, such as respecting laws. To suggest that citizens are equivalent to and should be treated as customers not only grossly oversimplifies the nature of the relationship between government and citizen, but it perverts it. This does not mean that there is no need to reinvent government, but it does limit the extent to which the classification of the B2C relationship parallels the G2C relationship.

The main problem seems to be to know where to find the service. Without that knowledge, one cannot use it. Timely delivery is the most important characteristic that contributes to higher satisfaction ratings. The other drivers are good manners, capability, equality and outcome.

The demands of people around the world demands for more and improved government services are reflective of the growing use of the Internet. People are increasingly using electronic transactions in many areas of their daily life, and are becoming accustomed to the short time and effort it takes to complete them (Seifert, 2004).



Therefore, governments seem to be undergoing intense transformations to use the Internet to deliver services and information according to these new time and effort expectations (Adbul Karim, 2003).

#### **2.3.5.2 Citizen-Centric related to E-Government Adoption**

The e-government activities today are aimed at achieving efficiency in creating and delivering services to citizens. E-Government services should be designed so as to help citizens get in, find their information or transact their business, and then get out as efficiently as possible.

If governments can achieve this radical new conception of their role, then there is the potential for e-government to transform “not only the way in which most public services are delivered, but also the fundamental relationship between government and citizen” (Symonds, 2000).

The citizens need to be differentiated from the business customers. However, some researchers, such as Nowlan (2001) view the citizen as a consumer of public goods and services. In e-government, unlike a private organisation, one of the government’s missions is to make the services available to all citizens.

To meet this goal, e-government systems are required to provide equal accessibility to all the citizens in an easy-to-use way. Putting all the government services on the Web is a major step towards this end, which provides around-the-clock access to the government services in any location via the Internet.

When governments decide proactively to adopt e-government, they tend to communicate about the citizen-centric improvements that it will provide. This necessarily aims at reduction in cost of delivery, improving ease of delivery, and many other internal benefits, ultimately with less commitment or obligation to the citizen. The most prevalently cited reason for deploying e-government is the way in which it expands, deepens, and improves communication between government and its citizens. It is characterised as giving citizens an easily available forum, opening dialogue, and establishing previously inexistent connections with policy makers.

However, applications are more inward looking in terms of benefits to government, and do not consider the service expectations of citizens. This inward looking phase supports the argument that some governments are setting up websites to provide basic information to their citizens. Increasing technological sophistication, coupled with demand for quality services has forced the governments to get more citizen-centric. It is at this stage that governments typically use multi-channels to deliver their services, and develop networking capabilities with different departments to provide seamless service to their citizens.

Governments that embark on citizen-centric e-government programme tend to be more successful. Some researchers identified that citizen-centric and their demand as a critical success factor (Wang, 2002; Abdul Karim, 2003; Zhou, 2004). Furthermore, e-government programme are more capable of success when they adhere to a design methodology that is directed by public needs (Gent, 2003). However, a lot of governments are not all responding proactively to citizen

needs when choosing to adopt e-government, even though a desire to meet citizen needs may be the message that is communicated.

The government is needed to be evaluated where citizens should be treated better than customers of business organisations, where serving citizens is the sole purpose of governments. While several leading countries are developing e-government, three key features are involved when considering these developments:

- Design delivery systems from the citizens' rather than the service deliverers' perspective.
- Ensure consistent integration of business processes behind the storefront.
- Ensure citizens do not feel isolated from government service delivery through use of technology without provision of any personal interface.

In terms of e-government, information and service provision is more citizen-centric, focusing on the function rather than the department or organisation providing the service. The promotion of feedback and the use of various tools, links, and updated pages have made services more accessible to citizens.

Furthermore, the design of systems is more coherent, incorporating logic tools, presenting information in a manner which reflects the institutional view, and catering for different languages, and disabilities such as blindness and deafness. There are several sites where they provide this kind of services.



Citizens are more likely to develop loyalty towards those e-government portals that are citizen-centric, that are designed to address their needs. Singapore's e-Citizen Centre portal is a good example, and perhaps the closest there is to the stage of integrated on-line services. The e-Citizen Centre began in 1997 as a pilot to demonstrate to government ministers what was meant by 'integrated' and 'citizen-centric' digital services. From a single education services package, the portal grew gradually, and now includes more than 50 life events and 150 transactions (Holmes, 2001).

There are extensive opportunities for citizens to participate in the design of services, through surveys, focus groups, and interviews. On the other hand, specific barriers associated with the e-government initialisation process are many, including issues of citizen privacy and security, and inadequately skilled citizens.

Obstacles e-governments have to overcome relate to the need to drive up citizen usage, thereby creating critical mass. Statistical measures of usage rates are particularly hard to obtain, making it hard to assess just how well e-governments are doing in reaching out to their citizens online.

### **2.3.6 Funding**

#### **2.3.6.1 Background**

According to Okiy (2005), "The importance of funding in providing excellent service cannot be over emphasized. It is the glue that holds the building, collections and staff together and allows attaining goals". Inadequate funds impact on effectiveness.

The Cambridge Dictionary defines fund simply as a sum of money saved, collected or provided for a particular purpose. Furthermore, fund in governmental accounting is defined as “representing a distinct phase of the activities of government and is controlled by a self-balancing group of accounts in which all of the financial transactions of the particular phase are recorded and the fund is both a sum of resources and an independent accounting entity” (<http://www.michigan.gov>).

Lack of funding in a project is certainly a disincentive, especially when adopting an innovation means that individuals must go through a learning curve and take on new responsibilities as a result of developing expertise (Sherry, 2003).

A project can be cancelled either because it has a significant cost overrun exceeding the original funding request, or because it was initiated without any funding request in the first place. Either approach results in failure of the project. Besides the obvious platitude of “Don’t go over budget,” the best way to avoid this problem is to build a cushion into the original funding request that should see the project through, barring any unusually large extra expenditure.

#### **2.3.6.2 Funding related to E-Government Adoption**

Financial savings to governments through implementation of electronic services will only occur in the medium-to-long term. Initial start-up costs are high and will, in the short term, add to the costs of government administration, especially if government maintains a parallel manual system for any length of time.

The initial capital costs of establishing e-government services must be analysed and balanced against the long-term reductions of migrating the delivery of public services online. Any improvements in citizen experience of online delivery must be assessed.

In order to implement an e-government programme, the government needs to develop specific and reasonably attainable goals, and understand what resources are available to achieve those goals. Only then will it be able to formulate a plan that can be implemented in full, rather than being cut short before any gains are realised due to lack of resources.

E-government is mainly related to lack of funding (Akomode et al., 2002). In the US, over half (57.1%) of city and county governments view a lack of financial resources as a barrier to providing e-government (ICMA, 2002). In a similar study of only county governments, funding was listed as the greatest obstacle to moving county government services to the Internet by 70% of the respondents (NACO, 2000).

Financial resources express an agency's capital available for participation in electronic information sharing. Damanpour (1991) states that organisations with slack resources can afford costly innovations, can absorb failure, and can explore new ideas in advance of the actual need. However, funding will result in faster response from government public sectors.

In some countries, governments gave e-government implementation high priority in their agenda, and supported their projects. For example, Singapore government earmarked \$932 million for the years 2000 to 2003 to ensure the programme objectives of the E-government Action Plan became a reality. Other



governments have made the same step as Singapore through supporting their e-government projects financially.

On lack of funding a cross public sectors projects it is argued (Keller et al, 2001) that government funding models are currently not set up to fund many e-government projects that are cross-organisational or cross-jurisdictional in nature. Therefore e-government managers who have a holistic vision towards implementing e-government see their dreams shattered, since some public sector departments have the resources to develop e-government, whilst others do not.

In addition, with no additional internal funding, most e-government project plans start from the politicians, the people who run the governments. They are the ones who initially agree to invest public money into the concept of e-government.

Unfortunately, it has been observed that after the initial enthusiasm, most politicians are not capable or willing to understand the need for further investments in IT (Akomode et al., 2002).

Furthermore, on no external funding, research reveals that in some cases of government establishments initiating e-government, financial support from external sources has proved to be difficult to obtain. Consequently, e-government projects do not develop properly (Akomode et al., 2002).

E-government will not be cheap to establish. Whilst in time, financial savings are likely to be significant, initial start-up costs will be high, especially if online systems run in tandem with traditional paper-based, manual services.

## 2.4 Governing Factors Model for E-Government Adoption

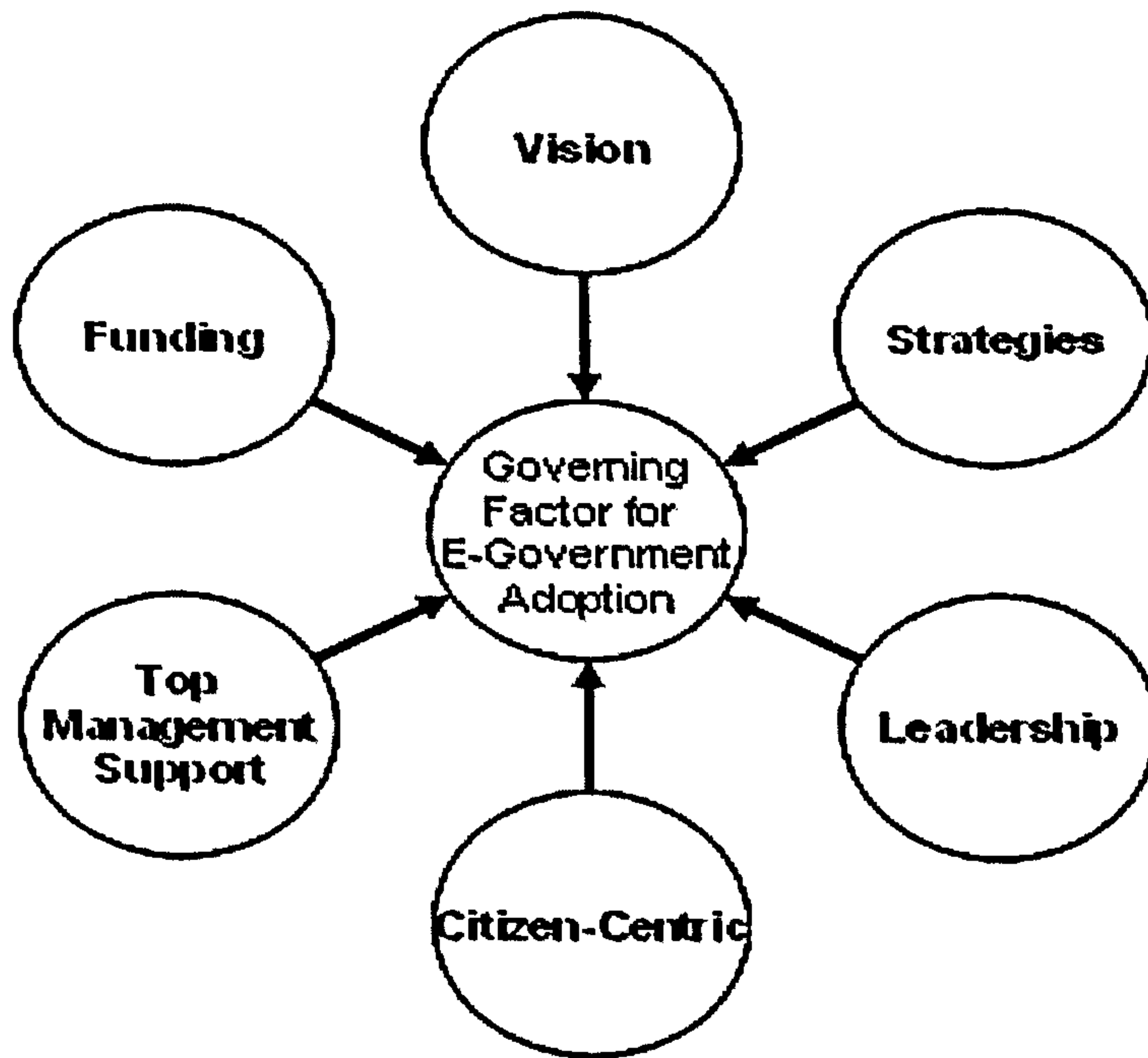
A list of Governing factors that influence the adoption of e-government concept has been explored and indicated from the literature review and are listed in Table 2.1 below. The presented table consist of the following 6 Governing factors.

Table 2.1: List of Governing Factors Influencing the Adoption of E-Government

Factor	Reference
Vision	Ke and Wei (2004); Stamoulis and Georgiadis (2000); Heeks (2001b); PCIP, (2002)
Strategy	Gouscos, Mentzas, and Georgiadis, (2001); Burn and Robins (2003); Ke and Wei (2004)
Top Management Support	Wee (2000); Bingi (1999); Buckhout (1999); Sumner (1999)
Leadership	Heeks (2002); Ke and Wei (2004); Armstrong (1990)
Citizen-Centric	Wang (2002); Gent (2003); Adbul Karim (2003); Symonds (2000); Zhou (2004); Gent (2003); Holmes (2001)
Funding	Akomode, Taleb-Bendiab, Evangelidis, and Taylor (2002); NACO (2000); Keller and Baum (2001); ICMA (2002)

The researcher has developed a governing factors model for e-government adoption as shown in Figure 2.2

**Figure 2.2: Governing Factors Model for E-Government Adoption**





## 2.5 Summary

This chapter has outlined the governing factors pertinent to e-government policy formulation, implementation and execution. The chapter was divided into two parts. The first part was on foundation information related to the e-government concept discussed early in the chapter. As for the second part, it indicated the governing factors for e-government implementation.

The first part discusses different areas related to the concept of e-government. First, the researcher reviewed the background of the e-government, and then explored different definitions of e-government. After that, the researcher talked about e-government benefits, stages that it goes through in implementation, and finally, the obstacles that facing e-government during the implementation.

The researcher has explored and discussed the governing factors for e-government initiatives. These governing factors, which have been discussed above in detail, are a clear vision, clear and reliable strategy, top management support, citizen-centric, leadership, and funding. The researcher has drawn up a model for these governing factors for e-government adoption (Figure 2.2).

# Chapter 3

## Literature Review (II)

### Technical Factors for E-Government

#### Adoption

### **3.1 Introduction**

Technical factors refer to use of technology, including project infrastructure, IT standards, and security, and its compatibility with accomplishment of project objectives. The technical factors include issues such as the relative advantages of the innovation and the image surrounding the innovation. In addition, technical factors refer to any events or encounters involving the delivery of the daily process that may affect service outcome.

This chapter is divided into two parts. The first consists of background information on IT. In the second part, the researcher explores the technical factors for e-government adoption. In the first part, the focus is on definition of IT. After that, the discussion turns around a description of the importance and significance, and then its problems and failures.

In the second part, there is a discussion of the technical factors for e-government implementation and execution. Finally, the chapter will end with a summary and a model that presents the technical factors for e-government implementation.

### **3.2 Background Information on IT**

#### **3.2.1 Information Technology (IT) Definitions**

It was pointed out earlier that IT is behind e-government diffusion. But before defining the 'Information Technology', it is important to know the meaning of 'Information' and 'Technology' as separate words.



According to McCosh, Rahman and Earl (1981) information is “any piece of knowledge which may rationally be applied to a decision by a person who has the authority and responsibility to take that decision”. In addition, Avgerou and Cornford (1998) defined the information simply as “the way of getting to know about things that matter in the world around us”.

As for what technology is, according to Vidgen, Avison, Wood and Wood-Haper (2002) technology “can and does often apply to devices such as computers and communication networks, but can also be applied to practices (for example, the software development process), and techniques (for example, database design)”.

After defining the two words ‘Information’ and ‘Technology’ separately, what is ‘Information Technology’? This concept refers to the technological side of an information system, including hardware, databases, software networks, and other devices, and can viewed as a subsystem of an information system (Turban, McLean and Wetherbe, 1996).

Furthermore, according to Hogan and Radack (1997) IT is a composite technology, without a rigid and prevailing definition. Today, the term encompasses several industry sectors whose boundaries are increasingly fuzzy: telecommunications, computing, and consumer electronics, but whose products will be integrated into seamless systems if we are to believe the visions of the future.

A general definition for IT is the storage, processing, transfer, display, management, organisation, and retrieval of information. IT can be characterised as increasingly moving to the use of digital technologies in place of analogy technologies. IT systems are typically a blend of hardware and software, and include computer, computer networks, telephone, telephone networks, televisions, and cable networks.

IT is that body of related disciplines which lead to methods, techniques, and equipment for establishing and operating information processing systems. It is a science with a broad spectrum of applications, and as such, it also embraces a large range of variation in its technical complexities. This condition, coupled with a rapid proliferation of acceptance, has produced more conflicts than are usually found in a dynamic technology (Cukier, Shortt and Devine, 2002).

Eventually, IT continues to undergo rapid and constant change and innovation to an extent that cannot be matched by any other technology. IT systems are widely distributed throughout the world, and used in almost all businesses and all areas of human endeavour. Nevertheless, the IT systems of the future will require more interoperability, security, usability, and scalability. Inadequate security is a serious barrier to the use of open networks for exchanging sensitive information, or for carrying out high value transactions (Hogan and Radack, 1997).

### **3.2.2 Significance of IT**

In recent decades, there has been an increasing recognition of the importance and significance of IT world wide. IT is not limited to the private sectors, but is also important and significant to the public sector as well. Billions have been spent and invested on IT by many countries.

A lot of sectors have moved towards a growing reliance on IT, such as health, education, media, finance, etc. IT plays a vital role in the management of an enterprise because by producing relevant information, the better informed will be the decision-making process and hence better control. Many organisations come to believe that they do not just rely on IT in terms of efficiency, better productivity, and lower cost. Rather, they believe that their long-term existence depends on its successful use.

IT has become fundamental to the survival of organisations (Vidgen, Avison, Wood and Wood-Haper, 2002), and can increase efficiencies in supply chain, inventory control, dispatch and customer relationship functions, can lead to more collaborative work environments, better collaborative setups, higher degree of automation, and security can be enhanced by introducing location-based access control and smart labels (Gupta and Moitra, 2004). IT has played a major role in changing of the developed economies (Avgerou and Cornford, 1998).

### **3.2.3 Failures of IT**

IT has success and failures. Several years have shown its positive impact in various countries, including Saudi Arabia (O'Brien and Al-Biqami, 1999). In addition, IT projects are increasing all over the world. However, few



phenomena have been as extensively described as the failure of large-scale IT projects.

For example, Wilson (2006) states, UK government scrapped about 140 million pounds computer system that was to save about 60 million pounds through simplifying the system. According to him, almost 140 million pounds benefits processing reimbursement programme ran into a series of technical problems. Moreover, IT sales in Saudi Arabia make more than 40% of the region's, however, the use of the IT such as Internet shows an average growth of only 8% (Alsudairy, 2002).

Some IT failures are budgets exceeded, deadlines over-run, maintenance out-of-control, and often the quality of the new system is far below the promised standard when the project was undertaken. Despite this growing body of descriptive, theoretical, and practical knowledge, organisational practitioners seem unable to sense early failure symptoms or avoid even well known shortcuts to failure (Pardo and Scholl, 2002).

Instead of gradually dropping over time, IT project failure rate remains at high levels (Booty, 1998). Willcocks and Lester (1994) reported few IT projects realised any positive benefits. Furthermore, Hochstasser and Griffiths (1991) indicated that 70% of IT projects fail to deliver.

The IT projects are increasing all over the world. However, organisations have learned that managing the technologies themselves is a complex and risky task that demands its own expensive specialists with attendant skills (Avgerou and Cornford, 1998). According to Vidgen, Avison, Wood and Wood-Haper (2002), "technology is not without difficulty".

### **3.3 Technical Factors for E-Government Adoption**

In this section, technical factors for e-government initiative were explored and indicated. These factors were discussed, in details, as follows.

#### **3.3.1 IT Infrastructure**

##### **3.3.1.1 Background**

Infrastructure is a word not specific to IT. At the city planning level, infrastructure is probably most visible: we can see streets and other structures for transportation and logistics (Gray, 1998; Suomi, 2002), public buildings such as schools, museums and libraries (Coult, 2001; Hopkins, 2001).

However, it would be false to derive from this that infrastructure would mean just something visible and technical. Infrastructure can be seen too in abstract things such as legislation, education system, public health care system, different markets and governance structures (Hyppönen, Salmivalli and Suomi, 2005).

The word infrastructure is also widely used in the area of IT (Broadbent, Weill and St Clair, 1999; Broadbent, Weill and Neo, 1999), and IT has played an increasingly important role in public administration (Gore, 1993; Bellamy and Taylor, 1998; Heeks, 1999).

Before the Internet emerged in the late 1980s, the government was already actively pursuing IT to improve operating efficiency and to enhance internal communication (Kraemer and King, 1977; King, 1982; Fletcher et al., 1992; Norris and Kraemer, 1996; Brown, 1999).

However, the focus of e-government in this era was primarily internal and managerial. The arrival of the 'Internet' and the World Wide Web marked a watershed in IT usage by shifting the focus of government to its external relationship with citizens (Scavo and Shi, 1999; Seneviratne, 1999).

The explosion of the Internet is evident across all countries, although rates of diffusion vary. Rapid growth has occurred since 1995. The Internet is the super infrastructure of IT (Gray, 1996). According to Zmud and Mitchell (1999), IT infrastructure offers an organisation the ability to effectively leverage IT resources. Generally speaking, IT infrastructure refers to enabling technologies, outsourcing arrangements, and policies.

#### **3.3.1.2 IT Infrastructure related to E-Government Adoption**

IT can help government public sectors to increase productivity and performance, improve policy-making, and provide better public services to the citizens (Akbulut, 2002). In addition, there is an opportunity to derive productivity and business benefits from an intelligent IT infrastructure built on the pervasive computing paradigm. On the other hand, there is a need to protect investments already made in the existing IT infrastructure (Gupta and Moitra, 2004).

To be successful, e-government needs to have an IT infrastructure that is capable to support and enable the execution of e-government. An e-government infrastructure in general comprises network infrastructure and its security, application server environment, data and content management tools, application development tools, hardware and operating systems, and systems management platform. However, many developing countries do not have the



infrastructure necessary to deploy e-government services throughout their territory (Wagner, Cheung, Lee and Ip, 2003).

The IT infrastructure is the bedrock for an e-government. Networks allow access to multiple services, including the next generation Internet, as a foundation to support the conversion to digital broadcast systems to create a global digital network. Therefore, it is a government's responsibility to determine the quality and quantity of the telecommunications networks to handle the new traffic resulting from the use of these new services' level of service quality (Wanga, Caob, Leckiea and Zhang, 2004).

Three aspects of the relevant infrastructure information and knowledge management are modelled for E-government IT infrastructure:

- The information and knowledge flow for building up the infrastructure.
- The management of the physical infrastructure and applications.
- The decision support for infrastructure and application management.

Similarly, there are technical components (Wimmer, 2002), which are relevant to provide security for the administration:

- *Public Key Infrastructure (PKI)*: Through it, most of the consolidated e-government security requirements can be fulfilled (Lambrinoudakisa, Gritzalisa, Dridib and Pernul, 2003).
- *Attribute Certificates*: It provides clearance and authorisation that improves the response speed on enquiries, and unauthorised inspection of data records can be prevented.

- *Secure XML Document Container*: It creates a collection of all necessary documents with possibilities of evidence and secure settlement of the whole process.

Furthermore, payment mechanisms are necessary functions for e-government initiatives. For example, if credit cards are not widely used by a local population, which might be seen in the context of Saudi Arabia, the government needs to come up with payment mechanisms for online transactions (Kaliontzoglou, Sklavos, Karantjias and Polemi, 2004). This begs for the formulation of a legal framework for e-business, electronic document exchanges, and telecommunications regulations and policies.

Such policies demand change in the institutional setting, regulation, and organisations that are directly or indirectly involved. Setting the necessary constraints on relevant organisational actors can enhance the security policies that will govern the whole platform operation, and that will have to be formulated before such a platform is deployed.

In terms of the Saudi environment, such policies are likely to specify and regulate a Certification Practice Statement, and corresponding signature policies. These policies are usually malleable across the system, and complemented by an overall security policy covering all aspects of a modern information system.

### **3.3.2 Information Technology (IT) Standards**

#### **3.3.2.1 Background**

According to Wakid and Radack (1997), Information Technology Standards refers to the technical rules and the foundation for interconnected systems that work across organisations and geographic locations. IT standards are “specifications for hardware and software that are either widely used and accepted or sanctioned by a standard organisation” (Freeman, 2001).

IT Standard is an attempt to define some component of an IT system in such a way that many users can use that component on offerings from multiple vendors and multiple sources to do something they want to have done (Libicki, 1995).

Standards are essential for different products developed by different vendors to interoperate, so software, data, and application programs can be moved from one hardware platform to another, and so that information that is transmitted and stored in information systems is protected (Hogan and Radack, 1997).

Many standards efforts are begun primarily for technological reasons (Morell and Stewart, 1996). Furthermore, the core of the drive behind standards is that it is a means to let users and their IT creations communicate meaningfully with each other (Libicki, 1995).

The development of communication systems (e.g., mobile, multimedia, Internet) requires new specific agreements among the parties involved: equipment manufacturers, network operators, service providers, and end users.



Standards are the only realistic means of maintaining compatibility in an increasingly complex multimedia environment. Success in standardisation requires an understanding of the general environment in which they take place (Sherif, 2001).

### **3.3.2.2 IT Standards related to E-Government Adoption**

The adoption of e-government is expected to provide access to its information and services from a single integrated gateway (one-stop shop) that requires the government public sectors to share information and knowledge, and collaborate and participate positively in providing e-government services to the general public.

Without building IT Standards, a lot of obstacles appear in the collaboration for government public sectors, and much hardware and software in different systems in the government may not work together. Internet standards are used to improve data communications and data access to the public sector's information systems.

In a holistic system, all the nodes of the actors in a structure are interconnected. One system depends on IT Standards as an important milestone to enable interoperability across government public sectors. Standards for this research, in addition to the hardware and software specifications, include all the agreed upon specifications used by the government public sectors' in their effort to develop a compatible IT environment throughout the organisations.

The data revealed that the information systems within various government public sectors do not adhere to specific standards, and therefore lack compatibility. Each organisation selects technology in accordance with its requirements and needs.

Standards for IT play a significant, but often hidden, role in helping people to manage and use the technology effectively. In many areas of technology, standards are expected to have a long, useful life, but because of rapid change, it is difficult to develop IT standards that are timely and long-lived (Hogan and Radack, 1997). Powerful forces combine to subject standards-making to a high degree of uncertainty, such as changing technologies (Morell and Stewart, 1996).

In addition, according to Wakid and Radack (1997), the major difficulty in developing standards is the rapid change in the development and use of IT over the past few decades. Sometimes, depending on the complexities involved, it may take anything from a year to three or four, or even eight to ten years for a standard to be fully and successfully implemented (Sherif, 2001).

However, IT Standards influence the ability of organisations to reduce IT costs, to facilitate enterprise-wide integration, and to promote greater levels of IT responsiveness (Kayworth and Sambamurthy, 1997). According to Wangler, Persson and Soderstrom (2001), a standard can help in connecting organisational processes and systems, and it also allows a flexible approach in organisational co-operation, facilitating the integration of new members into network organisations.

Standards are technical products that demand a sophisticated level of strategic planning, extensive technical preparation, and superb interpersonal skills, particularly at the international level (Sherif, 2001). An important part of developing standards is defining the skills needed. At a high level, those skills can be divided into three categories: standards management, business objectives for the standard, and technical skills required to produce the standard (Morell and Stewart, 1996). Furthermore, they have indicated that a strategic plan is needed that articulates three guidelines for all those working on developing the standard:

- The problem that work is trying to solve;
- The technological objectives;
- The management philosophy (tasks will be managed relative to deliverables, resources, and specific deadlines).

Although web technology is helping organisations to overcome the difficulty of using different types of information systems by introducing a single interface to be used to access information from various systems, there is a substantial gap between the advanced e-government countries and Saudi Arabia.

The Kingdom is a long way for having an effective standard policies and guidelines that can help government public sectors to exchange data, documents, images and multimedia and business process. Furthermore, Keen (1991) notes the role of technology standards as important mechanisms in building enabling IT infrastructures. Finally, what really counts for users is that the standardisation improves the quality of the product or service (Sherif, 2001).



### 3.3.3 National Information Infrastructure (NII)

#### 3.3.3.1 Background

According to the literature, networks are defined as the arrangements that link more than two network entities. In the social network tradition, these social entities can be individuals, groups, or organisations. These entities are usually referred to as actors in a network (Wasserman and Faust, 1994:17).

As for National Information Infrastructure (NII), Wilson (1997) argues that a NII is the “computerized networks, intelligent terminals and accompanying applications and services people use to access, create, disseminate and utilize digital information”.

Such infrastructure consists of the physical technologies such as Internet, landlines and telecommunication systems. The NII is an extremely important development (Doctor, 1994), and should be accessible to all citizens (Schaefer, 1995). In addition, disabled people would be able to access the NII without much inconvenience or expense (Stamoulis and Georgiadis, 2000).

In terms of networks, there is a distinction between physical telecommunication and computer networks and networks of organisations. Physical computer and telecommunication networks are composed of hardware, software, and communication protocol. Organisational networks consist of organisations, individuals, and rules governing the operation of the networks.

According to Nambisan and Agarwal (1998), the emergence of Internet technology, coupled with rapid advancements in telecommunications, has created a plethora of opportunities for organisations as well as individual

users to communicate and share information. Recognising the profound impact and promise of this new technological paradigm, several national governments have initiated programs to develop their own NII.

Furthermore, they indicate that most NII projects have typically involved three major activities: (1) formulating a vision, (2) marshalling appropriate policies or policy frameworks, and (3) formulating specific implementation strategies.

### **3.3.3.2 NII related to E-Government Adoption**

The focus on the use of IT in networks helps explore opportunities that exist in integrating various functions of networks such as information sharing, decision-making, learning, and action-taking, through the use of information and communication technologies (ICT).

IT is an enabler in the public sector. The key issue is when and how IT may play a role in enabling networks to provide faster, better, and cheaper public services. According to the General Accounting Office (2001:1), e-government networks are networks of organisations that use ICT for the provision to the public of access to and delivery of government information and services. The use of IT for enhancing this is the core of e-government concept.

In this dimension, the Kingdom of Saudi Arabia has progressed in the development of the telecommunication sector. Saudi Telecom Company is the sole entity engaged in the provision of telecommunications services in the country, which provides a range of telecommunications, services including telephone services, telex, telegraph, data transmission, and public network

services, as well as mobile services. Established in April 1998 as a Saudi Joint Stock Company, it is wholly owned by the Government.

However, recognising the imperatives of the private sector's rule, the government and the Council of Ministers approved selling 30% of the Government's shares in the Company, and the process lasted until January 2003.

This apparently is the milestone step to balance the government and market roles for the price, quality and provision of telecommunication services. Thus, physical technologies are dependent on social technologies (institutions).

For instance, a regulatory body, the Communications and Information Technology Commission, was formed in the Kingdom in May 2001. The competitive environment and the size of the market led to a reduction in the prices for these services. Therefore, in September 2002, the Council of Ministers approved opening the telecommunications sector for competition by partially liberalising the mobile services in the last quarter of 2004, and the landline services in 2008.

In addition, Etihad Etisalat Telecommunication Company joined the Saudi market in 2004. This may signal some competitive environment that is likely to result in better services for the users and better performance for the providers.

One may assert that the countries having a well-developed national infrastructure are well positioned to implement e-government initiatives successfully as compared to those with poor infrastructures. The latter are likely



to confront obstacles due to their rudimentary national infrastructure aligned to certain localities and regions.

The goal is to build up a communications infrastructure as a substantive pre-requisite for the development of e-government. An essential pre-requisite for the attainment of a certain standard of e-government is not just a sufficient distribution of computer technology in country or society, but also the general accessibility of telecommunication services. The high telecommunications fees, such as Internet connection and rental of lines or data circuits, have a selective effect in allowing the utilisation of the new capabilities only to financially stronger individuals, groups, or organisations.

The infrastructure has social perimeters. In social technological terms, legislation has to be enacted prior to the adoption and implementation of e-government initiatives. The legislative requirements include enactment of laws covering authentication, procurement, privacy, e-payment, and electronic signature laws, which have to be in place prior to the adoption and diffusion of e-government initiatives.

With the modern Intranet and Internet concept of operating public sectors information systems, there arises the problem of securing a reliable, fast and inexpensive communication infrastructure. It turns out that the costs of operating the communication infrastructure constitute a substantial part of all information system operating costs.

For this reason, it is very appropriate to concentrate on savings precisely in the area of communications. It is possible to save relatively large amounts of money if the government public sectors come together and jointly implement

the transmission capacity requirements. A common communication infrastructure will also considerably ease the resolution of issues involving data security.

In addition, existing statutes have to be compatible with the new laws to accommodate e-government and e-business requirements. Hence, institutional perspectives are imperatives for infrastructure and the system as a whole.

### **3.3.4 Collaboration**

#### **3.3.4.1 Background**

The socially collaborative work and how it can be supported by ICT has been of increasing interest due to focus on knowledge generation, sharing and transfer in organisations. Increasing trends towards virtual working and collaboration at a distance have caused implementation of groupware technologies (e.g. Lotus Notes) by a wide variety of organisations, including many translational corporations operating worldwide (Walsham, 2001).

Information sharing among all sites of governmental presence removes space barriers in citizen or business service and synchronisation of the relevant information pertaining to a citizen (or business), both for his benefit that and of the country (Stamoulis and Georgiadis, 2000).

Furthermore, Caudle et al. (1991) found out that the integration of technologies was the most important issue of concern among public sector managers. Integration of functions and department collaboration is regarded as essential to the successful delivery of e-services (Jupp, 2001; Lapre et al, 2001).

Organisations, in particular, form alliances to collaborate and compete in a system perspective (Lado and Boyd, 1997), and many are found willing to work together (Pfeffer and Salancik, 1978; Kimberly, Leatt, and Shortell, 1983; Alter and Hage, 1993; Christianson, Moscovice and Wellever, 1995).

In addition, building collaboration helps in managing e-government IT because of the complexity of IT infrastructure operations. Most enterprise IT operations are both a labour and knowledge-intensive process, conducted in a large team collaborative environment (Wanga, Caob, Leckiea and Zhang, 2004).

#### **3.3.4.2 Collaboration related to E-Government Adoption**

Government public sectors are individualised and make decisions on their own. However, it is important that there is an effective communication between departments and public sectors. To do this, internal applications need to be developed and utilised by employees to share information and improve communication. E-mail is the most obvious success story for improved communications, but other applications can be enhanced to improve communications as well.

Bureaucracy and lengthy delays in communication have been some of the unfortunate consequences of many of the services provided by the government to the public and to other organisations, be they private or governmental at different levels (Becker, George, Goolsby and Grissom, 1998).



Now this situation is changing, partly due to the use of advanced applications of IT. Much of this can be seen with the newest e-government solutions available for governments and their public sectors (Pardo, 2000). The significance of collaboration and coordination among government public sectors and the use of new innovative technologies as enablers or means of achieving effective and efficient governments are important issues constantly being addressed by academics, governments, and the public.

After the first wave of e-government initiatives, many researchers in the field of public administration and government have started emphasising the need to take advantage of new technological advances in promoting efficient and effective collaboration among government organisations (Ho, 2002).

The adoption of e-government initiatives necessitates collective efforts from various government public sectors and functional units within each organisation. Several services, like e-mail, video conference, discussion forums, use of shared documents, etc., are supported for assisting the efficient and productive collaboration of remote governmental departments (Lambrinoudakisa, Gritzalisa, Dridib and Pernul, 2003).

During services collaboration, sensitive data are exchanged that need security and protection (Kaliontzoglou, Sklavos, Karantjias and Polemi, 2004). In physical terms, the e-government initiative is expected to provide access to its information and services from a single integrated gateway (one-stop shop) that requires interagency collaboration.

Interagency collaboration can be attained through enactment of e-government-related laws, which will require all public sectors to work together for the common good, e.g., improvement of quality of service, reduction of cost, and elimination of the overlapping of responsibilities. It is important to identify the most appropriate agency to provide the service and share information with other organisations, which may be required in the provision of their related services.

The project of an e-government initiative is different from previously government IT projects, which did not require collaboration. Each public sector initiated proposals and projects in accordance with its requirements and needs. E-government initiatives, on the other hand, require government public sectors to work and collaborate with one another to facilitate the delivery of services which are provided to citizens and businesses.

An e-government project provides an opportunity for the government to address this problem through enactment of laws and regulations, which establishes communication and interaction between public sectors through the automation of work process.

This provides an environment for the free flow of information within and between public sectors without a need for pre-approval from senior management, and therefore reduces or eliminates delays associated with bureaucratic practices.

With the deployment of the proposed awareness, the flow of information can be mined to improve collaborative work for system operations. Such tacit information makes it possible to (Wanga, Caob, Leckiea and Zhang, 2004):

- Organise information in a form available to users.
- Infer the level of communication between people and information sources to manage the level of 'awareness' between computer-based and human agents.
- Infer indirect relationships, such as two people accessing the same set of sources, making this known to principals for information and work-sharing exploitation.
- Organise data location so communication and latency are minimised, e.g., activity-based management fetches likely data before use.
- Infer the availability and participation level of human decision-makers in real-time, supporting opportunistic not calendar-driven decision-making.

To automate collaboration for IT operation, investigate the scope of information and knowledge that required for the operation task and the interaction of the operational environment and the participants for the operations.

### **3.3.5 Security**

#### **3.3.5.1 Background**

The growth of the Internet and the World Wide Web (www) during the past few years has been phenomenal. Today, the web is being used by millions of people to obtain information and conduct commerce both locally and throughout the world.



The problem is that today's web browsers are insecure, and the security and privacy of the individuals using these browsers is in danger of being compromised. Security is an area that is growing in importance, as more business applications are being automated and more vital and sensitive information is being stored. The term security means the protection of resources from accidental or malicious disclosure, modification, or destruction.

Security, privacy and confidentiality are natural concerns (Layne and Lee, 2001; Tambouris, 2001). Many citizens feel that their privacy is threatened due to personal data being stored centrally. Security issues have and will remain the critical issue in any kind of online transaction. Ensuring that privacy is maintained and data are secure in the hands of responsible public sectors, Landwehr and Heitmeyer (1996) define of the security as: "a system is secure if it adequately protects information that it processes against unauthorized disclosure, modification, and withholding". Due to the dependency of citizens on government services, e-government is expected to be highly trustworthy.

This demands strong security built in to the e-government systems. To achieve true security to access government systems, we need to protect against unintended interruption of e-government services, whether caused by accident or as a result of malicious attacks. This is very important especially for those government services related to public security.

Indeed, the importance of the government systems' availability has received increasing attention recently when people start to think about the possible fatal consequences of breakdown in a life maintaining service at a critical moment.

### 3.3.5.2 Security related to E-Government Adoption

One of the important factors in e-government is securing the government's information against unauthorised access. A high level of confidence and trust among all users (citizens, businesses and government) will be the foundation of a successful e-government initiative (Dridi, Pernul and Unger, 2001). Government departments are often the major source of materials used to identify and authenticate individuals.

Identification documents such as driving licences and passports are issued by government public sectors, so any breach in the security of these organisations can lead to significant problems. Identity theft is a growing problem worldwide, and e-government services that issue identification documents must be especially vigilant to protect against this theft (National Research Council, 2002).

From a physical technological viewpoint, Saarenpää et al. (1997) have defined different risk types with relevance to data security that should be taken into account while implementing e-government, such as loss of confidence, integrity and availability. He defined that threats can be divided into intercommunication, intra-communication, and system threats.

An essential management responsibility for e-government, that has as a target to fulfil the fundamental security properties of: availability, confidentiality, integrity, accountability and information assurance (Joshi, Ghafoor, Aref and Spafford, 2001). Required security functions are the standard basic ones (Arcieri, Fioravanti, Nardelli and Talamo, 2004):

- Confidentiality: None on the network beyond the communicating parties has to receive data they have exchanged.
- Integrity: The destination has to receive exactly the data the source intended to send.
- Source authentication: The destination has to be sure that who is sending the data is the intended source.
- Destination authentication: The source has to be sure that who is receiving the data is the intended destination.
- Users and machines at the sites of both communicating parties have to have the prescribed authorisation.
- All exchanges of relevant data have to be traced for documentation and certification purposes, to be able to identify, in case of any failure, who was able to properly discharge his/her obligations.

Security measures should be reviewed, monitored and tested regularly (AONSW, 2001). Furthermore, a comprehensive approach to security is adopted, including policies, education, physical protection, security software, and manual security procedures.

Many methods and security systems which have been developed for e-commerce in the private sector may also be adapted for e-government without much change. Indeed, regarding security from a technical perspective, no big differences exist between e-government and e-commerce solutions (Wimmer and Bredow, 2002). The following are the main concerns related to security:



- Individuals accessing the system are identified and granted appropriate access.
- Information is stored and transferred securely and protected against hacking or other forms of computer piracy.
- Security standards have to be developed and government public sectors have to adhere to and comply with them prior to participating in e-government initiatives, which call for sharing information and providing online services.

The security services comprise three main areas: the underlying Public Key Infrastructure (PKI), the electronic signature-enabled applications, and the policy enforcement mechanism. These will enable the actual Web Services to securely interact with each other and all other entities according to the hosting organisation's policies (Kaliontzoglou, Sklavos, Karantjias and Polemi, 2004). It has been demonstrated that most of the e-government security requirements can be fulfilled through the PKI security services.

In establishing a Certification Authority in developing on-line government services, governments should formulate a legal framework and technical solutions for handling secure transactions. The requirements imposing the need for additional security measures are either related to the hardware/software infrastructure of the e-government platform (e.g. availability, performance), or to highly specialised security critical applications (Lambrinouidakisa, Gritzalisa, Dridib and Pernul, 2003).

The important of creating a security framework that will outline guidelines for transferring, accessing and sharing information between government public sectors. The guidelines would also provide the necessary procedures for government public sectors to offer their services online. The adoption of such a framework for identifying security requirements facilitates (Lambrinouidakisa, Gritzalisa, Dridib and Pernul, 2003):

- The classification of e-government services according to the similarity of the security requirements that they exhibit.
- The protection of all services of the same class in a uniform way, through the appropriate security measures.
- The identification of security requirements associated with each type of user.
- The development of a common, but also flexible and extensible (in terms of supporting additional services or employing new underlying architectures like GRID), e-government security policy.

Until now, a lot of technical security solutions and architectures exist within the scope of IT efforts mainly concentrate on certain aspects or functionality of security such as digital signatures, PKI-infrastructures, firewalls, or anti-virus mechanisms. But security issues not only concern technical matters. Aspects of trust, legal issues, privacy, authentication, confidentiality, etc. need to be solved as well (Wimmer and Bredow, 2001).

E-government initiatives in the USA, for example, identified security and privacy as one of the four important areas that must be standardised to ensure successful e-government implementation (Zweers and Planque', 2001). The UK e-government initiatives identified a security framework to be used by all government organisations participating in the UK online.

The framework provides a baseline for what constitutes adequate and acceptable security measures. Accordingly, similar and specific implementations for the security issues need to be drawn up in the context of Saudi Arabia. New institutions might need to be created, and the old redefined and redirected.

### **3.3.6 Relative advantage**

#### **3.3.6.1 Background**

Relative advantage is defined as “the degree to which an innovation is perceived as being better than the idea it supersedes” (Rogers, 1995). Relative advantage, according to Rogers, refer to the degree to which an innovation is perceived as being superior to its predecessor in terms of economic profitability, low initial cost, a decrease in discomfort, savings in time and effort, and the immediacy of the reward.

Relative advantage refers to the belief that an innovation will allow one to complete a task more easily than he or she can currently. Furthermore, it refers to the use of an innovation to facilitate and ease the attainment of some goal.



Relative advantage may refer to the use of web technologies over other means of government interactions. Relative advantage is the perception that a new system allows one to accomplish a task more effectively or efficiently than the current system.

### **3.3.6.2 Relative Advantages related to E-Government Adoption**

Recognising the importance of improving the way the government provide services to its citizens and businesses, it was acknowledged that e-government is the appropriate approach for this reform. Knowing the importance of implementing e-government, it was also believed that their public sectors would realise the benefits of e-government initiatives.

The benefits include reducing the time and cost of providing service to the general public, empowering the employees, reducing bureaucracy, and increasing the efficiency and effectiveness of public sectors. E-government initiatives will be promptly adopted if their merits can be identified and presented to the stakeholders.

Many changes in public sectors offer incentives or subsidies to clients in order to speed the rate of adoption of innovations. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption is going to be. In the case of e-government, people may try to adopt it if they find that they save time and money in using the service (Rogers, 1995).

According to Tornatzky and Klein (1982), they found that relative advantage was considered to be an important factor in determining adoption of innovations. In general, perceived relative advantage of an innovation is positively related to its rate of adoption (Rogers, 1983). Likewise, as e-government services allow citizens to access from any location, at any time of day, it provides a tremendous advantage and convenience to users.

Relative advantage was seen as an important motivator by all governments (adopters). All adopters reported that they had adopted e-government because they wanted an effective means of delivering their services to all citizens. Relative advantage encompasses several different types of benefits, such as economic gains and social prestige as well as the different types of costs or risks associated with the adoption of an innovation (Kwon and Zmud, 1987; Rogers, 1995).

According to Rogers (1995), six items were used to measure relative advantages using standardised alpha equal to 86:

1. Convenience.
2. Safe and reliable.
3. Time saving.
4. Improves ways of getting information.
5. Simplifies application procedure.
6. Saves government expenditure.

Lack of perceived benefits or relative advantage was seen as an important obstacle to adoption. Although many governments did perceive e-government as an exciting new opportunity with tremendous potential, they did not however feel that they would gain any benefits by adopting it in their public sectors at that time.

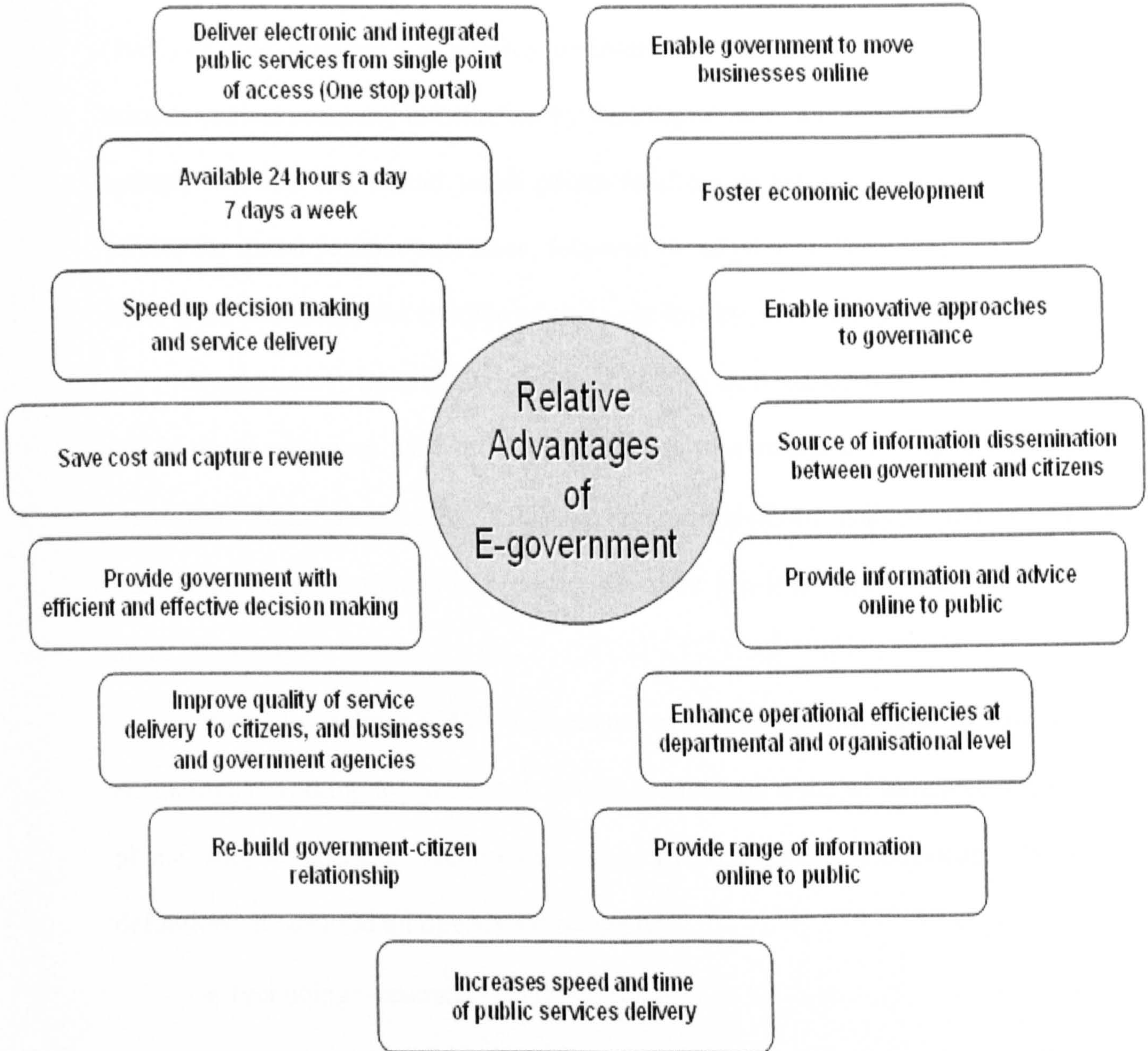
Benefits include economic profitability, low initial cost, savings in time and effort, the immediacy of the reward, immediacy of return of investment and cost effectiveness...etc.. The government takes full advantage of the Internet by putting all possible government services online.

Studies have confirmed that e-government services tend to surround our everyday life. To allow advantage to be gained from using e-government services, much effort has to be put in emphasising the relative advantage against the traditional mode of service delivery.

Furthermore, such effort in promoting the use of e-government services should also be concentrated. For those citizens with no habit of using the Internet, the effort has to be directed to encouraging them to form a habit of surfing the net first. In the following Figure 3.1, the researcher presents the relative advantages related to e-government initiatives.



Figure 3.1: Relative Advantages Related of E-Government



Source: Researcher and reviewed literature



### **3.3.7 Citizen Relationship Management (CzRM) Factor**

#### **3.3.7.1 Background**

Customer Relationship Management (CRM) is defined by Jon Anton (2000) as “the seamless accessibility by internal and external customers to their mission-critical company information by the integration of a company’s telephone system, web-site and e-mail touch points resulting in satisfying customer self-service for initial product purchases, followed by targeted intelligent up-sells and cross-sells, and finally the creation of customer loyalty, value and profitability”.

Furthermore, Bose (2004) defines CRM as an integration of technologies and business processes used to satisfy the needs of a customer during any given interaction. More specifically, CRM involves acquisition, analysis and use of knowledge about customers in order to sell more goods or services and to do it more efficiently.

Bose also defines CRM in IT terms, as an enterprise-wide integration of technologies working together, such as data warehouse, website, intranet/extranet, phone support system, accounting, sales, marketing and production. These definitions are centred on three basic concepts:

- Technology-centric.
- Customer lifecycle-centric.
- Strategy-centric.

Seeing citizens parallel to the customers, further implications emerge. In e-government, there is Citizen Relationship Management (CzRM) which is related to customer relationship management, and it focuses specifically on how

governmental bodies relate to their constituents (Xavier, 2002; Jha and Bokad, 2003).

Governmental public sectors, in their arrangements find that citizens expect the same level of service as given at the civilian business level. Unlike a private organisation, one of the government's missions is to make the services available to all citizens. To meet this goal, e-government systems are required to provide equal accessibility to all the citizens in an easy-to-use way.

Putting all the government services on the Web is a major step towards this end, which provides around-the-clock access to the government services in any location via the Internet.

#### **3.3.7.2 CzRM related to E-Government Adoption**

All the government public sectors were required to follow the same guiding principle: that every service that can be delivered electronically shall be electronically available, and that all services shall be designed on a 'customer-centric' and not an 'agency-centric' basis.

Along with these aspects, the literature comments on gaining more services users and retaining them. Drawing on the business-oriented perspectives, this however depends how the customers are treated in order to win their loyalty, commitment and reuse of the services (Kannabiran and Xavier & Anantharaaj, 2004).

According to Piercy and Lane (2003), CRM is currently revolutionising the company's customer relationship. CRM introduces the concept of managing customer relationships across the different points of customer contact and is being



widely adopted by Local Authorities as an integral part of e-government implementation.

CRM is often implemented successfully by installing and utilising CRM technology, and by developing an effective customer relationship strategy (Bradshaw and Brash, 2001). According to an article in Europe Intelligence Wire (2003), the UK government is spending 4.25m on a national advice service to help Local Authorities implement their CRM systems. Another example is Singapore, where the E-citizen, Singapore's e-government portal, is "the most developed example of integrated service delivery in the world". It generates approximately \$14.5 million in savings for the Singapore government annually, and was rated second in Accenture's 2001 e-government survey.

This implies that CRM initiatives are more important than what the government can offer. In other words, it requires a business philosophy that aligns a government activity along citizens needs. CRM is an enterprise approach to understanding and influencing customer (citizen) behaviour through meaningful communications in order to improve customer acquisition, customer loyalty, and customer profitability (Evans et al, 1994).

In this regard, the government needs to be evaluated based on the governance perspectives, that is that the citizens should be treated better than customers of business organisations, where serving citizens is the sole purpose of governments.

Accordingly, employees can not access the information in a timely and usable form. In the wake of e-government, such issues can be easily tackled. Providing a single source to answer all queries in one visit or one call requires new computer applications, and integration between existing applications and

legacy systems. From the users' dimension, citizens' interacting with a one-stop shopping-like scenario, and engaging in online transactions, enables respective governments to understand their citizens' behaviour.

This argument does not support the idea that through CzRM, public administrations have a golden opportunity to access and manipulate data to gain an accurate picture of citizen behaviour and requirements. The CzRM is about making better use of the considerable amounts of information that government already collects (Smith, 2003). It is a method for public authorities to use to reorient their service operations around citizens rather than around self-serving administrative processes.

Hence CzRM is a cross-functional, multi-application undertaking based on integration of specific public sector components, such as electronic processing of records with full-text search, document imaging and archive interfaces, and workflow. Rather than employing compartmentalised, program-driven budgeting and customer service methods, a successful CzRM strategy transforms disparate government budgets and processes into an integrated, citizen-centric service culture, one that aims to maximise lifetime relationship value.

Furthermore, CRM aims at managing the interactions between an organisation and its existing and potential citizens as a relationship, instead of individual unrelated transactions. CRM software enables the organisation and its employees to 'know' its citizens through their profile (pattern of past transactions), and to provide them with the most fitting services.

Leading CRM systems embed analytical solutions (Barlas, 2003; Maoz et al., 2001), that facilitate performance tracking of customer-facing processes across the enterprise. Therefore, CRM software can help e-government to better

recognise the citizen demands, create citizen profiles, and in turn, serve citizens accordingly, for example, Singapore and the eCitizen services (Wagner, Cheung, Lee and Ip, 2003).

Selecting the right CRM system requires some amount of work due to its board nature. The CRM product is typically 'wrapped' with a layer of integration tools. These tools provide a powerful, high performance framework for the integration of the CRM and bespoke applications to both internal systems. This would involve data warehousing, wireless applications, supply change management, and enterprise resource planning (Chou et al., 2002).

According to Norris and Pang (2002), a number of issues and challenges related to applying CRM in government need to be addressed:

- Citizen privacy concerns.
- The gap between technology haves and have-nots.
- Integration of systems; different government organisations need to establish similar approaches.
- Network bandwidth and reliability.
- Equality of service.



### 3.4 Technical Factors Model for E-Government Implementation

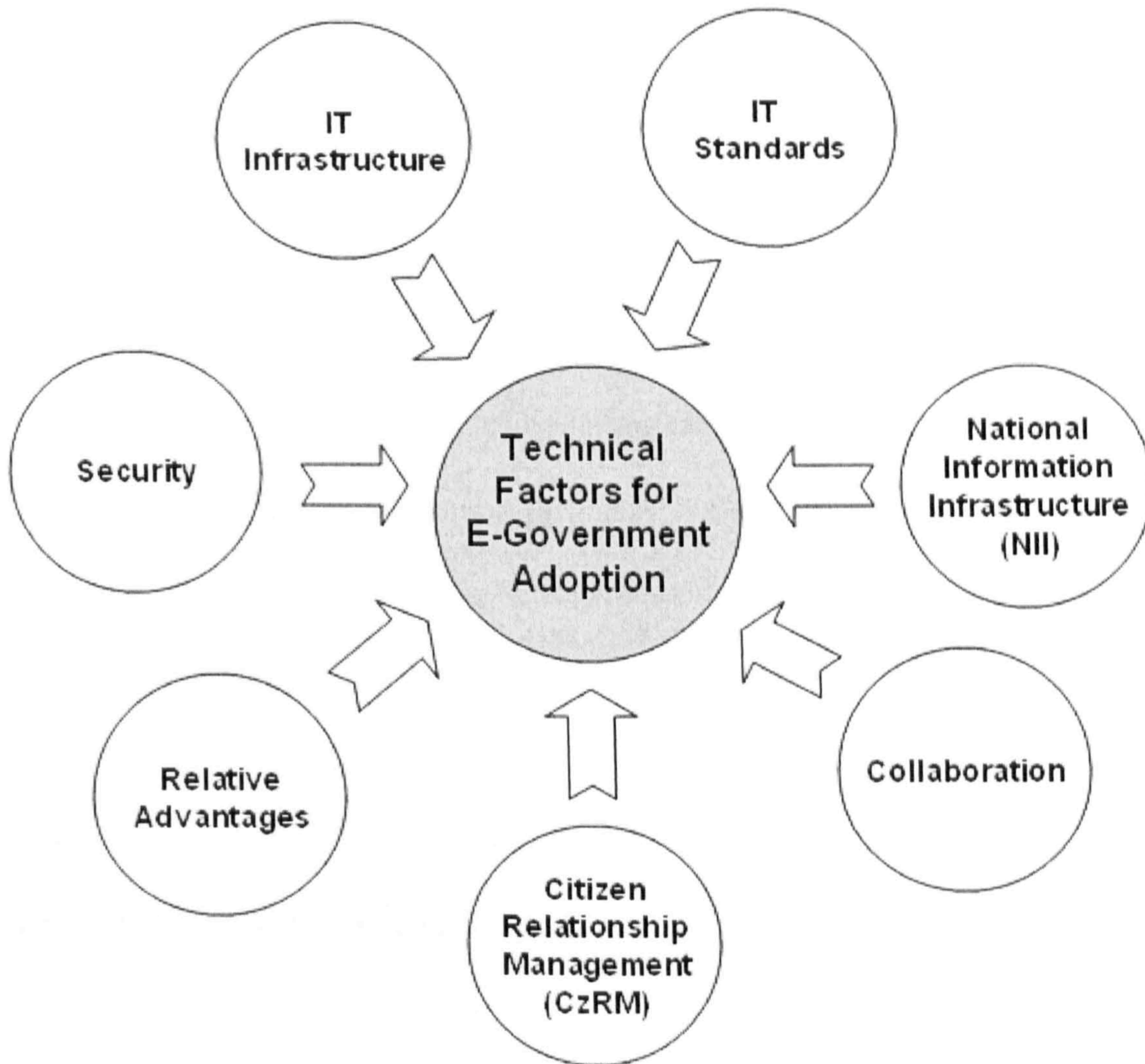
A list of Technical factors that influence the adoption of e-government concept has been explored and indicated from the literature review and are listed in Table 3.1 below.

Table 3.1: List of Technical Factors Influencing the Adoption of E-Government

Factor	Reference
IT Infrastructure	Wanga, Caob, Leckiea, and Zhang (2004); Zmud and Mitchell (1999); Wagner, Cheung, Lee and Ip (2003)
IT standards	Kayworth and Sambamurthy (1997); Wangler, Persson and Soderstrom (2001); Keen (1991)
NII	General Accounting Office (2001); Schaefer (1995)
Collaboration	Ho (2002); Lambrinouidakisa, Gritzalisa, Dridib, and Pernul (2003); Jupp (2001); Lapre and Arjan (2001)
Security	Dridi, Pernul and Unger (2001); Joshi, Ghafoor, Aref and Spafford (2001); (National Research Council, 2002); Lambrinouidakisa, Gritzalisa, Dridib and Pernul (2003); (Zweers and Planque', 2001)
Relative Advantage	Rogers (1995); Tornatzky and Klein (1982)
CzRM	Piercy and Lane (2003); Wagner, Cheung, Lee, Ip (2003); Xavier (2002); Jha and Bokad (2003); Europe Intelligence Wire (2003); Accenture (2001)

The researcher has developed and drawn a model for e-government Adoption in term of Technical factors, which is shown as the following:

Figure 3.2: Technical Factors Model for E-Government Adoption



### 3.5 Summary

The emergence of IT has contributed to the diffusion of the Internet, e-commerce and e-government. But the definitions of IT, due to its evolving nature, have been used differently in different contexts. This way, their importance and significance have obviously emerged in almost all aspects of life.

The number of IT projects has increased in the last few years, and the growing body of that is descriptive, theoretical, and practical knowledge. Increasingly, previous studies have indicated the large scale of IT project failure, and according to Booty (1998), the IT project failure remains at high levels.

The evolution is apparently dependent on the contextual factors for adoption. The most fundamental factors are: IT Infrastructure; prevalent IT Standards; National Information Infrastructure (NII); Collaboration; Security; Relative Advantages; and last but not least, Citizen Relationship Management (CzRM). Each one of these factors has been defined and discussed in detail. Finally, the researcher has developed a technical factors model for e-government adoption which is presented in Figure 3.2.



# Chapter 4

## Literature Review (III)

### Organisational Factors for E-Government

#### Adoption

## 4.1 Introduction

E-government projects are located all around the world. However, some of these projects lack critical factors such as technical and managerial skills. These factors need to be considered both in the implementation phase of the project and in its subsequent operation.

This third part of the literature review discusses the organisational factors influencing e-government implementation. Organisational factors influencing adoption cover such aspects as training, awareness, and quality, as well as the organisation structure and culture.

Information and Communication Technologies (ICT) are often conceived in terms of machinery and engineering, rationality, and objectivity. Many e-government systems get designed according to these conceptions. The trouble is that many government and civil society organisations do not adhere to the organisational factors.

This chapter explores and indicates the organisational factors for e-government adoption and implementation. In addition, it includes a summary and a model that shows those factors adoption. Furthermore, at the end of this chapter, the researcher presents a conceptual model for e-government implementation.

## **4.2 Organisational Factors for E-Government Adoption**

This section indicates and discusses the organisational factors for e-government adoption and implementation. Each of these factors were discussed, in details, as follows.

### **4.2.1 Change Management**

#### **4.2.1.1 Background**

Change means replacing that which is established in favour of something new. Change occurs in an organisation when any part of the organisational system is altered or replaced (Leavitt, 1965). Change is especially problematic in large, complex organisations because of the large number of components within an organisational system, and because of the need to interact in business environments which are constantly changing themselves.

The inevitability of change and its complexity explain why change management is an important challenge for all organisations (Hodgson and Aiken, 1998). A survey of the literature on change management reveals numerous prerequisites for change to be successful, the list including vision, mission, culture, communication, strong leadership, and participation (Mabin, Forgeson, and Green, 2001).

The development of vision and mission sets the scene for organisational change (Hamel and Prahalad, 1994; Senge and Roberts, 1994). Communication and strong leadership play a vital part in preparing any organisation for change (Mabin, Forgeson, and Green, 2001).



The ability to create trust and to use power from an appropriate source to create an environment where the people who make up an organisation feel change is required and then commit to that change process are two of leadership's most important qualities (Carlzon, 1989; Schermerhorn, 1989; Zand, 1997). Creating trust can be achieved through the sharing and discussion of issues, which in turn ensures that the negative aspects of power are not displayed.

#### **4.2.1.2 Change Management related to E-Government Adoption**

There must be some degree of organisational change that an e-government system introduces. Indeed, a greater degree of change may bring greater organisational improvements (Heeks, 2002). On the other hand, the greater the degree of change the greater is the risk of failure (Dodd and Fortune, 1995; Sauer, 1999). However, the public sector particularly has been poor at managing e-government projects and at managing change. That capacity needs to be strengthened (Heeks, 2001b).

For modern organisations, the ability to manage change successfully has become a competitive necessity (Peters and Waterman 1982; Kanter, 1985; Burnes, 1996). Organisational change is usually required when changes occur to the environment in which an organisation operates. Environmental variables which influence organisations may be political, economical, sociological and technological (Jury, 1997).

Papantoniou, Hattab, Afrati, Kayafas and Lournos (2001) indicate that change management is one of the critical factors in e-government implementation. Such restructuring of the public sector may entail three closely related levels: 1. redefinition of goals and tasks of the government, 2. rationale of public sector action, and 3. efficiency and effectiveness of structures, processes and instruments (Budaus, 1998).

Although with lessons learned from e-commerce, change management can be applied to e-government perspectives (Csetenyi, 2000), there are some exceptional challenges presented by e-government compared to e-commerce because of the strict and commitment nature of relationships of government-to-citizen, government-to-government, government-to-business and government-to-employee (Papantoniou, Hattab, Afrati, Kayafas and Lournos, 2001). Such challenges are even magnified by the socio-cultural issues in the Kingdom of Saudi Arabia, where the interaction is overwhelmingly face-to-face between the public service providers and users.

The acceptance process will be affected by the extent to which the changes are incremental or radical/strategic for the organisation. Incremental changes represent a series of continual progressions that maintain the organisation's balance, and often affect only a part of the organisation. Radical change breaks the frame of reference and creates a new balance.

Incremental change occurs through the established management structure and processes, while radical change results in different structures, or processes (Hodgson and Aiken, 1998). Change may fail due to what is often termed 'resistance to change' (Mabin, Forgeson and Green, 2001).

According to them, resistance to change is acknowledged as being a fundamental block to change, and a prime reason why change does not succeed or get implemented. Resistance to change is ubiquitous in nature. It can be defined as an expression of reservation which normally arises as a response or reaction to change (Block, 1989).

In most cases, resistance is seen to be problematic, something to be managed and overcome. Some authors (e.g. Schermerhorn, 1989) have suggested strategies for 'dealing with' resistance, consistent with this view of resistance as being undesirable (Mabin, Forgeson and Green, 2001). There are many reasons why people inside organisations resist change; indeed, it is possible for the entire system which the organisation represents to be resistant to change if the preparation for change has not been carried out in a manner that does not correctly prepare the organisation for it.

According to Luke (1982), the factors that causing resistance to change are: 1. resistance to something that interrupts comfortable routine, 2. reluctance to take time out to learn something new. 3. fear of doing one's job poorly because of new, technical demands, 4. competition to be among the first to own new devices, despite some trepidation to learn, 5. lack of clear understanding of the capabilities and uses of new equipment, 6. work disruption that leads to frustrations, and 7. over-emphasis on the notion of 'improved productivity', a robot-society syndrome that leads to apprehension about the emphasis on statistics of improvements in quantity and quality of output.



In addition, Kanter (1985) indicates the factors that leads to resistance to change are: fear of the unknown, loss of control, loss of face, loss of competency, need for security, poor timing, force of habit, lack of support, lack of confidence, lingering resentment. It is not difficult to address the human element, using thought-out plans, open communications techniques, and a reliable feedback/follow-through programme to avoid risking costly investments in equipment and training (Luke, 1982).

According to Mabin, Forgeson and Green (2001), the Theory of Constraints (TOC) is a systems methodology dealing largely with change management. TOC provides tools and an overall framework to utilise resistance, breaking down resistance into layers, and ensuring the layers are addressed in sequence, thus harnessing its potential.

Also, it is well equipped to address leadership and change management issues, to reveal hidden assumptions and resolve conflict, to help us identify new solutions to our problems, and to plan and implement such changes. Change management can be handled within the TOC framework, and how TOC goes a long way to providing practical steps to achieving the prerequisites for successful change.

Successful change management programmes need well balanced teams, with complementary skill sets, not only from a technical perspective, but also in the style and psychological make-up of the team members (Cauldwell, 2004).

Finally, change management takes time, since it involves new roles, relationships, ways of thinking, behaviours, and approaches to work (Rideout, 1991). Therefore, one of the basic rules of successful change management must be that it requires a beginning and an end. But this fundamental principle is often forgotten (Cauldwell, 2004).

## **4.2.2 Training**

### **4.2.2.1 Background**

Training, defined in this way, deals with changes in behaviour and knowledge. It is the environment and culture of a business that primarily determine attitude. Training has an important part to play in this, and can help to create the environment in which attitudes can change, but training alone will not change anybody's long-term attitude (Wills, 1994). Training refers to a wide range of educational techniques and new systems that can be adopted by the organisation to educate its employees. Professional development programme, tutorials, computer-assisted instruction, and resident experts are examples of these techniques.

Training and education are now being given the importance and priority that they deserve throughout business and industry. People cannot take responsibility for their own quality if they are not able to use the new technologies. Skills can quickly go out of date because customer requirements are becoming more stringent by the day. Training is important and necessary, but it is also costly (Read and Kleiner, 1996). However, Keep (1989) suggests that training can be viewed either as a cost or as an investment.

Probably, the most important component of training is what happens on the job. On-the-job training can take many forms, including implanting a local tutor in user departments to give instantaneous guidance to users as they face problems and explore ways of assimilating their knowledge into their work. These tutors do not need to be experts. They can be ordinary users who have undergone formal training on the specific area.

Another type of on-the-job training is effective coaching and guidance by supervisors who can play the role of knowledge disseminators. Clearly, they would also serve as models for their subordinates.

According to Greig (1997), in general terms, the analysis divides in-service training into three classifications:

1. Training that can be conducted most readily and effectively outside the enterprise.
2. Training that can be carried out most readily and effectively inside the enterprise.
3. Training that, both technically and cost-effectively, can be delivered equally well outside or inside the enterprise.

For a low number of trainers, training outside the enterprise is more appropriate where equipment is costly and risk of damage high. Balancing the use of external and internal training arrangements is an important issue, and it is a particular problem in developing countries.



#### 4.2.2.2 Training related to E-Government Adoption

In general terms, priority human capacities for e-government are 'hybrids': those who understand the technology, business of governance and the role of information in governance. It is they, as individuals or small teams, who can most successfully champion e-government in the target organisations.

Furthermore, IT professionals for e-government need to be hybridised into broader change agents who combine IS and ICT skills with an understanding of the public sector context, of the civil society context, and of change management. Public sector managers need to be hybridised towards a broader skill set that includes an understanding of information systems and ICTs (Heeks, 2001b).

Learning is the focal element for the current and prospective initiatives of the e-government in Saudi Arabia. One primary aspect is training. Training is a structured, formalised approach to human factors' technology transfer. The success of training depends critically on producing a programme that is effective and efficient (Grimes, 1983).

In developing countries, the indigenous information systems development capacity for e-government must be strengthened, both within user organisations in the government and public sectors, and within private sector vendor organisations. Furthermore, for almost all developing countries, there will be need to build basic computer literacy skills within users in the public sector and other governance-related organisations (Heeks, 2001b). Norris (1999) posited that local governments had argued that their employees were not very well trained in using IT and this inadequate training resulted in resistance to change, resistance to use, and underutilisation of computers.

Training is adequate to meet and maintain e-government skills (AONSW, 2001). In addition, the re-engineering of work processes also needs to be well managed, as well as retraining and educating the relevant staff members (Jupp, 2001). The importance of training, hands-on support, and a proactive stance towards adjusting the technology to the work have been identified as important both by practitioners (Keselica, 1994; Smith, 1996; Lloyd and Whitehead, 1996) and researchers (Bullen and Bennett, 1990; Rogers, 1994; Orlikowski et al., 1995, Karsten et al., 1997).

The importance of investing in the education and training for employees is to participate in e-government initiatives and believe it is the only way to have a successful implementation and adoption of e-government initiatives in the country's public sectors (Grimes, 1983).

Rothwell and Kazanas (1989) propose an intriguing classification of human resource development (HRD) strategies that can encompass formal training. Within such an organisational strategy for HRD they identify the following strategies, each of which may necessitate separately prepared objectives, policies, and activities:

- Employee training: Short term efforts that enable individuals to have the skill competencies to carry out their existing jobs.
- Employee education: Intermediate efforts for helping individuals achieve their career objectives, keep abreast of changes in their occupations, and gain new insights about themselves. It prepares people for future work.



- **Employee development:** Long-term efforts for matching the collective skills of a work group and the responsibilities assigned to the group by the organisation. Employee development makes individuals agents for organisational and group change.
- **Organisation development:** Long-term efforts for changing the culture of an organisation or group.
- **Non-employee development:** Long-term effort for improving relations between a business, the general public, and external stakeholders.

Training content would need to pick up and disseminate the lessons of best practice, such as the need to adopt an integrated approach to e-government, the need to adapt solutions to developing country realities, and the need for better communication with key stakeholders (Heeks, 2001b).

In addition, according to Oakland (1993), training should have strategy which should be addressed early with the other strategies. Another issue is funding the training events for use as curriculum development mechanisms should be considered as e-government initiative input.

LeRouge and Webb (2003) indicate potential strategic challenges for training such as the high cost of training, selecting training processes, balancing between the organisation's best interests with the individual's, and how to select, implement, develop, up-date and design these courses in a coordinated way.



There are many different ways technologies can be utilised to further education and training in e-government. The key is to strike a balance between the costs and benefits associated with these technologies (Hayes and Jamrozik, 2001).

The currently used support systems or tools in e-learning programme can be divided into two broad categories: (1) Traditional tools, which include, but are not limited to, videotape (S-VHS), cable/public television, satellite video conferencing, teleconferencing, and whiteboard; and (2) Computer-assisted and network tools, which include, but are not limited to, CD-ROM titles, Web browser, chat room, real player, QuickTime, Windows media player, broadband video conferencing, WebCT, Blackboard, and Learning Space (Bose, 2004).

In different area, equal training concern should be given to: Choosing the correct instructors, maintaining consistency in training courses, determining the prerequisite skills and knowledge students must have before training, using the appropriate teaching modes, and motivation (Grimes, 1983). Furthermore, seeking funds for internal and external e-government training programs in two directions:

1. Training of e-government professionals in computer operations, system development, data bases, and communication and other areas of IT and systems,
2. Training of e-government users in general computer knowledge and use.

One of the main goals is to increase e-government literacy which will therefore create awareness among the government's public sector. Another goal is that it will help us to stand in front of e-government challenges and face them.

### **4.2.3 Implementation**

#### **4.2.3.1 Background**

Anybody writing about implementation should address the question how the researcher defines implementation. According to Younis (1990), implementation studies became fashionable from the contribution of Van Meter and Van Horn (1975).

Gottschalk (1999:80) notes that "the term implementation is given a variety of meanings in the literature". Implementation in general can be simply defined as putting plans into practice or a series of governmental decisions and actions directed towards putting an already decided mandate into effect (Lester and Stewart, 2000).

Implementation plays an important role in making plans realistic. According to Winter (1999), in terms of the problems analysed, the field of implementation research would be considered much more robust than by simply counting research under the label of implementation.

Until now, implementation studies have mostly tended to focus on the lists of variables that may affect the achievement of implementation processes (Matland, 1995). Implementation research has nowadays been concerned with acquiring a better understanding of the political, economic, organisational, cultural

and attitudinal factors that greatly influence a policy or a plan to be implemented.

Going from strategies to action plans is a necessity for implementing strategies. However, implementation of the plan is not assured and failure to implement is common (Ward and Griffiths, 1996).

#### **4.2.3.2 Implementation related to E-government Adoption**

Implementation refers as the execution of strategies, that is, doing as the strategies directs. The purpose of implementation is to accomplish the strategy's objectives; procedures associated with execution may be modified, but not goals. However, poor implementation can lead to long-term adverse consequences for the society and economy of the destination.

Ignoring the implementation issues or lack of support from the top management has been suggested as the cause of the low rate of strategies implementation (Min et al., 1999).

Implementation is essential because it facilitates and enables the organisation to pull off strategies' advantages and profits. This lack of implementation not only leaves organisations dissatisfied with their current strategies, but also creates problems establishing and maintaining priorities in future strategies.

There is a continuous gap separating the plans and expectations of the developers of the strategy from the actual outcome of the strategy. Often, only a few of the systems in the strategy are implemented, and some of them take substantially longer than anticipated (Hackney and McBride, 2002).



One of the studies, according to Lederer and Sethi (1988), found out that organisations were not following their plan, organisations were not implementing their plan very vigorously, and the satisfaction with plan implementation was significantly lower than satisfaction with the input, process, and resources used during the process. Finding these inside the organisation can lead to implementation failure.

Several reasons may explain the failure to implement the strategies (Lederer and Mendelow, 1993; Min et al., 1999):

- The duration of project development is so long that it provides time for the business strategy to change in response to external and internal environmental change.
- Users politic to raise the priorities of their projects and bypass the prioritisation scheme established in the plan.
- The organisation underestimates the cost of projects and runs out of resources.
- Long and short-term plans are poorly integrated.
- Government legislation forces changes in priorities.
- Groups within the IT/IS department set their own priorities.
- Management raises the priority of new proposals with higher return on investment.
- Insufficiently high-level managers participate in strategy.

While implementing the concept of e-government, great challenges and obstacles face the initiative that need to be overcome, such as resistance to change or may be resistance to education and training.

Successful implementation refers to achievement of the objectives of the original plan and strategy. Success is assumed to be a function of ongoing negotiation and exchange, not of previous planning specification (Adams, Cornbleth and Plank, 1988).

An attempt at defining successful implementation has been made, according to Matland (1995), based on Ingram and Schneider (1990), that successful implementation represents organisations' compliance with the principal's requests; organisations are held accountable for reaching specific indicators of success, goals of the plan are achieved.

Success is assumed to be a function of previous planning and specification, availability of suitable information, and administrative capability. Implementation success is the movement towards developing objectives, which depends upon agreement of the parties involved to continue working things out if they are not achieved. In conclusion, successful implementation is the similarity of objectives and goals.

## 4.2.4 Quality

### 4.2.4.1 Background

Governments are embarking on providing e-service to their citizens for public service delivery. The public sector can potentially provide a huge amount of information, and guide consumers towards other sources of information through network. Practically all governments increasingly use modern IT to support their operation. In recent years, the main effort is the investing into improving the quality and efficiency of service delivery, mainly through different e-government initiatives.

Parasuraman (2002) examines the issue of the e-service quality and offers the following definition: e-service quality is the extent to which a website facilitates efficient and effective shopping, purchasing, and delivery of products and services. Practitioner literature tends to focus on issues of usability and measurement of use, with little or no consideration given to the issue of service quality.

They are beginning the e-government look forward to experience increases in efficiency, effectiveness, and organisational performance. As the governments begin implementing e-government initiatives, public sectors believe that performance will improve and will be better equipped to interact with citizens and provide services over the Internet. It enables the citizens to access government documents, order publications, reserve lodging, order vital records, and renew licences and permits from any location, with an Internet connection.



However, citizens have limited time and perhaps lack of trust in the Internet. They would naturally stick to the Internet services that meet their needs and provide quality services.

#### **4.2.4.2 Quality related to E-Government Adoption**

Governments around the world have made serious investments in terms of resources, personnel and time into providing e-government. They have embarked on this in the belief that it will increase the quality of government for citizens at the services level, therefore representing the two spectra of citizenship rights and responsibilities.

One of the main objectives of e-government is the improvement of public services quality and the way in which are they delivered. IT/IS offers a wide variety of possibilities for delivering public services in new ways. One of the possible solutions, which has recently become a popular development trend of e-government programmes, is government portals which not only join but also integrate services in the competence of different public institutions into one single window or entry point, accessible via the Internet.

Through implementing the concept of e-government, the quality of services is improved. For example, the possibility of downloading or printing the required forms can reduce the percentage of incomplete application forms, and consequently further contribute to the reduction of the overall processing time of a particular case. It directly improves the quality and availability of the published information.

E-government quality can be defined as the citizens' general assessment and judgement of the value and excellence of offerings in the on-line services. Speed and ease of use of website and the related graphic user interfaces are examples and indicators of the quality for both public and private sectors.

System Quality, Information Quality and Service Quality can result on realising the goal of e-government; furthermore, system and information quality have influence on user satisfaction and system usage (Hu, Xiao, Pang and Xie, 2005). In addition, according to Cheung and Lee (2005), information, system and service quality are the basis dimensions of consumer satisfaction with the Internet service.

Consumer or citizen satisfaction with Internet services can be given through two established frameworks (Cheung and Lee, 2005):

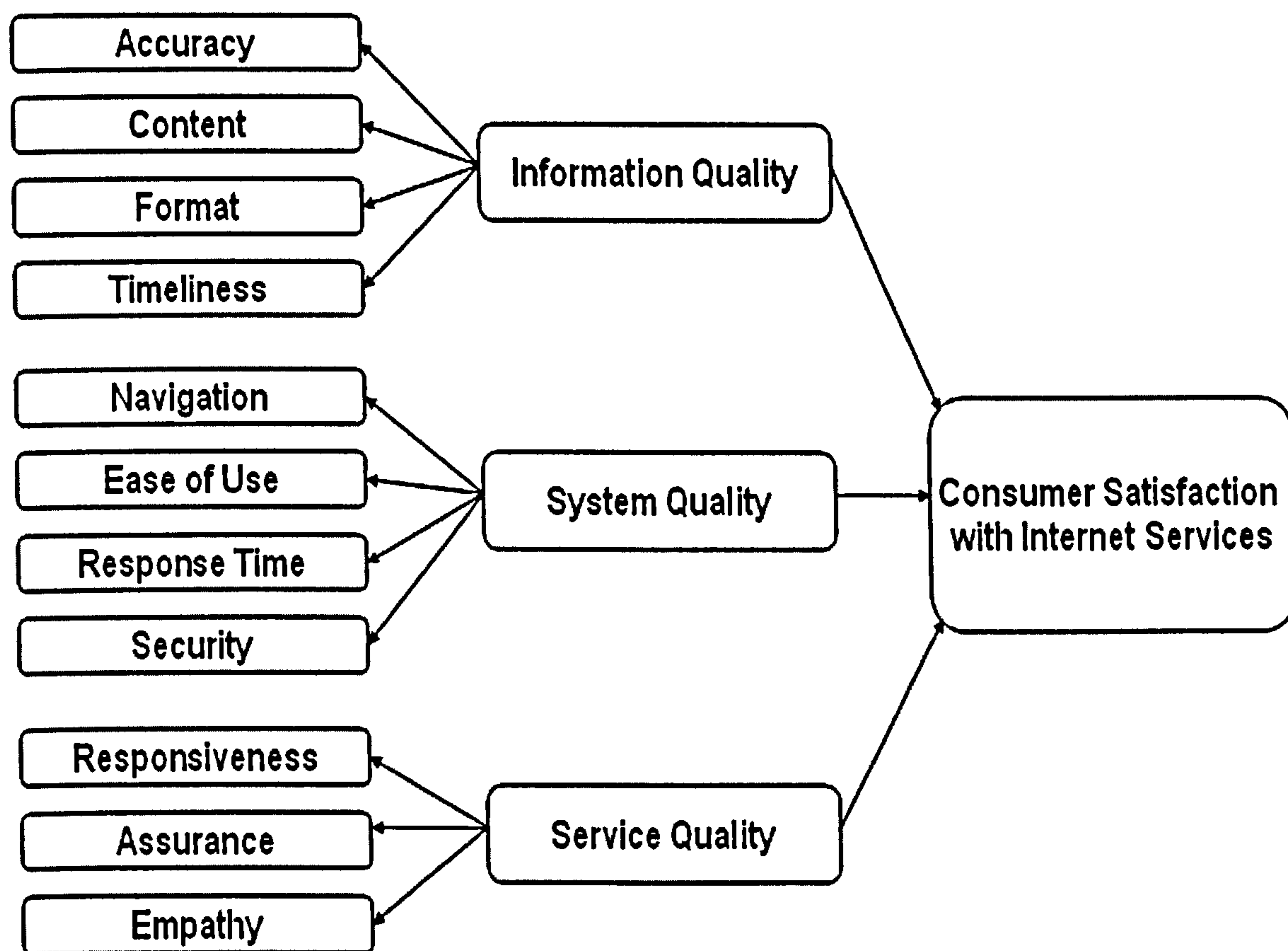
- *End-User Computing (EUC)*: In EUC, information quality and system quality, representing semantic level and technical level, respectively, are postulated as two key antecedents of user satisfaction (DeLone and McLean, 1992). The quality of information is typically evaluated by measuring information attributes. For example, Doll and Torkzadeh (1988) developed a measure that includes content, accuracy, format and timeliness of system output. System quality is mostly represented in prior research by ease of use (Rai, Lang and Welker, 2002).

- *Satisfaction and Service Quality (SERVQUAL)*: Parasuraman, Zeithaml and Berry (1991) have developed the concept of service quality, as well as an instrument for its measurement called SERVQUAL. Service quality, in this view, comprises five dimensions: tangibles, responsiveness, assurance, reliability, and empathy. SERVQUAL is a widely used instrument in marketing research to measure customers' expectation and perception of service, and identifies five service quality dimensions (Parasuraman, Zeithaml and Berry, 1994).

Providing quality service helps to increase customer satisfaction (Das, Soh and Lee, 1999). System quality, information quality and service quality lead to e-government success (Hu, Xiao, Pang and Xie, 2005). Cheung and Lee (2005) have developed a framework of consumer satisfaction with Internet services as shown in Figure 4.1.



Figure 4.1: Research Framework of Consumer Satisfaction with Internet Services



Source: Cheung and Lee,(2005)

The presentation of the service quality, in general, in the public sector is a more recent phenomenon that can be traced to the new public management movement (Collins and Butler, 1995). Most government and public sector organisations have embraced the language of service quality, and indeed have committed themselves to quality service and customer orientation. Furthermore, there is an intuitive appeal to the notion of service quality and quality measurement and improvement in public sector services, but the implementation can prove more problematic.

## 4.2.5 Organisation Culture

### 4.2.5.1 Background

Burke (1994) defines culture as values, norms, deeply held beliefs and attitudes, and long-standing historical precedence. French and Bell (1999) similarly regard culture as values, assumptions and beliefs held in common by organisation members. In terms of changing organisations, culture plays an important role in the literature.

Without forming the culture, i.e., norms of behaviour and shared values among a group of people, to support the change effort under way, it is very difficult to gain long lasting results (Järvenpää and Eloranta, 2000). Kleiner and Corrigan (1989) even emphasise deliberate abandoning of old culture (ways of doing). Culture is particularly important because it can powerfully influence human behaviour, because it can be difficult to change, and because its near invisibility makes it difficult to address directly.

However, Kotter (1996) also argues that instead of being input, altered culture is an output of a change effort. In fact, many of above discussed notions do not define explicitly if the change in the culture is an input or an output for organisational change.

As for the organisational culture, it is the shared understanding of how an organisation works, and has a major impact and influence on successful change initiatives (Schein, 1988; Handy, 1996; McAdams, 1996).

Järvenpää and Eloranta (2000) note, however, that people responsible for organisational development should ask before and during the implementation, the following questions:

- What kind of organisation are we developing?
- What is its culture like?
- To what kind of culture are employees socialised? and
- How the culture support or hinder development?

According to Socitm (2002), he identifies that organisation culture can be considered as a key organisational barrier around providing better e-service delivery to provinces, municipalities and citizens. The organisational culture of the public sector does not favour the accelerated introduction of ICT.

#### **4.2.5.2 Organisation Culture related to E-Government Adoption**

French and Bell (1999) state that “the culture must be altered if permanent change is to occur”, and Burke (1994) notes that “organisation development is a process of fundamental change in an organisation culture.” According to Kotter (1993), change is the central task of the leader. Changing the culture of an organisation, even in small ways, is highly difficult.

Yet it is the culture of an organisation that fundamentally shapes the nature and intensity of the effective recruitment of excellent young graduates, the climate (non-bureaucratic) for high-energy motivation, and the commitment to service that encourages retention of the top performers.



It is such a culture that fundamentally produces consistent and superior results for the citizens. This type of culture is shaped primarily by its leaders (Schein, 1992). However, Burke (1994) points out that you should not try to change culture by directly attempting to change it.

Even within the same organisation, the existing culture can vary significantly, therefore shaping the practices that are adopted. It is critical to development and to breaking down the barriers of culture that permeate almost every organisation in some way.

Instead, you must begin with some less difficult aspects, such as behaviour (Lewis, 1996). This notion therefore implies that changing the way people behave (do things) is a starting point for altering the culture. In other words, culture change is a result of changing some more tangible features of organisation.

That can easily be understood by examining Burke's (1999) example where "becoming more service oriented and customer focused" was placed under culture change. Presumably, in many change efforts, people do not even realise that it is the culture which they are changing when focusing more on action and procedures.

During everyday transactions, all public administration officers receive exchange and collect the personal information of citizens (Cyert et al., 1993). The importance of data protection helps increase the services involving information sharing among many different public sectors. Government has the responsibility to develop a culture of privacy protection and security (OECD, 2003).

Privacy protection is not just a technical issue; it also involves issues such as educating and training government officials for privacy and limiting the access to personality identifiable information and not automatically allowing employees to tap into databases including such data (Rainer, 2004).

Furthermore, e-government includes sharing and collaboration between different public departments from different organisations. A unique culture is required in order to provide internal and external organisation collaboration and sharing. In addition, culture is involved in establishing a unique cooperation between public and private sectors.

In terms of cultural issues, a prominent skill for management is empathy, because in most instances organisational change is about working with people from different occupational, local and national cultures. Thus, the sensitivity to cultural differences, struggle for understanding various motives and backgrounds, and the ability to communicate in an intelligible fashion is crucial (Carnall, 1990).

To summarise, culture is an important part of a change effort, albeit also a very mystifying and intangible aspect of it. Some people argue that without cultural change there is no change in behaviour, and some that without change in behaviour there is no change in the culture. When designing the construct, the presupposition was that, first, you must change the behaviour and ways of doing things, which gradually leads to some changes in the culture, as well.



Furthermore, it is important to know that there is a great value in learning from others in the public and private sectors and adopting the basic principles and approaches where appropriate to the culture and needs of the organisation. In addition, it is important to format a strategy for cultural change.

## **4.2.6 Technical Staff**

### **4.2.6.1 Background**

In contrast, many developing countries do not have an IT department in place, or have an IT department that is low skilled and insufficiently equipped. Education in these countries is a major problem, as well as lack of financial resources to pay skilled workers. This brings up major issues with the development and maintenance of systems.

Faraj and Sproull (2000), they have defined technical staff as having knowledge of specialised technologies and tools. Although technical staff require experience, experience alone is insufficient. Rather, the development of technical staff is critically dependent on the individual making the most of that experience.

The development and maintenance of expertise in any domain requires extensive, sustained practice of the necessary skills. The literature on this is clear: there is a direct link between the time spent practising a skill and the level of performance for that skill.



Furthermore, some have argued that expertise depends on spending literally thousands of hours on work in that field. However, the quantity of time spent is not the only factor in achieving expertise; the quality of this time is at least as important, that is, the development and maintenance of expertise requires extensive time dedicated specifically to the improvement of skills.

#### **4.2.6.2 Technical Staff related to E-Government Adoption**

Organisations with employees knowledgeable about e-government will be better equipped to deal with the issue of implementation. Government public sectors with qualified technical expertise demonstrated a willingness to participate with other government public sectors to establish projects that will enable the government organisations to share information.

The technical experts are responsible for the day-to-day maintenance and updating of the system (Folstad, Jorgensen and Krogstie, 2004). They have the ability to provide their public sectors with the required knowledge that can help the organisations to participate in the e-government initiatives without hesitation or reluctance.

The government has to ensure that all government public sectors have access to technical personnel to assist the organisations in the adoption and implementation of e-government projects. Though organisations and companies specialised in e-government development may be available in developing countries, the competitive systems development rates charged may not be affordable for many of them.

Even if affordable, without appropriate understanding of IT, many of these government public sectors will find it difficult to specify requirements and resources to devote for the projects to be outsourced. According to Heeks (2001b), the danger is of e-government being too external: this is particularly problematic given often conflicting objectives between vendors and government, and the poor quality of some vendors. Therefore, it may cause the failure of the e-government initiative.

The danger too of e-government being too internal: for some ruling elites in developing countries, it seems, government is seen as a tool for serving personal, then ethnic, then social affiliation, and last the national interest.

E-government initiatives will be just the same: if senior figures in public sectors do come to see e-government as being in their interests and are able to take control of those initiatives, they are likely to steer projects towards their self-interest, and potentially away from broader goals.

It is very difficult, but a balance must be struck between external and internal interests. An independent project team is required so that government cannot intimidate team members and hijack the project for their own benefit.

Government public sectors, which rely completely on outsourcing the implementation of their IT projects, encounter difficulties in upgrading their systems, and are reluctant to participate in e-government initiatives. On the other hand, government public sectors which rely on their staff for the development and



implementation of IT projects are more confident to accept change in technology and, therefore, accept adoption of e-government initiatives in their daily operations. College and entry level recruiting is necessary to bring in young staff.

In addition, training programme need to be improved to allow for inexperienced staff to be technically able to support the existing applications and to deliver enhancements. The staffing requirements are regularly evaluated to ensure that the organisation has a sufficient number of personnel with the right competencies for the e-government operating environment (AONSW, 2001).

Past research has indicated that an innovation such as e-government, with substantial complexity, requires more technical skills and needs greater implementation and operational efforts to increase its chances of adoption (Cooper and Zmud, 1990; Dickerson and Gentry, 1983). The right skills are available, internally, through partnerships, or by contract.

#### **4.2.7 Policy and Legal Issues**

##### **4.2.7.1 Background**

Concerns about the many serious aspects of the Internet, namely child pornography, credit fraud and drug trafficking, have led many governments to develop a series of measures (laws, directives, reports, guidelines, etc.) to protect citizens (Currie, 1999). For inadequate IT policies, it is argued (Attaran, 2000) that companies, as well as governmental organisations, should develop and practise proper ones.



This has to be done mainly for two reasons: (1) to protect their employees, and (2) to protect the organisation from potential legal claims. Such policies can in some cases conflict with current data protection or privacy rights legislation (mainly because these IT policies should include activity monitoring); therefore such legislation may also need to be modified (Akomode, Taleb-Bendiab, Evangelidis and Taylor, 2002).

In addition, "Policy agendas include issues such as cyberlaw, privacy, security, universal access, credit card transactions, digital signatures, consumer protection, international trade, telecommunications, and taxation. Virtually every law and public policy at national, state and local levels needs to be examined from a digital age perspective" (Caldow, 1999). The data access policy for the systems of any modern government is inherently a complicated subject.

Firstly, the size of the problem is huge in terms of the number of potential users (including all citizens, civil servants and government departments) and the number of government systems. Also, government systems and databases are largely developed independently of one another, usually with little consideration for security interoperability.

As a result, it is likely that significant effort needs to be taken to tackle the problems of semantic heterogeneity and conflicting security policies in the different government domains to work out a government access policy on a global basis (Joshi, Ghafoor, Aref and Spafford, 2002).

#### 4.2.7.2 Policy and Legal Issues related to E-Government Adoption

Since the concept of e-government is radically changing the way the public sector is doing business, new legal issues continue to arise (Akomode, Taleb-Bendiab, Evangelidis and Taylor, 2002). The very nature of e-government is that all governmental services should be carried out electronically.

Most of such services do require the joining of some kind of contract, but unfortunately, since everything is being done electronically, the absence of paper is evident. Such deficiency needs to be addressed, as it is argued that contracts in electronic form may not be valid (Pattison, 1997).

E-government requires a range of legislative changes, including electronic signatures, electronic archiving, data matching, freedom of information, data protection, computer crime, and intellectual property rights' legislation. Regulatory changes are required for a host of activities from procurement to service delivery (Heeks, 2001b).

The research conducted in a collaborating public establishment, as well as the literature review (Hagen et al., 2000:23; Cavazos, 1994), show that there is a strong need to update changes the current legislation.

Undoubtedly, new modern legal frameworks have to be developed, without having to introduce 'radical' inappropriate laws (Agren, 2001; Hutchinson et al., 2001). Failing to do so, e-government progress will be severely hindered (Akomode, Taleb-Bendiab, Evangelidis and Taylor, 2002). The New South Wales has developed legal principles that will help them with e-government adoption (AONSW, 2001):

- A legal framework supporting e-government is in place.
- Legal developments affecting e-government are monitored and necessary action is taken.
- Organisation legislation is reviewed to determine and address possible e-government impediments.
- E-government business practices comply with statutory requirements.
- The legal standing of electronic transactions is assured.
- Legal liability is defined and made known to all parties involved in e-government.

E-government needs a source of access policy that can be applied at the global government level. This is when the legislation-based access policy comes into play. It is a norm in modern governments that a comprehensive legal framework should be in place to provide the legal basis for all government activities and, in particular, the interaction between government bodies and the citizen or among different government bodies. The formulation of access policy beyond the provider's domain can and should thus be based on the legislation relevant to the government service provided.

In addition, to apply the policy by a web service access control mechanism, a mapping between the security subjects and the legal subjects is necessary. This mapping can be a many-to-many one, which means that multiply legal rules can apply to a single web service, and one rule can apply to more than one. The task of working out the mapping for all security subjects is a



complicated task requiring significant efforts from both technical and legal experts.

Since e-government projects are inheritably technology-driven, many potential legal risks lie within the very nature of the technology that is used or in the way it is used. Technical-specific risks can potentially expose public sector organisations to serious liability (Watts, 2001). Typical examples of such risks are the 'deep linking' and the 'framing' on governmental websites.

The associated risk with deep linking is the fact that the user may avoid the home page of a website and 'jump' to another page within it site, without having to agree or disagree with the website terms and conditions. On the other hand 'framing' is the case where governmental websites are designed to use frames, and thus offer the possibility to the user to misrepresent the contents of such websites by 'mixing' it with other websites (Akomode, Taleb-Bendiab, Evangelidis and Taylor, 2002).

A serious legal risk, which has to be addressed when implementing any e-government strategy, is the unwillingness of the traditional bureaucracy to reform legal frameworks in order to rearrange power (Hagen, 2000:23).

Research shows that some public sectors may not wish to cooperate in reforming legislation, mainly because of fear of redundancy (Klee-Kurse, 2000:213). The existence of a government-wide policy and legal framework will positively affect organisation participation in electronic information sharing with public sectors (Akbulut, 2002).

## **4.2.8 Reward System**

### **4.2.8.1 Background**

A reward system refers to the “business practices of offering rewards and benefits over and beyond wages, salaries, and other monetary compositions to recruit, satisfy and hold desirable personnel” (Cross, 1999). Awards and recognition has been already implemented in other countries (Whitson and Davis, 2001).

Heeks (1999) suggests that in order to alter stakeholder motivations to support the introduction of a new system, one way is to use a reward or punishment system. From an evolutionary point of view, the capacity to seek rewards as goals is essential for the survival and reproduction of mobile organisms.

Generally, rewards can be defined as those stimuli which positively reinforce the frequency or intensity of a behaviour pattern (Walter, Abler, Ciaramidaro and Erk, 2005). Employees will give their energy to projects if senior management in their organisation recognised their work. The delivery of an e-government project would require employee involvement in projects from the outset (Folstad, Jorgensen and Krogstie, 2004).

### **4.2.8.2 Reward System related to E-Government Adoption**

The way employees are rewarded is starting to alter rapidly. For many years, pay systems remained relatively stable, while the world about them was dramatically changed. E-government project managers, particularly, need help with managing the human components of projects and change. They need a

greater capacity to manage the issue of motivation, of internal rewards and punishments (Heeks, 2001b).

An intrinsic and extrinsic reward system may render the incremental developments. Furthermore, there must be a reward strategy in place. It must be derived from and contribute to corporate strategy and be based on corporate values and beliefs.

The social technology or the institutional organisations foster knowledge generation, application and diffusion. Organisation succeeds in increasing its workers' productivity by offering job promotions, benefits and monetary incentives.

An e-government initiative is the creation of a positive working environment for the employees. Similarly, a reward system is likely to increase employees' energy, creativity and productivity that help the implementation of e-government initiatives.

While rationally grounded motives play an important role in electronic government, motivations such as personal, departmental, economical, and political may influence launching electronic government projects. According to London and Higgot (1997), the reward and recognition process consists of the following elements:

1. Categories for Awards.
2. Nominations.
3. Awards.
4. Final selection.
5. Recognition of successful nominations.
6. Review of successful nominations.



7. Review of nominations.

8. Annual quality award.

There is a substantial body of theoretical literature that links organisational strategy, human resource (HR) practices, and performance (Balkin and Gomez-Mejia, 1987; Hambrick and Snow, 1989; Lawler, 1986a, 1986b; Ulrich and Lake, 1990; Waldman, 1994).

The reward system should be aligned to motivate employee performance that is consistent with the firm's strategy, attract and retain people with the knowledge, skills and abilities required to realise the firm's strategic goals, and create a supportive culture and structure (Galbraith, 1973; Kilmann, 1989; Nadler and Tushman, 1988).

The reward system with organisational strategy helps to determine organisational effectiveness. Gomez-Mejia and Balkin (1992) conclude that modern organisations must align their reward system practices with their organisational strategy in order to achieve higher levels of performance at both the individual and organisational level.

However, Scholtes (1995) has listed five reasons to explain why reward and recognition systems do not work:

1. No data to show long term benefits.
2. They set up internal competition.
3. Reward systems undermine teamwork and co-operation.

4. They often reward those who are lucky and pass by those who are unlucky.
5. They create cynics and losers.

An effective reward and recognition process provides a clear and visible statement to all employees of the organisational values and the commitment to employee involvement (London and Higgot, 1997). BPR would provide a systematic, business-oriented way of implementing projects involving the use of ICT to transform the way in which the City delivers its services and relates to its organisations (Wastell, Kawalek and Willetts, 2000).

Although some believe that motivation is an intrinsic property of human nature rather than a behaviour to be instilled by management (Scholtes, 1995), people are not likely to change their behaviour unless they are rewarded for it. A key principle of compensation is to link more of it directly to performance.

#### **4.2.9 Business Process Re-Engineering (BPR)**

##### **4.2.9.1 Background**

In the past two decades, the concept of reinventing government has been discussed from various perspectives (cf. Milward, 1994; Osborne and Gaebler, 1992; Savas, 1982). Government, as has been called for, would require a leaner and more efficient way of doing business while at the same time it would emphasise its focus on citizens' and businesses' needs.

With information and IT as enablers, principles such as catalytic, community-owned, competitive, mission-driven, and results-oriented government may carry a practical meaning and translate into an organisational reality.

The term BPR was coined by Hammer (1990) who argued that traditional attempts at computerization had typically led to the automation of existing processes rather than seeking out fundamentally different ways of working. The aim of BPR is to maximise the efficiency and effectiveness of an enterprise by exploiting the full potential of ICT to enable radically new organisational structures and processes.

Furthermore, it improves the input/output ratio by cutting financial costs and/or time costs. Automation can replace higher human costs with lower ICT (costs to support efficiency/productivity improvements). Processes need to be managed through planning, monitoring and controlling of the performance of these processes (Heeks, 2001a).

The re-engineering of work processes needs to be well managed, as well as retraining and educating the relevant staff members (Jupp, 2001). Although BPR has not been widely studied in the public sector, the private sector-based literature provides a wealth of lessons learned for performing those changes in a government setting, thus helping reap the benefits while avoiding the potential pitfalls.



#### 4.2.9.2 BPR related to E-Government Adoption

Heeks (2001) shows the scope of e-government to include improving government processes by reducing costs, and managing performance. Governments at all levels and across all branches have been urged to become leaner and smarter, providing better and faster service at lower cost. Such fundamental change, however, inevitably impacts on the business processes governments work by. So far, though, BPR has mostly been studied in the private sector.

Governments has been criticised for its slow adoption of new technologies and innovative practices (Mohan and Holstein, 1990). With respect to the high number of re-engineering disasters in the private sector during the 90s, governments may have even acted quite wisely by sticking to the slow adoption scheme (Champy, 1995; Hammer, 1996).

Change processes cannot be controlled. Change is dynamic, unpredictable, and full of surprise. Organisational systems have a tendency to return to their original state, so that relatively long periods of time are necessary for the change to take a hold.

The organisation's leaders have to master the challenge of developing and maintaining a shared vision of the process from the outset to its completion (Gunasekaran and Nath, 1997). If business processes change fundamentally, then those changes cannot be planned in the traditional and incremental fashion, because fundamental change entails more than just business process and workflow mapping. Social networks and informal organisations will be affected too. Change

hence needs to be more loosely coupled, and supposedly relies on coordination by feedback rather than formal planning (Zmud and Mitchell, 1999).

This directly applies to the context of e-government, which requires both long-term view and flexible planning due to the iterative and disruptive nature of the change process. Some researchers have shown that more radical and far-reaching BPR projects expose a higher failure rate than less ambitious ones (Kallio, Saarinen, Salo, Tinnila and Vepsalainen, 1999). Since the number of variables involved is greater, the complexity of the change project may rise to overwhelming levels in the more radical projects (Gunasekaran and Nath, 1997).

E-government may help in converting government towards the orientations of citizen needs, enterprise, prevention, decentralisation, and markets, as Osborne and Gaebler (1992) predict. Business process re-engineering provides systematic, business-oriented of implementing projects concerning the use of ICT to change the way that city delivers its services and relates to its organisations (Wastell, Kawalek and Willetts, 2000). The current working processes are redundant. Such redundancies are common in a paper-based information system such as the Saudi one. Implementing e-government, there is a risk of replicating the same in transformed shape. The government needs to address the redundancy and overlapping of responsibilities that exists in most of the services delivered to the public by the government public sectors.

Citizens communicate through the Internet, telephone, etc in order to access government information and services instantly, 24/7, from home, work or any other location. Citizens are not concerned about which government public sector provides the information and services, and government is expected to



provide access to its information and services from a single integrated gateway (one-stop shop).

Reform of the work process involves changing the way an organisation perform its daily tasks in the effort to increase its employees' productivity, reduce cost, and improve the service delivery to consumers. The reforms include reduction of red tape and elimination of overlapping responsibilities. There are processes that need to be changed in the government public sectors in order to improve service delivery to the general public. Automation alone will not improve deficient work processes.

While, in principle, business processes could be streamlined without the use of ICT, the designs of both business rules and information systems are and should be carefully integrated (Giaglis, 1999), especially considering the rare match of life cycles of information systems and those of business-relevant information (Van Wingen, Hathorn and Sprehe, 1999). Mismatches between business strategy and ICT strategy typically result in organisational frictions (Beaumaster, 2002). When using the general BPR literature within an e-government context, the following insights emerge: for aligning BPR projects with organisational strategies and objectives, a holistic view of the organisation, systems, processes, and stakeholders seems to be required, which in turn facilitates a long-term perspective paired with flexible planning.

A challenge in major change projects has reportedly been the organisation's inertia and the stakeholders' active and passive resistance to change. BPR appears as highly problematic under circumstances of organisational crisis (Mallalieu, Harvey and Hardy, 1999), which is characterised by loss of control over important variables. In addressing those concerns, mainly



effectiveness and efficiency-oriented arguments of (1) expected or desired cost savings, (2) speedups of the processes, and (3) customer service improvements have been used for making the case for BPR (Ranganathan and Dhaliwal, 2001).

Although projected cost savings remain an attractive and appealing line of argument presented to decision-makers when justifying change projects, including technology-based projects, due to unanticipated or hidden costs, those projections have rarely materialised.

Tarn (1998) points out, that ICT investments, although they may indirectly add to shareholder returns, do not necessarily produce above-normal profits. Hitt (1999) finds evidence for the reduction of external coordination costs through ICT. By and large, the cost savings argument for justifying BPR and related ICT investments increasingly appears supplemental.

Cost savings, however, may eventually result from speeding up processes through streamlining and improving customer service, although such savings cannot be projected in advance with any credible accuracy, nor can they be measured reliably from hindsight.

Decisions in favour of major change projects are therefore of relatively high risk, made on the basis of incomplete information and under high outcome uncertainty. Long and unnecessary transactions need to be cut down in processes to allow users to access documents quickly and print them or fill them in online. The transactions need to be simplified and a decision-making process must be determined. By simplifying transactions, citizens will be more likely to access the site.

## 4.2.10 Awareness

### 4.2.10.1 Background

According to Dourish and Bellotti (1992), awareness is “an understanding of the activities of others, which provides a context for your own activity”. Awareness includes using the mass media to introduce the new concept of e-government in the public sectors, and conducting conferences, seminars and workshops as a part of awareness effort to encourage the public sectors’ work force to accept and embrace the new concepts as part of their daily operations.

A package of activities could be delivered that includes (Heeks, 2001b) seminars and training workshops, web-based documentation, individual meetings, and support for monitoring and project evaluation.

According to Papazafeiropoulou, Pouloudi and Doukidis (2002) some of the awareness activities are awareness material such as magazines, articles, videotapes, websites, books, newsletters, brochures, CD-ROMs, presentations, road-maps, guidelines, and case studies.

Furthermore, road show which is the participants in such events are usually unaware of the advantages of the project. Seminars and workshops which from it gaining the necessary information that will help them describe the possible suitability of the projects.

Training the trainers that aims at educating intermediaries, who in turn will raise awareness and provide support within the community. From training they can get the necessary know-how and skills to help in the field of e-government without the need for outside support.



#### 4.2.10.2 Awareness related to E-Government Adoption

The rapid growth of e-government technologies and practices has created a tremendous need for awareness creation in organisations which seem to lack the necessary information about technology (Papazafeiropoulou, Pouloudi and Doukidis, 2002).

Awareness is communicating e-government initiatives to the appropriate stakeholders, and providing means for individuals to realise e-government projected benefits. One part of awareness is recognising the importance of improving the way the government provides services to its citizens and businesses, and acknowledging that e-government is the appropriate approach for this reform.

Another is knowing the importance of implementing e-government and believing that their agencies would realise the benefits of e-government initiatives. These benefits include reducing the time and cost of providing service to the general public, empowering the employees, reducing bureaucracy, and increasing efficiency and effectiveness of the public sectors.

It is important to increase people's awareness of the merits of e-government to ensure its acceptability during the adoption process. Yet another way can be through educating the public sectors' work force and providing technical training to increase people's familiarity with computer operation and Internet usage.

According to Kotter (1996), individuals are willing to accept change (e.g. e-government initiatives) if the potential benefits are outlined and they believe that the transformation is possible.



The reasons for a big lack of awareness seem to be two-fold: the variety of existing media creates a division and uncertainty about which media to use for a specific situation, and problems with the physical location (Tollmar, Sandor and Schomer, 1996).

Furthermore, e-government budgets must include funds for awareness and publicising projects through various media channels (e.g. newspapers, radio, posters). Without awareness, the target audience may not learn about the project or use it, and without a large number of people benefiting from the project, the benefits will not be sufficient to justify the costs (PCIP, 2002).

After identifying and indicating potential challenges which might cause difficulties in the implementation of e-government projects, it is crucial for the project team to be aware of them. This will prepare them for any such problems during their project implementation, and so they will be ready to overcome them.

Implementing appropriate public awareness programme that build on the favourable sentiments towards the concept of e-government and shed light on the importance and benefits of this concept and its applications for the economic future of the country, inducing actual use of e-government.

## 4.2.11 Organisation Structure

### 4.2.11.1 Background

First, it is important to understand organisations. Organisational theory was first established on the premise that if work could be studied properly, and if principles could be derived about how best to perform this work, then these principles could be incorporated to improve formal organisations (Mintzberg, 1979).

More recent studies have also indicated that there is no one best way to organise; the appropriate organisational form depends upon the human and business situation facing the organisation (Lorsch, 1987:2). Organisations are essentially the confines and constructs of specific enterprises that are comprised of a variety of characteristics, much like a human being.

The organisation is composed of objects in distributed locations; its structure is represented by relationships between the objects; and its action occurs by the communication of messages between the objects. Organisations exist to enable people, or groups of people, to coordinate their efforts effectively to set and accomplish tasks (Nohria, 1995). In addition, organisations can also be understood as systems of governance (Fombrun, 1984).

According to Hanline (1993), organisational theory is a broad based philosophy concerned with the structure and design of organisations. In this section, the researcher explores and discusses organisation structure.

Organisational structure has been defined and introduced in many ways (Pennings, 1976). Some define it as “the ways in which an organisation divides its tasks and then coordinates them” (Bowditch and Buono, 2000:258). Drucker

(1974) explains organisational structure as determining what structure is needed, and then how it should be built.

Jackson and Morgan (1978) define organisation structure as “the relatively enduring allocation of work roles and administrative mechanisms that creates a pattern of interrelated work activities and allows the organisation to conduct, coordinate, and control its work activities.”

#### **4.2.11.2 Organisation Structure related to E-Government Adoption**

There is an abundant amount of research which has examined organisational structure (Mintzberg, 1979). Yet, within the field of e-government, there is a great need to develop a more comprehensive body of knowledge on the structure of the many and various organisations that constitute e-government.

Thus, within the context of this research, it is important to be well grounded in the diverse field of organisation structure. The organisational structure is defined by the extent to which it is rigid and routine or flexible and non-routine (Bowditch and Buono, 2000). Rigid structures are referred to as mechanistic, while flexible ones are considered organic.

Furthermore, mechanistic organisational structures often resemble Weber’s identification of a bureaucracy, where clear job descriptions exist, heightened upper management is involved, and standardised decision making reward systems are accepted. On the other hand, organic organisational structures may be referred to as adhocracies, and are designed with flexibility to cope with rapidly changing environments (Mintzberg, 1979).



Organisational structure has been a perennial problem for organisations and its relationship with IT is a recognised area in information systems research. The arrival of e-government technology and practices serves as a problem and opportunity for academics and practitioners.

Organisational structure is a long-standing, chronic problem, especially for large organisations. The need to 'arrange' thousands of employees and managers, often split between numerous locations and functions, in an effective and cost efficient fashion, is a non-trivial problem (Applegate, 1994).

The government's organisations need to look into their structure which requires changing, if necessary, in order to accommodate it with the new e-government ideas and practices. Their existing organisational structures were under significant pressures, in many cases calling for new structures.

Although formal organisational structures are clearly man-made and can be (and often are) changed by senior management in order to react to changing circumstances, there are other, more subtle, internal social structures of legitimating, signification, and domination.

An organisation's structure specifies the formal relationships between the objects which comprise the organisation. The organisational structures of the governmental sector are complex, similar functions are divided amongst several institutions, sections and government offices, and integrating initiatives, such as the introduction of ICT, face a diffuse power and frequently 'over-the-counter' structure.

According to Nohria (1995), “As such, shaping an effective organisation structure is one of the central functions of the manager”. Nevertheless, one of the essential principles of organisational structure is the division of labour, which refers to the ways in which the roles of the organisation are divided among the members.

Organisation structure explains how jobs and job responsibilities are divided into various components, and how they are integrated into the overall structure of the organisation. There is a need to maintain a continuously shifting balance between conflicting pressures to centralise and decentralise, and between the attractions of concentrating specialist functions together, as opposed to facilitating cross-functional coordination. It is hard to combine flexibility with ruthless cost minimisation (Ferioli and Migliarese, 1996).

Mintzberg’s (1983) ‘ideal types’ of organisational structure (simple structure, machine bureaucracy, professional bureaucracy, divisional form, or adhocracy) all have their advantages and disadvantages, and there is clearly no ‘one best way’. Urged on by dynamically changing organisation structures, and the flexibility offered by ICT, there has been considerable interest in new organisational forms over the last decade (Dijksterhuis et al., 1999; Miles and Snow, 1992; Rockart and Short, 1991).

### 4.3 Organisational Factor Model for E-Government Adoption

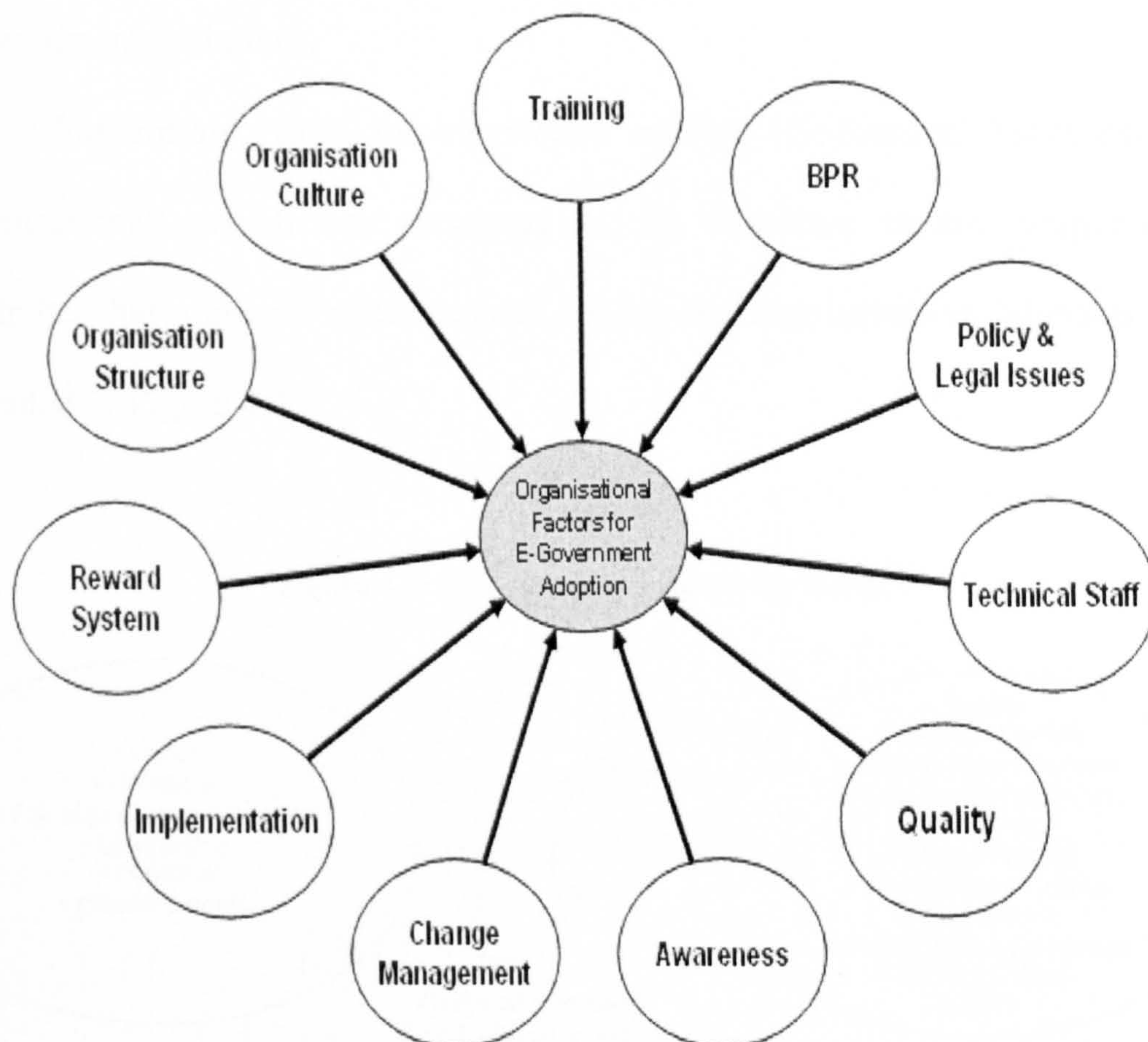
A list of Organizational factors that influence the adoption of e-government concept has been explored and indicated from the literature review and are listed in Table 4.1 below.

Table 4.1: List of Organizational Factors Influencing the Adoption of E-Government

Factor	Source
Change Management	Papantoniou, Hattab, Afrati, Kayafas, and Lournos (2001); Csetenyi (2000)
Training	Audit Office of New South Wales (2001); Grimes (1983); (Heeks, 2001b)
Implementation	Lederer and Sethi (1988)
Quality	Hu, Xiao, Pang and Xie (2005); Parasuraman (2002); Cheung and Lee (2005)
Organization culture	Socitm (2002); OECD (2003); Järvenpää and Eloranta (2000); Schein (1988); Handy (1996); Burke (1999); McAdams (1996); French and Bell (1999); Burke (1994)
Technical Staff	Cooper and Zmud (1990); Heeks (2001b); Audit Office of New South Wales (2001); Dickerson and Gentry (1983)
Policy and Legal Issues	Akomode, Taleb-Bendiab, Evangelidis and Taylor (2002); Attaran (2000); Currie (1999); Caldow (1999); Joshi, Ghafoor, Aref and Spafford (2002); Hagen et al. (2000); Cavazos (1994); AONSW (2001); Akbulut (2002)
Reward system	Heeks (1999); Folstad, Jorgensen and Krogstie (2004); Heeks (2001b); Gomez-Mejia and Balkin (1992)
BPR	Heeks (2001a); Wastell, Kawalek and Willetts (2000)
Awareness	Papazafeiropoulou, Pouloudi, and Doukidis, (2002); Kotter (1996); PCIP (2002)
Organization Structure	Dijksterhuis, Van den Bosch and Volberda (1999); Miles and Snow (1992); Rockart and Short (1991)

In this section, the researcher presents the developed model for e-government adoption in term of organisational factors. This model consists of the 11 factors and is shown in Figure 4.2 as the following:



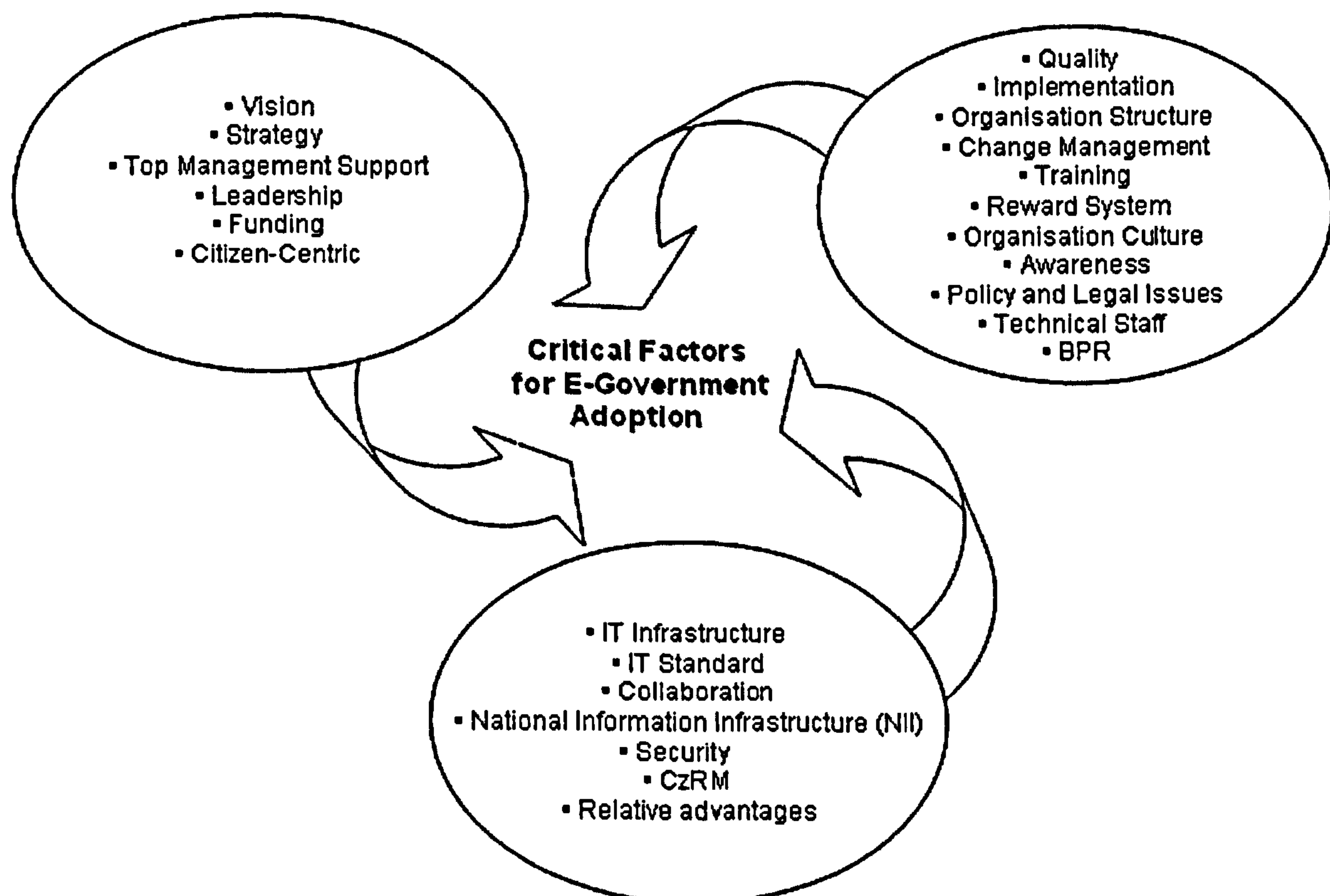
**Figure 4.2: Organisational Factors Model for E-Government Adoption**

#### 4.4 E-Government Adoption Model

In the literature, the researcher has explored the critical factors for e-government adoption. In the three parts of the literature review, the researcher has indicated governing, technical, and organisational factors which influence in e-government initiatives.

Furthermore, from the developed models (Governing, Technical, and Organisational) which are presented in the literature review chapters, the researcher has devised a conceptual model for e-government adoption, now presented in Figure 4.3.

Figure 4.3: E-Government Adoption Model



#### 4.5 Summary

This chapter has outlined the organisational factors related to the e-government formulation, implementation and execution. The researcher has indicated the following factors: (1) change management, (2) training, (3) implementation, (4) quality, (5) organisation culture, (6) technical staff, (7) policy and legal issues, (8) reward system, (9) business process re-engineering (BPR), (10) awareness, and finally (11) organisation structure.

After that, the researcher has developed and presented the organisational factors models in terms of e-government implementation. Furthermore, the researcher concluded, after developing the three models (governing, technical, and organisational), a conceptual model for e-government implementation which is shown in Figure 4.3. The conceptual model includes twenty-four factors that influence the implementation of e-government.



# Chapter 5

## Research Design and Methodology

## 5.1 Introduction

The concept of electronic government remains a new phenomenon, lacking a universally applied model or framework, which would assist governments intending to implement e-government initiatives. For this research, an e-government adoption model was developed based on extensive reviews on previous literature and conclusions drawn from interviews and surveys in the public sector in Saudi Arabia. The e-government adoption model requires an exploratory method to identify the required factors determinants appropriate to a particular country's requirements.

This chapter is one of the most important in the entire thesis since its role is to act as the basis and rationale for the rest of the work. The proposed conceptual model for e-government adoption needs to be validated. One of the important stages in any research project is selection of the appropriate methodology. The validity of the conceptual model requires empirical data to become a full model. Selecting an appropriate methodology is very important in order to reach a high quality in the final result. The chapter discusses and focuses on the research design and methodologies used in this study, and provides a justification for their use by the researcher. In the research, there are two fundamental methodological approaches to the study of the social world, namely the qualitative and the quantitative (Denzin and Lincoln, 2000).

The methodology helps in identifying and validating the factors to develop an e-government adoption in Saudi Arabia, and an overview of the research design is provided. The research design includes a discussion of the qualitative and quantitative research design and methodology. Then it provides the strengths and weaknesses of the two methods, and explains why a mixed methodologies (triangulation) approach was chosen for this research. It also addresses the issues of sampling. Furthermore, it addresses the tests for reliability and validity of the data gathered. Details of data collection and analysis used are presented.

## **5.2 Selecting Research Methodology**

Methodology is the methods that are employed to gather information related to the topic being researched. According to Babbie et al. (2001), methodology refers to the tools, procedures and techniques used in the process of inquiry. Iivari (1991) defines research methodology as the approach taken to research and, more specifically, how the research data will be collected. In addition, research methodology refers to "... the how of collecting data and the processing thereof within the framework of the research process" (Brynard et al., 1997). Remenyi et al. (1998) refer to research methodology as the procedural framework within which the research is conducted.



Buckley et al. (1975) suggest that appropriate scientific methods should be used as a requirement of a research, and a large number of research methodologies are available which are related to social sciences research. However, one of the important stages in this thesis is selecting the most appropriate research methodology. An appropriate research methodology will result high quality final results.

In order to avoid gross misfits between the desired outcome and the chosen method, Yin (1994) stresses that the type of question posed, the control over actual behavioural elements, and the degree of focus on historical or contemporary events; are the conditions which should provide the grounds for choice of method. He furthermore indicates that research methodology should be chosen as a function of the research situation. Each research method has its own specific approach to collect and analyse empirical data, and therefore each method has its own advantages and disadvantages.

Myers and Avison (2002) indicate that all research selections are based on some underlying characteristics or assumptions about what constitutes valid research and which research methodologies are appropriate. There are many factors to be considered when choosing an appropriate research methodology, with the topic to be researched and the specific research question being primary drivers (Remenyi et al., 1998). According to Benbasat (1984), the research objectives should be considered as

a key in determining the appropriate methodology for the research. Furthermore, the characteristics of the research inquiry will greatly influence the selection of an appropriate research strategy (Yin, 2003).

When the researcher selects between methodologies, he should understand that there is no right or wrong methodology. Selecting the methodology depends on which is the one more or less useful related to the nature of the research. According to Checkland (1987), there is no such thing as the best methodology. McGrath (1982), in his study of research choices, makes it clear that there is no ideal solution, only a series of compromises. Patton (1990) expresses the same view by saying: “research, like diplomacy, is the art of the possible”. The adoption of the research stance is not an arbitrary decision taken by the researcher, and selection of appropriate research methods was influenced by several factors such as the following:

- The nature of the problem and research topic.
- The research questions being posed and research objectives.
- The training and experience of the researcher, such as statistical or text analysis skills.
- The time allocated for the conduct of study.
- The availability of a suitable research sample.
- The comfort of the researcher with guidelines and rules for conducting the research.

In addition, Orlikowski and Baroudi (1991), have indicated that:

*“Research methods and assumptions are not learned and appropriated in a vacuum. They are heavily influenced by the doctoral program attended, the agendas of powerful institutions, the funding policies of agencies, the rules of access negotiated with research sites, and the publishing guidelines of academic journals”*

### **5.3 Research Design**

Research can be defined as the systematic process of inquiry to explore and discover knowledge about something that happens or exists in society, science or nature that is difficult or unusual to understand. The reason for doing a research is to create new knowledge in a specific area or field by using methods of systematic inquiry ordered by the principles of science (Nachmias and Nachmias, 1996).

Before the research design and methodology stage, the researcher examined and reviewed carefully the previous literature, which is in this stage known as ‘literature review’. This method of data collection deals with data that already exist, classified into two main groups, namely primary sources and secondary sources. Primary sources of data have been described as those items that are original to the problem under study. Secondary sources are those that do not bear a direct physical



relationship to the event being studied (Cohen, Manion and Morrison, 2002:160).

Furthermore, Ary, Jacobs and Razavieh (1990:68) identified several important functions of literature review:

- A thorough review of related theory and research enables researchers to place their questions in perspective.
- Reviewing related literature helps researchers to limit their questions and to clarify and define the concepts of the study.
- Through studying related research, investigators learn which methodologies have proved to be useful and which seem less promising.
- Knowledge of related literature enables investigators to define the frontiers of their fields.
- A thorough search of related research avoids unintentional replication of previous studies.
- The study of related literature places researchers in better positions to interpret the significance of their own results.
- A critical review of literature often leads to insight into the reasons for contradictory results in an area of research.

All these functions will help the researcher to realise the aims of his research project and to reach the anticipated goals. In research design, the issue becomes not

whether one has uniformly adhered to prescribed canons of methodologies, but whether one has made sensible methods decisions, given the purpose of the study, the questions being investigated, and the resources available (Then, 1996). Therefore it is crucial to know about the methodologies in order to appreciate why methods decisions can be highly controversial.

Over the past 15 years, the debate over the relative virtues of quantitative and qualitative methodologies has gained considerable impetus. While the exact constitution of the two methodologies varies somewhat from author to author, or is defined with varying degrees of specificity, there is substantial agreement about the fundamental antinomies and their practical implications for the conduct of research.

In qualitative and quantitative methods, the former concentrates on words and observations to express reality and attempts to describe people in natural situations. According to Brynard et al (1997), the quantitative method is used when the purpose of the research is to arrive at universal statement, and when the research seeks to assign figures to observation. The techniques used in this method are surveys and questionnaires.

In contrast, the qualitative approach grows out of a strong academic tradition that places considerable trust in numbers that represent opinions or concepts. The qualitative method "... produces descriptive data and no numbers are assigned" (Brynard et al, 1997). The techniques used here are, for example, interviews.

From the previous section, research methods are selected according to the type and nature of the research topic, and to the research project objectives. Social research boasts several research design types from which researchers must choose that most useful for achieving their stated goals. According to Orlikowski and Baroudi (1991), they have identified six research designs, as follows:

- **Survey:** Studies that fall into this category gather data by means of questionnaires. For example, Questionnaire-Based Survey which involves the collection of written data from interviewees, or the collection of verbal responses to relatively structured questions, or Interview-Based Survey which involves the recording of verbal data from interviewees, which arise in relatively unstructured interviews or meetings.
- **Case study:** This involves the collection of considerable detail, from multiple sources, about a particular, contemporary phenomenon within its real-world setting. According to Yin (1994:13), studies that are involved with a single site or a few sites over a certain period of time are located in this category. The case study inquiry usually relies on multiple sources of evidences.
- **Laboratory experiment:** This includes studies that take place within a designed, controlled environment, and usually involve special treatments of different groups to contrast the precise relationships among variables (Galliers, 1991).



- **Field experiment:** As with laboratory experiments, special treatments are used to study two or more controlled groups. Field experiments differ, in that they are conducted in a real-world setting. The object of study is subjected to direct observation by the researcher (Klein and Myers, 1999).
- **Action research:** Often embodied in a case study, action research distinguishes itself, in that the researchers are an integral part of the phenomenon, under study. The researchers' input often influences the outcomes of the phenomenon and his/her role could change from researcher to subject (Galliers, 1991).
- **Others:** This category includes articles that are practitioner-oriented (systems or tools development), non-empirical pieces, or descriptive/argumentative, as noted in Galliers's (1991) classification. Research with secondary data, such as public records or existing datasets, is also located in this category. Furthermore, secondary research, which uses data gathered by one or more prior researchers, and it is re-examined in the light of a different theoretical framework from that previously used. The documents may also include materials prepared for purposes other than scientific research.

One of the more recent examinations by Farhoomand and Drury (1999) indicates that the methodology of the studies they analyzed were survey (32%), case study (17%), laboratory experiment (10%), and field experiment (2%). The definition of the research design is critical, because it gives direction regarding what data will be collected and why. King, Keohane and Verba (1994:118) refer to research design as “a plan that shows, through a discussion of a model and data, how we expect to use our evidence to make inferences”.

In addition, Mouton (1996:107) defines research design as a set of guidelines and instructions to be followed in addressing the problems. Research design explains the connection between research questions, empirical data used, and different techniques applied for both collecting and analysing the data, and finally making inferences (Yin, 1984:61). Research design has been simply defined by Nachmias and Nachmias (1976: 77-78) as

*“Guides the investigator in the process of collecting, analysing, and interpreting observation...the research design also defines the domain of generalisation, that is, whether the obtained interpretations can be generalised to a larger population or to different situations”*

This research has adopted multiple methods for a context-rich explanation of research questions. According to Denzin (1978), using more than one method as a

form of triangulation will increase the validity and reliability of the study. Figure 5.1 shows the research design and methodology for this study.

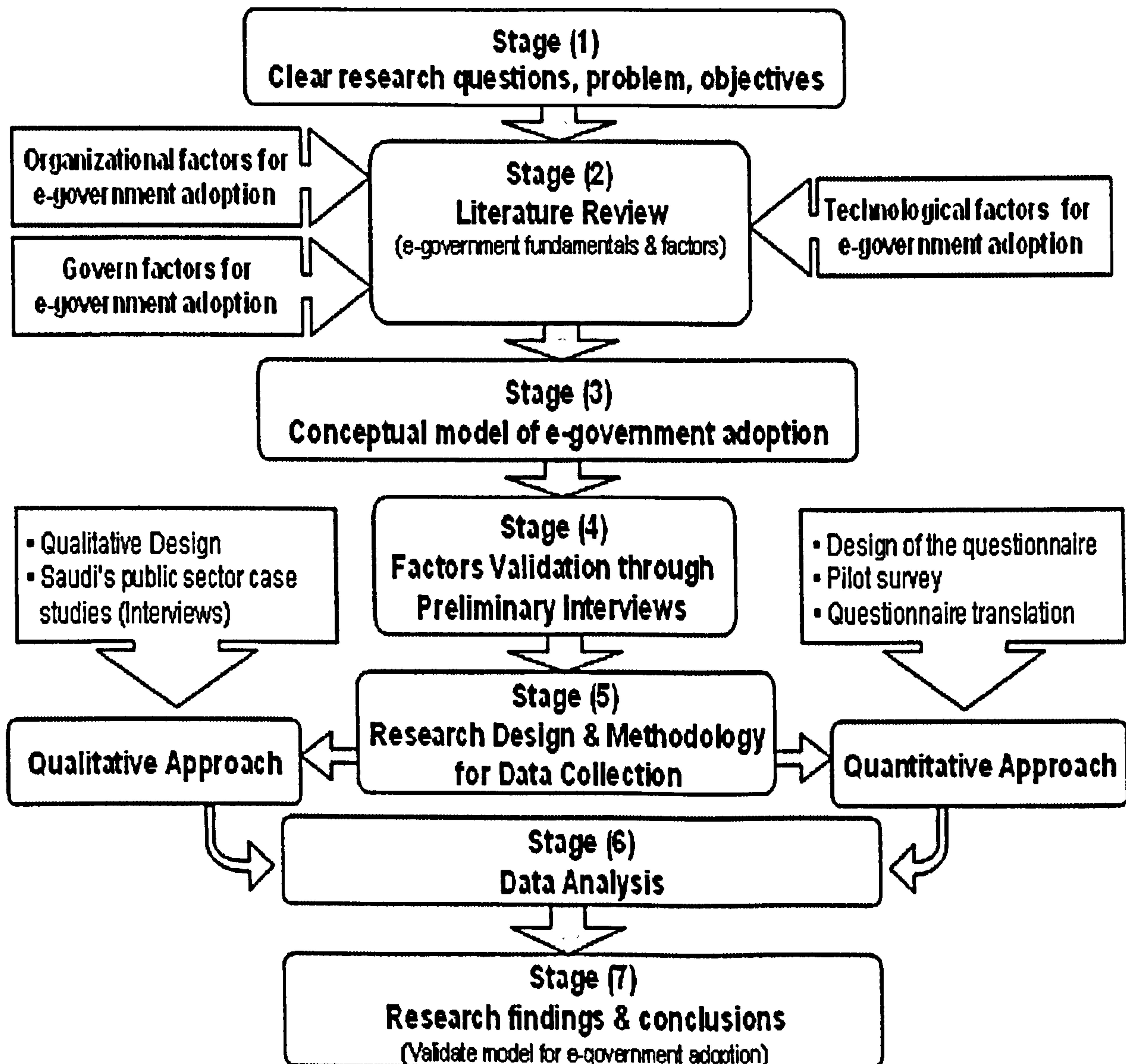


Figure 5.1: Research Design and Methodology



### 5.3.1 Preliminary Interviews

Preliminary interviews were performed in order to validate the finding from the literature. Interviews were conducted with eight expertise and who are familiar with e-government in Saudi Arabia. The researcher used more than one interview in different organisations to give the study more evidence. In other words, by comparing the results from these organisations, there was further validation of the factors. The interviews gathered their opinions on the identified factors for e-government adoption. All interviews were conducted in person, to ensure that an appropriate expert had the opportunity to participate in the research and give feedback.

The preliminary interviews were conducted, not with the intention of confirming the e-government factors in the literature, but rather to find which, if any, e-government factors were in evidence in the organisations in their implementation of e-government projects. It is required examining the validity of the factors of e-government initiatives in the organisations. The aim is not merely to receive yes or no answers to precise questions, but to obtain a description of an episode, and explanations for activities and actions. Capturing the core meaning and feelings of the informant is thus a considerable challenge for a researcher (Stake, 1995:65).

After a brief overview of the research being undertaken, the university involved, the research's purpose, and the meaning of some terms and concepts was presented by the researcher, the respondents were free to express themselves on any question asked and to offer comments in addition to simple answers to the questions. Interview times ranged from 45 to 90 minutes, depending on the interviewee's schedule and availability.

The interviews were in semi-structured format that enabled the subject to comment on, or verify the accuracy of, interpretations made in the research, and open-ended follow-up questions allowed subjects to discuss topics and details they believed to be significant. During the interviews, the interviewees were asked to relate to the factors based on their organizational experience. After collecting the data, transcription was the next step. This resulted in a final pool of 24 critical factors for e-government.

### **5.3.2 Quantitative Methods**

According to Myers (1997), quantitative research methods were originally developed in the natural sciences to study natural phenomena. Conventional science adopts the assumption that there is a real world, comprising objects and processes. On the basis of observation of the real world, humans form theories as to how it came to be the way it is, and how and why the processes take place.

In an applied discipline such as Information Systems, it is common to depend on theories borrowed from reference disciplines. In order to establish whether the theory has the capability to describe, explain, and especially to predict the behaviour of the real world, it is necessary to construct tests of the inferences arising from a theory (Clarke, 1994).

In order to actually perform tests, it is necessary to express them in 'operational' terms. Examples of quantitative methods now well accepted in the social sciences include survey methods, laboratory experiments, formal methods, and numerical methods such as mathematical modelling (Myers, 1997). The quantitative approach features are:

- Deductive approach.
- Underpinned by a completely different set of epistemological foundations from those in qualitative research.
- Results are said to be 'hard generalisable data'.
- Inquiry from the outside.
- Simply different ways to the same end?
- Involves following of various states of scientific research.

Quantitative research designs are characterised by the assumption that human behaviour can be explained by what may be termed 'social facts' which can be



investigated by methodologies that utilise “the deductive logic of the natural sciences” (Horna, 1994). This process is directed towards the development of testable hypotheses and theory which are generalisable across settings and, in contrast, this methodology is more concerned with how a rich, complex description of the specific situations under study will evolve.

In general, the quantitative approach could be defined as an extreme of empiricism, according to which theories are not only to be justified by the extent to which they can be verified, but also by an application to facts acquired. It is a branch of thought which tried to find out the origins, justifications and progress of knowledge through observation, but is considered to have meanings only in so far as they can be derived (Chalmers, 1976). Quantitative investigations look for “distinguishing characteristics, elemental properties and empirical boundaries” and tend to measure “how much” or “how often” (Nau, 1995).

A quantitative research design has always been concerned with defining an epistemological methodology for determining the truth-value of propositions, and allows flexibility in the treatment of data, in terms of comparative analysis, statistical analyses, and repeatability of data collection in order to verify reliability. It can be seen that the strengths of the quantitative methodology for e-government research are:

- Comparisons are allowable,
- Independence of the observer from the subject being observed,

- Subject under analysis is measured through objective methods, rather than being inferred subjectively through sensation, reflection or intuition,
- Reliability and validity may be determined more objectively than for qualitative techniques,
- Strong in measuring descriptive aspects of e-government,
- Emphasises the need to verify the factors that have been indicated in the study, and
- Helps to search for causal explanations, and generally reduces the whole to the simplest possible elements, in order to facilitate analysis (Easterby-Smith, 1991)

### **5.3.3 Qualitative Method**

The qualitative method is used to explore potential attributes for the model. In addition, this section explains why the qualitative method approach, in particular, is used for this research. Qualitative research methods were developed in the social sciences to enable researchers to study social and cultural phenomena. According to Myers (1997), qualitative research methods are designed to help researchers understand people and the social and cultural contexts within which they live. According to Royce (1995:285), qualitative methods are valuable tools to use in trying to understand better our clients and the world that they live in. Qualitative

research involves the use of qualitative data, such as interviews, documents, and participant observation data, to understand and explain social phenomena. Qualitative researchers can be found in many disciplines and fields, using a variety of approaches, methods and techniques.

Qualitative research is conducted through an intense and/or prolonged contact with a 'field' or life situation. These situations are typically 'banal' or normal, reflective of the everyday life of individuals, groups, societies, and organisations (Miles and Huberman, 1994). Qualitative researchers seek to understand lifestyles and social phenomena. A goal is understanding, rather than prediction regarding some dependent variables (Royce, 1995:282). In some senses, all data are qualitative; they refer to issues relating to people, objects, and situations (Miles and Huberman, 1994). One of the major features about well-collected qualitative data is that they focus on naturally occurring, ordinary events in natural settings, so that there is a view on what 'real life' is like. Another feature of qualitative data is their richness and holism, with strong potential for revealing complexity. Such data provide 'rich descriptions' that are vivid, nested in a real life context, and have a ring of truth. From previous study, the qualitative method features are:

- Inductive approach - where propositions may develop not only from practice, or literature review, but also from ideas themselves.
- Inquiry from the insight into the participants' ideas and thoughts.



- An attempt to take account of differences between people.
- Aimed at flexibility and lack of structure, in order to allow theory and concepts to proceed in tandem.
- The results are said to be, through theoretical generalisation, 'deep, rich and meaningful'.
- An approach to the study of the social world, which seeks to describe and analyse the culture and behaviour of humans and their groups, from the point of view of those being studied.

Qualitative research is a method that presents data as narration. The fact that such qualitative data are typically collected over a sustained period makes it powerful for studying any process. Also, the inherent flexibility of qualitative studies (time and methods) gives further confidence that what has been going on is really understood. Qualitative method provides explanations to extend our understanding of the phenomena, or promotes opportunities of informed decisions for social action. It also contributes to theory, educational practice, policy making, and social consciousness (McMillan and Schumacher, 2001:15).

Qualitative data, with their emphasis on people's 'lived experience', are fundamentally well suited for locating the meanings people place on the events, processes and structures of their lives: their "perceptions, assumptions, prejudgments,

presuppositions” (Van Manen, 1977), and for connecting these meanings to the social world around them. There are three other claims for the power of qualitative data. They have often been advocated as the best strategy for discovery, exploring a new area. Their strong potential for testing hypotheses is underlined on seeing whether specific predictions hold up. Further, qualitative data are useful when one needs to supplement, validate, explain, illuminate, or reinterpret quantitative data gathered from the same setting.

Richards and Richards (1994) outline four major perceived constraints which have traditionally militated against the use of qualitative approaches in practice, despite the excitement about their potential in theory:

1. Volume of data,
2. Complexity of analysis,
3. Details of classification record, and
4. Flexibility and momentum of analysis.

There are number of reasons why the qualitative approach has been selected for this research. The research topic, as previously mentioned, is a new phenomenon and, therefore, cannot be thoroughly or adequately investigated using existing theories and models. Researchers address new phenomena using the qualitative research paradigm. Many researchers, including Creswell (1998), observe that

qualitative research enables researchers to identify 'categories' from participants, rather than identify those categories prior to conducting the research. It has long been recognised that purely qualitative research may neglect the social and cultural construction of the variables studied (Richards and Richards, 1994).

In the research, data collected through the qualitative method has contributed positively to the development of an e-government adoption model and exploration of new factors for e-government adoption. Using the qualitative approach helps understanding of how people make sense of their experience, and develop abstractions, models and theories from this experience. It also allowed the researcher to ask probing questions in order to gain access to the participants' values and practices that cannot be gained using quantitative instruments.

#### **5.3.4 Comparison between Qualitative and Quantitative Methods**

Although qualitative research methods such as case studies have gained increasing attention (Silverman, 1998; Klein and Myers, 1999; Markus and Lee, 1999), qualitative research is often defined as research in which uses descriptive data are used to emphasise the description and understanding of the situation behind the factors.

As for quantitative research, numerical data are gathered, then analysed to illustrate the relationship among factors in the phenomenon studied. Quantitative



researchers rely on and emphasise explanation and control, whereas qualitative researchers press for understanding of the complex interrelationships of the phenomenon (Stake, 1995:37). Aguinis (1993:422) summarises that an exclusive use of quantitative methods may not help to increase the knowledge about complex, multi-causal organisational phenomena. As for quantitative method, it is very useful in generalisation.

Stake (1995:37) further highlights three major differences between quantitative and qualitative research: (1) the distinction between explanation and understanding as the purpose of the inquiry, (2) the distinction between a personal and impersonal role for the researcher, and (3) a distinction between knowledge discovered and knowledge constructed.

According to Chen and Hirschheim (2004), to make the comparison meaningful, both methods should be categorised as empirical studies. As non-empirical studies typically involve describing or arguing for theories and frameworks, they could be categorised as a qualitative research method, but this would muddy the distinction of quantitative methods. The criterion for categorising research methods as quantitative or qualitative is thus based on whether studies use a statistical or numerical approach to collect and analyse data. There is a possibility that research could use both quantitative and qualitative methods in different stages of the study. On such occasions, it is categorised as a combined or mixed research method. To

explain the differences, a comparative list is provided as follows, according to Firestone (1987), Guba and Lincoln (1988), McCracken (1988), Creswell (1994) and Neuman (2000):

1. In quantitative research, theory is largely causal and is a deductive process; however, theory can be causal or non-causal, and is often an inductive process.
2. The language of the research in quantitative is formal, but in qualitative the language is informal.
3. Concepts in quantitative research are in the form of distinct variables. In qualitative research, concepts tend to be in the form of themes, motifs, generalisations, and taxonomies. However, the objective is still to generate concepts.
4. In quantitative research, the researcher is independent from what is being researched; however, the researcher interacts with that being researched in qualitative.
5. Training and experience of the researcher require in the quantitative research, technical writing skills and computer statistical skills; in qualitative, literary writing skills and computer text analysis skills. However, both of them require library skills.
6. In quantitative research, procedures are standard, and replication is assumed; but for qualitative, procedures are particular, and replication is difficult.

7. In quantitative, there are generalisations leading to prediction, explanation, and understanding; on the other hand, in qualitative, patterns and theories are developed from understanding.
8. For quantitative research, analysis proceeds by using statistics, tables, or charts, and discussing how they relate to hypotheses; for qualitative, analysis proceeds by extracting themes or generalisations from evidence, and organizing data to present a coherent, consistent picture. These generalisations can then be used to generate hypotheses.
9. In quantitative research, measures are systematically created before data collection, and are standardized as far as possible, e.g. measures of job satisfaction. In qualitative research, measures are more specific, and may be specific to the individual setting or researcher.
10. In quantitative research, data are in the form of numbers from precise measurement. As for qualitative research, data are in the form of words from documents, observations, and transcripts. However, quantification is still used in qualitative research.

A summary of the strengths and weaknesses of quantitative and qualitative methods, according to Bernard (2000), is presented as follows:



Table 5.1: Strength &amp; Weakness of Quantitative Method

Quantitative Method	
Strength	Weakness
<ul style="list-style-type: none"> <li>• Allows to classify features, count them, and even construct more complex statistical models in attempt to explain what is observed.</li> <li>• Findings can be generalised to larger population.</li> <li>• Allows us to analyse more easily because quantitative data in numerical form.</li> <li>• Provides high level accuracy.</li> <li>• Compare measures of dispersion.</li> <li>• Allows to present analysis graphically.</li> </ul>	<ul style="list-style-type: none"> <li>• Picture of the data which emerges from quantitative analysis lacks richness of detail compared with data from qualitative analysis reduced to numerical form.</li> <li>• Quantitative implementation slow, and needs time compared with qualitative.</li> <li>• Can be expensive.</li> <li>• Low response rates.</li> <li>• Not simple to implement.</li> <li>• Quantitative often requires computer analysis.</li> </ul>

Source: Bernard (2000)

Table 5.2: Strength &amp; Weakness of Qualitative Method

Qualitative Method	
Strength	Weakness
<ul style="list-style-type: none"> <li>• The qualitative analysis allows a complete, rich and detailed description.</li> <li>• Can be faster compared with quantitative.</li> <li>• Does not reduce complex human experiences to numerical form and allows a good insight into the person's experiences and behaviour.</li> <li>• Qualitative can be cheaper than quantitative.</li> <li>• Ambiguities, which are inherent in human language, can be recognised in the analysis.</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative difficult to analyse and needs high level of interpretative skills.</li> <li>• Great chance of bias.</li> <li>• Hard to draw brief conclusions from qualitative data.</li> <li>• Qualitative faces difficulties in terms of comparison.</li> <li>• Low level of accuracy in terms of statistics.</li> </ul>

Source: Bernard (2000)

### 5.3.5 Combined (Qualitative & Quantitative) Approach “Triangulation”

Although most researchers do either quantitative or qualitative research work, some researchers have suggested combining one or more research methods in the one study (Myers, 1997). There is a strong suggestion within the research community that research, both quantitative and qualitative, is best thought of as complementary, and should therefore be mixed in research of many kinds. Das (1983) states that

*“Qualitative and Quantitative methodologies are not antithetic or divergent, rather they focus on the different dimensions of the same phenomenon. Sometimes, these dimensions may appear to be confluent: but even in these instances, where they apparently diverge, the underlying unity may become visible on deeper penetration. .. The situational contingencies and objectives of the researcher would seem to play a decisive role in the design and execution of the study”*

This emphasis has developed with the growing attention focused on ‘Triangulation’ in research (Yin, 1994). Triangulation is “the combination of methodologies in the study of the same phenomenon” (Denzin, 1978). Jick (1983) refers to triangulation as “largely a vehicle for cross-validation when two or more

distinct methods yield comparable data". The assumption in triangulation is that the effectiveness of triangulation rests on the premise that the weaknesses in each single method will be compensated by the counter-balancing strengths of another.

This term is occasionally taken to refer to a broad approach which combines "multiple observers, theoretical perspectives, and methodologies" (Jick, 1983) and is frequently used interchangeably to describe research strategies which incorporate a combination of quantitative and qualitative research methods in the study of the same phenomenon. It generally denotes a reference to a combination of research methods - thus the use of qualitative and quantitative techniques together to study the topic - which is very powerful for gaining insights and results, and for assisting in making inferences and in drawing conclusions.

The triangulation approach, which integrates the quantitative and the qualitative methodologies as the principal research technique for this study, will answer two types of research questions: the qualitative side will seek answer to the questions 'how' and 'why' which relate to the factor aspects of implementing e-government.

The quantitative side will achieve a kind of assessment and generalisability. For this purpose, it will elicit the experience of government sectors regarding elements and factors in e-government delivery. This is will target 'what' components of the research question.



Assessing the current state of e-government implementation, factors critical to its delivery and setting future direction requires intensive and extensive analysis of the relevant evidence. For intensive analysis, rich data will be sought through implementing the selected methods. The triangulated sources will enhance the validity of the study. For an extensive part, however, large scale data will be collected through surveys. Therefore, this study is the combination of qualitative and quantitative research.

Although the use of a single methodology has been advocated by a number of authors (Eisenhardt, 1989; Miles and Huberman, 1994), many of the supporting arguments are decidedly pragmatic, such as time constraints, the need to limit the scope of the study, and so on. Rossman and Wilson (1991) answer the question of why link qualitative and quantitative data, and considers it to be:

- Enable confirmation or corroboration of each other via triangulation.
- Elaborate or develop analysis, providing richer details.
- Initiate new lines of thinking through attention to surprises or paradoxes, ‘turning ideas around’, providing fresh insights.

Quantitative data can help with the qualitative side of a study during design by finding a representative sample and locating deviant samples, while qualitative data can help the quantitative side of the study during design by aiding with conceptual

development and instrumentation. The crucial aspect in justifying a mixed methodology research design in this study is that both single methodology approaches (quantitative only and qualitative only) have strengths and weaknesses. The combination of methodologies, on the other hand, can focus on their relevant strengths.

The researcher should aim to achieve a situation where “blending qualitative and quantitative methods of research can produce a final product which can highlight the significant contributions of both” (Nau, 1995), where “qualitative data can support explicitly the meaning of quantitative research” (Jayaratne, 1993). By adopting the following assumptions, the researcher should ensure that the final product maximises the strengths of a mixed method approach (adapted from Jones, 1997):

- Qualitative methods, especially observation, or unstructured interviews, allow the researcher to develop an overall ‘picture’ of the investigation.
- Quantitative analysis may be more appropriate to assess the behavioural or descriptive components of e-government.
- The descriptive analysis, such as capabilities of employees, may allow a representative sample to be drawn for the qualitative analysis (Marsh et al., 1978)

- E-government research involves affective factors, as well as overall behavioural aspects. Thus a qualitative 'core' is appropriate to investigate such aspects by examining the informant's point of view.
- The use of qualitative methods allows for unexpected developments that may arise as part of such research.
- Quantitative analysis may complement the findings of qualitative methods by indicating their extent within aspects of e-government.
- Quantitative analysis may confirm or reject any apparently significant data and the relationships that may emerge from research. Quantitative methods can be used to enable statistical testing of the strengths of such relationships.
- If such relationships are determined, then quantitative methods are weaker in providing explanations. Qualitative methods may assist in understanding the underlying explanations of significance.

#### **5.4 Research Approach**

Kasanen et al. (1991) talk about research approaches when referring to the researcher's basic methodological choices related to both philosophical domains and the methods used in the research. In previous section, the research design has been defined as "the logic that links data to be collected and the conclusions to be drawn to the initial questions of the study" (Yin, 1984:27). Yin further defines research design

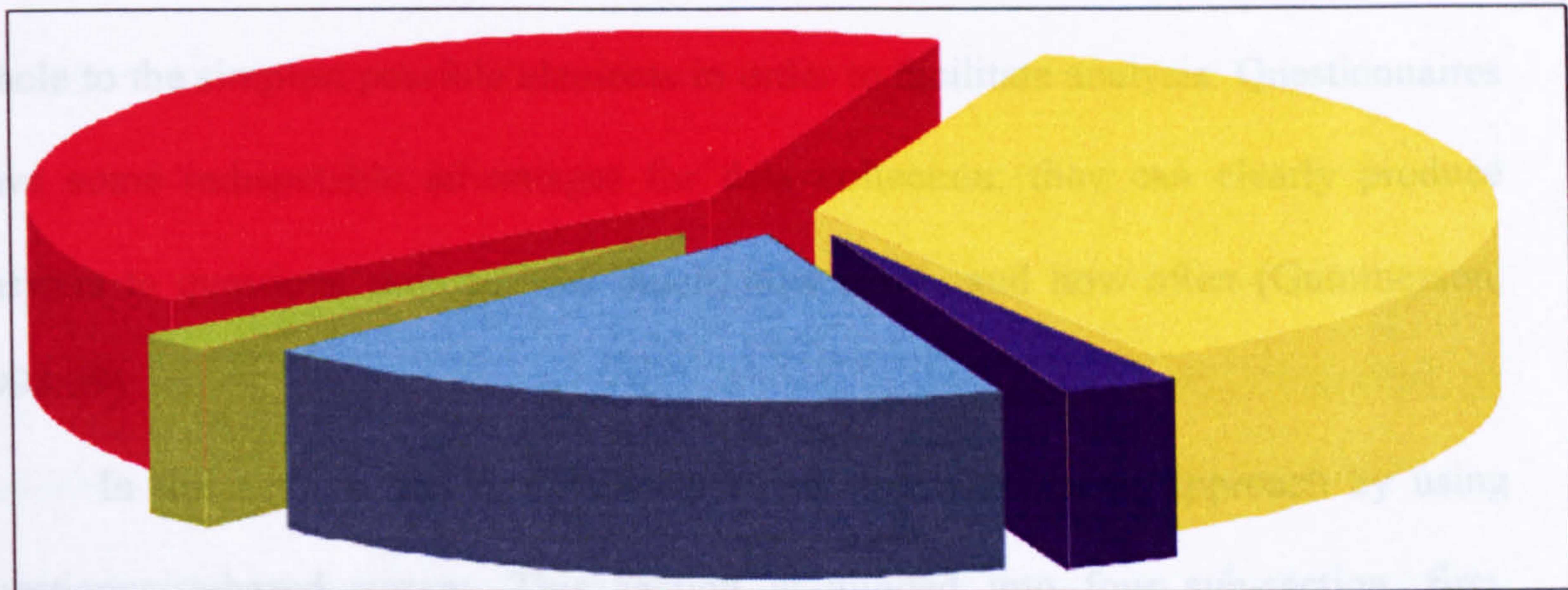


as an action plan for getting from here to there, where 'here' refers to the initial set of research questions, and 'there' represents the set of conclusions or answers to these questions. Research design is not merely a work plan. On the contrary, the main purpose of it is more fundamental; that is, to ensure that the data and methods used are suitable for answering the questions.

Yin, furthermore, mentions that another, maybe a slightly more practical and directly applicable, way to define research design is to think of it as a blueprint of the research. Consequently, it deals with at least four problems of carrying out a successful research: what questions to study, what data are relevant, what data to collect, and how to analyse the results (Yin, 1984:29).

Chen and Hirschheim (2004), in their review, they found that the overall percentages for the use of the quantitative, qualitative and mixed methodologies in journals in all categories from 1991 to 2001 were following: quantitative (60%), qualitative (30%), and mixed methods (10%). Furthermore, qualitative research methods, as opposed to the dominant quantitative methods, have also become more popular in the field (Lee, 1989; Walsham, 1995; Silverman, 1998). As for the research design, according to Chen and Hirschheim (2004), Figure (5.2) below shows the percentage of five research designs adopted (survey, case study, field experiment, lab experiment, and action research).



**Figure 5.2: Percentage of Five Research Designs**

■ Survey 41% ■ Field Experiment 2% ■ Lab Experiment 18% ■ Action Research 3% ■ Case Study 36%

Source: Chen and Hirschheim (2004)

In this study, the researcher has decided to use the triangulation approach, which means using more than one methodology in the same study. In Figure 5.1 Research Design and Methodology, there were three stages for conducting data, which are discussed in order, secondary case studies, qualitative approach, and quantitative approach, in the following sections. In these sections, guidelines for selecting, collecting and interpreting data are presented and discussed.

#### 5.4.1 Quantitative Approach Using Questionnaire-Based Survey

In section 5.3.1, it was shown that the quantitative approach has always been concerned with definition an of epistemological methodology for determining the truth-value of propositions, and allows flexibility in the treatment of data, in terms of comparative analysis, repeatability of data collection in order to verify



reliability, helps to search for causal explanations, and generally reduces the whole to the simplest possible elements in order to facilitate analysis. Questionnaires have some indisputable advantages for data collection; they can clearly produce answers to questions such as how much, how many, and how often (Gummesson, 1993:29).

In this section, the researcher discusses the quantitative approach by using questionnaire-based survey. This section is divided into four sub-section, first, questionnaire development; second, pilot study; third, questionnaire translation; and finally, the sample used in the study.

#### **5.4.1.1 Questionnaire Development**

In order to offer generalisations, a survey was necessary to determine if the generalisations about the critical factors in e-government adoption can indeed be accepted. The questionnaire was developed based upon research literature and modified by reviewing the case studies. The questionnaire contained a detailed brief and clear instructions, and was arranged to facilitate ease of response, where the respondents were advised by cover letter of the nature of the research, the researcher's background and education, and why the research was being carried out.

Respondents were informed that they could fill in the questionnaire in either Arabic or English, and 20 to 25 minutes was the maximum time they would need to



complete it. In addition, they were assured of privacy and confidentiality and offered the opportunity to receive a copy of the research upon its completion.

A five-point 'Likert' scale was the main instrument in the questionnaire to explore respondent agreement with the statements. Clear, concise instructions were provided for all sections. The arrangement and length followed the suggestions of Saunders et al. (1997) that a longer and more detailed survey/questionnaire could be used when the population was much specialised in the topic. As was suggested by Bell (1993), the shorter and most straightforward questions were slotted in at the beginning of the questionnaire. The questionnaire was structured with a variety of response opportunities, and was in four, arranged as follows (Appendix A/1):

- Part One - Background information on the organisation. This sought answers to demographic questions and very general organisational background in tick-list or short answer format.
- Part Two – E-government related to critical factors. This offered an agreement/disagreement level, in which rating was done on a scale of 1-5, with 1=Strong Disagreement, and 5=Strong Agreement. This part was divided into three sections as follows:
  - Section one : Governing Factors
  - Section two : Technological Factors
  - Section three: Organisational Factors

- Part Three - E-Government benefits. This was a list of 15 statements exploring the presence or absence of benefits. As in part two, there was an agreement/disagreement 5 – point scale.
- Part Four - E-Government obstacles. This offered a 1-5 scale for rating of the problems encountered, with 1=not a problem, and 5=an extreme problem.

After these sections, there was a question asking for a rating of the project under question as a success or failure on a scale of 1-5, where 1=very unsuccessful and 5=very successful. Furthermore, an open-ended question asked for the critical factors of an e-government project. In developing the survey document, the first step was a thorough literature review, including close scrutiny for possible use of questions generated by other researchers on this topic.

#### **5.4.1.2 Pilot Study**

Before distribution, the researcher has implemented pilot testing on the questionnaire. The questionnaire was sent to a group of experts from different organisations such as universities. This was performed in order find any errors or difficulties that might have slipped from the researcher in the development phase (Parasuraman, 1991). From the experts, the researcher gained some comments and notes that helped in improving the questionnaire development.

Furthermore, a trial questionnaire was distributed and was completed by a small number of respondents from different organisations. The trial questionnaire gave the researcher an idea as to whether all the areas in the research were sufficiently covered, and whether the gathered data were likely to be reliable and valid. The researcher watched the participants while they were filling in the questionnaire to observe behaviour. Comments from the respondents were recorded regarding to the ease with which they completed the questionnaire, and which questions they felt were problematic.

In addition, the length of questionnaire and the time spent to complete were considered. The open question was completed in many cases. Furthermore, most of the questionnaires gave the respondent's address in order receive the results, which reflects the interest shown for this research.

The researcher gained comments and notes from both experts and the trial questionnaire. The comments were on wording or format of some statements, and those were changed for the final questionnaire. In addition, some of the comments involved in the length of some statements, providing the scale on the top of each page, improving the look of the table. However, most of the comments involved word choices that were not precise enough. Furthermore, all these weak points were easy to correct when pointed out.



### 5.4.1.3 Questionnaire Translation

The original questionnaire was developed in the English language. However, translation of the questionnaire additionally into Arabic was necessary because most of the respondents spoke Arabic as their first language. The sample of the research included people who did not know or have limitation in English language. Therefore, the researcher provided the questionnaire in both languages, English and Arabic.

For translation, the researcher took into consideration the accuracy, fluency, and facility of use. The stage of questionnaire translation was important and necessary to maintain the validity of the data. According to Bulmer and Warwick (1993), translation of the questionnaire can be crucial to the success of the research. Ineffective translation could result in lost or misconstrued meanings between languages.

For a questionnaire initially prepared in English, translating into Arabic could be reliably accomplished by using the “back-translation” method. This approach involved a two phase process (Brislin, 1970). In the first phase, the English version of the questionnaire was translated into Arabic by the author. In the second phase, the Arabic version was translated back into English by an interpreter. The initial English version was then compared with the second. Furthermore, to improve the reliability of the translation further, the cross-linguistic comparability of the English and the Arabic version were checked by another person who is bilingual in English and

Arabic. It is worth noting that the success of this method depends on the effectiveness of the interpreter.

#### **5.4.1.4 Sampling Techniques**

This section provides details of the selected research samples for this research study. It contains details of the distribution of the questionnaire used to collect research data. A sample is a portion of the population that is chosen or identified to take part in the investigation of the study. The population must first be identified, and then the sample. After data collection methods have been identified, it is crucial to know something about the process of selecting people to take part in the research under study. This whole process is called sampling, and the people picked out make up a sample (Grinnell, 1990:118).

It is, however, crucial to define the population because the ultimate sample comes or was generated from the population. According to Grinnell (1990:118), a population is the totality of persons or objects with which a study is concerned. For this study, the population consists of Saudi Arabia government organisations. The questionnaires/surveys were distributed to Saudi Ministries, Public Commissions and Institutions, and Regional Emirates.

The chosen organisations expressed an interest in the research, and were willing to participate. Stake (1995) emphasises the importance of including organisations which have displayed willingness to participate, and therefore be

accessible to the researcher. The organisations were also selected because of the track record they shared in the reform of the work process through introduction of Information Technology (IT). Furthermore, the organisations were selected because of their receptiveness to government initiatives related to collaboration in term of G2G, G2B, and G2C.

There are two main ways of selecting samples: probability sampling and non-probability sampling. A probability sample is one in which all the people or units in the sampling frame have the same known probability of being selected for the sample. The section is based is based on some form of random procedure, of which there are four main types, namely simple random sampling, systematic random sampling, stratified random sampling, and cluster random sampling (Grinnel, 1990:119).

In non-probability sampling, not all the people in the population have the same probability of being included in the sample, and for each of them the probability of inclusion is unknown. This form of sampling is often used in exploratory research studies, where the purpose of the study is just to collect as much data as possible. There are four types of non-probability sampling, namely, availability sampling, quota sampling, judgemental sampling, and purposive sampling.

After reviewing the literature, the main difference between probability and non-probability samples is that in the probability, the scholars have no influence over



which units in the sampling border end up in the sample. On the other hand, the opposite is true of the non-probability.

The researcher used a non-probability sampling design called purposive sampling. Advantages of non-probability sampling are that such designs are typically cheaper and easier to carry out than probability designs. Non-probability samples are typically used in exploratory studies to generate hypotheses for further testing (O'Sullivan and Rassel, 1999). The disadvantage to using non-probability sampling is that generalisation from the data can often be misleading, because "there is no way to know how representative or typical the experiences of the sample units are" (Northrop, 1999).

The researcher has chosen purposive sampling because it is ideal for this research. According to O'Sullivan and Rassel (1999), through purposive sampling, "the main criterion for selection of any unit from the population using (the) sampling procedure is the investigator's judgment that the unit somehow represents the population".

This method is often used by researchers when only a few people have access to the information sought by the researchers. It is thus the only way to obtain the information. Examples of this are specialists, experts, high-level managers, presidents and vice-presidents of organisations who, by their position, have the experience and

knowledge relevant to the exact requirements of the researcher about organisational culture, e-government implementation, strategies, and so on.

This exploratory study takes a practical approach to investigating the key factors that affect the adoption of e-government in Saudi Arabia by using suitable methods to seek those who have significant experience of working on e-government projects or have good knowledge about this topic. People who work in e-government teams in Saudi Arabia are an excellent source because they are qualified and they have experience in both e-government and the public sector in Saudi Arabia.

#### **5.4.2 Qualitative Approach Using Case Study**

According to Yin (1994), case studies are the preferred strategy when 'how' or 'why' questions are being posed. Case study is particularly applicable when: "A 'how' or 'why' question is being asked about a contemporary set of events, over which the investigator has little or no control" (Yin, 1984:20). Stake (1995:2-4) distinguishes three different types of case studies: intrinsic, instrumental, and collective case studies.

In intrinsic one, the emphasis is put on understanding one particular case, not to learn about other cases or to solve a general problem. In instrumental case studies, however, a case is used as a means (an instrument) for answering a research question

or solving a general problem. Collective case studies are also instrumental studies, with the special characteristics of comprising several cases.

They may involve either only one case or multiple cases, and numerous ways to analyse the results (Yin, 1984:133). Furthermore, case studies may either be descriptive (describing, analysing, explaining, and understanding) or normative (modelling, guiding, and suggesting) in nature (Kasanen et al., 1991:315). Yin (1984:20) further defines case study as an empirical inquiry that:

- Investigates a contemporary phenomenon within its real-life context, when
- The boundaries between phenomenon and context are not clearly evident, and in which
- Multiple sources of evidence are used.

The researcher undertook a series of case studies as a vehicle for empirical research which was used to develop a theory concerning the implementation of e-government. A common application of case studies is first to build a theory using case study data and, thereafter, to test it by using further case studies, survey data, or another suitable method (Ellram, 1996:97).

Yin (1984:25) also notes that case studies have a special role in evaluation research, because case studies (1) can explain the causal links in real life interventions that are too complex for being analysed e.g., by surveys or experimental strategies;



(2) Can describe a real life situation; (3) usually contain illustrative and descriptive parts, which in turn may help the evaluation; and (4) case studies are effective in exploring interventions with no clear, single set of outcomes.

The general characteristics of a case study research, according to Yin (1984), Ellram (1996), Gummesson (1993), Kasanen et al. (1991), Stake (1995) and Eisenhardt (1989) are the following:

- Descriptive or normative in nature
- Both quantitative and qualitative methods used
- Difficult to separate analysis and interpretation from data gathering
- Analysing and interpreting subjective procedures
- Knowledge rather constructed than discovered or found
- Generalising on the basis of a very limited number of cases
- Generalising is not making statistical inferences from the sample but through a deep understanding of the phenomena
- Interviews adapt to changing situations and requirements
- Captures core meaning and feelings of the informant

In case studies, interviews are one of the most important sources of evidence, because case studies usually deal with human affairs and interaction (Yin, 1984:88-91). Moreover, interviews serve the purpose of obtaining multiple

realities of one single case. However, they may also serve as a useful means for receiving interpretations from different players in the case (Stake, 1995:64).

It was important to carry out research by asking questions of members of the organisation who had been or were currently involved in e-government projects as top management, project manager, and member of the project team. Furthermore, the researcher used more than one organisation to give the study more evidence through comparing the results from these organisations.

There was further validation of the nature of the factors, and the conclusion on e-government implementation theory was further developed. Interviews were conducted in several ministries, commissions and public institutions. Comparison of the responses between and among all these organisations add further validation as to what extent they were in operation, and how they influenced e-government adoption, and added to e-government implementation/delivery knowledge.

The aim of the interviews was to develop an understanding of how the literature issues could be interpreted in a real world environment. The researcher was interested in finding how the indicated factors were involved in the implementation and delivery of e-government adoption in actual use in each organisation.

Most commonly, interviews in case studies are open-ended. The researcher may ask the interviewee questions both about the facts of e-government implementation and about the interviewee's opinions on events related to e-

government. Attention is also paid to body language, gestures and other non-verbal signs (Gummesson, 1993:33; Yin, 1984:88-91). Nevertheless, the researcher needs to be careful not to become too dependent on the key informant because, at the same time, informant bias may increase. A reliable tactic in avoiding this pitfall is to use multiple sources of data in reinforcing the information from interviews (Yin, 1984:88-91).

Researchers have explained the difficulties in implementing research in Saudi Arabia society, especially to collect data in order to complete their research. According to Alqahtainy (1996), he used his personal contacts and the networking to conduct meetings with organisations and individuals involved in his research. This supported him in accessing organisations, and created an appropriate climate with the respondents, and this resulted in providing more information for his research. Personal relationships and trust-building contacts with the subjects of the research are important element for the researcher, and this is considered an obstacle.

While doing the interviews or even the survey, the current researcher faced access problems. Without some form of personal relationships or influence, the researcher found access to organisations and people managing them slow, and at times very difficult. To arrange interviews, friends and relatives who knew someone, who knew someone else, through networking, on a few occasions facilitated first contacts and eased the process.



Furthermore, the researcher faced some delays and interruptions while performing the interviews. Delays and delayed appointments required patience from the researcher. Because of frequent interruptions (phone calls, etc.), meetings sometimes extended for up to an hour or more. Senior managers are very busy people, and interruptions and delays must therefore be expected while performing interviews.

All interviews were conducted in person, to ensure that an appropriate expert had the opportunity to participate in the research and give feedback. Interview times ranged from 90 to 120 minutes, depending on the interviewee's schedule and availability. The research was comprised of semi-structured interviews to determine how e-government initiatives are implemented. This required examining the validity of the factors of e-government initiatives in the organisations and their performance related to e-government.

The interviews were designed to find out what the critical factors of the e-government delivery are, in terms of implementation in the organisations. The interviews were conducted, not with the intention of confirming the critical factors in the literature, but rather to find which, if any, critical factors were in evidence in the organisations in their e-government implementation. Yin (1994:80) indicated the strengths and weaknesses of interviews. Interview strengths are:

- Targeted: focused directly on case study topic

- **Insightful: provides perceived causal inferences**

As for the interview weaknesses, they are:

- **Bias due to poorly constructed questions**
- **Response bias**
- **Inaccuracies due to poor recall**
- **Reflexivity: interviewee gives what interviewer wants to hear**

The changing and evolving nature of interviews distinguishes it from quantitative surveys. It is expected that each interviewee has a unique story to tell, and in order to capture it, the interviews need to be adapted to the changing situations and requirements. Furthermore, the objective is not merely to receive yes or no answers to precise questions, but to obtain a description of an episode, and explanations for activities and actions. Capturing the core meaning and feelings of the informant is thus a considerable challenge for a researcher (Stake, 1995:65).

The researcher starts the interview by introducing himself, a brief overview of the research being undertaken and its purpose, and the presenting the meaning of some terms and concepts related to the topic. Then, respondents were free to express themselves on any question asked, and to offer comments in addition to simple answers to the questions.

The semi-structured format enabled the subject to comment on, or verify the accuracy of, interpretations made in the research, and open-ended follow-up questions allowed subjects to discuss topics and details they believed to be significant. Other advantages of face-to-face interviews include greater researcher 'control' over the line of questioning; the format allows the researcher to ask probing follow-up questions. In addition, informants can provide useful historical information (Creswell, 1994). However, one of the main disadvantages of the unstructured interview process is interviewer bias.

There are some ethical considerations that must be taken into consideration when using interviews. They are informed consent, assurance of confidentiality and anonymity. The respondents must be assured that the information they will give will be treated as highly confidential, and it will not be divulged to anyone who is not involved in the research. They must also be made aware of the fact that their names will not be made known to anyone, and they will remain anonymous throughout the study.

Furthermore, respondents' permission to use a tape recorder must be established beforehand. If the interviews were taped, the researcher should ensure that the interviewee felt perfectly free to talk openly when being recorded, and to give full consent without pressure to be recorded on tape. It helps to increase the accuracy of the data and prevent loss of data during transcription. The research relies entirely



on the information given by respondents during interviews for findings. Therefore it is important to make sure the interview process is effective and reliable.

### **5.5 Reliability and Validity**

Pilot study in the survey stage is one of the first steps to reach validity and reliability. It helps in what the possible range of errors will be in the current design format, evaluating how well the findings will meet overall research objectives, and revealing possible problems in the design phase. According to Premkumar et al. (1997), reliability can be referred to as the degree to which an instrument can generate consistent results, meaning results free from measurement errors. On the other hand, Premkumar referred to validity as the degree to which differences found with a measuring tool reflect true differences among respondents being tested.

Validity allows the researcher to find out if the research fits the reality, and if the researcher is measuring what he really wants to measure, in accordance with his research questions, objectives and purpose of the study. There exist different tactics to increase construct validity, such as the use of multiple sources of evidence. Reliability is about making sure that a new investigator should arrive at the same findings and conclusions as an earlier one, by following the same procedures described by the earlier investigator. The objective is to minimise the errors and biases of the study as much as possible

Furthermore, according to Stake (1995:45), triangulation means deploying more than one method in a study to provide enhanced validity and to increase the chance that results are not biased. It is used to ensure that results are not method dependent and to enhance reliability, to check the validity of the data, and to generate richer data.

For the questionnaire, a group of experts and consultations with other PhD students and the academic staff from different organisation, such as universities, helped to ensure validity, wording, and competence of the questionnaire. This was performed in order find any errors or difficulties that might have slipped from the researcher in the development phase.

Furthermore, according to Saunders et al. (1997), a questionnaire pre-test was necessary to determine the comprehensiveness and validity/reliability of the questions related to the research focus. Therefore, the questionnaire was answered by a small group of respondents similar to those who would eventually participate in the study.

During the test, participants were asking questions and giving notes regarding the relative ease of understanding the format, and notes were taken as to problematic areas. Furthermore, when the study was actually done, all questions with low reliability were dropped.

To assess the reliability of the measures, the most common by used method of determining reliability, Cronbach's alpha, was used. This reliability coefficient shows

how well the questionnaire's questions are positively correlated, and whether the questionnaire's internal consistency is affirmed. This test was performed, and the low reliability items were dropped from the gathered data.

As for the interviews, the researcher used procedures that are rather easy to follow. During the interviews, the researcher wrote down all that was said, as well as the researcher's own perceptions after each interview of the answers given by the respondents, to ensure that everything said during the personal interviews was saved.

To increase the validity of the research, the researcher used several sources of evidence to collect the needed data. The sources that the researcher used for the research comprised personal interviews, surveys, international press releases, books, and the Internet. In addition, the researcher reviewed his notes briefly and very rapidly with each respondent, in order to be sure that he got the right view about their perceptions and feelings about. By this method, the researcher increases the validity of the research.

In addition, further efforts to increase the reliability of the data came from limiting the interviewers to the researcher only, and asking only those with the access to and knowledge of the particular e-government information required to complete the questionnaires to respond. It is difficult to be sure that the interviews and survey do not include any biases or errors. Moreover, it is impossible to be



sure that another investigator would interpret the data in the same way that the researcher did.

The language in this research has not affected investigations during the interviews and the survey, given that the first language of all respondents is Arabic, like the researcher. Therefore, the reliability of the data collected from the interviews and the survey can be considered sufficient.

### **5.6 Data Collection**

The questionnaire of this study went through several tests to reach its final and actual distributed version. The several reviews and examinations of the questionnaire have been discussed previously in this chapter.

After indicating the sample for this study, the researcher contacted all the organisations. From that, the researcher collected information related to the organisations and attained a list of contacts.

With this list of, the researcher sent both hard and soft copy of the questionnaire together with a covering letter which stated the purpose and the aims of the study, and asked for the help of the participants. Furthermore, the letter contained the e-mail address of the researcher in ease of any enquiry from the participants.

The questionnaire was sent in both languages (English/Arabic) in order to give a choice to the participants. In the same way as the hard copies, the soft copies attached and sent through e-mails, were in both languages, with a covering letter in the body of the e-mail.

The participants were given the option of submitting the questionnaire by one of the following: post, fax or e-mail. A strategy of following up the progress of the participants in completion was pursued in order to increase the response rate (Malhotra, 2004).

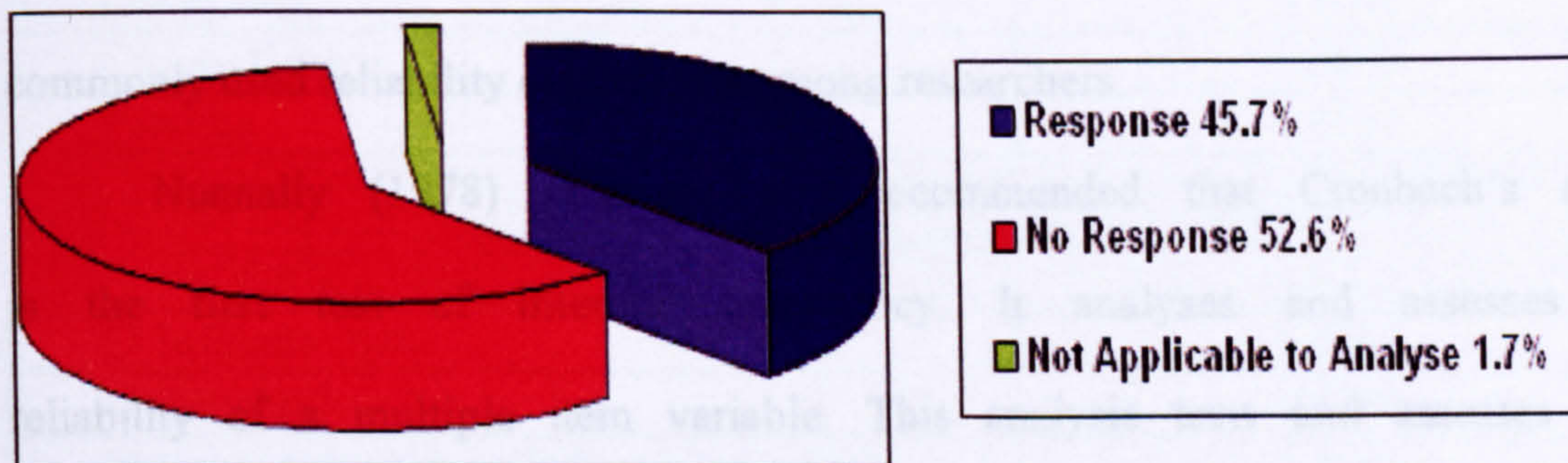
Furthermore, as the researcher has distributed the questionnaires by mail and e-mail, he further distributed and collected them personally in order to increase response rate. The researcher took this step on realising that the response rate to mail and e-mail was low.

The researcher took several approaches to distribute and collect the questionnaire personally. He has attended several conferences in Saudi Arabia related to e-government, and obtained a permission to distribute the questionnaires at the in beginning and to collect them at the end of the conference.

Furthermore, the questionnaires were delivered through meeting after gaining the permission from them. Also, the survey was distributed by the traditional way of going to the participants to their offices. While making the distributions, the researcher faced access problems. Without some form of personal relationships or



influence, distributing the survey will be very difficult for the researcher, as has been discussed in the Research Design and Methodology Chapter. Figure 7.1 below shows the participants' response rate.



**Figure 5.3: Questionnaire Response Rate**

The Figure 5.3 shows the percentage of questionnaires collected from the Saudi Arabia government organisations. The response rate was 45.7% which represents an acceptable result for this questionnaire/survey. A sufficient rate was gained due to the effort that the researcher made in distributing and collecting the survey/questionnaire personally. As the next stage, it was very crucial to test the reliability of these questionnaires which the researcher discusses it in the following section.



### 5.7 Reliability Testing and Assessment

In order for scientific deduction to be applicable and valid, it is essential first to find out and verify the reliability of the research. To assess the reliability of the measures, the most common method of testing reliability efficiency, Cronbach's alpha, was used. It is one of the most commonly used reliability coefficients among researchers.

Nunnally (1978) proposed and recommended that Cronbach's alpha is the first test of internal consistency. It analyses and assesses the reliability of a multiple item variable. This analysis tests and assesses how well the questionnaire's questions are positively correlated. Alpha ( $\alpha$ ) is assigned a value from '0' which is zero internal consistency, to '1' which is complete internal consistency. A value of '0.7' is suggested as the accepted cut-off. With a value approaching one, the questionnaire's internal consistency is affirmed. Therefore, low reliability responses were dropped from the gathered data.

The researcher used the Statistical Package for the Social Sciences (SPSS) to run the test. The questionnaire of this study shows that the range within all dimensions was significantly higher than the '0.7'. This indicates that our scale is quite reliable. The following Tables 5.3 shows the results of Cronbach's alpha reliability test.



<b>Dimension</b>	<b>Cronbach's Alpha</b>
<b>Governing Factors</b>	
Vision	0.7938
Strategies	0.8290
Top Management Support	0.9006
Leadership	0.8041
Citizen Centric	0.7823
Funding	0.8115
<b>Technical Factors</b>	
IT Infrastructure	0.8241
IT Standards	0.8363
National Information Infrastructure (NII)	0.8165
Collaboration	0.8204
Security	0.9014
Relative Advantages	0.8084
Citizen Relationship Management (CzRM)	0.8581
<b>Organisational Factors</b>	
Reward System	0.7814
Technical Staff	0.8452
Policy & Legal Issues	0.8112
Training	0.8098
Change Management	0.8012
Implementation	0.8357
Organisation Structure	0.8248
Business Process Re-Engineering (BPR)	0.8165
Awareness	0.8019
Organisation Culture	0.7567
Quality	0.8385

Table 5.3: Cronbach's Alpha Reliability Test



### 5.8 Summary

Owing to the lack of data readily available, the researcher had to perform a series of surveys and use techniques that would generate original material. These methods of research are widely accepted in information systems research, specifically when dealing with application and use of information communication and technologies.

Researchers in the evaluation and community informatics field confirmed the importance of using triangulation (more than one method) for evaluating these programme to reach valid findings (Taket and White, 1997). Using a combination of quantitative and qualitative measures will enhance the richness of the evaluation.

A quantitative research allows flexibility in the treatment of data, in terms of comparative analysis, statistical analyses, and repeatability of data collection in order to verify reliability, and helps to search for causal explanations. However, use of quantitative data alone can be problematic, especially in a new area such as e-government that requires more explanations which can be gained through qualitative. Qualitative research methods work well for exploratory studies in new fields, as monitoring their progress can be naturalistic and inductive - it offers a holistic view of a dynamic situation (Patton, 1990).



In order to address to the research questions, a combined (qualitative and quantitative) research methodology, as well as examination of the literature review, was adopted by the researcher. Furthermore, in this chapter, the researcher presents and discusses evidence to provide justification for the research methods used. In order for the research question to be answered, a number of varying areas had to be explored. Within each area, the relative research techniques used were discussed.

## Chapter 6

### E-Government in Saudi Arabia

## 6.1 Introduction

Governments are responsible to serve their societies, so the governmental fundamental aims are to provide efficient and effective services to the people. The efficient refers to the reduction in cost, time and uncertainty. The effectiveness refers to the interaction and the feedback loop. The advent of Information Technology (IT) has opened up new venues for the governments around the globe to achieve the objectives of efficient and effective objectives by exploiting the IT. Accordingly, almost all the governments are embarking on the e-government projects.

E-Government refers to the combination of physical and organizational technologies. The former type relates to hardware and codified information in terms of software, the latter relates to the organizational structures and administrative technologies. The organizational and administration consist of linkage between organizations with the government. In this sense, e-government is the interaction among three entities: the government (state), technology suppliers (providers) and users (citizens and enterprises). These physical elements such as Internet and social elements such as efficient and effective interactions have transformed works, lives, societies and the governance structure.

Concerning transformation of works, the IT has enabled flexibilities in activities that were not possible without Internet. In social relationships, the possibilities of communication and information transformations were impossible at the magnitude that has been seen in recent years. The enterprises benefit from the creation of new markets. A market is a space where transactions take



place. The IT provides these opportunities for transaction between different entities, and therefore it is a new form of wider markets.

In terms of governance, the IT is enabling good governance, better merits and reduction of bureaucracies, and convenient ways of explicit interaction at reduced cost, time and increased economic opportunities (Heeks, 2001b; Reynolds and Regio, 2001). For instance, a typical e-government system allows the users to initiate a request for a particular government service without going to a government office or having direct contact with a government employee. On the other hand, e-government enables a government to deliver information to the users by using a portal deliveries system.

Since these benefits of e-governments are undeniable by any and relevant to all governments around the world, there is an increasing trend of emulating e-government from a system to system and from government to government. This consensus is driving many countries to initiate, develop and deliver e-governments. Saudi Arabia has taken some important steps in this direction. This chapter discusses and analysis the state of the e-government in Saudi Arabia. This analysis follows a sequence of steps.

First, it outlines some background aspect of the country and describes some relevant facts regarding Saudi Arabia. Second, it examines the state of the ICTs (Information and Communication Technologies). Third, it presents an overview on the e-government initiatives in Saudi Arabia and its evolution over time. It includes projects that have been implemented in the area. Last, the chapter provides a review regarding problems that the country faces in e-government. This sequence is relevant and important concerning the Kingdom of Saudi Arabia

because it is one of important geographically, socio-politically and economically in the region and in the world.

## 6.2 Saudi Arabia Background

Geographically, the Kingdom of Saudi Arabia is located in south western Asia. It comprising about four-fifths of the Arabian Peninsula, and its land mass constituting a distinct geographical entity makes it significant. It borders on the west by the Red Sea, on the south by the Indian Ocean and on the east by the Arabian Gulf. Apart from the sea, the Kingdom lies in a strategically important position and bounded by several countries. On the north, it borders with Jordan, Iraq and Kuwait; on the east it borders with Bahrain, Qatar and the United Arab Emirates; and on the south it borders with Sultanate of Oman and Yemen.

Among these countries, Saudi Arabia is one of the largest countries in the region regarding area and population. The land area covers approximately 2,250,000 square kilometres (868,730 square miles), which is constituted by thirteen regions. The population is around 22 million including non-Saudi (Ministry of Economic and Planning, 2006). Although several constituencies maintain their centres, Riyadh is the capital city of the Kingdom of Saudi Arabia, which is in the central region. In this regards, Saudi Arabia offers interesting context for studying governance, economic and social structures.

Saudi Arabia is Kingdom, currently ruled by King Abdullah bin Abdulaziz al-Saud who succeeded the throne on the first of August 2005. In this governance structure, King Abdullah is the fifth ruler to ascend to the throne since the inception of the current Kingdom. The King serves as the Prime Minister,



Commander of the Saudi National Guard, and Chairman of the Supreme Economic Council. Recently, King Abdullah has become proactively interested in the high technology, including IT. Al-Hoymany, the minister's advisor for IT and head of the e-government notes that "Even the King is really interested in this (e-government). He's the honorary chairman of the Saudi Arabia Computer Society".

Socially and historically, Saudi Arabia is a pivotal state in the Middle East for role in the Islamic religion. Both the Holy Mosques in Muslim faith Saudi Arabia, at "Makkah" and "Madinah" respectively, and they are focal point for more than one billion Muslims around the world. Thus, Saudi Arabia attracts and entertains millions of pilgrims every year from many centuries.

Economically, because the Kingdom of Saudi Arabia has the largest reserves of petroleum in the world, its economy is sound in terms of reserves. It is the largest exporter of petroleum in the world with some of the lowest production costs (Adelman, 1990). According to the current reserves, Saudi Arabia is likely to remain the world's largest net oil exporter for the near future. About a quarter of the world reserves are in Saudi Arabia. This makes it an oil based economy. Accordingly, the Kingdom has access and resources to high technologies acquisition and allocation. The ICTs is a recent focus of the economy and the governed.

### **6.3 ICTs Initiative**

Saudi Arabia has being using IT at public and private sector level. The Kingdom had automated its processes at government and public sector level long before the emergence of the Internet in the country. Now, with advent of the



Internet and the development of the personal computers, both private and public sector are expanding their technology bases.

This expansion has gain a deliberate attention of the government. The government and its agencies have recently begun to move from the traditional way to deliver their services to more sophisticated means brought on by the ICTs revolution. Thus, the positive role of the IT has been recognized in the Kingdom at government and enterprise level.

However, this rapid movement of ICTs raises some challenges and some prospects amongst government agencies as to how to deal with technology in order to enhance the agencies' service to the public and to improve the internal progress of the organisation. In prospects, the advent and advances of ICTs, such as Internet, have influenced the relationship with individuals, business, and more recently with the government (Howard, 2001).

Saudi Arabia, within its rapidly expanding economy and increasing demand from the people, offers opportunities for expanding the usage of IT system. So like any other country that has emulated or emulating, the prospects of the IT for economic development and knowledge bases are substantial. Such a fast pace of the technology demands rapid changes, while the institutions tend to be stable. Accordingly, the mismatch between the two paces raises challenges.

The government has recognized these dynamics and the prospects and challenges that are associated with this interaction. To deal with challenges and to gain from the prospectuses, Saudi Arabia has given e-government a highest priority. In recently figures, Saudi Arabia makes more than 40% of the IT investments in the Middle East region from the early 1980s to the presents (Alsudairy, 2002). Some of this evolution is slow and some other is rapid.

During the last years, Saudi Arabia has observed an exciting development in all aspects of its social and economic life. That was a slow pace growth in the information based development. In the last several years, the government of Saudi Arabia has spent billions of pounds to develop and improve its national infrastructure in the field of computing and telecommunication.

Apart from the physical structural development, there is an increasing attention to the improvement in the social life to adapt to the technological advances. Accordingly, the government, through the public sector, is playing a major role in Saudi Arabia economic and industrial activity. Thus the role of the government appears to be domination in the governance. However, bottom up focus has increased.

In recent years, the private sector has, with the Government's encouragement under the country's system of free enterprise, become increasingly involved in and responsible for industrial development and diversification. Thus, there is convergence on the importance of the IT and the e-governance in society, business and governance system. This consensus implies both the providers and the users of the e-government.

#### **6.4 E-Government Initiatives in Saudi Arabia**

Saudi Arabia has become part of the consensus that the ICTs is likely to shape the future of the communities, economies and therefore societies. These shifts in the technology from conventionally paper laden factors to virtually delivery services require collaborated efforts and substantial resources. The government of Saudi Arabia, like many other governments around the world, has



recognised that the changing from traditional government and provide their services traditionally to electronic government that deliver their services electronically to the beneficiary is one of the most essential public policy issues in the current time. By committing to develop and adopting e-government, the Kingdom has shown that it has the ability and willingness to develop and adopt effective e-government. Hence, Saudi Arabia is in the path of emulating a full scale e-government.

Despite this recognition of the importance and relevant to of the e-government to the Kingdom's governance system, the concept of e-government remains a new phenomenon. It is the phenomenon that varies from context to context. In some systems, it develops bottom up, in others, it is government initiations. However, e-government and governance system at macro level is governmental effort even in pure market economies. So, the government of Saudi Arabia has taken some initiative in this direction to improve the efficiencies and effectiveness in the public service delivery.

In 2001, the concept of e-government was initiated as part of Saudi Arabia overall IT plans. A supreme royal decree in September 2003 was directive to the Ministry of Communication and Information Technology (MCIT) to formulate a plan for providing government services and transactions electronically (<http://www.mcit.gov.sa>). The MCIT established the e-government Program in conjunction with the Ministry of Finance and the Communication and Information Technology Commission (CITC). Establishing e-government concept in Saudi Arabia has placed them within the realm of global IT. This contributed to and enables the launch of an e-government program, as early as in 2005, under the



name. The project was called 'Yesser' ([www.yesser.gov.sa](http://www.yesser.gov.sa)). It has both symbolic and semantic importance.

Yesser in Arabic means to "simplify" or "make easy". This program shows the government's keen interest in adopting the e-government concept. It semantic implies that it is achievable and therefore it was a feasible to develop a relevant and useful e-government. These symbolic and semantic aspects are reflected in the sub-activities. In the project, the e-government has been defined as the effective, integrated utilization of all information and communication technologies to ease and speed up transactions in government organizations (G2G), between government organizations and customers (G2C), and between government organizations and business organizations (G2B).

As a reflection of the intensive and extensive elements in the governance, Yesser implies broader and deeper visions for the economy and technological development. Explicitly, the vision is pointed as:

*"By the end of 2010, everyone in the Kingdom will be able to enjoy world class government services offered in a seamless, user friendly and secure way by utilizing a variety of electronic means".*

Although it seems a challenge, "Yesser" project has highlighted the objectives for reaching the goal in the set timeframe. These objectives high light both the outcome and the evaluative processes:

- To increase the government sector's productivity and efficiency.

- To increase return on investment in terms of efficiencies in public and revenues in private sector
- To offer user-friendly and enhanced services for citizens and the industry
- To offer a needed information timely and accurately

As noted earlier, the government has allocated resources and shown willingness to initiate with clearly defined objectives, the resource allocation and strategic framework indicate that e-government is gaining attraction. The Saudi government has already invested SAR 3 billions (approximately pound £400million) in developing e-government services and added a further SAR 3 billions recently (Milne, 2006). It is targeting to put 150 services that the government provides to individuals and business online by the year 2010.

Potentially, according to Stanton (2006), the e-government in Saudi Arabia will specifically focus on including all of Saudi Arabia citizens. Dr. Fahad Al-Hoymany, an IT adviser and head of the e-government infrastructure department at MCIT, stated that “by the year 2010, we want everybody in Saudi Arabia to enjoy e-government services”. He adds that “we are not talking about an elite group of people that are going to be enjoying this service, we’re talking about everyone”.

This provision is the result from earlier adoption of the Internet and other ICTs based services. The IT is gaining a revolutionary aspect in the country; it is becoming a necessity for business. Recognising these needs, the government implies that the program for e-government adoption will be executed over a five-year period through two parallel tracks.



The first track is expected to continue for a maximum of two-years. This track involves providing the basic program requirements and executing a number of pilot e-government projects that are selected according to specific criteria (quick results, high revenue, and low implementation cost).

The second track of the program continues for the full five-year period. In this track, there are likely to be several tasks. The tasks include: putting together the execution plan and identifying the priorities; putting together the policies, procedures, and regulations; and implementing public enterprises their e-government plans such as Business Process Re-Engineering (BPR) as set by the e-government program. These initiatives make the e-government different from earlier phases.

There were many e-government projects in Saudi Arabia that have implemented in a variety of ways. However, these attempts were at the initial stage and are not, as yet, working together. Since initiatives provide a framework for critical aspects of the challenges and prospects, the resulting 'Yesser' program aims to make these projects work together.

A number of e-government projects have been implemented or under development by different government organizations. For instance, e-government portal, e-Payment gateway (Sadad), e-government network, public key infrastructure (PKI), e-government interoperability framework, and electronic information exchange are all such examples of the current initiatives. Eventually, some of the government services have been shifted to e-government arena, and many are currently available on-line. However, the number of the available services is still limited to some processes, transactions and the relevant services.



For example, available services include paying utilities bills and passport fees, download visa applications.

One of e-government projects is “The Governmental Services Surveying and Prioritizing Project” that has been launched recently. The project aims at identifying the major services that the government provides to individuals and business (150 services). The project examines their characteristics and current electronic status. For further improvements, these services are to be prioritized for their introduction electronically. A number of pilot projects in the first phase of the program will be identified.

The Omrah and Hajj (religious rituals) project is also one of the projects that considered as step toward e-government. The project intends to control the processes of issuing Omrah and Hajj visas online and issued in the range of 24 hours. Electronic visa applications are to be submitted via the Internet to Omrah or Hajj agents abroad. These applications will be electronically processed by the involved Ministries (Hajj, Foreign Affairs and Interior).

In the second phase in the e-government scheme in Saudi Arabia is making use of a Public Key Infrastructure (PKI) as a way of verifying user identities (Stanton, 2006). According to Al-Hoymany “It allows people to authenticate themselves online and sign documents”. These phases affect some changes for improvement and reflect some issues from the experience of the implementations from the earlier phases.

### **6.5 E-government Problems in Saudi Arabia**

Referring to e-government aspects, Saudi Arabia has improved since earlier evaluations in the global space. Recently, the UN Global E-government

Readiness Report 2005 has shows a big shift in the achievement level of Saudi Arabia. The Kingdom has moved from 90th (2004) to 80th (2005) position in one year.

Nevertheless, intensity of the application and the usage is limited. The UN report suggests that the overall e-government development in Saudi Arabia is limited to the initial stages. Despite this limitation, the UN commends the current level that has potential to expand and improve.

Potentially, the IT National Plan project (NICTP) in Saudi Arabia reflects the main interest of the government in encouraging the revolution towards e-government concept. Nevertheless, to adopt this concept, it requires more effort to effectively tackle the challenges. A recent survey on the NICTP's members in Saudi Arabia shows that more than 50% of IT department in the public sectors do not have strategic planning to adopt e-government concept, even though there is a serious direction in that area (Aleqtisadiah, 2007). Lack of coordination and then identification of the issues is one main neglected aspect.

Accordingly, there are various substantial barriers and challenges to the formulation and adoption of any e-government delivery efforts (Jaeger and Thompson, 2003), and in to Saudi Arabian in particular. One of the challenges that the government of Saudi Arabia might face in providing e-government services across the country is that Internet diffusion across the country is very low.

Saudi Arabia gained access to the Internet in 1994; however, it was not until 1999 that the general public was able to make use of this service. Moreover, the connection is still not fast, and Internet service providers are asking the Saudi government to improve the infrastructure (Alsudairy, 2002). In addition, Al-Hoymany states that currently only 13-15% of the Saudi Arabia population



actually uses the Internet. This suggests a gap between the expectations and the actual realization.

The NICTP survey indicates that 30% of the seniors in public sectors in Saudi Arabia see that there is weakness in working on e-mail, even though it shows that 70% of the government organization have developed their website on the Internet. In addition, only 25% of the survey participants were satisfied with Internet service that the telecommunication company provides, leaving 75% unsatisfied (Aleqtisadiah, 2007). Thus, the discrepancies of the results suggest some important issues at physical and social aspects related to the IT.

MCIT measures that the Internet and telephone users, and finds that in 2006, a fraction of the population (13%) in Saudi Arabia uses the Internet service. As for the landline telephones, only 16.39% of the population use it. In contrast, a 72.33% of the population uses mobile services ([www.mcit.gov.sa](http://www.mcit.gov.sa)). Apparently, the mobile service outweighs the fixed line. This is seen as a global trend in other parts of the world. In the Kingdom, perhaps the government would put some efforts to provide wireless Internet services and eventually the usage is likely to improve.

Therefore, one of the immediate response of the government to these kind of issues is to enable Internet access to all areas of the country by setting up a fund enabling Internet service providers (ISPs) to share the cost of the project (Milne, 2006). The government is looking at offering services in more remote and less profitable areas to make sure all citizens can access these from anywhere in the country. These efforts have been successful in other parts of the world. The international organizations support the emulation of such efforts to other systems. In the Kingdom, it is being emulated.



Saudi Arabia shows an approach followed by many countries in initial stages of e-government in the world. According to United Nations (UN) Global E-government Readiness Report 2005, unlike many of its neighbour countries, Saudi Arabia still needs to improve the development of e-government portal. Saudi Arabia is methodically moving down the path toward an integrated system of government sites that only lacks a true national portal.

A security and protection are concern of these and future portals. Another survey study by NICTP shows that 88% of IT centres in Saudi Arabian public sectors have security and protection software. Despite these virtual walls are in place for the protection, about 40% of these centres were attacked and been infected with viruses. One explanation refers to the slackness of updating the software, or it is because the tools uses are irrelevant and less effective. In either case, a regular involvement for the safety and reliance of a project reflects not only physical issues and concerns, but also organizational and administrative concerns (Aleqtisadiah, 2007). Therefore, there are many challenges, but the prospects in the e-government outweigh the difficulties. The Kingdom has the resources and the willingness to adopt the e-government system.

## 6.6 Summary

This chapter presents an overview on Saudi Arabia and various facts related to the country. It shows the establishment of e-government in Saudi Arabia and beginning of the new concept. The chapter includes several sections. It starts with background information on Saudi Arabia. It follows that the country is experiencing challenges and expectations regarding ICTs. In steps, several initiative of e-government concept in Saudi Arabia and the implementation of different e- projects in that area are outlined. Several problems related to the government have been recognized and outlined. Some of them are global phenomenon; some others are particular to the Kingdom.

In the next two chapters, this study presents the quantitative and the qualitative data analyses that were based on the Saudi Arabia Ministries, Public Commissions and Institutions, and Regional Emirates.

# Chapter 7

## Quantitative Data Analysis



## 7.1 Introduction

In this research, an examination of the literature review, and analysis of questionnaires/surveys and quantitative/interviews were made in order to collect important data related to Saudi Arabia's e-government and its factors from Saudi Arabia government organisations. Analysing these data has helped the researcher to conclude an e-government adoption model for Saudi Arabia and to put forward useful recommendations.

The e-government adoption model was validated from the data that gathered both quantitatively through questionnaires and qualitatively through face-to-face interviews. Using the quantitative method, the researcher was able to look for "distinguishing characteristics, elemental properties and empirical boundaries", and tended to measure "how much" or "how often" (Nau, 1995).

As the researcher used a quantitative approach in this study, the reasons for selection of this approach have been discussed previously under Research Design and Methodology. Quantitative research designs are characterised by the assumption that human behaviour can be explained by what may be termed 'social facts' which can be investigated by methodologies that use "the deductive logic of the natural sciences" (Horna, 1994).

Furthermore, the quantitative approach has helped by providing the researcher with various facilities, such as determining the truth-value of propositions and allowing flexibility in the treatment of data, in terms of comparative analysis, statistical analyses, and repeatability of the collected data.

In this chapter, the researcher discusses and provides the results of the quantitative data analysis. The researcher has used the Statistical Package of Social Science (SPSS) software to run the tests. The results of the analysis are presented in simple ways through tables to make them easy to understand, and description and discussion related to these tables are included.

## **7.2 Statistics Techniques**

In this study, the researcher has used the Statistical Package of Social Science (SPSS) software to run the tests. The analyses, using the SPSS which were used for quantitative data analysis were as the following, the Friedman test, Chi-square Measure, and Mann-Whitney and Kruskal-Wallis Tests.

### **7.2.1 Friedman Test**

The Friedman test is non-parametric test developed by the famous Nobel Laureate economist Milton Friedman. The procedure involves ranking each row (or block) together, then considering the values of ranks by columns. In a given set of data, tabulation with  $m$  rows (the blocks),  $n$  columns (the treatments), and a single observation at the intersection are considered. Then the block and treatment are calculated and ranked.

Friedman tests the null hypothesis that  $k$  related variables come from the same population. In each case,  $k$  variables are ranked from 1 to  $k$ , and the statistic is based on this designation.



### 7.2.2 Chi-squared Test

According to the chi-square principles, a non-parametric test of statistical significance for bivariate tabular analysis is conducted. Any such test of statistical significance entails the degree of confidence a researcher can have in accepting or rejecting one's hypothesis. Generally, a hypothesis tested with chi-square is whether or not two different samples (of people, texts, whatever) are different enough in some characteristic or aspect of their behaviour. Such an outcome is used to generalise from the samples to the populations from which the samples are drawn. This determines the similarities and differences in behavioural characteristics.

Usually, chi-square test is used to determine the statistical significance of results reported in bivariate tables. The interpretation of the bivariate tables is integral to interpreting the results of a chi-square test. A bivariate tabular analysis is used when a researcher tries to summarise the intersections of independent and dependent variables and understand the relationship (if any) between those variables.

In most sociological research, the independent variable is not actively manipulated in this way, but controlled by sampling. In other words, the independent variable is the quality or characteristic that one hypothesises to predict or explain a quality in the dependent variable. One can control the independent variable (and as much else, as possible and natural). This helps to elicit and measure the dependent variable to test the devised hypothesis that there is some relationship between the two variables.



### 7.2.3 Mann-Whitney Test

The Mann-Whitney Test is non-parametric, measures statistical significance, and assesses the difference in medians between any two samples of observations. Put another way, it measures whether the difference is statistically significant (whether the distributions of the samples overlap less than would be expected by chance). The null hypothesis (that there is no difference) is that medians are equal, that is, that the two samples are drawn from a single population. So the variation is near zero.

The conditions for the comparable samples are that they be drawn from independent samples, independently measured, at least at an ordinal level. This means we should be able to describe which observation sample is greater than the other.

In its merits, the Mann-Whitney Test is known as one of the best non-parametric significance tests. It was proposed, apparently independently, by Mann and Whitney (1947) and Wilcoxon (1945). Sometimes, it is also called the Mann-Whitney-Wilcoxon (MWW) test, or the Wilcoxon rank-sum test. The calculation can be called U, for which the distribution under the null hypothesis is known. If samples are small, the distribution is tabulated, but if samples are above 20 (large), normal distribution approximations are applied.

The U-test is included in most modern statistical packages. It is also easily calculated by hand, especially for small samples. In practice, if the sample is small, a direct method is recommended. It is very quick, and gives an insight into the meaning of the U-statistic. The U-test is related to a number of other

nonparametric statistical procedures. Kendall's  $\tau$  correlation coefficient is one of them.

#### **7.2.4 Kruskal-Wallis Test**

The Kruskal-Wallis test is a one-way analysis of variance (ANOVA). In statistics, the Kruskal-Wallis one-way ANOVA by ranks (named after William Kruskal and Allen Wallis) is a non-parametric method. Intuitively, it is identical to a one-way analysis of variance, with the data replaced by their ranks. However, since it is a non-parametric method, the Kruskal-Wallis test does not assume a normal population, unlike the analogous one-way ANOVA.

The common method is that all data are ranked from all groups together. Then the numbers of observations are defined in a group according to the rank, and then the total number of observations across all groups is matched. From this the average of the whole is deduced.

### **7.3 Data Analysis**

The questionnaires/surveys were distributed to different Saudi's Ministries, Public Commissions and Institutions, and Regional Emirates. The number of the questionnaires that were sent was 363 and the response rate for the study questionnaire was 45.7%, a sufficient percentage. The data collected from the questionnaires are analysed, described and discussed in the following sections.

In this study, the researcher implemented analysis for reliability testing and assessment after collecting the questionnaires, ignoring which may lead to invalid results and conclusions, and used the test for Cronbach's alpha which is one of the most reliability coefficients commonly used among researchers.

According to the reliability test and assessment, the results of the test were positive.

The researcher used descriptive statistics analysis, such as frequencies, percentage and mean rank so as to present the data systematically and meaningfully with the aim of emphasising any characteristics and trends of the questionnaires, while at the same time providing sufficient statistical support to the findings. Furthermore, the researcher presents and discusses the results of the using the Statistical Package for Social Science (SPSS) for Windows.

### **7.3.1 Organisation Background**

Table 7.1 shows the background variables of the organisation/individuals were involved in this study. The researcher has used 'frequencies' and 'percentages' in this table to describe the respondents and their organisations.



Variable	Values	Frequency	%
Size of Organisation (Number of Employees)	Less than 100	37.00	22.29
	Between 101-200	52.00	31.32
	Between 201-500	20.00	12.05
	Between 501-1000	23.00	13.86
	Between 1001-2000	18.00	10.84
	More than 2000	16.00	9.64
	Total	166.00	100.00
Involved in Decision Making	Always	60.00	36.15
	Sometimes	99.00	59.63
	Rarely	7.00	4.22
	Total	166.00	100.00
In Charge of Setting Up E-Government Implementation Strategy	CIO	47.00	28.31
	IT Manager	85.00	51.21
	External Consultants	8.00	4.82
	Other	26.00	15.66
	Total	166.00	100.00
Implementing E-Government in Organisation	IT Department	118.00	71.08
	Committee from Different Dep.	48.00	28.92
	Total	166.00	100.00
Role in Organisation	Chief Information Officer (CIO)	14.00	8.44
	IT Manager	66.00	39.76
	Functional Department Manager	26.00	15.66
	Technical Staff	32.00	19.28
	Administrative Staff	15.00	9.03
	Other	13.00	7.83
	Total	166.00	100.00

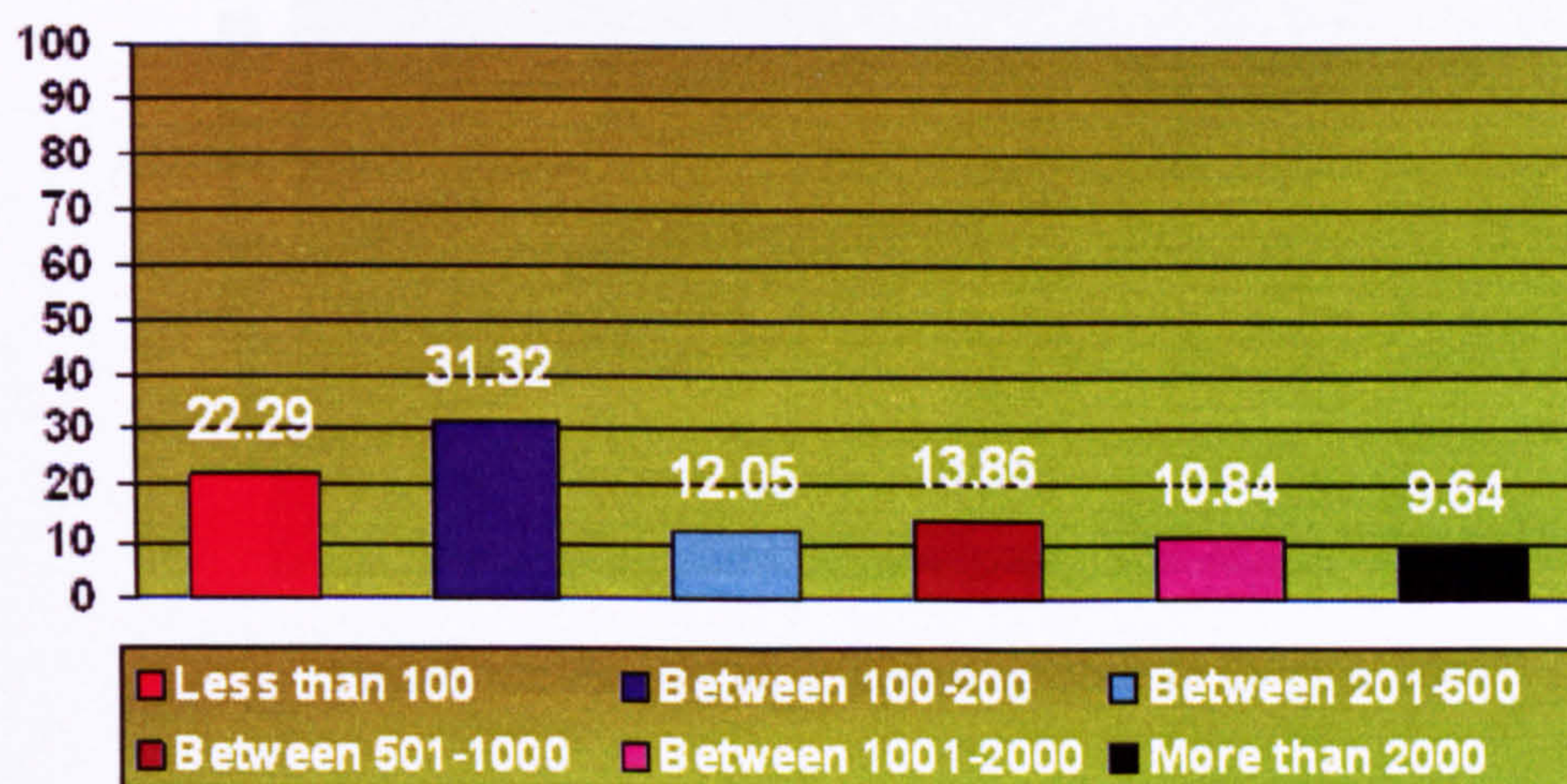
Table 7-1: Organisation Background Information Statistics



### 7.3.1.1 Size of Organisations

The questionnaires were distributed to different sizes of government organisations in Saudi Arabia. The graphical drawing of Figure 7.1 presents the response of the participants on the question:

*Q. What best describes the size of your organisation in terms of number of employees?*



**Figure 7.1: Organisation Size**

The size of surveyed organisations was measured by the number of employees. The figure shows that the greatest percentage of the sample had an organisation size of employees 100–200 with a percentage of 31.32.

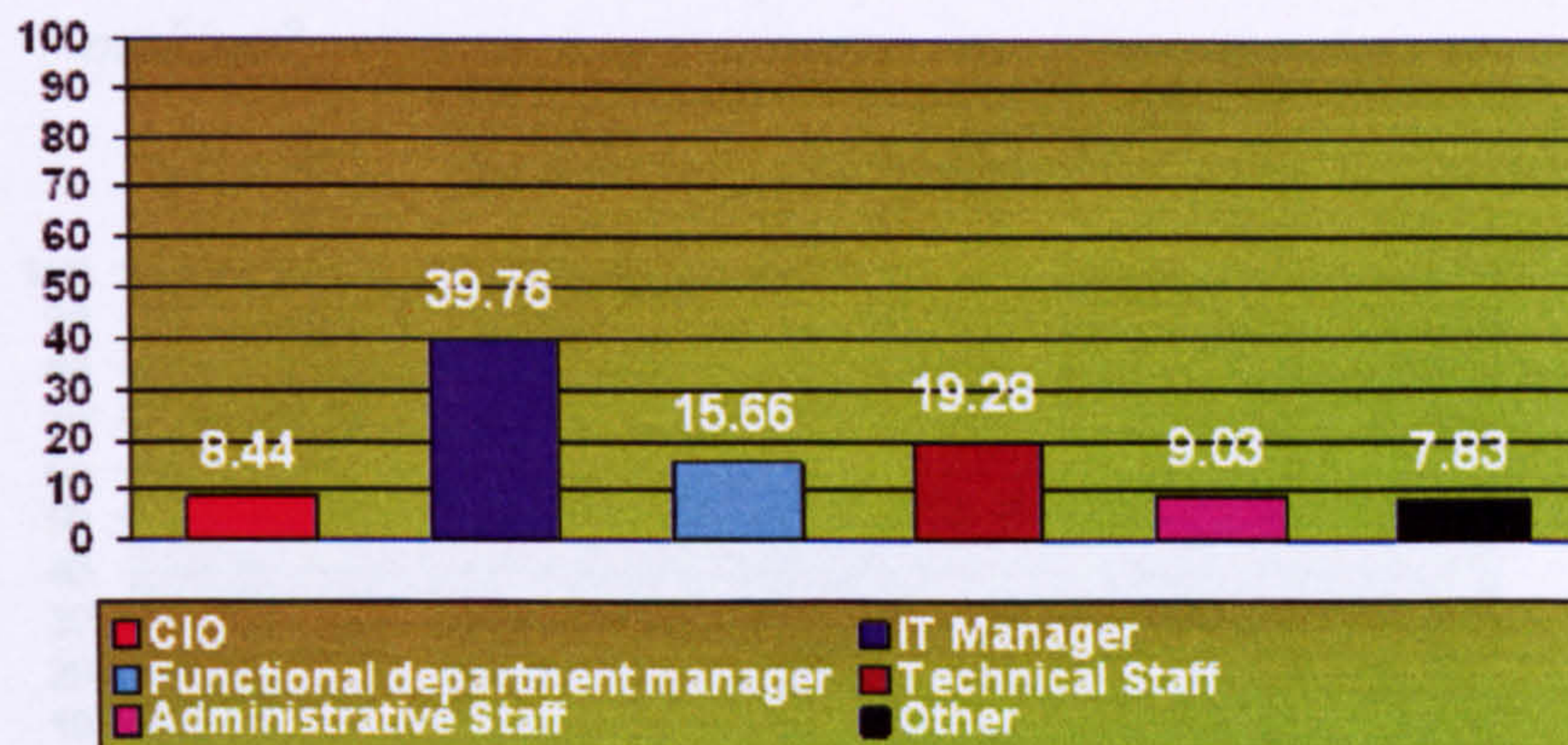
On the other hand, organisations with more than 2000 employees ranked lowest with 9.64%. Other sizes showed percentages between 10.84% for organisations with 1001 – 2000 employees and 22.29% for less than 100 employees.



### 7.3.1.2 Participants' Functions

The questionnaires were distributed to employees who are familiar with the implementation of e-government projects in their organisation. Figure 7.2 below presents responses to the question:

*Q. Which of the following represents your role in the organisation?*



**Figure 7.2: Participants' Function (Role in Organisation)**

The questionnaire contained a series of questions in order the researcher to provide a profile of the participants. As shown in the figure, the majority of the respondents from the research sample described their role in the organisation as 'Information Technology (IT) Manager', with '39.76%'.

Furthermore, '19.28%' and '15.66%' of the respondents were 'technical staff' and 'functional department manager', respectively. As for 'administrative staff' and 'chief information officer (CIO)' they had low percentages, with '9.03%' and '8.44%' respectively. The lowest percentage was for 'other', which might be from Strategic and Planning, with only '7.83%' of the whole sample.

Most of the respondents who are familiar with e-government project were from a technical background, as can be seen in the figure

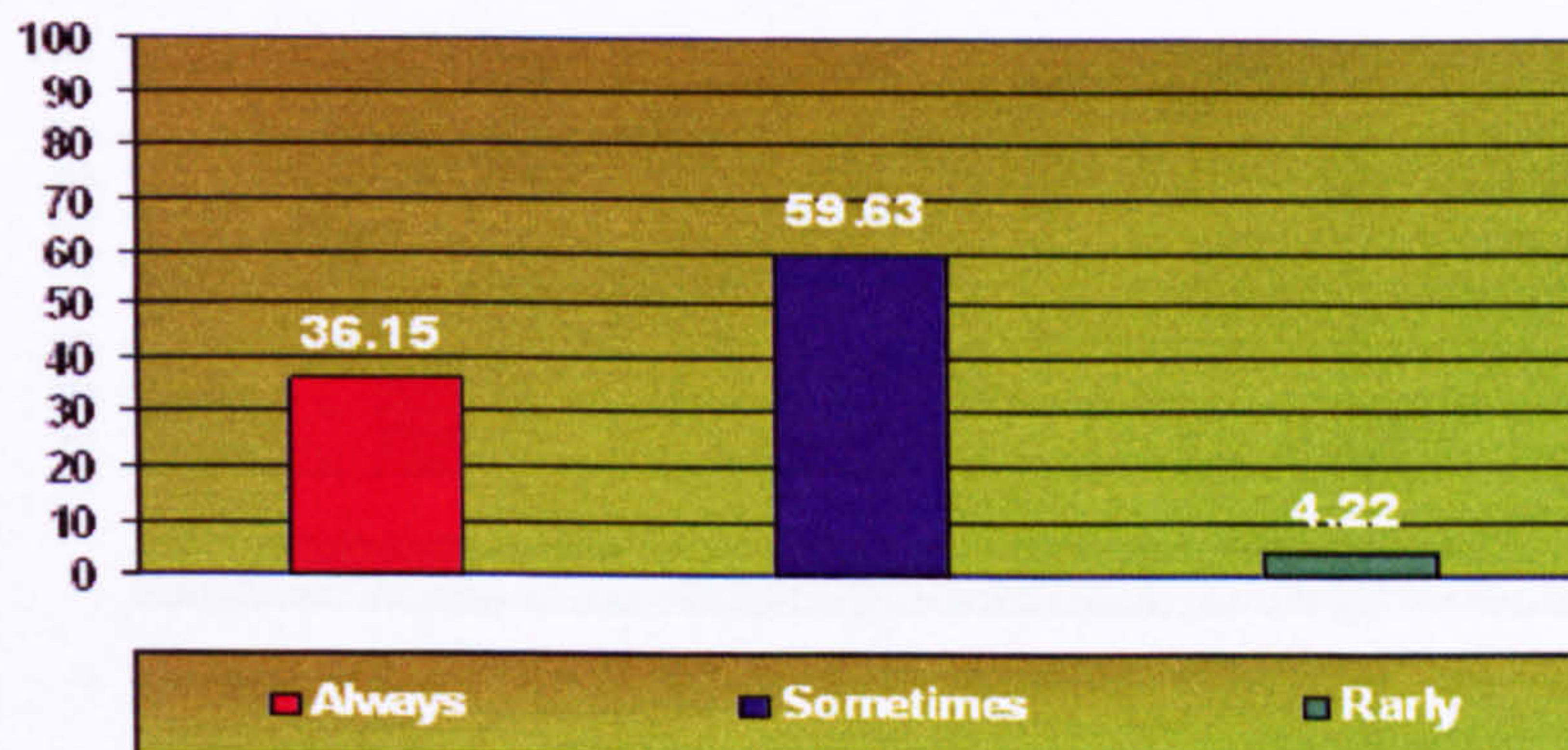


### 7.3.1.3 Decision Making

In this section, the researcher is seeking to know the level of involvement of respondents in e-government projects implementation. For that, the researcher has included a question on involvement in making decision.

Figure 7.3 shows responses to the question:

*Q. How often do you see yourself involved in decision making?*



**Figure 7.3: Decision Making**

As shown in the figure, almost 60% of the respondents answered that they were sometimes involved in making decisions, in terms of strategic development and monitoring in their e-government implementation.

Furthermore, the figure shows that the percentage of respondents answering 'always' was 36.15%, while 'rarely' had the lowest percentage, with 4.22 %. From this, it is clear that most of the participants were involved in decision making, which may result in giving a reliable answer.

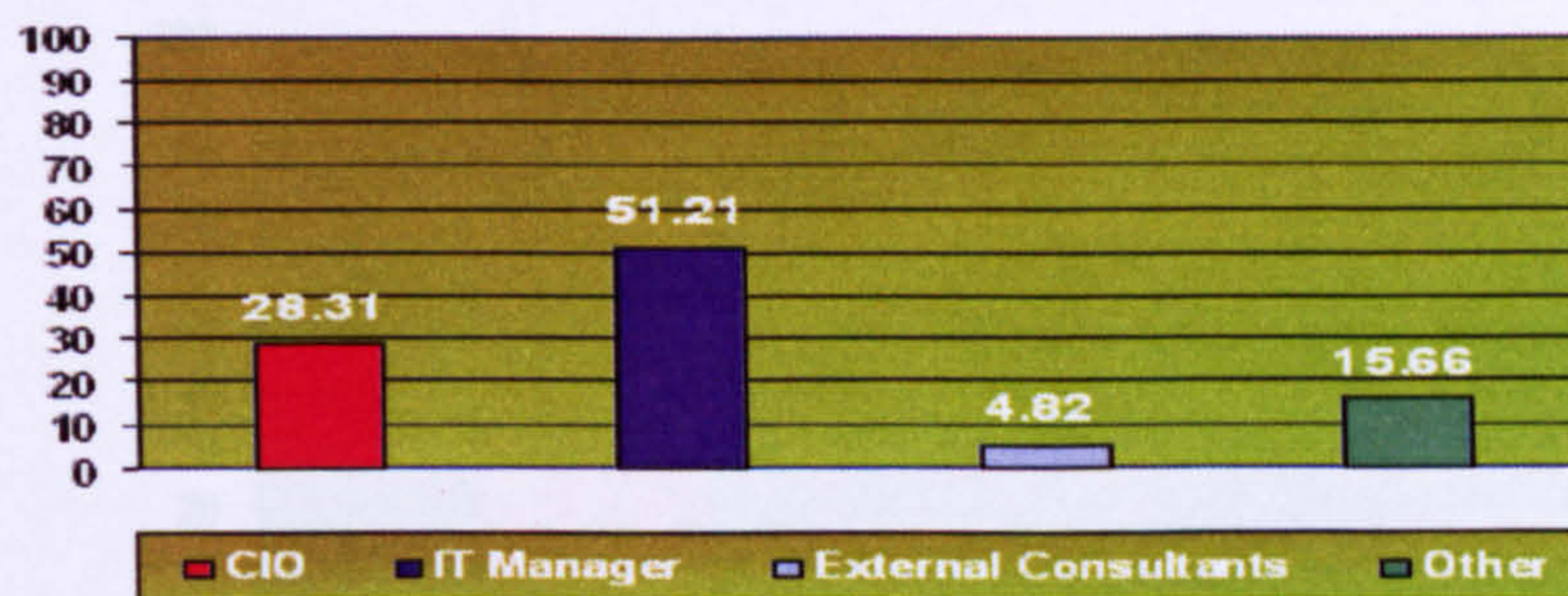


### 7.3.1.4 Setting-Up E-Government Strategic Responsibility

The researcher, in this section, attempts to identify who is responsible for developing plans for e-government implementation in respondents' own organisation. Therefore, the participants were asked who is in charge for that.

Figure 7.4 below shows the responses of the sample on the question:

*Q. Who is in charge of setting up e-government implementation plans?*



**Figure 7.4: Responsibility for Developing E-Government Strategy**

More than half of the respondents, with 51.21%, replied that 'IT manager' is the person responsible for developing plans for e-government implementation, whereas 'chief information officer (CIO)' comes next, with 28.31%. Furthermore, only 15.66% of the respondents replied with 'other', and less than 4.8% answered with 'external consultants', which is very low.

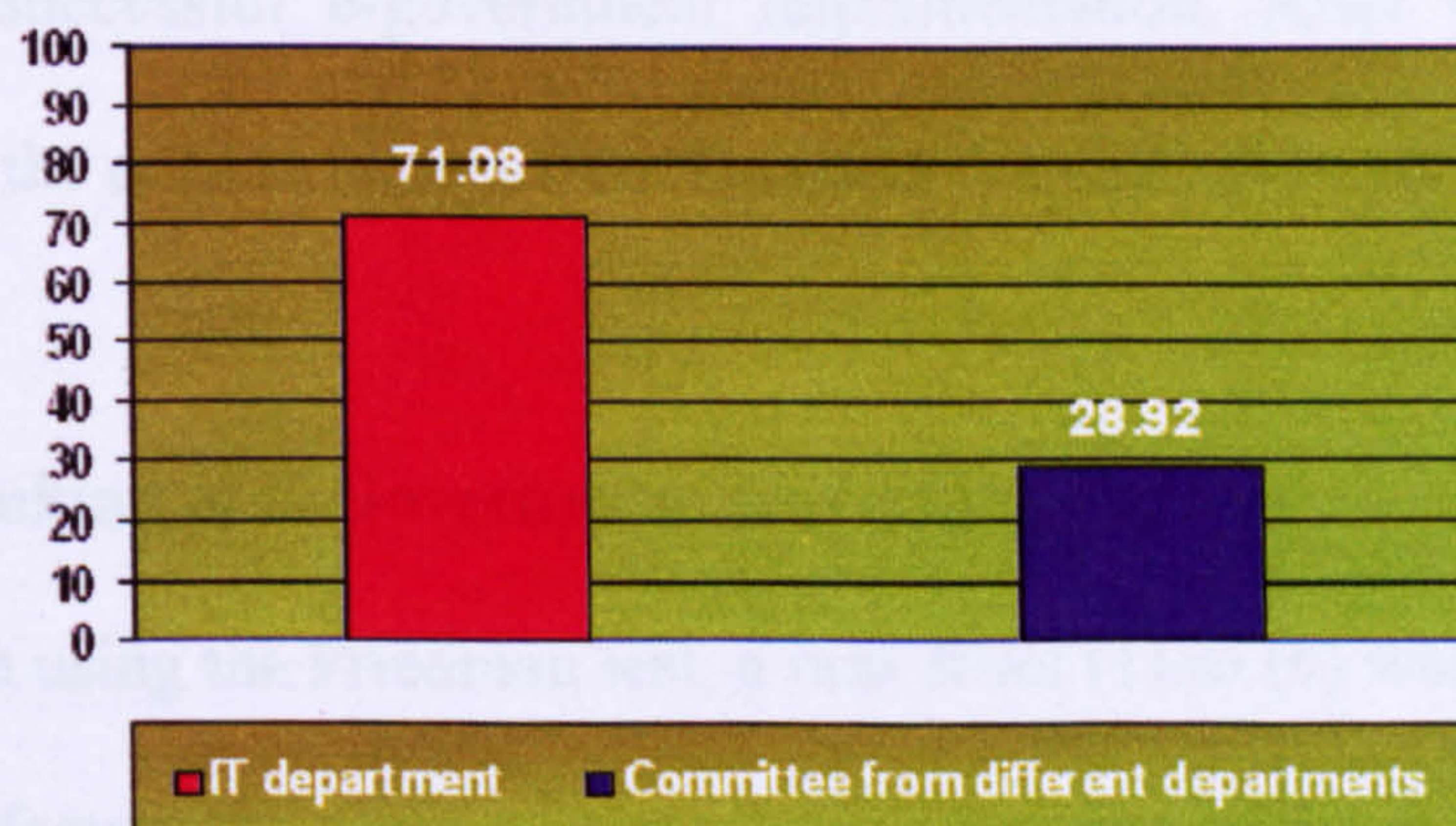
From the above, the researcher assures that most of the government organisations in Saudi Arabia do not have the confidence or sufficient resources to take advantage of external consultants' experience and knowledge. Limiting the development of e-government and relying on in-house resources may lead the organisation to face various disadvantages.



### 7.3.1.5 Implementation Responsibility

In this section, the sample were asked to indicate which section or body is responsible for the actual implementation of e-government projects in their organisation. Figure 7.5 below shows the responses of the sample on the question:

*Q. Who is responsible for implementing e-government in your organisation?*



**Figure 7.5: Implementation Responsibility**

The above figure confirms that most of the majority of respondents indicated that the IT department in their organisation is the body that is responsible for implementing e-government projects with 71.08%, while the other 28.92% responded that a committee from different departments is responsible for implementing e-government.

From the above, the researcher has determined that the people who are responsible for e-government implementation in most Saudi Arabia government organisations are from a technical background. The limitation of responsibility for implementation only to technical backgrounds only can lead to a lot of disadvantages.



### 7.3.2 Ranking of Critical Factors for E-Government Adoption

In order to identify which of the indicated factors is perceived to be crucial and important for the success of e-government project implementation in Saudi Arabia's public sectors, the Friedman test was used.

In the following sections, the researcher discusses and determines the ranks for each dimension (Governing, Technical and Organisational factors) separately for successful e-government implementation. After that, a ranking including all of the critical factors from the three dimensions is presented.

#### 7.3.2.1 The Ranking of E-Government Governing Factors

Through using the Friedman test, a rank from (1) to (6) was established for the Governing factors for e-government implementation in Saudi Arabia's public sectors. The ranking is shown in Table 7.2.

Rank	Governing Factors	Mean Rank
1	Top Management Support	4.17
2	Leadership	3.84
3	Strategies	3.81
4	Funding	3.52
5	Vision	3.38
6	Citizen-Centric	2.29

Significance = 0.001

Degree of Freedom = 5

Chi - Square = 63.605

**Table 7.2: Ranking of E-Government Governing Factors**



The table presents the order of the questionnaire statements, by sample members' responses, related to the description of the Governing factors for e-government implementation in the context of Saudi Arabia. The result of the Chi-square test is shown as is 63.605. Furthermore, the significance level is 0.001 shows which mean that there is a significant statistical difference in the rank between these factors in the table.

From the table, Top Management Support came in first place among the other Governing factors, with the mean rank of 4.17. As for the Citizen-Centric factor, it came in the sixth and last place, with a mean rank of 2.29.

In the next sections, the same analysis using mean rank implemented on the Governing factors is going to be implemented on the Technical and Organisational factors.

### **7.3.2.2 Ranking of Technical Factors**

In this section, the researcher has analysed and ranked the technical factors for e-government implementation in the context of Saudi Arabia's public sectors. There are seven factors for the technical dimension, seen in Table 7.3 below, ranked accordingly.



Rank	Technical Factors	Mean Rank
1	Security	5.27
2	IT Infrastructure	5.19
3	IT Standards	4.62
4	Collaboration	4.05
5	National Information Infrastructure	3.63
6	Relative Advantages	3.47
7	Citizen Relationship Management (CzRM)	1.78

Significance = 0.001

Degree of Freedom = 6

Chi – Square = 231.373

**Table 7.3: Ranking of E-Government Technical Factors**

The table presents the results from the analysis of the technical factors statements. The result of the Chi-square test is 231.373, as shown in the table. The significance level is 0.001, which means that there is a significant statistical difference in the rank between the factors in the table.

As shown in the table, the mean ranks of all Technical factors range from Security in first place, with a mean rank of 5.27, to Citizen Relationship Management in the seventh and last place, with a mean rank of 1.78.



### 7.3.2.3 Ranking of Organisational Factors

This section presents the results of the analysis related to the Organisational factors for e-government implementation to determine the ranks between them factors. In this dimension, there are eleven organisational factors ranked accordingly by mean rank, which can be seen in Table 7.4 below.

Rank	Organisational Factors	Mean Rank
1	Awareness	8.05
2	Organisation Structure	7.15
3	Policy and Legal Issues	6.94
4	Training	6.75
5	Implementation	6.52
6	Quality	6.47
7	Business Process Re-Engineering (BPR)	6.47
8	Change Management	6.42
9	Organisation Culture	5.35
10	Technical Staff	3.19
11	Reward System	2.69

Significance = 0.001

Degree of Freedom = 10

Chi - Square = 158.571

**Table 7.4: Ranking of E-Government Organisational Factors**

The table shows the results of the analysis of the Organisational factors collected from the questionnaires. The result of the Chi-square test is 158.571, and the significance level is 0.001 which shows that there is a significant difference in the rank between the organisational factors listed in the table.



In the above table, the mean rank of all Organisational factors range from Awareness with a mean rank of 8.05 (first place), to Reward System with a mean rank of 2.69 (eleven and the last place).

#### **7.3.2.4 Ranking of E-Government Critical Factors**

In the previous sections, ranking Governing, Technical and Organisational factors for e-government implementation in the context of Saudi Arabia's public sectors, the researcher has presented the ranks of the factors in each dimension using the mean rank.

In this section, the researcher shows the final results of the analysis for ranking all the critical factors for e-government implementation. Overall, there are twenty-four factors which are listed accordingly by mean rank Table 7.5 below.



<b>Rank</b>	<b>E-Government Critical Factors</b>	<b>Mean Rank</b>
1	Security	19.06
2	IT Infrastructure	17.10
3	Top Management Support	16.79
4	IT Standards	16.41
5	Leadership	16.14
6	Strategy	15.57
7	Collaboration	14.39
8	Funding	14.34
9	Awareness	13.84
10	Vision	13.01
11	National Information Infrastructure (NII)	12.95
12	Organisation Structure	12.67
13	Policy and Legal Issues	12.52
14	Training	11.80
15	Implementation	11.33
16	Citizen-Centric	10.97
16	Quality	10.97
18	Relative Advantages	10.47
19	Business Process Re-Engineering (BPR)	10.37
20	Change Management	10.14
21	Citizen Relationship Management (CzRM)	10.13
22	Organisation Culture	8.9
23	Technical Staff	6.1
24	Reward System	3.9

Significance = 0.000

Degree of Freedom = 23

Chi - Square = 388.111

**Table 7.5: E-Government Critical Factors by Rank**

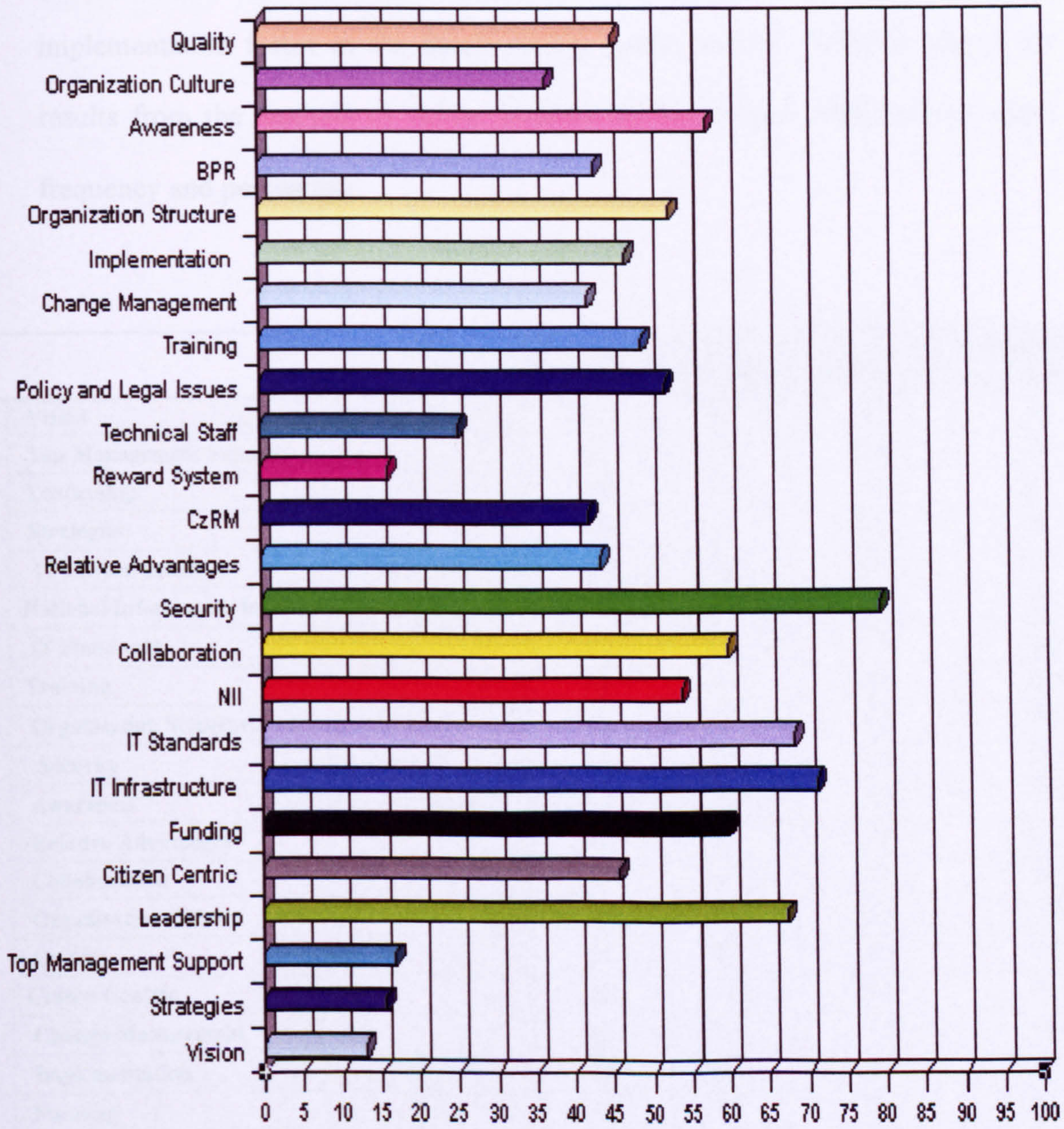


The table shows the results from the analysis on critical factors for e-government implementation gathered from participants' questionnaires, with the ranking of all factors from the three dimensions. The result of the Chi-square is 388.111, and significance level is 0.000 which shows that there is a significant statistical difference in the rank between the critical factors in the table.

As can be seen, the Security factor came in the first place, with a mean rank of 19.06; the IT Infrastructure factor, came in second, with a mean rank of 17.10; and the Top Management Support factor came in third place, with a mean rank of 16.79. As for the twenty-four and the last place, this went to the Reward System, with a mean rank of 3.9, according to the respondents. Therefore, it seems that the Security factor considerations, such as fraud and secure transaction, are very important for the successful of e-government implementation.

In following Figure 7.6, the researcher shows the percentage of the degree of criticality of each factor. The figure displays the level of significance for each factor whether this factor has been implemented or not. It shows that Security came first with 79.4% and IT Infrastructure in the second place, with 71.25%. On the other hand, the lowest percentage has been found for the Reward System factor, with 16.25%.





**Figure 7.6: Ranking of Critical Factors for E-Government Implementation in Saudi Arabia**



### 7.3.3 Factors Present in the Government Organisations

In this section, the researcher presents the presence of each e-government implementation factor in the Saudi Arabia public sectors. Table 7.6 shows the results from the analysis of factor presence in the studied organisations, using frequency and percentage.

	Frequency	Per cent	Valid Per cent	Cumulative Per cent
Vision	113	6.9	6.9	6.9
Top Management Support	112	6.8	6.8	13.7
Leadership	105	6.4	6.4	20.1
Strategies	101	6.2	6.2	26.3
IT Infrastructure	101	6.2	6.2	32.5
National Information Infrastructure	90	5.4	5.4	37.9
IT Standards	82	5.0	5.0	42.9
Training	80	4.9	4.9	47.8
Organisation Structure	78	4.7	4.7	52.5
Security	71	4.3	4.3	56.8
Awareness	70	4.2	4.2	61.0
Relative Advantages	67	4.1	4.1	65.1
Collaboration	67	4.1	4.1	69.2
Organisation Culture	60	3.6	3.6	72.8
Quality	56	3.4	3.4	76.2
Citizen Centric	53	3.2	3.2	79.4
Change Management	53	3.2	3.2	82.6
Implementation	50	3.1	3.1	85.7
Funding	50	3.1	3.1	88.8
Technical Staff	48	2.9	2.9	91.7
Business Process Re-Engineering (BPR)	46	2.7	2.7	94.4
Policy and Legal Issues	36	2.1	2.1	96.5
Citizen Relationship Management (CzRM)	30	1.8	1.8	98.3
Reward System	29	1.7	1.7	100
Total		100	100	

Table 7.6: Factors Present in Government Organisations



According to the table, 6.9% of the government organisations have the Vision factor compared with the other factors. It shows that the vision gained the first place and the highest category of all in term of presence compared with the other e-government factors. In the second place came Top Management Support came, with 6.8%, and then Leadership, with 6.4%.

As for results that gained the lowest ranking, the policy and legal issues factor gained 2.1% compared with the other factors. Then, the Citizen Relationship Management (CzRM) factor obtained 1.8%. However, the lowest ranked factor was the Reward System, with 1.7%.

From the above table, the vision factor was ranked first in terms of presence in Saudi Arabia government organisations, compared with the other e-government factors. However, Citizen Relationship Management (CzRM) and Reward System factors gained the lowest percentages, which means that in most Saudi Arabia government organisations, these two factors do not exist.

#### **7.3.4 Ranking E-Government Benefits**

The implementation of the e-government concept will provide the country with various benefits and opportunities. Each country wants to grasp these opportunities and not left behind, in order to improve its government through electronic delivery of information and services to business and citizens.

Furthermore, the implementation of e-government is considered as an opportunity to provide and give the developing countries a means to reduce their existing gaps with developed countries and vice versa. By knowing these benefits and opportunities that the government will gain, it helps in e-government implementation, for example through supporting and accepting the changes in the previous system.

In the previous sections, there were testing and discussion, using different analysis techniques, of the indicated critical factors for e-government implementation in the context of Saudi Arabia's public sectors. Through implementing critical factors of e-government, government organisations are able to gain different benefits.

The benefits of implementing the e-government concept were discussed in detail previously, in the first part of the literature review. Table 7.7 below, using the mean rank shows the ranks of fifteen e-government benefits presented by the research respondents.



<b>Rank</b>	<b>E-Government Benefits</b>	<b>Mean Rank</b>
<b>1</b>	Provides a range of information online to the public	<b>9.67</b>
<b>2</b>	Increases speed and time of public services delivery	<b>9.15</b>
<b>3</b>	Source of information dissemination between the government and citizens	<b>9.14</b>
<b>4</b>	Re-builds government-citizen relationship	<b>8.66</b>
<b>5</b>	Available 24 hours a day, 7 days a week	<b>8.63</b>
<b>6</b>	Fosters economic development	<b>8.56</b>
<b>7</b>	Improves quality of service delivery to citizens, businesses and public agencies	<b>8.35</b>
<b>8</b>	Provides government with efficient and effective decision making	<b>8.00</b>
<b>9</b>	Provides information and advice online to public	<b>7.68</b>
<b>10</b>	Enables government to move businesses online	<b>7.59</b>
<b>11</b>	Delivers electronic and integrated public services from single point of access	<b>7.24</b>
<b>12</b>	Enables innovative approaches to governance	<b>7.07</b>
<b>13</b>	Speeds up decision making and service delivery	<b>7.03</b>
<b>14</b>	Enhances operational efficiencies at departmental and organisational level	<b>6.82</b>
<b>15</b>	Saves cost and captures revenue	<b>6.41</b>

**Table 7.7: Ranking of E-Government Benefits**

The table presents a broader understanding of the variables of the benefits from implementing e-government through a closer reading of the table. As for the ranking results, the benefit that came in first place is Provides a range of information online to the public, with a mean rank of 9.67. On the other hand, Saves cost and capture revenue came last, ranked fifteenth, as denoted by its 6.41 mean rank.



### 7.3.5 Ranking E-Government Obstacles

According to the literature, every government implementing e-government projects will face various types of challenges. The researcher has presented the most pertinent challenges that are expected to be encountered during the implementation of an e-government in Table 7.8.

The obstacles to implementing e-government were discussed in detail in the first part of the literature review chapter. The table below presents the ranks of nine obstacles in implementing e-government according to the respondents view, using the mean rank.

Rank	E-government Obstacles	Mean Rank
1	Data protection and privacy issues	5.87
2	Lack of communication infrastructure and integration among organisations	5.68
3	Lack of technical human resources	5.50
4	Public polices and legal issues in application of the ICT	5.48
5	Insufficient IT infrastructure to deploy e-government effectively	5.14
6	Resistance to technology adoption	4.84
7	Lack of computer literate citizens	4.79
8	Lack of funding to deploy e-government	4.01
9	Cost of security and attaining public trust	3.69

**Table 7.8: Ranking of E-Government Obstacles**



From the table, the results of the analysis were as follows. The obstacle that came at first place is Data protection and privacy issues, with a mean rank of 5.87. This shows that security issues are the main concern, according to the respondents, while implementing e-government projects.

On the other hand, the least troublesome obstacle, as denoted by its 3.69 mean rank, is Cost of security and attaining public trust. Other e-government obstacles have gained varied mean ranks which can be seen from the above table.

### **7.3.6 Acknowledgment of E-Government Benefits & Obstacles at Different Groups**

Mann-Whitney and Kruskal-Wallis tests were used to indicate if there were significant differences at different levels (IT department and committee from different departments, level of involvement decision making:“ Always, Sometimes, Rarely, and responsibility in setting-up e-government implementation strategy: CIO, IT Manager and External consultants), in familiarity with and understanding of e-government benefits and obstacles.

The significance probability column presents the probability of significance level to be more than 0.05, concluding that there is no significance difference between IT department and committee from different departments, level of involvement in decision making, or the person responsible



for setting-up e-government implementation strategy, as can be seen in the table.

Table 7.9 presents the mean ranks, chi-square and significance for different levels, related to e-government benefits and obstacles, and the researcher shows clearly in the table the results of all the above clearly.

Variables	Groups	Mean Rank	Test score (Chi-Square)	Sig.
<b>E- Government Benefits</b>	IT department	67.25	Mann-Whitney	.568
	Committee from different departs.	63.15	1706.00	
<b>E- Government Obstacles</b>	IT department	60.10	Mann-Whitney	.960
	Committee from different departs.	59.75	1436.50	
<b>E- Government Benefits</b>	Always	59.69	Kruskal W 11.748	.003
	Sometimes	73.06		
	Rarely	19.00		
<b>E- Government Obstacles</b>	Always	79.99	Kruskal W 20.40	.000
	Sometimes	47.70		
	Rarely	24.00		
<b>E- Government Benefits</b>	CIO	50.18	Kruskal W 17.872	.238
	IT Manager	56.30		
	External consultants	72.50		
<b>E- Government Obstacles</b>	CIO	45.81	Kruskal W 11.03	.598
	IT Manager	51.68		
	External consultants	46.50		

**Table 7.9: Acknowledgment of E-Government Benefits & Obstacles at different Groups**



Using the Mann-Whitney to test the occurrence of the significant differences between the IT department and committee from different departments are responsible for implementing e-government in the organisation as two independent samples, and e-government benefits as a dependent variable, the result .568 shows no statistically significant difference. This concludes that there is no difference in understanding e-government benefits between the IT department and a committee from different departments.

Furthermore, the data in the table reflect the same result between the IT department and the committee from different departments in terms of e-government obstacles, with 0.960, which shows no statistically significant difference.

Using the Kruskal-Wallis to test the occurrence of significant differences between the levels of participation or involvement in decision making (always, sometimes, and rarely) as three independent samples and all e-government benefits and obstacles as dependent variables, the results for benefits of 0.005 and of 0.00 for the obstacles show there are significance differences.

The conclusion is therefore that there are differences between the level of employee involvement in decision making and his understanding of e-government benefits and obstacles. On checking the mean rank in the e-government benefits, it is clear that the response 'sometimes' has the first place for understanding with 73.06 mean rank, followed by 'always' at 59.69, and finally 'rarely' at 19.00. On the other hand, on checking the mean rank, it is clear that the response 'always' has taken first place with a mean rank of 79.99, followed by 'sometimes' at 47.70, and finally 'rarely' at 24.00.



Furthermore, using the Kruskal-Wallis to test the occurrence of significant differences between the person in charge of setting up e-government implementation strategy (CIO, IT manager, and external consultant) as three independent samples, and e-government benefits and obstacles as dependent variables, it shows that the benefits score of 0.238 and obstacles with 0.598 reflect that there were no significant differences understanding between the people in charge of e-government implementation strategy.

### 7.3.7 Measuring E-Government Projects Success

In the research questionnaire, participants were asked to rate their judgement, on which e-government project they were familiar with that have been undertaken within his organisation, how successful is the e-government project implementation in your view?

On a scale from 'one' for very unsuccessful to 'five' for very successful, Table 7.10 below presents the measurement of success of the e-government projects, according to the respondents, using the levels of success, their frequency and percentages.

Level of Success	Frequency	Percentage
1	16	9.6
2	55	33.2
3	57	34.4
4	29	17.4
5	9	5.4
<b>Total</b>	166	100

**Table 7.10: Level of E-Government Project Success**



Only 9.6% of the respondents viewed their projects as 'very unsuccessful'. Most of the participants have gave their rating on the success of e-government project under the level 2 as 'unsuccessful', with 33.2%, and under 3 as 'neutral', with 34.4.

As for the level 4 which is 'successful' only 17.4% gave it their response. Finally, just 5.4% said that their e-government project was 'very successful', at levels, which is considered a small percentage from the overall respondents.

### **7.3.8 Main Success Factors Using Open Questions**

The researcher presents the main success factors according to the respondent's experience in Table 7.11. The results are shown by variable, frequency, and percentage.

Variable	Frequency	Percentage
Top Management Support	52	31.3
Security	44	26.5
Strategy	43	25.9
Leadership	41	24.7
IT Infrastructure	32	19.3
Implementation	29	17.4
Policy and Legal Issues	29	17.4
Training	28	16.8
IT Standards	28	16.8
Vision	26	15.6
Funding	26	15.6
Business Process Re-Engineering (BPR)	26	15.6
Technical Staff	22	13.2
Citizen Centric	20	12.04
National Information Infrastructure (NII)	19	11.4
Collaboration	18	10.8
Organisation Structure	18	10.8
Change Management	16	9.6
Quality	15	9.03
Awareness	14	8.4
Reward System	13	7.8
Relative Advantages	12	7.2
Citizen Relationship Management (CzRM)	11	6.6
Organisational Culture	9	5.4

Table 7.11: Main Success Factors for E-Government Projects



The participants were asked to rate the success on five levels of an e-government project that they were familiar with and which had undertaken within their organisation. Every respondent indicating success in implementation levels three, four, or five was asked to list the main success factors.

The table shows that the respondents indicate Top Management Support is the highest success factors for e-government projects in the context of Saudi Arabia, with 31.3%. As for Security and Strategy, they came in the second and third places, with 26.5% and 25.9%, respectively.

For the factors that gained the lowest percentage, Organisational Culture came last, with 5.4%. Furthermore, Relative Advantages and Citizen Relationship Management (CzRM) were next above in the lowest category with percentages of 7.2% and 6.6% respectively.

#### 7.4 Summary

The chapter presents the quantitative data analysis that has been implemented in the research study. The data analysed were gathered from questionnaires distributed to public sectors organisations in Saudi Arabia. Before distributing the questionnaire, the researcher went through different processes in order to test it. The researcher collected the questionnaires and analysed them carefully.

In this chapter, the researcher discussed different areas related to quantitative analysis, techniques used for data collection, and the response rate in this study. Furthermore, there were details of reliability testing and assessment for the questionnaire.

In addition, the researcher discussed in this chapter the statistical techniques used in the study and the results of the data analysis. In data analysis, the researcher used descriptive statistics, such as frequencies, percentages and mean ranks. He also presented and discussed the results obtained from the statistical analyses.

In the following chapter, the researcher presents a comprehensive discussion of the qualitative data analysis. These data were collected through conducting face-to-face interviews carefully in different government organisations in Saudi Arabia.



# Chapter 8

## Qualitative Data Analysis

## 8.1 Introduction

The concept of electronic government remains a new phenomenon, lacking a universally applied model or framework and often for the country itself, which would assist governments intending to implement e-government initiatives. For this research, an e-government adoption model was developed based on extensive reviews on previous literature and conclusions drawn from questionnaires and interviews with public sector organisations in Saudi Arabia. The e-government adoption model requires an exploratory method to identify the critical factors appropriate for a particular country's requirements.

As the researcher used a qualitative method in this study, there are number of reasons why this approach has been selected. The research topic, as previously mentioned, is a new phenomenon, and therefore cannot be thoroughly or adequately investigated using existing theories and models. Researchers address new phenomena using the qualitative research paradigm.

The e-government adoption model was validated from the data gathered using both a quantitative approach through questionnaires, and a qualitative approach through face-to-face interviews. Using the qualitative approach, the researcher was able to understand how people make sense of their experience, and it also helped him to develop abstractions, models and theories from this experience.



In addition, qualitative research was chosen for this field research because of its interpretive approach. The interpretive approach allowed the researcher to gain an insight into the participants' ideas and thoughts, which may have been overlooked by the quantitative approach. This research was conducted with participants in their work settings.

Rapport was established between the researcher and interviewees, which ensured the participants' commitment and involvement in providing information, and contributed positively to the development of an e-government adoption model. The qualitative approach also allowed the researcher to ask probing questions which enabled him to gain access to the participants' values and practices that cannot be gained using quantitative instruments.

## **8.2 Case Studies**

This qualitative research used the case study method to gather and interpret data collected from interacting with and interviewing individuals in their work setting. Creswell (1998) notes that the case study approach, along with biography, ethnography, grounded theory and phenomenology are the principal "five traditions of inquiry".

The case study approach was adopted for this research because of its suitability to address and understand the complexities of a 'bounded system', as is the case with the Saudi Arabia public sectors. Creswell (1998) defines case study as

*“...An exploration of a ‘bounded system’ or a case (or multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context. This bounded system is bounded by time and place and it is the case being studied, a program, an event, an activity, or individuals”*

Researchers use the case study approach in conducting their research regardless of their disciplines or areas of expertise. Creswell (1998) notes that case study research holds a “distinguished history across many disciplines”, and cites many researchers who advocate the importance of qualitative case study research in their respective fields.

The use of a single case study to identify factors that affect e-government adoption within the public sector in Saudi Arabia was considered to be too limited for an approach to be appropriate for this study. Multiple case studies might have been more able to generate a diverse set of factors affecting e-government adoption than the use of a single case study (Lam, 2005).

The researcher identified eight organisations as the most appropriate for the research. These organisations expressed an interest in participating in the research and were willing to grant access to their personnel. Stake (1995) emphasises the importance of including organisations which have displayed willingness to participate in the research, and will therefore be accessible to the researcher.

The eight organisations were also selected because of the track records they shared in the reform of the work process through the introduction of IT. Furthermore, the organisations were selected because of their receptiveness to



government initiatives related to government-to-government, government-to-business or government-to-citizen collaboration.

This approach enabled the researcher to obtain on-depth the views and experiences of knowledgeable individuals who are intricately involved in e-government. Yin (2003) notes that interviews of this nature tend to reach a point of data saturation after interviews with about eight individuals. In this research, 21 interviews involved in the study.

The larger set helped reduce the data bias problematic to qualitative research of this nature (Stake, 1995 and Lam, 2005) and increase the reliability of the research findings.

After collecting the data, transcription was the next step preparatory to further analysis. According to Patton (1987), “analysis is the process of bringing order to the data, organising what is there into patterns, categories and basic descriptive units, interpretation involves attaching meaning and significance to the analysis, explaining descriptive patterns and looking for relationships and linkages among descriptive dimensions”.

For the purpose of this thesis, the initial step was to conduct “within case analysis”. Within case analysis typically involves detailed write-ups for each case. These write-ups are often simply pure descriptions, but they are central to the generation of insight, because they help researchers to cope early in the analysis process, given the typically insurmountable volume of the data they will face (Eisenhardt and Bourgeois, 1988). The advantages of this method are that it allows for the unique features of each case to emerge before trying to generalise patterns.

The second stage of the research involves “cross-case-analysis”. The cross-case-analysis presents findings across the eight organizations. The main tactic here is to select pairs of cases and then to list the similarities between each pairs. When a pattern from one case is matched by another case, then the findings have a better grounding.

### 8.3 Selecting Organisations for Qualitative Approach

The researcher identified four criteria prior to selecting government agencies for this research. These criteria were derived from the pilot interview and based on the research objectives, which call for identifying the factors to develop an e-government adoption model appropriate for Saudi Arabia public sectors. The criteria were as the follows:

1. *Size of organisation*: The researcher identified small and large agencies to participate in this research.
2. *Use of Information Technology (IT) applications*: All the government public sectors in Saudi Arabia use IT. However, the extent of usage differs from one organisation to another. The selection varied from organisations with fully automated work processes to an organisation which uses computers in a standalone mode.
3. *Communication and Collaboration*: The method of communicating with remote offices sited outside the organisation’s headquarters; and finally



4. *Organisation services*: The role that the organisation plays in providing services to the general public, and the collaboration and sharing of information with various government agencies.

The researcher identified eight organisations as the most appropriate for the research. These organisations expressed an interest in participating in the research and were willing to grant access to their personnel. Stake (1995) emphasises the importance of including organisations which have displayed willingness to participate in the research, and will therefore be accessible to the researcher.

The eight organisations were also selected because of the track records they shared in the reform of the work process through the introduction of Information Technology (IT). Furthermore, the organisations were selected because of their receptiveness to government initiatives related to government-to-government, government-to-business or government-to-citizen collaboration.

The civil agencies which participated in this research included 8 organisations from different Saudi Ministries, Public Commissions and Institutions, and Regional Emirates. The researcher obtained permission from these government organisations to allow him to study their implementation (success and challenges) of e-government in their organisation.

## 8.4 Participating Organisations

### 8.4.1 Organisation (A)

**Function:** Supervision of financial and encashment policies of the country and control of execution by the concerned bodies.

**Services:**

- Adjusting current accounts between the organisation itself and all the bodies of the country.
- Supervising closely the accounts closet and annual expenses of the government.
- Controlling the previous stages as items of the budget in all the governmental bodies.

**Duties:**

- Prepares and discusses the general budget of the country and controls its implementation.
- Supervises the country's properties and preserve it.
- Represents the country in economic, financial, and regional establishments.
- Follow up the financial and economic information on the international level, and prepares studies and necessary reports.

**Objectives:**

- Carry out the country's decisions related to foreign advisement.
- Follow up the policies of the country in offering loans to citizens and national companies in different development fields through banks and funds.



***Electronic Services:***

- Provide e-mail services.
- Acceptance applications

**8.4.2 Organisation (B)*****Function:***

- Pursuing interests in establishing security and safety in the society.
- Doing its best to protect the society from terrorism.
- Providing civil defence.

***Services:***

The organisation is responsible for all aspects of government related to security and the protection of human life and property. Within its jurisdiction fall Public Security, Civil Defence, and others.

***Duties:***

Prime responsibility for the maintenance of the Kingdom's laws, based on Islam, and one of its duties is to carry out sentences passed on offenders by the courts.

***Objectives:***

Arrange conditions of the country and adjust matters to go according to Islamic Sharia.

***Electronic Services:***

- Provides electronic forms related to applications.
- It has the possibility of implementing 20 electronic services.

### 8.4.3 Organisation (C)

***Function:***

- Managing political, cultural, and financial international relations.
- Furthermore, monitoring relations between the country and the outside world.

***Services:***

- Manages all the affairs between the country and others.
- Solves the difficulties of citizens, especially abroad.

***Duties:***

- Represents the country in dealing with other countries.
- Gives a good impression about the country in relation to others.

***Objectives:***

To do everything related to the country, especially in its relation with other countries.

***Electronic Services:***

- Provides several electronic services, such as finalisation requests through e-mail.
- Opens the door to accepting any complaints through e-mail.
- Reserves appointments through e-mail.
- Provides services, response to any complaint through e-mail.

### 8.4.4 Organisation (D)

***Function:***

- Pursuing interests in the conditions of the citizens and the residents in the country.



- Providing many services related to civil matters.

***Services:***

Provides many services such as:

- Drafting wages law items.
- Civil service and salary systems.
- Immediate supervision of general finance system.
- Drafting health propositions.
- Drafting of educational propositions.....etc..

***Duties:***

Cooperation with the citizens and the residents to achieve their needs.

***Objectives:***

To provide services and cooperate with citizens in implementing their needs as soon as possible.

***Electronic Services:***

Provides acceptance of applications through Internet.

#### **8.4.5 Organisation (E)**

***Function:***

Pursuing interests in providing modern technology in the field of Information and Communication Technology (ICT).

***Services:***

- Coordinating with governmental authorities and others regarding the ICT.
- Representing country in local and international authorities.

***Duties:***

Concentrated in supervision of the private sector in the country, and making sure of its comprehension of ICT and spreading it the entire Kingdom.

***Objectives:***

- To increase the production and qualification of the general sector. To provide better services to the citizens and business sector.
- To increase the returns on investments and to provide the required information in an accurate way and at the suitable time.
- To establish projects related to ICT.

***Electronic Services:***

Provides services through e-mail and contacts its departments to finalise some services. Furthermore, it can accept applications by e-mail and phone.

**8.4.6 Organisation (F)*****Function:***

Pursues interests in the field of Information and Communication Technologies (ICT).

***Services:***

- Taking care to find suitable environments to the services of ICT.
- Opening suitable markets to service governmental authorities and the private sectors as well.
- Establishing strategies for marketing through market researches and studies, and the development of ICT.



- Following the development in IT and international instructions in opening the markets.

***Duties:***

Providing the main services for economic and social development which may contribute to development of the nation and the welfare of the citizen.

***Objectives:***

To establish plans and some strategies through which it can achieve progress in this field

***Electronic Services:***

- Provides most of its services through Internet and phone, but mostly phone.
- Any problem encountered can be solved by contacting the services department employee.

#### **8.4.7 Organisation (G)**

***Function:***

One of the governmental authorities which supports the government in keeping the security and arrangement the internal situation of the citizens and the residents.

***Services:***

- Provides all services for the area in coordination with governmental authorities.
- Ensures the quality of the services which are extended to the citizens of the area.

***Duties:***

- Represents the government of the Custodian of the Two Holly Mosques.
- Ensures the achieving of justice in the region.
- Keeps security in the area.
- Receives complaints, recalls the citizens t check their complaints and to solve the matter.

***Objectives:***

To achieve the needs of the citizens and to provide all the services for the area's citizens by coordinating with the governmental authorities.

***Electronic Services:***

Receives applications only by Internet and the applicants has to follow it up.

**8.4.8 Organisation (H)*****Function:***

The implementation of the development plans and programs necessitated the assistance of tens of thousands of expatriate managers, scientists, engineers and teachers.

***Services:***

- Do a positive role in studies which contribute to scientific progress, arts, science, and inventions.
- Looks for suitable solutions for the requirements of life development.

***Duties:***

- Preparing qualified citizens to enable them to meet their duties towards their country.



- Giving Citizens the chance to improve their knowledge.
- Doing its best to overcome any challenges facing the country's social and economic development, there can be no doubt that the need to create a pool of educated Saudi Arabian citizens, capable of managing a complex modern economy, is paramount.

***Objectives:***

To coordinate with the authorities concerned for the purpose of providing education.

***Electronic Services:***

The organisation gives opportunity to the send their applications by e-mail and, furthermore, provides applicants them with conditions and results by e-mail or phone.

### **8.5 Case Study Analysis**

The case study analysis provides the required data that have been collected from the experiences of the eight government organisations in Saudi Arabia. The interviews in these organisations took 45 to 90 minutes each (dependent on the interviewee's time).

The researcher faced a lot of challenges to perform these interviews, as the researcher discusses in the Research Design and Methodology chapter. In this section, the case studies are analysed, and each of the e-government critical factors is separately analysed, based on the interviewees' experiences and knowledge.

### 8.5.1 Governing Factors

This section describes the following: Vision, Strategy, Top Management Support, Leadership, Funding, and Citizen Centric as crucial Governing factors in the e-government adoption model for Saudi Arabia public sectors. Each of the factors is discussed in detail.

#### 8.5.1.1 Vision

The first Governing factor identified by the research participants is the importance of having an explicit vision for the Saudi Arabia public sectors. Vision is the direction that can help government organisations to achieve their objectives in transforming the administrative system to improve the provision of services to the general public. Vision includes the roadmap for how to reach the intended objectives, which becomes the goal for all decisions and plans in the whole agency.

The interview data for this research revealed that public sectors lacked a clear vision while implementing short and long-term projects. Participants blamed the non-success of previous projects on failure of the organisation to communicate its vision to the parties concerned. One staff member explained, “...*if the vision is clear and serves the general interest, we will all strive towards its implementation. However, generally, in the government’s public sector, the vision is implicit and is known only to the senior management*”. Participants emphasised the importance of communicating the vision of e-government to all the employees involved in the implementation process. An IT manager stated, “...*without communicating the*



*vision to the employees it is difficult to convince them to change the way they perform their work”.*

Another manager explained, “...civil agencies’ employees prefer to maintain the status quo in relation to their day-to-day function and duties. They feel new initiatives or projects which lack clear objectives will be burdensome and time consuming and therefore not really in their or the public’s interest to adopt and implement”.

Participants agreed that most employees involved in the project are not aware of its vision. An IT manager states, “...Our vision for e-government implementation should be clear to be effective. A lot of our employees does not know and recognise our vision”.

In addition, participants agreed that success of e-government initiatives in Saudi Arabia public sectors necessitates a clearly defined vision that can be easily understood by and communicated to the parties concerned to assist them in realising the organisations’ objectives, and improving quality and efficiency in the delivery of public services.

One manager stated, “...e-government initiatives are a long-term strategy that have to be implemented in accordance with the country’s long-term strategy to ensure commitment and resource allocation for acquiring technology, training employees and increasing the public’s awareness towards the application of technology in their day-to-day lives”.

### 8.5.1.2 Strategy

The above were short-term or medium-term concerns. There is clear reference to the long-term issues. Some of those issues are being considered, others are in demand. In the former case, a respondent pointed out that “...we have a five years strategy plan for the e-government programme that has been monitored through a supervision committee”.

In terms of the demands and changes, another pointed out that the “...strategies that have been identified are not capable and prepared in technical conditions”. One possible shortage of such strategies is distance between the espoused frameworks and emergent ones. For instance, “...the strategies that have been developed cannot communicate with the real world, which is very serious problem”.

This was a serious concern of the respondent. Following this lead, some references were made to the failure of the projects. An IT manager saw that clearly. “...Some projects may result in failure became apparent because of its unrealistic strategies”. He added “Strategies should cover every side of the project in order to gain its success”.

### 8.5.1.3 Top Management Support

Top management support is one of the Governing factors recognised by the research participants as essential to the adoption of e-government initiatives in Saudi Arabia public sectors. The government organisations are hierarchically structured, and all the decision-making processes are transmitted from the top



management to the middle management and, at the base, to the concerned group or individuals responsible for the implementation.

Therefore, top management support is considered one of the key factors that can facilitate or hinder the adoption of e-government initiatives. The data collected from the interviews revealed that for projects to be successful in Saudi Arabia public sectors, they have to be endorsed by senior management.

Many participants also noted that the middle management played a major role in the adoption of previous projects which were designed to improve the work process. One of the IT managers gave an example of top management support being crucial that *"...In the civil service organisations the work process reform is usually initiated as a result of decisions by senior management reacting to the demands, needs and circumstances of the work environment, which affect the organisation's performance and output"*.

Another participant mentioned that his organisation suffered from employee absenteeism, which had negative consequences for the organisation's performance and productivity. In addressing this problem, senior management introduced disciplinary measures and authorised the installation of a computerised attendance system.

These initiatives had a profound impact on employees' behaviours. They realised that the senior management would no longer tolerate their lateness or absenteeism. They feared that non-compliance would lead to their dismissal. Therefore, they changed their habits, the new work culture became the norm and contributed to the improvement in the organisation's performance, productivity and attendance.

Many participants noted that in their organisations, e-government initiatives could only become successful if supported by the organisation's top management. However, an e-government initiative is a long-term project where this type of project can lack top management support. An IT manager stated that *"...long-term projects such as e-government gain the support at the beginning and lack it in the mid and final period of the project"*.

In order to gain this support efficiently, the top management need to understand e-government projects. Senior management states that *"...there is support from the top management in terms of adopting e-government. However, there is lack of knowledge from the top management side in terms of the e-government concept which makes it less effective"*.

#### **8.5.1.4 Leadership**

Perhaps one reason for the discontent of the managers with the existing strategies and lack of the potential ones is due to the lack of leadership. Not only leadership, but also reference to strong leadership was clearly made by a manager. *"...Strong leadership provides an opportunity for employees with leadership potential to develop a series of managerial competencies, knowledge, skills and behaviours that are critical to success"*.

Leadership has many dimensions and characteristics, but an ideal leadership is not only crucial for strategy formulation, but also, implementation is less likely without the transformational involvement of the top leadership.



This is particularly important from IT managers' perspectives. Many look towards those leaders. One even pointed out that *"...e-government implementation includes many processes such as BPR that can be only implemented with strong leadership. It [leadership] is not about making statements, it is about commitment to these statements"*.

So the ultimate suggestion, as one of the participants identified is that the *"...electronic government initiatives can't start without a strong leadership. Lack of leadership is equivalent to an early failure of the project."*

#### **8.5.1.5 Citizen-Centric**

Some past references indicate that some e-government initiatives failed and some others succeeded. Those which succeeded were citizen-centric. Singapore is one such case. Accordingly, some respondents were right to point to that direction.

In particular, an IT manager stated, *"...A lot of government public sectors forget the main purpose of e-government initiatives, which is providing better services to citizens during the implementation"*. The manager added, *"...e-government should be implemented according to the citizen needs, not the government needs"*. Therefore, in order to be in the latter category, and to be able to evaluate concurrently, *"... e-government implementation, and citizen satisfaction need to be measured"*.

The experts suggest two solutions to this concern. One is that the public sector “...*should respond to citizen suggestions and complaints*”. In a second dimension, “...*employees should be able and willing to help citizens to become familiar with our online service*”.

The success of such projects is usually attributed to the citizenship centric efforts, and failures are attributed to the ignorance of citizenship centric efforts. Based on these views, several studies show why citizenship centric strategies are identical to the customer relationship management in private enterprising.

#### **8.5.1.6 Funding**

According to the Cambridge Dictionary, a fund is simply a sum of money saved, collected or provided for a particular purpose. Furthermore, fund is also defined as “representing a distinct phase of the activities of government and is controlled by a self-balancing group of accounts in which all of the financial transactions of the particular phase are recorded and the fund is both a sum of resources and an independent accounting entity”.

E-Government implementation projects will happen only with financial and institutional support. Hence, funding is the major issue in the e-government scenario. A senior manager stated that, “...*There is funding for implementing e-government projects but these funding lack monitoring*”.



Similarly, an IT manager sees several areas of expenditure and therefore funds. It is because “...*Cost is not limited to technical equipment, organisations spent a lot on other thing such as consultants and training*”.

Obviously, without substantial funding, “...*It is not easy to upgrade the organisation systems; it costs them millions of riyals and sometimes billions*”. Furthermore, as been suggested from one of the interviewees, the cost of “...*implementing e-government is huge, so there should be some plans and strategies to fund these projects*”.

### **8.5.2 Technical Factors**

This section describes the following technological attributes: IT Infrastructure, IT Standards, National Information Infrastructure (NII), Collaboration, Security, Relative Advantage and Citizen Relationship Management (CzRM) as important technology factors identified as essential for the adoption of e-government initiatives in Saudi Arabia public sectors. Each of the attributes is discussed in detail in the following sections.

#### **8.5.2.1 Information Technology (IT) Infrastructure**

IT infrastructure is an important dimension revealed as a critical factor for e-government adoption. Duncan (1995) defines IT infrastructure as “a set of shared, tangible, IT resources that provide a foundation to enable present and future business applications”. These include the operating systems, computer equipment, Local Area Network (LAN), Wide Area Network (WAN), network protocols, database management system, and other software and hardware components in the system.

IT infrastructure enables government organisations to collaborate, share information and participate effectively in e-government initiatives. The data revealed that government organisations which lack IT infrastructure are reluctant to participate in any information-sharing process because the organisation will be required to invest in the installation of new equipment and train its personnel prior to considering adoption of e-government initiatives.

A manager explained, “...*government organisations need to have an IT infrastructure as part of their effort to develop a culture which encourages and promotes the use of information technology in the day-to-day activities and tasks*”.

Another IT manager stated, “...*successful implementation and adoption of e-government initiative will necessitate civil agencies to have a common IT infrastructure*”. Furthermore, he said “...*government organisations which have an existing IT culture will be hampered by other organisations which have not yet attained the appropriate level of IT infrastructure maturity and advancement*”.

Yet another IT manager states, “...*In our organisation, there is no existence for IT infrastructure at the current time. There are plans for developing an IT infrastructure but yet not implemented*”. Furthermore, another IT manager says, “...*there is an IT infrastructure in our organisation but it is not yet set or prepared for e-government adoption*”.

The previous statements indicate that there are some organisations that are not applicable for implementing e-government currently time. These organisations need to improve their IT infrastructure in order deliver their services.



A senior manager stated “...*the one-stop shop project ‘www.yesser.gov.sa’, which was initiated by the Ministry of Communications and Information Technology to provide government services through it, is an important step towards an information-sharing culture between government organisations and could easily be implemented as part of e-government initiatives. However, it needs more improvement in its infrastructure*”.

In addition, a member of technical staff states that “...*there is an enhancement improvement in the organisation IT infrastructure. However, the effort that has been done on infrastructure is not enough, it needs more*”.

During the interviews, a number of participants indicated that collaboration between public sectors would be viable if each agency had an appropriate IT infrastructure.

#### **8.5.2.2 Information Technology (IT) Standards**

Building IT standards is an important milestone to enable interoperability across government organisations. IT standards are “specifications for hardware and software that are either widely used and accepted or sanctioned by a standards organisation” (Freeman, 2001:926). Standards for this research, in addition to the hardware and software specifications, include all the agreed upon specifications used by government organisations in their effort to develop a compatible IT environment throughout the civil agencies.

The data revealed that the information systems within various government agencies do not adhere to specific standards, and therefore lack compatibility. Many participants indicated that each organisation selects technology in accordance with its requirements and needs.

A manager explained, “...*every government public sector and functional department has its own independent databases that serve the concerned organisation, department or functional unit*”. In addition, the manager added, “...*contents in those databases are redundant and fail to assist policy makers in producing accurate and relevant decisions*”.

An IT manager stated that “...*our organisation hasn't adopted the IT standards where it's very important to be implemented at the current time and doesn't need any delays*”.

Another IT manager stated that “...*to be able to share information, the data have to be consistent in all systems throughout the government organisations*”. The manager then explained, “...*we need to eliminate redundant information and every government organisation should be responsible for updating the information it provides*”.

Another important aspect of IT standards is standardising the user interface in all government organisations. The user interface consists of the mice, keyboard, commands and menu used for communication between the user and the computer.

Currently, agencies have various user interfaces, as acknowledged by many participants. A manager stated, “...*some employees in the government organisations have two to three different computers on their office, each one of*



*them is linked to a specific system such as financial that is linked to the Ministry of Finance, and the other one is linked to their own network*'.

One technical staff member explained that, *"the different computers in the same office have different operating systems and user interfaces and require special training"*. Some organisations have their own standards. However, there was not any improvement in these standards. A senior manager said, *"...monitoring the standards and modifying them when it's necessary is very important, which we lack"*.

### **8.5.2.3 National Information Infrastructure (NII)**

According to Wilson (1997:4), a national information infrastructure (NII) is the "computerized networks, intelligent terminals and accompanying applications and services people use to access, create, disseminate and utilize digital information". NII consists of the Internet, landlines and telecommunication systems that can accommodate e-government applications.

Participants have agreed that Saudi Arabia has progressed in the development of its telecommunication sector. Saudi Telecom Company is the sole entity engaged in the provision of telecommunications services in the country, and is 70% government owned. Furthermore, another telecommunication company (Etihad Telecommunication) has opened where this company is limited to the mobile services.

The Internet is still a new phenomenon and was introduced in Saudi Arabia only during the early part of 1999. According to participants, national information infrastructure is relatively rudimentary.

Only an Internet dial-up service is available for the general public. High-speed connections such as DSL services remain expensive, and are available only in main cities.

E-government initiatives will require an infrastructure which is technologically advanced, having a higher bandwidth, covering the whole country, and providing affordable services for the general public. Many participants in this research emphasised the importance of upgrading the telecommunication infrastructure to enable government organisations and the general public throughout the country to participate in the e-government initiatives. A senior manager stated, *"...the current infrastructure is dependent on dial-up services. Dedicated services are not only expensive but scarce"*.

Another manager explained, *"...it will give the citizen better services and deals through adding other companies to compete and challenge the existing telecommunication companies by offering high standards of service and competitive rate"*. The manager added, *"...this will lead to improvement of telecommunication services in Saudi Arabia and facilitate the implementation of e-government initiatives"*.

#### **8.5.2.4 Collaboration**

One of the first e-government critical factors identified by participants is collaboration. The adoption of e-government initiatives necessitates collective efforts from various government organisations and functional units within each.



However, data from the interviews revealed that organisation collaboration was uncommon. Each organisation in the government of Saudi Arabia relies heavily on its own endeavours to conduct and accomplish day-to-day responsibilities. Participants explained that information and knowledge reside in each organisation's intranet, groupware, databases and people's minds.

Moreover, it was noted that even within an organisation various functional departments do not have access to other departments' information. Many participants attributed the absence of inter-organisation collaboration to the civil service law, which does not offer guidelines on cross-organisation coordination and cooperation.

Therefore, the organisations are not obligated to participate in information-sharing. Successful adoption of e-government initiatives will necessitate a culture that promotes inter-organisation collaboration. An IT manager states that *"...even if there is collaboration between some organisations, this collaboration is very simple and not enough in order to implement e-government"*.

Another manager explained, *"...in the information age, successful implementation of e-government initiatives will necessitate inter-organisation collaboration. However, the culture of information sharing does not exist in the Saudi civil agencies and a great effort by the management will be required to address this problem by providing the necessary incentives and training to prepare their personnel in order to increase the participants' and stakeholders' awareness of the merits of information sharing practices"*.

Furthermore, participants indicated that inter-organisation collaboration can be attained through enactment of e-government-related laws, which will require all civil organisations to work together for the common good, e.g., improvement of quality of service, reduction of cost, and elimination of the overlapping of responsibilities. Some organisations store similar and sometimes contradictory data due to an absence of information sharing.

Adoption of e-government initiatives will require identifying the most appropriate organisation to provide the service and share information with other organisations, which may require the provision of their related services. A senior manager explained that legislation alone will not lead to collaboration between the organisations.

Therefore, *“...some organisations feel that collaboration will result in loss of prestige, power, independence and importance. We have to remove the fear factor associated with collaboration and establish a culture within the organisations that appreciates and promotes the concept of collaboration and information sharing”*. A senior manager stated *“...the collaboration can be done through an intensive awareness programme within the organisations”*.

#### **8.5.2.5 Security**

Security is another important technological factor identified in this research to be essential for successful adoption of e-government initiatives in the Saudi Arabia public sectors. One concern in the dimension of the security is the access and accessibility. The former is attributed to the proactive intention of the users, and the latter to the provision by the providers.



Second, both the storage or stock and the flow of information are to be protected and defended rigorously. This demands change in the social technologies, which is the function of institutions. Therefore, there is lot of work needed to be done in private and public institutions.

Third, security standards have to be developed and government organisations have to adhere to and comply with these standards prior to participating in e-government initiatives, which call for sharing information and providing online services. This shows that there is some general consensus among participants on information vulnerability and the relevant security measures. In other words, the more the flaws in security, the less likely the adoption of the e-government factors.

For instance, *“...it will be impossible to give a green light to proceed with e-government initiatives, unless I am assured that my agency’s data are secure and protected”*. This suggests that upstream and downstream flow of information is seen as directly related to security by managers, because they feel responsible, like the one who said, *“...at the end, I am responsible for this information”*.

Managers are also aware that security is not a one-time aspect, but it is an ongoing process. This flowing process indicates that the *“...security is a dimension that requires collaboration between everyone in the organisation, and it will be essential to have security national standards which every government agency would have to adhere to”*.

Some of the main problems that emerged from the discussion and needed to be curtailed were frauds, identity theft, and infringement of individual's privacy which have created great reluctance within the government to use the Internet as means to communicate with its offices or other government agencies.

Managers are aware of the understanding and the misunderstanding. The understanding of the clients is related to the demand they make for security, and the misunderstanding is direct result of lack of understanding because *"...people do not understand the concept of computer security yet, it will be easy to start e-government in a closed private network first, and then you could move the people to the next step of providing services to the public through the Internet"*.

So according to this manager's view, e-government can precede the understanding. The learning by doing can contribute to reduce the lack of understanding or misunderstanding.

#### **8.5.2.6 Relative Advantage**

The participants were confident that the adoption of e-government projects would benefit them personally, their organisation and the public at large. This they compared with the existing, paper-based processes, which makes sense for them in terms of relative advantage.

Relative advantage is defined as "the degree to which an innovation is perceived as being better than the idea it supersedes" (Roger, 1995). Participants recognised the importance of improving, because *"...the concept of e-government is the ideal replacement for our current status and through knowing that the employees will encourage implementing that concept"*.



Another executive commented that “...*knowing the advantages of e-government will give us an idea of what we will gain if we implement e-government successfully*”. He added “...*being aware of e-government advantages will solve some of the challenges that our organisation will face through implementation, such as resistance to change*”.

Furthermore, the participants recognised that e-government initiatives would make it possible for them to collaborate with other government organisations, thus reducing the workload and improving the performance of their respective organisations. However, an IT manager stated, “...*I am familiar with e-government benefits. Unfortunately, other employees in the organisation don't know these benefits. There is no effort on promoting these benefits in our organisation*”.

Participants further acknowledged various ways that the organisations could benefit from e-government initiatives. Some of the benefits mentioned during the interviews include the upgrading of the organisations' computer systems, and training and educating the work force to become more qualified and productive. Another benefit was reducing the administrative cost in the provision of public service for both the government and consumers.

Moreover, participants appreciated the importance of improving service delivery to the general public, and confirmed that every agency was striving to reform its internal process and improve the service delivery to the general public. Every senior manager interviewed confirmed the need to improve their respective organisations' performance which, in the short and long-term, leads to citizen

satisfaction and enhances the government's image as a provider of essential services.

#### 8.5.2.7 Citizen Relationship Management (CzRM)

One of the misunderstandings generally is that it is the technology that brings the desired consequences. So the focus and strategic attention remain on the economic efficiencies of a technology-push perspective. On the contrary, it has clearly emerged that changes and improvements are contingent upon the direct contribution and feedback by the customer.

The lack of links between technology push and pull is because “...*There are no high efforts in improving the ways of using the available data and information from the public sectors' side*”.

The respondent goes on to say that the “...*lack of systems that are applicable to providing fast feedback and updated information about the citizen are yet to be developed*”. This is likely through integration of peripherals to a single hub.

For instance, according to a senior position executive, “...*There is a need for a single organisation that can provide any inquiry and information related to citizens in a short period of time*”. The integration fosters interaction, and therefore flow of information. Eventually, this leads to common norms and understanding.

Subsequently, the “...*development in improving the relationship between the public sectors in general and citizens could be better*”. This integration points to the governance structure.



### 8.5.3 Organisational Factors

In addition to the Governing and Technological factors, participants identified the Organisational factors to be equally important to the adoption of e-government initiatives in the Saudi Arabia civil agencies. Organisations are essentially the confines and constructs of specific enterprises that are comprised of a variety of characteristics, much like the human being. The organisations exist to enable people, or groups of people, to effectively coordinate their efforts to set and accomplish tasks (Nohria, 1995).

The organisation's success in achieving its goals is influenced by the organisational factor that exists within the organisation. For e-government initiatives to be successful, the following factors have to be addressed prior to adoption and implementation of e-government initiatives: Reward System, Technical Staff, Policy and Legal Issues, Training, Change Management, Implementation, Organisation Structure, Business Process Re-Engineering, Awareness, Organisation Culture, and Quality. Each of the factors is now discussed in detail.

#### 8.5.3.1 Reward System

The first organisational factor is directed to addressing the reward system in Saudi Arabia's civil agencies. A reward system refers to the "business practices of offering rewards and benefits over and beyond wages, salaries, and other monetary compensations to recruit, [satisfy] and hold desirable personnel" (Cross, 1999:314).

The data collected from the interviews revealed that due to an absence of a reward system within most organisations, individuals were reluctant and unwilling to participate in new projects and accept added responsibilities. Moreover, employees were not swayed to spend their time and effort to participate in projects which threatened their job security. Some participants mentioned that successful implementation of projects would require their involvement in projects from the outset.

The participants indicated that their input was often overlooked, and the projects as a result were confronted with obstacles, and in many cases they ended up on the shelf. A senior manager recognised the civil service system's shortcomings, and emphasised that *"...in the development and implementation of an e-government project we need to include monetary compensation, promotion, and any other perks which set the adopters aside from individuals who have little or no input to the improvement and reform of the government administrative system"*.

An IT manager stated *"...employees will be willing to devote their time and effort to projects if top managers can recognise and appreciate their contribution"*. Participants expressed willingness to adopt e-government initiatives if their respective organisations would address their needs and wants in terms of monetary benefits, career progression, and job retention. One manager explained that top management is required to motivate the subordinates to stimulate their positive contribution. These top managers' efforts have however to be accompanied by reform in the organisation's reward system.



Generally, an organisation succeeds in increasing its workers' productivity by offering job promotions, perks, and monetary incentives. However, in the case of the Saudi Arabia public sectors, a structured reward system does not exist, other than job retention. The participants emphasised the importance of changing the reward system prior to implementation of e-government initiatives.

#### **8.5.3.2 Technical Staff**

Another factor for successful adoption of e-government in the Saudi Arabia's public sectors is possessing technical staff. Technical staff are those who have knowledge in installing, configuring, designing, and maintaining the technology related to the implementation of e-government initiatives. Organisations with employees knowledgeable about e-government will be better equipped to deal with the issue of implementation.

Most of the public sectors complained about a lack of qualified IT employees in their respective organisations. Most organisations find difficulties in recruiting personnel with the appropriate IT qualifications and skills. An IT staff member stated "*...public sectors do not pay technical staff well; therefore, the private sector and other branches of the government have a better chance to employ qualified graduates*".

According to participants, another reason why some public sectors lack qualified IT personnel can be attributed to the IT departments falling under the supervision and control of the Finance and Administration Department, and therefore have little independence or input in the recruitment and appointment of

new staff, while organisations with independent IT departments are given greater autonomy, have direct access to the senior management, and are in a more favourable position to obtain approval for appointing new IT staff.

The data from the interviews revealed that the organisations which have in-house technical staff and expertise were receptive to ideas to promote inter-organisation cooperation and coordination. A senior manager stated that, *“...government public sectors with technical staff are easy to interact with and are able to identify their requirements. On the other hand, it is difficult and sometimes impossible to talk to government public sectors, which do not have well-established IT departments with the right technical staff and expertise”*.

An IT manager complained that the organisation will not be able to participate in any project that involves collaboration and sharing information with other government organisations. The manager stated that, *“...I have to fix my internal house first; I do not have enough right people”*. The manager further stated, *“...one simple requirement will be a qualified person to secure my system prior to granting other organisations access to it”*.

According to participants, some organisations have only four qualified technical staff and expertise to manage, design and develop the organisation's systems. Other organisations have an established IT department and more than 25 qualified technical staff possessing varying skills and expertise.

These organisations stated that it will not be a problem for them to participate and share information with other government organisations, *“...as long as their senior management agrees to it”*.



Many participants acknowledged the importance of investing in the education and training of Saudi nationals to participate in e-government initiatives, and believe it is the only way to have a successful implementation and adoption of e-government initiatives in the Saudi Arabia public sectors. In-house technical employees will have both the technical skills and the knowledge of the organisation to deal with individuals in their organisation.

### **8.5.3.3 Policy and Legal Issues**

Policy and legislation will have to be enacted prior to the adoption and implementation of e-government initiatives. Legislative requirements include enactment of laws covering authentication, procurement, privacy, e-payment and electronic signature laws, which have to be in place prior to the adoption and diffusion of e-government initiatives.

In addition, existing statutes have to be compatible with the new laws to accommodate the e-government and e-business requirements. One participant explained, *"...it is not enough to introduce new legislation, we need to make the society aware of them and train the law enforcement to follow and implement the new legislation"*.

Another IT manager and member of an e-government task force explained, *"...the government will be required to amend its existing laws and establish an e-business infrastructure by involving the banking system and other financial institutions as part of e-government adoption process"*.

There seems to be a little attention to the required levels of socio-economic institutional development and legal framework change; the executives are aware of the current level and are pushing for the ideal one. An IT manager saw where his organisation stands, *“...Our organisation hasn’t developed and identified yet the policies and legal issues as a step toward e-government adoption. However, there is committee that has started working on identifying them”*.

Another said, *“...The committee that identifies and develops the policies and legislation should include members from different backgrounds in order to be successful”*. He added *“...the committee should not be over after the initiation of the policies and legislation, they should monitor, update and change them if necessary”*.

Yet another has the opinion in setting some sort of balance, because in IT management, *“...organisations have their own policies and legislation where there should be a single policy and legislation for all public sectors”*.

#### **8.5.3.4 Training**

Training for skills and knowledge is becoming apparent in many organisations involved in the work. This is equally true in the case of Saudi Arabia. The lack of training, skills and tacit knowledge are felt deeply in the management communities. One IT manager offered *“...we should use the advanced technologies in the training programme and the modern approaches of training to gain better results”*.



To business groups in general, public sector and managers in particular (senior level), *“...the failures of the training programme, sometimes, resulted from the limitation of funds and financial resources, and not from the approach itself”*.

This indicates recognition of the failure. Others attempted to trace the sources and roots of failure. For example, it is clear to this senior manager who suggested that *“...there is a lack of relationship between the programme team and the trainees, in terms of gaining feedback about their training programme and satisfaction”*.

So what is likely to benefit the e-government projects in the country is multidimensional and multilevel training. This training is identified at administrative level and technological level. But there is some confusion on the conceptualisation and the framework. Though it is overwhelmingly talked about *“...the word training is a familiar word which can be seen in every existing organisation. However, there’ve been part/full failures seen in some training programmes”*. He added *“...there are a lot of new approaches that help to implement training in a more efficient and effective way”*.

Several approaches are suggested. One IT executive said that *“...there are ways to encourage the employees through motivation and a reward system, such as giving them a reward that reflects their results in the training”*.

### 8.5.3.5 Change Management

Saudi Arabia has a socio-political system that is grounded in routines and patterns that are embedded in the cultural context. Such contexts are sticky and latent, and therefore, they are difficult to revolutionise. For the e-government, radical changes are essential in provision of the services and using them. Both sides need to be interactively changeable.

However, this change is viewed as the most difficult challenge managers are likely to face. A senior manager stated that *“...one of the main concerns of the organisation top management in e-government initiatives is change management”*.

He added, *“...to implement change management in our organisation it mainly requires full support from the top management side”*. This is a concern a manager in general terms. Specific to e-government, therefore the public sector, it is even more difficult.

In one's opinion, *“...some of the public sectors that I am familiar with face difficulty and challenges while implementing change management because their employees feel change is not required, such as changes for e-government.”*

This difficulty and complexity of the cultural, political and economic institutions are rooted in the system that is one of the greater challenges embedded in the societies. Changes are not only challenging but they are slow. This means that a system change is required. To change a system, architectural changes take place. That eventually demands institutional change.



One manager sees that the “...change management is not easy process which requires full attention, especially in large, complex government organisations such as ministries”.

It is because “...believing that the e-government concept is a top requirement for the current organisation leads to less difficulty in implementing change management”

#### 8.5.3.6 Implementation

The managerial concerns and the difficulties they are facing is not at one level but at different levels while policy making, designing and implementing e-government. Implementation is the most difficult and challenging. It is obvious from managerial accounts that the emergent or actual outcome was different from the espoused policies for the e-government.

An IT manager stated “...e-government concept is a new phenomenon in Saudi Arabia; despite desire for doing it and resources in place, it is still difficult to see it moving smoothly. Some organisations haven't started implementing the first stage of e-government”.

Another's account indicates that even if implementations started as perceived, there are unexpected hurdles. According to him, “...there are delays, in general, in implementing e-government in Saudi Arabia”. He added “...there is a gap between e-government plans and their actual performance”.

One of the hidden difficulties associated with such a gap between formulation and implementation is the lack of coordination, interaction and mechanisms for information flow. An IT manager pointed to one of the reasons, “... *from our meeting with other organisations, there is no clear method to follow for implementing e-government projects*”.

This refers to multiple challenges. One of them is the evaluation mechanism. A success to one may not appear so to others, and progress at one level may not be so at other level. For instance, formulation might be seen as a success, but implementation ignorance leads to hurdles.

One manager raised this issue that “...*the main challenge in the implementation is to match the project implementation with its plans and strategies, where to accomplish that in our organisation requires regularly monitoring the project*”.

#### **8.5.3.7 Organisation Structure**

Participants acknowledged that the organisation’s hierarchical structure has its advantages, regarding enforcing the implementation of new work process or introduction of new technology in the work environment. In some organisations, the hierarchical structure does not reflect how decisions are made.

Middle management and other qualified staff participate indirectly through committees in the decision-making process. Members of the public sectors’ committees comprise individuals from various levels and expertise, who provide feedback and recommendations about projects and initiatives that affect the way



the organisation conducts its business. Hence, in both ways and levels, the management can play a vital role in the adoption of e-government initiatives.

A senior manager stated “...*each organisation needs to be responsible for the relationship between its departments while implementing e-government where it requires the modification of organisational structure*”. He added, “...*the way the decisions are made after implementing e-government is differently systematic for decision making, which should be considered in the structure of the organisation*”.

This seems to point to the recommendation for revitalising the existing organisations and creating some new ones. Hence, it seems that institutional change and socio-economic structural transformation are at the forefront of managerial preferences. For instance, according to one IT manager, “...*each government sector should consider the establishment of a department that is concerned with e-government implementation in the organisation and its on-line services*”.

Generally, the literature is divided between two streams. One sides with continuous and consistent routines; such is possible in the long-term relationships among the individual and organisational actors. The other stream stands by team-based work; teams come into being and are dissolved at the end of a certain project.

In the context of Saudi Arabia, some managers place themselves in the latter category. For instance, one said that “...*Saudi’s public sectors, in general, don’t consider the project team or the committee for e-government implementation on their organisational structure*”.

A senior manager said “...*all the members of most e-government project teams in the government organisation, if they have them, are IT background; where as the organisation structure should include a committee for e-government implementation, and its members are from different backgrounds such as finance*”. The senior manager added “...*the committee for e-government implementation should be linked to the top management to be effective*”.

This preference is reflected in their education background. Most of them are trained in the Anglo-Saxon environment in which IT-related technologies are usually team-based. However, the effectiveness of such short-term team-based projects is not clear.

#### **8.5.3.8 Business Process Re-Engineering (BPR)**

In the literature, there might be different positions on BPR. Some views are in favour of BPR, and some others against, in terms of nurturing knowledge.

For instance, a one senior manager stated, “...*at the current time, organisations are focusing on simplifying the business process as a step towards the e-government concept*”. Another IT manager took a frame of reference starting at the BPR position. His IT organisation “...*has a framework that helps in implementing BPR. However, our organisation didn't implement this framework yet*”.



Such strategic approaches may gain in terms of “...*simplifying the work process and making them more efficient and effective. However, there is a lack of monitoring for this implementation which may cause huge problems for the organisation*”, as a manager pointed out.

It is because “...*Implementing BPR can affect the future of the organisation (success or failure). Therefore, establishing strategies for it is the wise idea in that situation*”. Because of the institutional framework, some managers see that BPR is a job for the public sector.

For instance, one raised a point that the “...*public sectors should benefit from other organisations’ implementation of BPR and not start from the beginning in order to avoid their mistakes*”.

#### **8.5.3.9 Awareness**

Awareness is another organisational factor for e-government initiatives. According to participants, awareness is important for the adoption of e-government in the Saudi Arabia public sectors. Awareness is communicating e-government initiatives to the appropriate stakeholders, and providing means for individuals to realise e-government projected benefits.

Awareness also includes using the mass media to introduce the concept of e-government in the public sectors, and conducting conferences, seminars and workshops as part of the awareness effort to encourage the public sectors’ work force to accept and embrace e-government initiatives as part of their daily operations. According to Kotter (1996), individuals will be willing to accept

change, such as adopting e-government initiatives, if the potential benefits are outlined and they believe that the transformation is possible.

Many participants emphasised increasing people's awareness regarding the merits of e-government to ensure its acceptability during the adoption process. An IT manager indicated that *"...awareness is an important factor during the Y2K problem. The government launched an extensive campaign through the mass media. In addition, seminars, conferences and workshops were convened to educate employees on the potential problems and difficulties emanating from Y2K"*.

A senior manager stated, *"...individuals who are non-computer literate consider e-government initiatives as undesirable and a threat to their jobs, since they will be required to learn new skills, which will be difficult for them to acquire and master. E-government initiatives can gain universal appeal within the public sectors through policies which promote awareness, education and training of personnel"*.

According to an IT manager, *"...it was not an easy task to convince people to conduct their work differently. It is important to explain to them how the new technology will help them increase their productivity and improve their organisation's performance"*.

A senior manager explained, *"...awareness can be attained through educating the public sectors' work force and providing technical training to increase people's familiarity with computer operation and Internet usage"*.



### 8.5.3.10 Organisation Culture

Finally, it is the culture that managers are fully aware of as a stumbling block. Different streams of literature view culture in different dimensions. A wider dimension may be grounded in the vertical and horizontal relationships in a social milieu. A narrower dimension can be captured through institutions. These are norms, cognitions, and regulation. These cultural changes through institutions are important in managerial views.

A senior manager stated “...*Organisation’s employees have to be innovative and open-minded in terms of new concepts such as e-government, or nothing will change in the organisation*”.

This is an acknowledgement of the individual’s resisting to change or doing new things. However, this may not be seen as a challenge at a lower level; senior level management may be rigid and less innovative. An IT manager stated “...*there are some organisations that are not implementing e-government yet because of a resistance to change*”.

Change requires learning new knowledge and unlearning the old one. This depends on cultural transformation. Not many organisations have been successful in this. It is not only lower or upper management’s responsibility, it is a systematic implementation of the new activities and structure that ought to be brought into the process. An IT manager stated “...*if the organisation management are not supportive in term of new innovation, changes will not happen and be implemented*”.

Hence, the common message emerging from the respondents' account is that knowledge as an outcome and learning as a process are the best way to e-government implementation and ultimate success in the country. A final comment by a senior level executive was that *"...a developing, learning and productive culture helps in implementing e-government more easily"*.

#### 8.5.3.11 Quality

In the private sector, quality is considered essential for product and process success because it is determined by the users (customers). Low quality means lack of customer base, and lack of customer/user base means lack of business and, in some cases, no business at all. Hence, quality is a performance measure.

However, in the public sector in the country, the quality-based focus is often overlooked. It is clear in some of the managerial statements. One senior manager stated *"... 'Quality' is a forgotten concept in most of the public sectors"*. Perhaps it is the misconception that, as he went on, *"...Quality can often be seen implemented in private sectors more than it has been in public sectors"*.

Not only are some managers aware of the significance of the quality, they have some kind of vision of how to go about it. For instance, an IT manager commented, *"...All organisations should have a department that is concerned about Quality, the same as what happen with IT"*.



Nevertheless, the prescription by the managerial side seems to boil down to the relationships between the supplier of the e-government and the users (citizens). Such comments are obvious in these views: “...*To improve the level of the quality of services that the organisation provides, the organisations should establish a connection between them and the citizen to obtain their level of satisfaction and even their complaints*”.

One even goes a step further in suggesting that in addition to setting up quality standards, “*the organisation should have standards for measuring the quality of its service delivery, where the citizen should be an element in the measurement*”.

This means a continuous process of interaction, feedback and improvement. Currently, it seems to be substantially below the standards in the managers’ perceptions. One described that: “...*measuring the quality of the services should not be limited to the beginning era of the service delivery, it should be measured annually*”.

These selected points signify four important dimensions of the readiness factor for e-government: managerial recognition of the deficient factors, managerial concern over them, managerial view to improve them, and managerial evaluation.

## 8.6 Main E-Government Challenges

All that sounds promising is not free from challenges. As the promising advantages and benefits of the e-government concept to government public sectors are sometimes obvious and predictable, they are not likely to come without a determined and conscious effort on e-government formulation and development. Mostly, the solutions require political decisions and prioritisation.

For implementing the e-government concept, there is a need to address the indicated factors through strong policy actions. Furthermore, the government need to develop specific and reasonably attainable goals, and understand what resources are available to achieve them. Only then will they be able to formulate a plan that can be implemented in full, rather than being cut short before any gains are realised due to lack of resources. The majority of the interviews indicated that there were number of barriers to using e-government.

The most pertinent challenge is, as a senior manager stated, “*...performing security on the transactions while implementing e-government services for the users*”. Similarly, an IT manager stated “*...performing millions of transactions on sensitive data every day on-line requires a high level of security*”. In addition, a senior manager repeated during the interview about the difficulty of implementing some services without face-to-face contact. An IT manager stated “*...e-government implementation requires a high level of technologies which most of the public sectors in Saudi lacks*”. In general, most of the interviewees were concerned about the security issues and how to overcome them.



### 8.7 Summary

This chapter presents the qualitative analysis implemented in this study. The data that the researcher analysed gathered from careful face-to-face interviews in eight government organisations in Saudi Arabia. In this chapter, the researcher gave a description of each organisation. Furthermore, the case studies were analysed by looking at each of the e-government critical factors separately, based on the interviewees' perceptions.

The researcher identified six Governing factors (Vision, Strategy, Top Management Support, Leadership, Funding, and Citizen Centric), seven Technological factors (IT infrastructure, IT Standards, National Information Infrastructure, Collaboration, Security, Relative Advantage, and Citizen Relationship Management) and eleven Organisational factors (Reward System, Technical Staff, Policy and Legal Issues, Training, Change Management, Implementation, Organisation Structure, BPR, Awareness, Organisation Culture, and Quality) which are essential for the development of an e-government adoption model for the Saudi Arabia public sectors.

In the following chapter, the researcher presents a comprehensive discussion on the analysis of the results and findings that have been presented in previous chapters, in order to obtain triangulation between both the qualitative and quantitative approaches, and furthermore, an examination of the literature review.

# Chapter 9

## Discussion of Key Findings



## 9.1 Introduction

In this study, the researcher has developed and validated a model for e-government implementation in the context of Saudi Arabia. The researcher has answered the research questions presented in Chapter One, using a suitable methodology which in this case combined quantitative and qualitative approaches.

In discussion of the key findings, the researcher presents a comprehensive discussion of the results of the analysis and the findings, conducted and concluded in Chapters Six, Seven and Eight, in a triangulation of both qualitative and quantitative results, and furthermore, an examination of the literature review.

Based on this chapter, the conclusions and recommendations of this study are made in Chapter Ten. The findings and recommendations of the study are intended to be very useful for both the theoretical side as well as the practical side. This will provide guidelines that will help to implement e-government delivery, and raise questions and indicate directions for future research.

## 9.2 Discussion of Findings

Heeks (2004) indicates that in developing countries, 35% of e-government projects are total failures, 50% are partial failures, and only 15% are successes. There is thus a high possibility for the implementation of e-

government projects to fail in the developing countries which leads to a low prospect of project success.

Furthermore, the United Nations Global E-government Readiness Report 2005 has ranked Saudi Arabia in the 80<sup>th</sup> place among the other countries, which means there is huge gap between it and the top countries in e-government implementation (UNPAN, 2005).

In this study, the research has indicated, the success of e-government project implementation in Saudi Arabia public sectors on a scale from one (very unsuccessful) to five (very successful). The study shows that most of the participants gave a rating of two (unsuccessful) with 33.2%, and 3 (Neutral) with 34.4%. Therefore, there is a need for studying the area of the e-government concept in order to avoid its failure and to improve its implementation.

This study draws on the extant literature on e-government implementation and execution. The purpose of the mixture of this literature is to advance our understanding on the success and failure cases, and elaborate on the underlying enabling and inhibiting conditions. The study has implemented a triangulation approach (quantitative and qualitative methodologies) and performed the literature review.

The study aims to provide an assessment of the level of familiarity with and understanding of e-government implementation within a sample of government public sectors in Saudi Arabia. It identifies and indicates the critical factors for e-government implementation in the context of Saudi Arabia. These factors were validated using formal methodologies which can be seen in the previous chapters.



This study is significant with respect to research and practice to avoid the pitfalls of imposing universal approaches on research and policy practices. Rather, it draws the distinction among the generic or general and specific (context-contingent) factors.

Without these fundamental understandings, we are unable to suggest what kind of factors have strategic importance and what are irrelevant in terms e-government implementation. Therefore, from this study, the researcher presents the relevant factors which are crucial for the successful implementation of the e-government concept.

According to Wood-Harper, Ibrahim and Ithnin (2004), exploring the factors that will lead to e-government delivery, and studying them is an important issue. Furthermore, Aldrich (2002) recommends that a better understanding of the factors that contribute to e-government delivery could inform others as they deploy such programmes.

Therefore, exploring and identifying the critical factors for e-government helps the public sectors in Saudi Arabia in their implementation. It assists them to avoid the critical factors that might lead to project failure. However, this study indicated that the presences of each of the e-government factors in Saudi public sector gained a very low percentage (see Table 7.7), and concluded this is a very serious problem that needs action.

Implementing e-government requires each country to have a unique model to fit its environment. However, despite similarities of e-government initiatives, there is no universal model and one model cannot fit all (Miriam, 2001). In addition, Heeks (2001b) has the same opinion as Miriam. He states "...There is no

one best way: each country must be helped to find its own best way". Therefore, in this study, the researcher presents an e-government implementation model that is suitable for the Saudi Arabia context. The model was developed and validated as shown in the previous chapters.

The developed model reflects the current implementation and future vision of the e-government concept. The model is supported by analysed data from quantitative and qualitative approaches, and has proved to be a relevant and true reflection of the critical factors needed for e-government implementation.

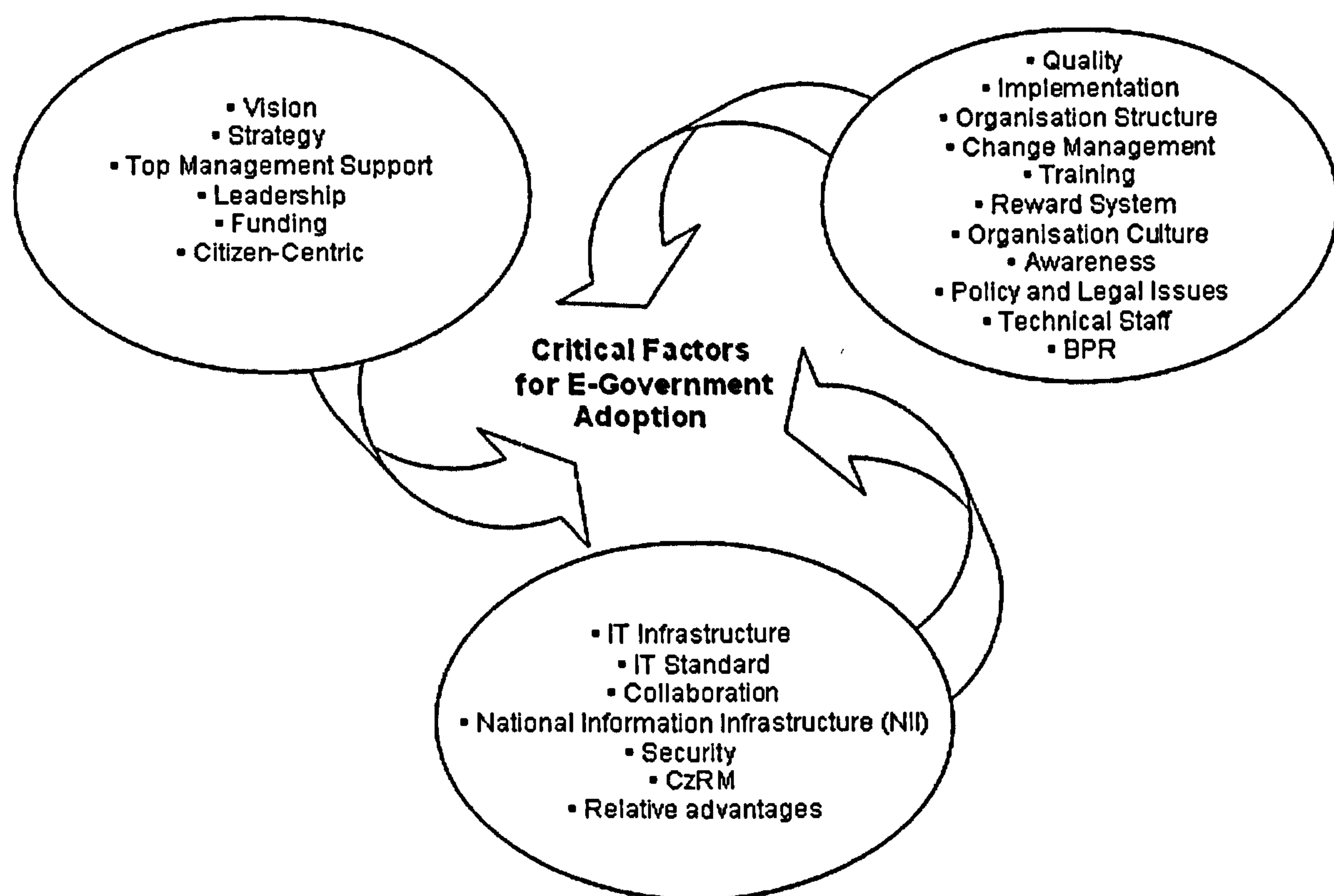
An e-government implementation model was concluded through a combination of three conceptual models: the Governing, Technical and Organisational models. Each model has its own factors that influence the implementation of e-government.

The e-government implementation model, as it shown below in figure 9-1, is divided into three general sections:

- Governing model, on the right hand side of the e-government model figure contains six critical factors that influence implementation.
- Technical model, at the bottom of the figure, includes seven factors.
- Organisational model on the left hand side of e-government model and this part includes eleven factors.



All the identified factors have critical influence on e-government initiatives. The researcher has validated the model using a triangulation approach in the context of Saudi Arabia. The final model for e-government implementation is presented.



**Figure 9.1: E-Government Adoption Model**

### **9.3 Research Findings on E-Government Implementation**

As time is moving, e-government adoption becomes more and more important for every country around the globe. In order to adopt and implement the concept of e-government, there are several crucial requirements that should be considered. This study explores the factors influencing the implementation of the e-government concept in the context of Saudi Arabia.

The study indicates the critical factors that enable e-government initiative. In Figure 9.1 which represents an e-government implementation model for Saudi Arabia, there are twenty-four factors. These factors inside the model are divided into three sections: Governing, Technical and Organisational.

In the following, the discussion is based on the whole research study. The discussion is based on the secondary data analysis, questionnaire/survey, and case study. Each e-government factor indicated in this study is considered in turn.

#### **9.3.1 Critical Factors for E-Government Implementation**

##### **9.3.1.1 Governing Factors**

The results of this study indicate that the governing factors that are crucial and significant consist of vision, strategy, top management support, leadership, citizen centric and finally funding. Each one of these factors was discussed below in details as the following.



### 9.3.1.1.1 Vision

After several analyses in this study, vision was one of the factors that the researcher has indicated as a critical factor for e-government implementation. According to Lee (1993), “The concept of vision has never been more important than in today’s world of flattened, delayed, decentralized organisations”. Singapore’s success in providing public services online can be attributed, according to Ke and Wei (2004), to the commitment to turn a promising vision into a full reality. According to the literature, vision can provide a road map for future direction, and generate enthusiasm about that future. Furthermore, it can create order out of chaos and a criterion for measuring success. The vision keeps the leader moving, despite the various forces for resistance and fear of failure. It is also considered as the force within the leader that spreads like wildfire when properly communicated to others.

From quantitative data analysis, the researcher has indicated the presence of the vision in the Saudi Arabia public sectors, and that it gained a low percentage from responding organisations. Based on the approaches, this research suggested that low percentage might result either from the vision not being clear in order to be effective or from lack of awareness. Furthermore, this research suggested that the cause of the low percentage was from not being familiar with the importance of this factor and what it can provide.

The failure of previous projects was blamed on the failure of the organisation to communicate its vision to the parties concerned. From the interviews, the visions in the public sectors are implicit and are known only to the senior management. This research suggests communicating the vision of

e-government to all employees should be part of implementation process, even establishing a communications strategy to ensure that people understand the vision. This vision has to be established within each organisation to enable employees to work towards realising the goals and objectives of the organisation, and has to be recognised at the national level to ensure that all public sectors work towards achieving the essential goal (Ke and Wei, 2004).

#### 9.3.1.1.2 Strategy

Any project that involves change should develop a specific plan of action and include a strategy (Burn and Robins, 2003). The strategy provides government public sectors with specific guiding principles to follow in e-government development (Ke & Wei, 2004). Implementing strategies successfully is vital for any public or private organisation. Through several analyses, this study has indicated strategy as one of the critical factors for implementing e-government in Saudi Arabia. According to secondary data analysis, Singapore's success in providing public service online can be attributed to the strategies it has adopted.

However, this study concluded that public sectors in Saudi Arabia seem to have difficulties in implementing their strategies. One possible shortage of such strategies is distance between the espoused frameworks and the emergent ones. Through a qualitative approach, this study concluded that the developed strategies cannot communicate with the real world, which caused a very serious problem. Furthermore, according to Zairi (1999), "Most strategic planning efforts remained as blueprints locked away in senior executives' filing cabinets", therefore it fails to deliver. The literature has revealed a number of problems in strategy



implementation, such as weak management roles in implementation, lack of communication, lack of a commitment to the strategy, and unawareness or misunderstanding of the strategy (Giles, 1991; Alexander, 1991; Galpin, 1998; Beer and Eisenstat, 2000). Through the interviews, this study concluded that in order to develop successful strategies, it is very necessary to cover every side of an e-government implementation project.

#### **9.3.1.1.3 Top Management Support**

The adoption of a new way of doing business or of a new technology is unlikely to succeed if it does not have widespread organisational support, and especially acceptance from the top management. The project that has considerable top management support gives the people who are working to implement the project more confidence that the project that they are working on will proceed to a successful conclusion. This study concluded, after several analyses, that top management support is a critical factor for e-government implementation in Saudi Arabia.

According to secondary data analysis, in the US, a Chief Information Officer (CIO) position was created in the Office of Management and Budget to provide leadership, vision and coordination between public sectors at the federal level. Furthermore, Wee (2000) indicated that the Singapore government earmarked \$932 million for the years 2000 to 2003 to ensure the programme objectives of the E-government Action Plan became a reality.

This study concluded that top management support is critically important for all e-government project stages, especially the early ones. Furthermore, middle management can play a major role in the adoption of e-government initiatives.

The positive commitment, enthusiasm and support of senior management for the project are crucial for organisations to deal effectively and efficiently with new concepts, processes, and/or technologies.

The researcher in this study concluded that in Saudi Arabia public sectors there is lack of knowledge on the top management side on the e-government concept, which makes it less effective. Therefore, this study suggests that to gain support from top management and acceptance, it is crucial for them to understand the project and what can it provide. Moreover, to know what it needs and how to implement it.

#### **9.3.1.1.4 Leadership**

There are several important requirements that should be considered to implement any project, and leadership remains at the core of success. According to Zairi (1994), "Nowadays leadership is considered as a must for survival". The researcher in this study has concluded that leadership is one of the critical factors upon which e-government success hinges. According to the literature, leadership is considered as a pre-condition for e-government adoption (Heeks, 2002).

Through several analyses, the researcher found that e-government initiatives can not start without a strong leadership, and lack of leadership is equivalent to an early failure of the project. Furthermore, through secondary data analysis, Singapore's success can be attributed to the commitment and persistence of its strong leadership to turn a promising vision into full reality (Ke & Wei, 2004).



In order to achieve the e-government transformation, administrators are needed at all levels of the organisation, and a government who understand the technology and the policy goals and who will push reform. The researcher concludes in this study that leadership is not about making statements; it is about commitment to these statements. In addition, the implementation of e-government requires decisions, and includes many processes that can be only implemented with strong leadership.

Moreover, the researcher has concluded that strong leadership can guarantee the long-term commitment of resources, expertise and the collaboration of disparate groups. Leadership can also articulate a unifying theme that can push the e-government initiative through all the needed steps.

#### **9.3.1.1.5 Citizen-Centric**

The most prevalently cited reason for deploying e-government is the way in which it expands, deepens, and improves communication between government and its citizens. Governments seem to be undergoing intense transformations to use the Internet to deliver services and information according to people's demands for more and improved government services, and effort expectations (Adbul Karim, 2003).

Governments that embark on citizen-centric e-government programmes tend to be more successful. Some researchers identified that citizen-centric and their demand as a critical success factor (Abdul Karim, 2003; Wang, 2002; Zhou, 2004).

Furthermore, e-government programmes are more capable of success when they adhere to a design methodology that is directed by public needs (Gent, 2003). However, a lot of governments are not all proactively responding to citizen needs when choosing to adopt e-government, even though a desire to meet citizen needs may be the message that is communicated.

Citizens are more likely to develop loyalty towards an e-government portal that is citizen-centric, that is designed to address their needs such as Singapore's e-Citizen Centre portal. Timely delivery, capability, quality, equality and outcome are the most important characteristics that contribute to higher satisfaction ratings.

This research finds that the services of e-government should be designed so as to help citizens get in, find their information or transact their business, and then get out as efficiently as possible. From the analyses, this study suggests that e-government services and citizen satisfaction should be regularly measured. Moreover, accepting suggestions and complaints from citizens, and being willing to help citizens to become familiar with online services.

#### **9.3.1.1.6 Funding**

According to Okiy (2005), "The importance of funding in providing excellent service cannot be over emphasized. It is the glue that holds the building, collections and staff together and allows attaining goals". The costs of e-government adoption are not limited to technical equipment, organisations spend a lot on other things, such as consultants and training



E-government is mainly related to lack of funding (Akomode, Taleb-Bendiab, Evangelidis & Taylor, 2002). A project can be cancelled either because it has a significant cost overrun exceeding the original funding request or because it was initiated without any funding request in the first place. Either approach results in failure of the project.

In a similar study, funding was listed as the greatest obstacle to moving country government services to the Internet by 70% of the respondents (NACO, 2000). On the other hand, from secondary data analysis, some government gave e-government adoption high priority in their agenda, and supported their projects, such as the Singapore government when they earmarked \$932 million for the years 2000 to 2003 to ensure the programme objectives of the E-government Action Plan became a reality.

The initial capital costs of establishing e-government services must be analysed and balanced against the long-term reductions of migrating the delivery of public services online. However, the researcher concludes in this study, after analyses, that public sectors in Saudi Arabia lack monitoring of their funds. Therefore, this study suggests that there should be some plans and strategies to fund these projects and to further monitor the funds.

### **9.3.1.2 Technical Factors**

The results of this study indicate the following technological attributes: IT Infrastructure, IT Standards, National Information Infrastructure (NII), Collaboration, Security, Relative Advantage, and Citizen Relationship Management (CzRM) as important technology factors identified as essential for

the adoption of e-government initiatives in Saudi Arabia public sectors. Each of the attributes is discussed in detail in the following sections.

#### 9.3.1.2.1 IT Infrastructure

To be successful, e-governments need to have an IT infrastructure that is capable to support and enable the execution of e-government. According to Mitchell and Zmud (1999), IT infrastructure offers an organisation the ability to effectively leverage IT resources. Generally speaking, IT infrastructure refers to enabling technologies, outsourcing arrangements, and policies. This study concluded, through several analyses, that successful implementation and adoption of e-government initiative will necessitate civil agencies to have a common IT infrastructure. The IT infrastructure is the bedrock for an e-government (Wanga, Caob, Leckiea and Zhang, 2004).

According to the literature, many developing countries do not have the infrastructure necessary to deploy e-government services throughout their territory (Wagner, Cheung, Lee and Ip, 2003). This study has concluded that there are still some public sectors in Saudi Arabia which do not have an IT infrastructure. Furthermore, it concluded that even if some public sector has IT infrastructure, they are not set or prepared for e-government implementation. These organisations that do not have appropriate IT infrastructure will affect other organisations with suitable infrastructure.

Therefore, this study suggests that public sectors need to have an IT infrastructure as part of the effort to develop a culture which encourages and promotes the use of IT in day-to-day activities and tasks. It is very crucial for the public sectors to attain the appropriate level of IT infrastructure maturity and



advancement which this study considers a critical factor for e-government implementation. This study concluded that public sector in Saudi Arabia need enhancement and improvement in their organisation IT infrastructure, and the current efforts made are not enough.

#### 9.3.1.2.2 IT Standards

The development of communication systems requires new specific agreements among the parties involved, such as equipment manufacturers. IT standards is an attempt to define technical rules and the foundation of an IT system in such a way that many users can use that component on offerings from multiple vendors and multiple sources to do something they want to have done and interconnected systems that work across organisations (Libicki, 1995).

Keen (1991) notes the role of technology standards as important mechanisms in building enabling IT infrastructures. The study finds that many public sectors in Saudi Arabia have not adopted the IT standards, where as this step is very important for e-government implementation and does not need any delays. Without building IT standards, a lot of obstacles appear for collaboration between government public sectors, and a lot of hardware and software in different systems in the government may not work together. In addition, even if the organisations have IT standards, these are limited to them and not implemented in other organisations.

Saudi Arabia is a long way from effective standard policies and guidelines that can help government public sectors to exchange data, documents, images and multimedia, and business process. This study concluded that employees in Saudi public sectors have two to three different computers in their office, each computer

linked to a specific system. The data in this study revealed that public sectors do not adhere to specific standards and therefore lack compatibility.

This study does not just suggest developing IT standards that are applicable for all public sectors. It suggests implementing these standards to all public sectors and further monitoring the standards and modifying them when this is necessary. However, developing these standards requires different skills, such as technical and management skills (Morell and Stewart, 1996). It further requires understanding of the general environment in which they are applied (Sherif, 2001).

#### **9.3.1.2.3 National Information Infrastructure (NII)**

The goal is to build up a communications infrastructure as a substantive pre-requisite for the development of e-government. An essential pre-requisite for the attainment of a certain standard of e-government is not just a sufficient distribution of computer technology in the country or society, but also the general accessibility of telecommunication services. According to Doctor (1994), the National Information Infrastructure is an extremely important development. Saudi Telecom Company is the sole entity engaged in the provision of telecommunications services in the country, and 70% of the company is still owned by the government.

In addition, Etihad Etisalat Telecommunication Company joined the Saudi market in 2004. This may signal some competitive environment that is likely to result in better services for the users and performance for the providers. Through adding another company to the market with Saudi Telecom Company, there were huge improvements in the telecommunication sector in Saudi Arabia. However,



Saudi Telecom Company still has the monopoly of all telecommunication services except mobile services. Etihad Etisalat Telecommunication Company also provides this service. The Council of Ministers approved opening landline services for competition in the market in 2008. However, this study finds that delaying the licence of the landline to 2008 will have the effect of delaying e-government adoption. It suggests that the competition will improve the landline services, as it has improved the mobile service. The government has established the Communications and Information Technology Commission (CITC) as a regulatory body that monitors and improves the communication sector in the country.

The service should be accessible to all citizens (Schaefer, 1995) and beneficiaries. Not being accessible to the service might result from various reasons, such as high fees. This study concluded from several analyses that telecommunication services are not only expensive but scarce, and that current infrastructure is dependent on dial-up services. This study suggests focusing on adding more competitive environment for telecommunication that will lead to improving services and decreasing services' fees.

#### **9.3.1.2.4 Collaboration**

E-Government initiative is expected to provide access to its information and services from a single integrated gateway (one-stop shop) that requires inter-agency collaboration. This study concluded that the adoption of e-government initiatives necessitates collective efforts from various public sectors and functional units within each organisation.

However, public sectors in Saudi Arabia are individualised and make decisions on their own. It is important that there is an effective communication between departments and public sectors. To do this, internal applications need to be developed and used by employees to share information and improve communication, such as e-mail. This study finds, through several analyses, that there is a lack of collaboration in the Saudi public sectors. Even if there is collaboration between some, this collaboration is very simple and without enough e-government implementation. Some public sectors feel that collaboration will result in loss of prestige, power, independence and importance. In addition, the culture of information sharing does not exist in the Saudi civil agencies.

Therefore, this study suggests that collaboration can be done through an intensive awareness programme. Furthermore, a great effort by the management will be required to address this problem by providing the necessary incentives and training to prepare its personnel to increase the participants' and stakeholders' awareness of the merits of information sharing practices.

#### **9.3.1.2.5 Security**

This study concluded that it is impossible to give a green light to proceed with e-government implementation unless the public sectors are assured that their data and services are secured and protected. Therefore, after several analyses, this study indicated security as one of the important factors in e-government adoption. A high level of confidence and trust among all users will be the foundation of a successful e-government initiative (Dridi, Pernul and Unger, 2001).



From secondary data analysis, the USA has identified security as one of the most important areas that must be standardised to ensure successful e-government implementation (Prins, 2001). In addition, e-government initiatives in the UK identified a security framework to be used by all government organisations participating in the UK online.

To achieve true security to access government systems, there is a need to protect against unintended interruption of the e-government services, whether by accident or malicious attacks. A comprehensive approach to security should be adopted, including policies, education, physical protection, security software, and manual security procedures.

This study finds that there should be a security framework for Saudi Arabia e-government adoption. The framework provides a baseline for what constitutes adequate and acceptable security measures. Furthermore, there might be a need for creating a new institution(s) concerned with security issues while implementing e-government services. The security measures should be reviewed, monitored and tested regularly (AONSW, 2001).

#### **9.3.1.2.6 Relative Advantage**

Being familiar with e-government advantages can give us an idea of what can be gained if e-government is implemented successfully. In the case of e-government, people may try to adopt it if they find that they will gain a lot of benefits (Rogers, 1995). Tornatzky and Klein (1982), found that relative advantage is considered being an important factor in determining adoption of new innovations such as e-government.

This study finds that being aware of e-government advantages will solve many of the challenges that might occur during implementation, such as resistance to change. Relative advantage was seen as an important motivator by all governments (adopters). E-government initiatives will be promptly adopted if their merits can be identified and presented to the stakeholders. According to the literature, all adopters reported that they had adopted e-government because they wanted an effective means of delivering their services to all citizens.

Lack of perceived benefits or relative advantage was seen as important obstacle to adoption. Although many governments did perceive e-government as an exciting new opportunity with tremendous potential, they did not however feel that they would gain any benefits by adopting it in their public sectors at that time.

This study indicated that limited numbers of employees are familiar with e-government benefits in Saudi Arabia public sectors, leaving many employees who do not know these benefits. This study finds that there is no effort on promoting these benefits in the public sectors. Therefore it suggests that such effort in promoting the use of e-government services should also be concentrated.

#### **9.3.1.2.7 Citizen Relationship Management (CzRM)**

All public sectors should follow the same guiding principle: that every service that can be delivered electronically should be electronically available, and that all services should be designed on a 'customer-centric' and not an 'agency-centric' basis. Unlike a private organisation, one of the government's missions is to make the services available to all citizens. To meet this goal, e-government



systems are required to provide equal accessibility to all the citizens in an easy-to-use way.

The CzRM is an approach to understanding and influencing citizen behaviour through meaningful communications in order to improve citizen acquisition, loyalty and profitability. CzRM in the same way as CRM software can help e-government better recognise citizen demands, create citizen profiles, and in turn, serve citizens and provide them with the most fitting services. According to secondary data analysis, Singapore's e-government portal 'E-citizen' is "the most developed example of integrated service delivery in the world". Another example is UK government where they are spending £4.25 million on a national advice service to help Local Authorities implement their CRM systems.

The CzRM is about making better use of the considerable amounts of information that government already collects (Smith, 2003). This study finds out that there are no high efforts in improving the ways of using the available data and information from the public sectors' side. E-government should provide a single source to answer all queries in one visit or one call, which requires new computer applications, and integration between existing applications and legacy systems. This study suggests that each public sector should benefit from CRM software, and further, the need for a single organisation that provides any inquiry and information related to citizens in a short period of time.

### **9.3.1.3 Organisational Factors**

The results of this study indicate that the Governing factors that are crucial and significant consist of Reward system, Technical Staff, Policy and Legal Issues, Training, Change Management, Implementation, Organisation Structure, Business Process Re-engineering (BPR), Awareness, Organisation Culture, and Quality. Each of these factors is discussed in details below.

#### **9.3.1.3.1 Reward System**

Davenport and Prusak (1998) identified what they called the reward system, where organisations are obliged to pay a price in gaining access to their employee's, time, energy and knowledge. The policy of reciprocity can provide great incentives for the organisations' employees to participate positively in the success of the e-government project. E-government project managers particularly need help with managing the human components of projects and change. They need a greater capacity to manage the issue of motivation, of internal rewards and punishments (Heeks, 2001b).

This study finds that employees are willing to devote their time and effort to projects if top managers can recognise and appreciate their contribution. People are not likely to change their behaviour unless they are rewarded for it. Participants expressed willingness to adopt e-government initiatives if their respective organisations would address their needs and wants in terms of monetary benefits, career progression, and job retention. The delivery of an e-government project would require employee involvement in projects from the outset (Folstad, Jorgensen and Krogstie, 2004). Awards and recognition have



already been implemented in other countries (Whitson and Davis, 2001), and helped them with their projects, such as Dubai in the United Arab Emirates, based on secondary data analysis.

A reward system is likely to increase employees' energy, creativity and productivity that help the implementation of e-government initiatives. However, this study indicates that in Saudi Arabia public sectors a structured reward system does not exist, other than job retention. The reward system should be aligned to motivate employee performance that is consistent with the organisation's strategy, attract and retain people with the knowledge, skills and abilities required to realise the organisation's strategic goals, and create a supportive culture and structure (Galbraith, 1973; Kilmann, 1989; Nadler and Tushman, 1988). An effective reward and recognition process provides a clear and visible statement to all employees of the organisational values and the commitment to employee involvement (London and Higgot, 1997).

#### **9.3.1.3.2 Technical Staff**

The technical experts are responsible for the day-to-day maintenance and updating of the system (Folstad, Jorgensen and Krogstie, 2004). They have the ability to provide their public sectors with the required knowledge that can help the organisations to participate in the e-government initiatives without hesitation or reluctance. Past research has indicated that an innovation such as e-government, with substantial complexity, requires more technical skills (Cooper and Zmud, 1990; Dickerson and Gentry, 1983). Public sectors which have their staff for the development and implementation of IT projects are more confident to accept change in technology, and therefore accept adoption of e-government initiatives in their daily operations.

The researcher finds that a lot of public sectors in Saudi Arabia lack technical employees in their organisation. The reasons for this limitation might be from that public sectors do not pay technical staff well; therefore, the private sector and other branches of the government have a better chance to employ qualified graduates.

Organisations with employees knowledgeable about e-government will be better equipped to deal with the issue of implementation. Many participants acknowledged the importance of investing in the education and training of Saudi nationals to participate in e-government initiatives. The staffing requirements should be regularly evaluated to ensure that the organisation has a sufficient number of personnel with the right competencies for the e-government operating environment (AONSW, 2001).

#### **9.3.1.3.3 Policy and Legal Issues**

Since the concept of e-government is radically changing the way the public sector is doing business, new legal issues continue to arise (Akomode, Taleb-Bendiab, Evangelidis and Taylor, 2002). Governmental organisations should develop and practise proper policies (Attaran 2000) in order to protect their employees and the organisation from potential legal claims. This study indicates that policies and laws for all public sectors for many reasons, such as most services do require the signing some kind of contract, but unfortunately, since everything is being done electronically, the absence of paper is evident. Furthermore, through a qualitative approach, they are required because of the need to involve the financial institutions as part of e-government adoption process.



However, this study finds that many public sectors have not yet developed and identified the policies and legal issues as a step towards e-government adoption. Even if they are found, each public sector has its own policies and legislation, where as this study suggests developing a single policy and legislation for all public sectors.

The existence of a government-wide policy and legal framework will positively affect organisation participation in electronic information sharing in public sectors (Akbulut, 2002). It is very important that the society should be aware of these policies and legislation. The study suggests establishing a committee to develop policies and legislation and including members from different backgrounds in order to be successful. Furthermore, the committee should not be over after the initiation of the policies and legislation, they should monitor, update and change them if necessary them.

#### **9.3.1.3.4 Training**

Skills can quickly go out of date because human requirements are becoming more stringent by the day. Training deals with changes in behaviour and knowledge. Training is adequate to meet and maintain e-government skills (AONSW, 2001). The importance of investing in education and training for employees is for them to participate in e-government initiatives, and to believe it is the only way to have a successful implementation and adoption of e-government initiatives in the country's public sectors (Grimes, 1983).

Training will help create awareness among the government's public sectors, and enable them to stand in front of e-government challenges and face

them. This study indicates that there are no effective training programmes in Saudi public sectors. Norris (1999) indicates that not very well trained employees will result in resistance to change, resistance to use, and underutilisation of computers. Learning is the focal element for the current and prospective initiatives of e-government in Saudi Arabia.

IT professionals for e-government need to be hybridised into broader change agents who combine IS and ICT skills with an understanding of the public sector context; further, public sector managers need to be hybridised towards a broader skill set that includes an understanding of information systems and ICTs (Heeks, 2001b).

The success of training depends critically on producing a programme that is effective and efficient (Grimes, 1983). This study suggests establishing a relationship between the programme team and the trainees for gaining feedback about their training programme and satisfaction. In addition, it suggests the use of advanced technologies in the programme and modern approaches training to gain better results. According to Oakland (1993), training should have a strategy which should be addressed early with the other strategies, and further encourage the employees through motivation and a reward system, such as giving rewards that reflect results in training.

#### **9.3.1.3.5 Change Management**

Change occurs in an organisation when any part of the organisational system is altered or replaced (Leavitt, 1965). Papantoniou, Hattab, Afrati, Kayafas and Lournos (2001) indicate that the change management is one of the critical factors in e-government implementation. There must be some degree of



organisational change that an e-government system introduces. Change is difficult in large organisations because of the large number of components within an organisational system, such as ministries. However, this study indicates that believing that e-government is a top requirement for the current organisation can lead to fewer difficulties in implementing change management.

Challenges are magnified by the socio-cultural issues in Saudi Arabia, where the interaction is overwhelmingly face-to-face between the public service providers and users. Moreover, changes are not only challenging but they are slow. This study finds out that some of the Saudi public sectors face difficulty during the implementation of change management because their employees feel change is not required, such as changes for e-government. Therefore, awareness in this case is important. Furthermore, the development of vision sets the scene for organisational change (Hamel and Prahalad, 1994; Senge and Roberts, 1994). Strong leadership plays a vital part in preparing any organisation for change (Mabin, Forgeson and Green, 2001).

Successful change management programmes need well balanced teams, with complementary skill sets, not only from a technical perspective, but also in the style and psychological makeup of the team members (Cauldwell, 2004).

#### **9.3.1.3.6 Implementation**

Going from strategies to action plans is a necessity for implementing e-government. However, implementation of the plan is not assured and failure to implement is common (Ward and Griffiths, 1996). Implementation plays an important role in making plans realistic. The purpose of implementation is to accomplish the strategy's objectives; procedures associated with execution may be

modified, but not goals. However, poor implementation can lead to long-term adverse consequences for the society and economy of the destination. Furthermore, ignoring the implementation issues or lack of support from the top management has been suggested as the cause of the low rate of strategies implementation (Min et al., 1999).

This study indicated that there are delays, in general terms, in implementing e-government in Saudi Arabia public sectors. Even more, some public sectors have not yet started implementing e-government. According to the analyses, there is gap between e-government plans and its actual performance. There is a continuous gap separating the plans and expectations of the developers of the strategy from the actual outcome of the strategy. Often, only a few of the systems in the strategy are implemented, and some of them take substantially longer than anticipated (Hackney and McBride, 2002).

One of the main challenges in the implementation is to match the project implementation with its plans and strategies. Therefore, this study suggests that there should be regular monitoring of the e-government project in order to help overcome this challenge. Furthermore, one of the hidden challenges associated with such a gap between formulation and implementation is the lack of coordination, interaction and mechanisms for information flow. Therefore, there is need for a clear method to follow for implementing e-government projects and where a regular evaluation is needed.

#### **9.3.1.3.7 Organisation Structure**

Organisation structure requires changing, if necessary, in order to accommodate it with the new e-government ideas and practices. Existing



organisational structures were under significant pressures, in many cases calling for new structures. After implementing e-government, the ways decisions are made is different for decision making, which should be takes into account in the organisation structure.

However, organisational structure is a long-standing, chronic problem, especially for large organisations. The organisational structures of government organisations are complex, similar functions are divided amongst several institutions, sections and government offices, and integrating initiatives. Furthermore, the need to 'arrange' thousands of employees and managers often split between numerous locations and functions, in an effective and cost efficient fashion, is a non-trivial problem (Applegate, 1994).

In order to implement e-government, government organisations need to look into their structure. However, studies have indicated that there is no one best way to organize; the appropriate organisational form depends upon the human and business situation facing the organisation (Lorsch, 1987:2).

This study finds that Saudi Arabia public sectors do not consider the e-government project team or the committee on their organisational structure, where they should be included and linked to the top management to be effective. It further indicates that members of e-government project teams in Saudi Arabia public sectors, if they exist, are from an IT background, where as it is very crucial that the organisation structure should include a committee whole members are from different backgrounds.

#### **9.3.1.3.8 Business Process Re-Engineering (BPR)**

Heeks (2001) shows the scope of e-government to include improving government processes. Governments at all levels and across all branches have been urged to become leaner and smarter, providing better and faster service. Such fundamental change, however, inevitably impacts the business processes by which organisations work.

This study has indicated that the current working processes in Saudi Arabia public sectors need be reviewed. The government needs to address the redundancy and reduction of red tape. In addition, the elimination of overlapping of responsibilities that exists in most of the services delivered to the public by the public sectors. There are processes that need to be changed in Saudi public sectors in order to improve service delivery to the general public. In implementing e-government, there is a risk of replicating the same in a transformed shape, and automation alone will not improve deficient work processes. Transactions need to be simplified, and a decision-making process must be determined. By simplifying transactions, citizens will be more likely to access the site.

Literature indicates that more radical and far-reaching BPR projects expose a higher failure rate (Kallio, Saarinen, Salo, Tinnila and Vepsalainen, 1999). In e-government there is a high risk of failure since the number of variables involved is greater, and the complexity of the change project may rise to overwhelming levels in the more radical ones (Gunasekaran and Nath, 1997).

Therefore establishing strategies and framework for implementing BPR properly will be a crucial requirement and a wise idea in that situation where the public sector in Saudi Arabia lacks them. Furthermore, the implementation of



BPR requires critically monitoring to make any necessary changes. Processes need to be managed through planning, monitoring and controlling the performance of these processes (Heeks, 2001a).

#### 9.3.1.3.9 Awareness

The rapid growth of e-government technologies and practices has created a tremendous need for awareness creation in organisations which seem to lack the necessary information about technology (Papazafeiropoulou, Pouloudi and Doukidis, 2002). Awareness is communicating e-government initiatives to the appropriate stakeholders and providing means for individuals to realise e-government projected benefits. One part of awareness is recognising the importance of improving the way the government provides services to its citizens and businesses, and acknowledging that e-government is the appropriate approach for this reform.

However, according to the study analyses, public sectors in Saudi Arabia require huge efforts on awareness of the e-government concept. According to Kotter (1996), individuals are willing to accept change (e.g. e-government initiatives) if the potential benefits are outlined and they believe that the transformation is possible. Awareness includes using the mass media to introduce new concept of e-government in the public sectors and conducting conferences, seminars and workshops as part of an awareness effort to encourage the public sectors' work force to accept and embrace new concepts as part of their daily operations.

The budget of e-government must include funds to raise awareness and publicise projects through various media channels (PCIP, 2002). Furthermore, this

study suggests that after identifying the challenges in e-government implementation, it is crucial for the project team to be aware of the challenges, because it will prepare them for any problems that might exist during implementation, and so they will be ready to overcome them.

#### **9.3.1.3.10 Organisation Culture**

French and Bell (1999) state that “the culture must be altered if permanent change is to occur”. Organisational culture is the shared understanding of how an organisation works, and has a major impact and influence on successful change initiatives (Schein, 1988; Handy, 1996; McAdams, 1996). Employees have to be open-minded regarding a new concept such as e-government, or nothing will change.

According to Socitm (2002), organisation culture is considered a key organisational barrier to providing better e-service delivery. Developing, learning and productive culture helps in implementing e-government more easily. However, the organisational culture of the public sector does not favour the accelerated introduction of ICT. This study found that some public sectors in Saudi Arabia have not started implementing e-government because they do not have a suitable culture for the adoption which leads to many problems, such as resistance to change. Changing the culture of the organisation should be a central task of the leaders.

The concept of e-government includes sharing and collaboration between different public departments from different organisations. A unique culture is required in order to provide internal and external organisation collaboration and sharing. In addition, culture is involved in establishing a unique cooperation



between public sectors and private sectors. Without forming the culture, it is very difficult to gain long-lasting results (Järvenpää and Eloranta 2000).

Culture is particularly important because it can powerfully influence human behaviour. This study indicates that it is important to know that there is a great value in learning from others in the public and private sectors, and adopting the basic principles and approaches, where appropriate to the culture and needs of the organisation. In addition, it is important to format a strategy for cultural change.

#### **9.3.1.3.11 Quality**

Quality in relation to e-government can be defined as the citizens' general assessment and judgement of the value and excellence of offerings in the on-line services. Speed and ease of use of web site and the related graphic user interface are examples and indicators for the quality.

Most of the literature discusses on-line service quality from the private sector side, with limited discussion of the public sector. The area of service quality and measurement in the public sector has been less well considered. The concept of quality is forgotten in most public sectors. There is no consideration of quality implementation in the context of Saudi public sectors.

One of the main objectives of e-government is the improvement of public services' quality and the way they are delivered. Citizens have limited time, and perhaps lack of trust in the Internet. They would naturally stick to the Internet services that meet their needs and provide quality services. There is an intuitive appeal to the notion of service quality and quality measurement and improvement in public sector services, but the implementation can prove more problematic.

This study indicates that, in order to improve the level of quality of services that the public sectors provide, they should establish a relationship between themselves and citizens in order to gain assessment of the level of satisfaction and, even more, their complaints on the service. Furthermore, the study finds that there should be standards of service quality. Organisations should have standards for measuring the quality of their service delivery, where the citizen should be an element in the measurement which should be conducted regularly.

### **9.3.2 Positive Impacts from E-Government Implementation**

The literature indicates that through implementing the concept of e-government successfully, the country will gain a lot of benefits and opportunities. No government wants to be left behind in the movement to improve government through electronic delivery of information and services to citizens. Indicating the advantages of e-government can help by giving us an idea of what we can gain if the implementation of e-government goes successfully.

This study presents the positive impacts and the benefits that are expected to be gained after the implementation of e-government projects in the context of the Saudi Arabia public sectors. According to Dawes (1996), implementing e-government can lead to timely and accurate information for better decision making and problem solving, reduced costs and increased productivity which are found to be among some of the benefits of inter-agency information sharing.

As for this study, the researcher identified the benefits of successful e-government initiative and presents ranking for these benefits according to the



analyses. It shows that providing a range of information online to the public increasing the speed and time of public services delivery, and acting as a source of information dissemination between the government and citizens have come in the leading rankings among e-government benefits. However, the benefit that the state saves cost and captures revenue came last, which shows that there is belief among the participants that the implementation of e-government will lead to saving costs.

Furthermore, this study finds that there is a significant difference between the levels of participation or involvement in decision making (always, sometimes, and rarely) and all e-government benefits as dependent variables. Being familiar with e-government benefits varies according to the involvement of the person in decision making.

The researcher in this study concluded that being familiar with and aware of e-government benefits will help and solve some of the challenges that the public sectors may face during the implementation of e-government, such as resistance to change. Furthermore, according to Sharifi and Zarei (2004), the implementation of the e-government concept will help developing countries to reduce their existing gaps with developed countries, and vice versa. From that, the adoption of e-government is considered to be an opportunity for developing to catch developed countries and reduce the gap between them.

### **9.3.3 Barriers to E-Government Implementation**

This study indicates that while implementing the concept of e-government, the country will go through several barriers and challenges during the implementation before it reaches success. While implementing the vision of e-government, the government should pay attention to the complex realities. E-

Government initiatives are complex mixtures of technological, managerial and policy-related challenges. The risk of not understanding and addressing these complexities is costly failure (Pardo, 2000). The research study introduces the most pertinent barriers that are expected to be run into during the implementation of e-government projects.

The majority of the interviews in this study indicated that there were a number of barriers using e-government. Through the interviews, the researcher has indicated further barriers such as high difficulty of implementing some services without face-to-face contact.

After analysing the questionnaire, the researcher indicated the ranking of the barriers (Table 7.9). It shows that technical issues were the most challenging during the implementation of e-government in the context of Saudi Arabia. Furthermore, the interviews further indicate that technical issues and its challenges were the main concern, and that the implementation of e-government calls for high level of technologies which, according to them, most of the public sectors in Saudi lack.

Security concerns such as data protection and lack of communication infrastructure and integration among organisations had the head ranking in obstacles in e-government implementation. Moreover, the majority of the interviews indicated that interviewees were concerned about the security issues and how to overcome them.

The researcher in this study has indicated, as for benefits, that there is significant difference between the levels of participation in decision making and e-government obstacles. This concludes that there are differences between the level of employee involvement in the decision making and understanding of e-



government obstacles. According to the interviews and also the literature, the solutions for most challenges require political decisions and prioritisation. Furthermore, identifying what resources are available to achieve goals in e-government adoption. Most importantly, for e-government implementation, there is a need to address the indicated factors through strong policy actions.

#### 9.3.4 Summary

This chapter presents a discussion of the key findings in this study. The researcher gives a comprehensive discussion of the results from the analysis and findings presented in previous chapters. The data in this study were gathered in more than one way.

First, the research used secondary data analysis. It discusses and examines, in detail, e-government initiatives in different countries. Second, the researcher further gathered data from questionnaires distributed to different public sectors in Saudi Arabia. Third, the researcher gathered data from carefully conducted face-to-face interviews in eight public sectors in Saudi Arabia.

This study has developed and tested empirically a theoretical model for e-government implementation in the context of Saudi Arabia. Through the three approaches, the researcher indicates and draws empirical evidence of the critical factors influencing e-government implementation. Furthermore, the researcher has identified the implications which may emerge in implementing e-government.

In the following chapter, the researcher presents the conclusions of this study, and further, discusses the limitation of the study and future research.

# Chapter 10

## Conclusion and Recommendations



## 10.1 Introduction

The subject of e-government has attracted substantial attention in the public administration sector for its efficiency and effectiveness in public service decentralisation and better processes. This concept is viewed as a source of micro and macro development through better delivery of services and information exchange, without the constraints of time and space.

After the success of e-government delivery in some countries, the government of Saudi Arabia has taken some initiative in this direction. Recently, public sectors, in the context of Saudi Arabia, were embracing e-government initiatives in order to improve the efficiencies and effectiveness of their public services delivery. However, Saudi Arabia stands at the launching point in this context, and the country has its own set of issues and problems. For instance, bureaucratic tendencies in the governance system, centralised decision-making patterns, complexity of redundancies in the public sector, lack of coordination and information sharing between the public and private sector, lack of technological skills, and the lack of effective ICT infrastructure can be attributed as barriers in this context.

The previous problem and much more can be solved through successful implementation of e-government. However, there are substantial barriers to the formulation and implementation of e-government delivery (Jaeger and Thompson, 2003). From the previous studies, the researcher indicates some examples of e-government failure (Braa and Hedberg, 2000; Kitiyadisai, 2000). Beynon-Davies (2005) indicates that many public sector organisations are struggling to implement and construct an e-government. Some of them suffered a number of high failure rate in delivering services electronically. Heeks (2004) indicates that, in

developing countries, 35% of e-government projects are total failures, 50% are partial failures, and only 15% are successes.

According to the last percentages, there is a high possibility for the implementation of e-government projects to fail in the developing countries which leaves a low possibility for project success. As in the context of Saudi Arabia, the United Nation Global E-government Readiness Report 2005 has ranked Saudi Arabia in the 80<sup>th</sup> place among the other countries, which means there is huge gap between it and the top countries in e-government implementation (UNPAN, 2005).

Furthermore, the researcher has indicated in this study, through asking the participants how successful the e-government project implementation in Saudi Arabia public sectors is on a scale from one (very unsuccessful) to five (very successful), that most of the participants gave their rating as two (unsuccessful) with 33.2% of respondents, and three (Neutral rating), with 34.4%.

In order to adopt and implement the concept of e-government successfully, there are several crucial requirements that should be considered. This study draws on the extant literature on e-government implementation and execution. The purpose of the mixture of this literature is to advance our understanding on the success and failure cases, and elaborate on the underlying enabling and inhibiting conditions.

This study has explored the implementation of e-government in the context of Saudi Arabia. The researcher has empirically assessed the status of the current implementation of the e-government concept in the public sectors. The researcher has sought to understand how the previous literature identified the requirements



and the implementation of the e-government in order to compare proposed and practical application in the real world setting, as well as making a comparative analysis of best practice application. Based on e-government literature, a model of e-government implementation was developed for Saudi Arabia. It examines critical factors that have impacts on successful implementation on e-government in Saudi public sectors, which were analysed using several analysis procedures. This study collected data in both quantitative and qualitative approaches, and further made a secondary case study. The researcher provides recommendations based on the study.

## **10.2 Research Summary**

The researcher presents a comprehensive discussion on e-government implementation. The purpose of this research was to examine the influence of e-government critical factors on the public sectors in Saudi Arabia, and to answer and explore the following: (1) What are the critical factors of the e-government delivery in terms of implementation? (2) What is the level of validity of the proposed factors in Saudi Arabia in terms of e-government implementation? (3) What implications may emerge in implementing e-government in the context of Saudi Arabia? This research study, furthermore, fulfilled and the objectives of the study, and it provides conclusions and recommendations that can be useful to both researcher and practitioners.

In order to answer the previous questions, accomplish the objectives, and provide conclusions and recommendations, this study has gone through several stages. These stages were discussed in detail in the research design and methodology chapter (Chapter five).

First, the researcher has made a literature review. He has presented a discussion based on this exploration and examination, in terms of e-government, in Chapter two, three and four. The three chapters contain in-depth discussion on e-government background and fundamentals of the e-government concept such as e-government definitions, benefits and challenges and, furthermore, exploration of the Governing, Technical and Organisational factors for e-government implementation.

Chapter six presents an exploration of secondary data analysis, and discusses in-depth some of the e-government initiatives in different countries presented in the literature. Chapters seven and eight contain the quantitative and qualitative data analysis. In the former, the researcher has used the SPSS package to run the questionnaire tests. In addition, Chapter seven contains details of the data collection techniques used in Saudi Ministries, Public Commissions and Institutions, and Regional Emirates. In Chapter eight, in its qualitative data analysis, presents a discussion on the interviews held in government organisations. From those last three chapters, the researcher presents a discussion and key findings of the research in Chapter nine. As a result, a proposed model for e-government implementation in Saudi Arabia was presented. Finally, Chapter ten provides conclusions and recommendations of this study.



### 10.3 Contribution of Study

This research concludes that the implementations of e-government projects in Saudi Arabia public sectors are in a very risky state which needs more attention. The research has indicated, through a scale rating from one (very unsuccessful) to five (very successful), that most of the participants gave their rating under two (unsuccessful) and three (Neutral rating).

Implementing e-government requires for each country a unique model that fits its environment (Miriam, 2001; Heeks, 2001b). Therefore, in this study, the researcher has developed a model suitable for the Saudi Arabia context (see Figure 9.1). This model was validated using a triangulation approach. The model examines critical factors that have impacts on successful implementation of e-government. Exploring the factors that will lead to successful e-government delivery and studying them is an important issue (Wood-Harper, Ibrahim and Ithnin, 2004).

In that e-government implementation model for Saudi Arabia, there are twenty-four factors. These factors inside the model are divided into three factor dimensions (Governing, Technical and Organisational). All the identified factors have critical influence on e-government implementation, and they are: Vision, Strategy, Top Management Support, Citizen Centric, Leadership, Funding, IT Infrastructure, IT Standards, National Information Infrastructure, Collaboration, Security, Relative Advantage, CzRM, Change Management, Training, Implementation, Quality, Organisation Culture, Technical Staff, Policy and Legal Issues, Reward System, BPR, Awareness, and finally, Organisation structure.

The researcher has ranked e-government factors among their dimensions and overall, and has presented the ranking for the critical factors for e-government implementation in Saudi Arabia. The research concludes that 'Security', 'IT Infrastructure' and 'Top Management Support' came in the top ranking among these critical factors. On the other hand, 'Reward System' came last among all factors. Furthermore, the research shows an assessment of the level of presence of each e-government factor in Saudi Arabia public sectors. The research concludes that all factors have gained a low percentage for presences.

Furthermore, the researcher has studied the implications of the implementation of e-government in the context of Saudi Arabia. The researcher has determined the obstacles and challenges in e-government implementation, and their rankings in Saudi Arabia. It was concluded that security concerns such as data protection, lack of communication infrastructure, and integration among organisations were the leading of obstacles in e-government implementation. However, the challenges from lack of funding and cost of security came last.

The researcher, further, discussed the ranked benefits that may result from this implementation. It was concluded that providing a range of information online to the public, increasing the speed and time of public services delivery, and being a source of information dissemination between the government and citizens were in the top ranking of e-government benefits. However, the benefit of cost saving and revenue capture came last, which shows no belief among the participants that the implementation of e-government will lead to saving of costs.



The research has drawn important plans and suggestions related to e-government factors and implementation from the participants through interviews and examination of e-government initiatives in other countries. Furthermore, the research concluded that there are differences between the level of employee involvement in decision making (always, sometimes, and rarely) and his understanding of e-government benefits or obstacles.

The findings of this study have revealed that the main concern of the majority of the participants, based on both questionnaire responses and interviews, was security issues and how to overcome them. In general, according to the respondents, technical issues were the most challenging area during the implementation of e-government. In addition, there are further challenges that the researcher presents in the discussion chapter (Chapter nine).

Furthermore, the researcher has concluded, from this research, that there are many problems in the implementation of e-government in Saudi Arabia. However, the researcher concluded from the questionnaire and interviews, that one main problem needs to be solved before moving any step further: the people responsible for the implementation of e-government projects inside most of the organisations in Saudi Arabia are IT people. Moreover, e-government strategy plans and their implementation inside the organisation are the responsibility of the IT manager and his department.

Different background involvement, other than IT, should be a requirement for e-government initiatives, such as developing the policies and legislation. The members of e-government project team should be from different backgrounds in order to include every angle of the organisation in the implementation.

In the view of the above points, this research contributes as being useful and important for both researchers and practitioners.

### **10.3.1 Contribution to Researchers**

The concept of e-government is considered as a new area that needs a lot of attention. As a new concept, studies in this area are insufficient and rare attempts to study the concept of e-government directly, especially in Saudi Arabia. Moreover, previous studies indicated some example of e-government failure (Baark and Heeks, 1999; Braa and Hedberg, 2000; Kitiyadisai, 2000; Moussa and Schware, 1992; Oyomno, 1996).

Therefore, there is a need for studying the area of the e-government concept in order to avoid its failure and improve its implementation. This study is significant, with respect to research and policy, to avoid the pitfalls of imposing universal approaches on their. Furthermore, this research attempts to cover the lack of the studies in order to improve the performance of e-government implementation.

The study has several theoretical contributions to the state of knowledge in different areas, such as IS/IT and management. This study, particularly, contributes to the development of the e-government implementation literature. It also examines the adoption of new technology in countries like Saudi Arabia. In the context of Saudi Arabia, the concept of e-government is relatively new. So the findings in the study will be significant to scholars in this area.

This study presents an assessment and the level of implementation of successful e-government projects in Saudi Arabia public sectors. In addition, the



study has adopted an e-government model that identifies essential determinates that can facilitate a successful e-government initiative. The model examines the critical factors for e-government adoption and studying the factors that will lead to e-government delivery is an important issue (Wood-Harper, Ibrahim, and Ithnin, 2004). The study provides an assessment of the level of presence of each of the e-government factors in Saudi Arabia public sectors. It also provides the benefits and challenges that occur in e-government implementation in Saudi Arabia.

The research presents a comprehensive discussion on the key findings of this study which can be seen in Chapter nine. Moreover, it provides conclusions and recommendations on the concept of e-government that will be useful for researchers in future studies. Furthermore, it raises questions and indicates directions for future research based on the findings from this study.

### **10.3.2 Contribution to Practitioners**

The previous section shows how this study contributes to the researchers. As for researchers, this study contributes to practitioners as well. Implementing successful e-government will have many advantages for the beneficiary (Bakry, 2004), and it will contribute to improving performance of e-government implementation. So it is likely to be significant to the practitioners in Saudi Arabia.

E-government initiatives are complex mixtures of technological, managerial and policy-related challenges. The risk of not understanding and addressing these complexities is costly failure (Pardo, 2000). According to the literature, some e-government initiatives have ended with failure. Some governments have not moved far beyond the early stages of e-government

implementation (Moon, 2001). Furthermore, West (2001) asserts that some e-government initiatives have increased responsiveness to the public through the use of communication technologies, but that many of e-government's purported benefits remain unrealised.

According to Aldrich (2002), a better understanding of the factors that contribute to e-government delivery could inform others as they deploy such programmes. Exploring and identifying e-government factors helps the public sectors in Saudi Arabia in their implementation. It assists the public sectors during their implementation, in terms of the e-government concept, to avoid and omit crucial factors that might lead to project failure. Without these fundamental understandings, we are unable to suggest what kind of factors have strategic importance, and what are irrelevant in terms of e-government implementation.

Services provided in the traditional way will result in a decline in the level of services. However, the study will help in implementing the e-government that will lead in increasing their level. The study has implications for enhancing the administrative performance of the government services.

This study provides the government of Saudi Arabia with a model of e-government for successful e-government initiatives. The model shows the critical factors for e-government implementation. The study thus helps the people responsible for developing e-government by providing these crucial elements.

The research study introduces the most pertinent barriers and challenges that are expected to be run into during the implementation of e-government projects in Saudi Arabia. It, also presents the benefits that emerge from the implementation of e-government. The study provides guidelines and



recommendations for implementation, and will increase the knowledge of directors by giving them useful information on e-government.

#### **10.4 Limitation of Research**

Every research has some limitations and this research is no exception. Even if the use of quantitative method based on questionnaire, and qualitative method based on interviews is soundly founded, they have their limitations. However, the researcher has taken these limitations into account, and while making the study took necessary steps to avoid them.

One of the main limitations that can be seen in much academic research is the limitation of sample size, because of which the results often cannot be generalised to other populations. Furthermore, the sample of this study was limited to people involved in the field who headed e-government project implementation, and who which the research concluded were mostly from an IT background, such as IT managers. Also, the adoption of the e-government concept is considered to be a new area in Saudi Arabia, even if other countries which started implementation have already begin to see its benefits. Therefore, one might say it is early to see any major changes and to examine the critical factors.

Even though the qualitative approach was strengthened by the quantitative approach, the qualitative approach is not without limitation as been stated earlier in this section. While implementing this approach, there is a great chance of bias which cannot be totally reduced, even using triangulation. Furthermore, this study was limited by the number of interviews which, in this study, the researcher conducted in eight organisations. In addition, the selection of these organisations was based on willingness to participate and merits. Therefore, to overcome these

limitations, there is a need to conduct more interviews in future research. Even though this research had some limitations, it has been properly carried out and has provided new contributions, and useful conclusions and recommendations on e-government implementation.

### **10.5 Future Research Directions**

This study establishes the starting point for understanding the critical factors for the implementation of e-government in Saudi Arabia. This study contributes through developing a framework for e-government implementation, apply an e-government model to the government of Saudi Arabia, and concluding the analysis by providing recommendations. The overall findings of this study can guide future work to the areas in which there is potential for practical and academic development.

The studies on e-government implementation in Saudi Arabia are very rare. The limited number of studies on e-government stresses on the need for future research efforts on that area. Furthermore, since the adoption of e-government is considered as a long term project, the assessment of e-government implementation changes from time to time. Therefore, future staged studies are needed to assess the level of success of the implementation.

The e-government implementation model in this study was developed and validated in a Saudi Arabia context. The model developed in this study in other countries to examine its validity. Moreover, in order to improve the implementation of e-government and to move it to another stage, partnership with



other governments is necessary. This kind of research is a worthy research direction and requires future research efforts.

### 10.6 Summary

If some governments are still considering the adoption of the e-government option at the present time, its implementation will be a vital requirement for survival in the future. Therefore, this study provides necessary steps by indicating and examining empirically the critical factors influencing e-government implementation in Saudi Arabia. Furthermore, it presents a framework for e-government initiatives, and the implications of the conclusions and findings for both researchers and practitioners.

The researcher has further explored and examined the implications of benefits and challenges that may arise from implementing e-government in the Saudi Arabia context. Moreover, the researcher has provide important conclusions and recommendations and presented several suggestions for further research efforts.

### References

- Abdul Karim, M. R. (2003), Technology and improved service delivery: learning points from the Malaysian experience, *International Review of Administrative Science*, pp. 191-204
- Accenture (2001), "e-Government Leadership Rhetoric vs. Reality Closing the Gap", Accenture Consulting, pp. 1-61
- Accenture (2005), "Leadership in Customer Services: New Expectations, New Experiences", pp. 1- 105
- Adams, D., Cornbleth, C. and Plank, D. (1988), "Between Exhortation and Reformm Recent U.S. Experience with Educational Change", *Interchange*, Vol. 19, No. 3-4, pp. 121-134
- Adeboye, T. (1995), "Governance and economic development", paper presented at *Good Governance for Africa* conference, Maastricht, pp. 23-24
- Adelman, M. (1990), "Mineral Depletion, with Special Reference to Petroleum", *The Review of Economics and Statistics*, 72(1), pp. 1-10
- Agren, P. (2001), "Is Online Democracy In The EU For Professionals Only?", *Communications of the ACM*, Vol. 44, No. 1, pp. 36-38
- Aguinis, H. (1993), "Action Research and Scientific Method: Presumed Discrepancies and Actual Similarities", *Journal of Applied Behavioral Science*, Vol. 29, No. 4, pp. 416-432
- Aichholzer, G. (2004), "Scenarios of e-Government in 2010 and implications for strategy design", *Electronic Journal of e-Government*, Vol. 2, No. 1, pp. 1-10
- Akbulut, A. (2002), "An Investigation of the Factors that Influence Electronic Information Sharing between State and Local Agencies", *Eighth Americas Conference on Information Systems*, pp. 2454-2460
- Akomode, J., Taleb-Bendiab, A., Evangelidis, A. and Taylor, M. (2002), "UML Approach to Risk Assessment Modelling for eGovernment", In *Proceedings of the Second European Conference on e-Government, ECEG'2002*, St. Catherine's College, Oxford, England, pp. 187-214
- Aldrich D., Bertot J. and McClure R. (2002), "E-Government: initiatives, developments, and issues", *Government Information Quarterly*, Elsevier Science Inc., Vol. 19, pp. 349-355



## References

---

- Aleqtisadiah (2007), retrieved from: <http://www.aleqtisadiah.com/> accessed in 13/1/2007
- Alexander, L. (1991), "strategy implementation: nature of the problem", *International Review of Strategic Management*, Vol. 2, No. 1, pp. 73-91
- Allen, R (1995), "On a clear day you can have a vision: a visioning model for everyone", *Leadership and Organization Development Journal*, Emerald Group Publishing Limited, Vol. 16, No. 4, pp. 39-44
- Alqahtainy, M. (1996), "Management Development in Saudi Arabia: Preparing for a Borderless World", Ph.D. Thesis. University of Leicester, UK
- Alsudairy, M. (2002), "Electronic Government (eGov): Implementation Strategies", King Abdulaziz University, Retrieved from: [http://www.egov.org.sa/new/ecom/ecom\\_02speakers.asp](http://www.egov.org.sa/new/ecom/ecom_02speakers.asp)
- Alter, C., and Hage, J. (1993), *Organizations Working Together*. Newbury Park, Calif.: Sage.
- Anton, J. (2000), "The past, present and future of customer access centres", *International Journal of Service Industry Management*, Vol. 11, No. 2, pp. 120-130
- Applegate, L. (1994), "Managing in an Information Age: Transforming the Organisation for the 1900's", In *Transforming Organizations with Information Technology*, R. Baskerville, S. Smithson, O. Ngwenyama and J. I. DeGross (Ed.), Elsevier Science B.V., Amsterdam
- Arcieri, F., Fioravanti, F., Nardelli, E. and Talamo, M. (2004), "A layered IT infrastructure for secure interoperability in Personal Data Registry digital government services", *14th International Workshop on Research Issues on Data Engineering: Web Services for E-Commerce and E-Government Applications*, pp. 194-213
- Armstrong, M. (1990) "How to Be an Even Better Manager", Kogan Page, London
- Ary, D., Jacobs, L. and Razavieh, A (1990), "Introduction to research in education", USA, Florida, Holt, Rinehart and Winston, Inc
- Attaran, M. (2000), "Managing Legal Liability of the Net: A Ten Step Guide for IT Managers", *Information Management and Computer Security*, pp.98-100
- Audit Office of New South Wales (2001), "e-ready, e-steady, e-government: e-government readiness assessment guide for government agencies", *Internet in public administration*
- Avgerou, C. and Cornford, T. (1998), "Developing Information Systems: Concepts", Issues and Practice, PALGRAVE Publisher, ISBN 0-333-73231-6



## References

---

- Baark, E. and Heeks, R. (1999), "Donor-funded information technology transfer projects", *Information Technology for Development*, Vol. 8, No. 4, pp. 185-197
- Babbie, E. and Mouton, J. (2001), "The practice of social research", University Press, Oxford, Capetown
- Balkin, D. and Gomez-Mejia, L. (1987), "Toward a contingency theory of compensation strategy", *Strategic Management Journal*, Vol. 8, pp. 169-82
- Barlas, D. (2003), "Gartner's CRM Rankings", retrieved from: <http://www.line56.com!articles/default.asp? Article ID=4510>
- Basu, S. (2004), "E-government and developing countries: an overview", *International Review of Law, Computers and Technology*, Carfax Publishing, Taylor and Francis Group, Vol. 18, No.1, pp. 109-132
- Beaumaster, S. (2002), "Local government IT implementation issues: A challenge for public administration", *Paper presented at the Proceedings on the 35th Hawaii International Conference on System Sciences*, Hawaii, pp. 175-181
- Becker, D., George, M., Goolsby, A., and Grissom, D. (1998), "Government: The ultimate service turnaround", *The McKinsey Quarterly*, p. 1
- Beer, M. and Eisenstat, R. (2000), "The silent killers of strategy implementation and learning", *Sloan Management Review*, Vol. 41, No. 4, pp. 29-40
- Bell, J. (1993), "Doing Your Research Project: A Guide for First-Time Researchers in Education and Social Science", 2<sup>nd</sup> Ed., Open University Press, Buckingham
- Bellamy, C., and Taylor, J. A. (1998), "Governing in the Information Age", Buckingham, UK: Open University Press
- Benbasat, I. (1984), "An Analysis of Research Methodologies", In *The Information Systems Research Challenge*, F. Warren McFarlan (Ed.), Boston, Harvard Business Press, p. 402
- Bennis, W. and Nanus, B. (1985), "Leaders – The Strategies for Taking Charge", Harper and Row, New York, NY
- Bennis, W. and Townsend, R. (1995), "Reinventing Leadership", Piatkus, London
- Bernard, L. (1926), "An introduction to social psychology", New York: Holt
- Bernard H. (2000), "Social Research Methods: Qualitative and Quantitative Approaches", Sage Publications Inc



## References

---

- Beynon-Davies, P. (2005), "Constructing electronic government: the case of the UK inland revenue", *International Journal of Information Management*, Vol. 25, No. 1, pp. 3-20
- Bingi, P., Sharma, M. and Godla, J. (1999), "Critical issues affecting an ERP implementation", *Information Systems Management*, pp. 7-14
- Blake, R., Shepard, H., and Mouton, J. (1964), "Managing intergroup conflict in industry", Houston, TX: Gulf Publishing Co
- Block, P. (1989), "Flawless consulting, in McLennan", R. (Ed.), *Managing Organisational Change*, Prentice-Hall, Englewood Cliffs, NJ
- Booty, F. (1998), "Network Management: The Bottom Line", *Manufacturing Computer Solutions*, Vol. 4, No. 5, pp. 37-40
- Borins, S. (2002), "On the frontiers of electronic governance: A report on the United States and Canada", *International Review of Administrative Sciences*, 68, pp. 199-211
- Bose, R. (2004), "Information Technologies for Education & Training in E-Government", *International Conference on Information Technology: Coding and Computing*, IEEE, pp. 49-61
- Bowditch, J. and Buono, A. (2000), "A primer on organizational behaviour", New York, NY: John Wiley and Sons
- Boyer, K., Hallowell, R. and Roth, A. (2002), "E-services: operating strategy – a case study and method for analyzing operational benefits", *Journal of Operations Management*, Vol. 20, pp. 175-99
- Braa, J. and Hedberg, C. (2000), "Developing district-based health care information systems", *Information Flows, Local Improvisations and Work Practices*, Proceedings of the IFIP WG9.4 Conference 2000, Cape Town, pp. 51-62
- Brandtweiner, R. (2004), "Success factors for implementing e-government services: the case of the Austrian e-government service portal", *Int. J. Information Technology and Management*, Vol. 3, No. 2-3-4, pp. 235-245
- Brislin, R. W. (1970), "Back-translation for cross-cultural research", *Journal of Cross-Cultural Psychology*, 1, pp. 185-216
- Broadbent, M., Weill, P. and Neo, B.S. (1999), "Strategic Context and Patterns of IT Infrastructure Capability", *Journal of Strategic Information Systems*, Vol. 8, No. 2, pp. 157-187
- Broadbent, M., Weill, P. and St Clair, D. (1999), "The Implications of Information Technology Infrastructure for Business Process Redesign", *MIS Quarterly*, Vol. 23, No. 2, pp. 159-182

## References

---

- Bradshaw, D. and Brash, C. (2001), "Managing customer relationships in the e-business world: how to personalise computer relationships for increased profitability", *International Journal of Retail & Distribution Management*; Vol. 29, No. 12, pp. 520-530
- Brown, D. M. (1999), "Information Systems for Improved Performance Management: Development Approaches in U.S. Public Agencies", *Reinventing Government in the Information Age. International Practice in IT-Enabled Public Sector Reform*, Hecks, R. (Ed.), pp. 113-34, London, Routledge
- Browne, C. (2001), Saudi e-Commerce Conference Lauded by Major Saudi Industry Experts, ITP (2001)
- Brynard, P. and Hanekom, S. (1997), "Introduction to research in public administration and related disciplines", Van Schaik Acadami,. South Africa
- Buckhout, S., Frey, E. and Nemec, J. (1999), "Making ERP succeed: turning fear into promise", *IEEE Engineering Management Review*, pp. 116-123
- Buckley, J., Buckley, M and Ching, H. (1975), *Research Methodology and Business Decision*, National Association of Accountants and the Society of Industrial Accountants of Canada, p.26
- Budaus, D. (1998), "Von der burokratischen Steuerung zum New Public Management - Eine Einfuhrung. in Managementforschitng", D. Budaus et al., (Ed.), Berlin-New York: De Gruyter
- Bullen, C. and Bennett, J. (1990), "Learning from User Experience with Groupware", in *Proceedings of the CSCW'90*. Los Angeles, CA: ACM Press, pp. 17-25
- Bulmer, M. and Warwick, D. (1993), *Social Research in Developing Countries: Survey and Censuses in the Third World*, London: UCL Press Limited
- Burke, W. (1994), "Organization development: A process of learning and changing" (2nd ed.), Reading, MA: Addison-Wesley
- Burke, W. (1999), "Organizational development: A process of learning and changing, Reading", MA: Addison-Wesley
- Burn, J. and Robins, G. (2003), "Moving towards e-government: a case study of organisational change processes", *E-government Logistics Information Management*, Vol. 16, pp. 25-35
- Burnes, B. (1996), *Managing Change: A Strategic Approach to Organisational Dynamics*, Pitman
- Caldow, J. (1999), "The Quest for Electronic Government: a Defining Vision", *Institute for Electronic Government*, IBM.



## References

---

- Carlzon, J. (1989), *Moments of Truth*, Harper & Row, New York, NY
- Carnall, C. (1990), "Managing Change in Organizations", Englewood Cliffs, Prentice Hall
- Castells, M. (2000), "End of Millennium", 2nd (Ed.), Blackwell, Oxford
- Caudle, S., Gorr, W., and Newcomer, K. (1991), "Key Information Management Issues for the Public Sector", *MIS Quarterly*, pp. 171-188
- Cauldwell, B. (2004), "All Change", *Manufacturing Engineer*, Vol. 83, No. 2, pp. 16-17
- Cavaness, J. and Manoochehri, G. (1993), Building Quality into Services, *SAM Advanced Management Journal*, p. 58
- Cavazos, E. (1994), "The Legal Risks of Setting Up Shop In Cyberspace", [http://cism.bus.utexas.edu/ravi/ed\\_paper.html](http://cism.bus.utexas.edu/ravi/ed_paper.html)
- Chalmers, A. (1976), "What is This Thing Called Science?", Open University Press, Buckingham
- Champy, J. (1995), "Reengineering management: The mandate for new leadership", 1st Ed., New York: HarperBusiness
- Checkland, P. (1987), "Systems Thinking and Computer Systems Analysis: Time to Unit", *DEC Seminar Series in Information Systems*, Presentation Given at The London School of Economics
- Chen, W. and Hirschheim, R. (2004), "A paradigmatic and methodological examination of information systems research from 1991 to 2001", *Info Systems J*, Blackwell Publishing Ltd, 14, pp. 197-235
- Cheung, C. and Lee, M. (2005), "Consumer Satisfaction with Internet Shopping: A Research Framework and Propositions for Future Research", *ICEC'05*, pp. 15-17, Xi'an, China
- Chou, D., Xu, Y., Yen, D. and Lin, B. (2002), "Adopting customer relationship management technology: Industrial Management & Data Systems", Vol. 102, No. 8, pp. 442-452
- Christianson, J., Moscovice, I., and Wellever, A., (1995), "The Structure of Strategic Alliances: Evidence from Rural Hospital Networks", In *Partners for the Dance: Forming Strategic Alliances in Health Care*, eds. A.D. Kaluzny et al Ann Arbor, Mich.: Health Administration Press.
- Clarke R, (1994), "Empirical Research Methods - in Electronic Commerce", retrieved from: <http://www.anu.edu.au/people/Roger.Clarke/ISRes/INFSResMeth>

## References

---

- Cohen, L., Manion, L. and Marrison, K. (2002), "Research methods in education", 5<sup>th</sup> (Ed.), London, Routledge Falmer
- Cole, G.A. (1996), "Management: Theory and Practice", DP Publications, London
- Collins, N. and Butler, P. (1995), "Marketing public sector services: concepts and characteristics", *Journal of Marketing Management*, Vol. 11, pp. 83-97
- Comptroller and Auditor General (2002), "Better Public Services through e-government", HC 704-1, pp. 1-10
- Conger, J. and Kanungo, R. (1987), "Towards a theory of charismatic leadership in organizational settings", *Academy of Management Review*, Vol. 12, pp. 637-47
- Conger, J. and Toegel, G. (2002), "A story of missed opportunities: qualitative methods for leadership research and practice", in Parry, K. and Meindl, J. (Eds.), *Grounding Leadership Theory and Research*, Information Age Publishing, Greenwich, CT, pp. 175-98
- Cooper, R. and Zmud, R. (1990), "Information Technology Implementation Research: A Technological Diffusion Approach", *Management Science*, Vol. 36, No. 2, pp. 123-139
- Coult, G. (2001), "The Museum as Corporate Memory", *Managing Information*, Vol. 8, No. 3, pp. 44-47
- Creswell, J. (1994), "Research Design: Qualitative & Quantitative Approaches", CA: Sage Publications
- Creswell, J. (1998), *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*, California: Sage Publications, Inc
- Cross, L. (1999), "Customer Intimacy is the Real Goal", *Graphic Arts Monthly*, Vol. 71, No. 8, pp. 81
- Csetenyi, A. (2000), "Electronic Government: Perspectives from E-commerce", *Proceedings of the 11<sup>th</sup> International Conference on Database and Expert Systems Applications*, London
- Cukier, W, Shortt, D. and Devine, I (2002), "Reprint: Gender and information technology: implications of definitions", *ACM SIGCSE Bulletin*, Vol. 34, No. 4
- Currie, W. L. (1999), "Meeting the challenge of Internet Commerce: key issues and concerns", *Proceedings of the 5<sup>th</sup> international Conference of the Decision Sciences Institute: Integrating Technology and human decisions: global bridges into the 21<sup>st</sup> century*, Despotis D.K. and Zopounidis, C. (Eds.), pp. 355- 357, Athens, Greece,



## References

---

- Cyert, R., Kumar, P., and Williams, J. (1993), "Information market imperfection and strategy", *Strategic Management Journal*, Vol. 14, pp. 47-58
- Damanpour, F. (1991), "Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators", *Academy of Management Journal*, Vol. 34, No. 3, pp. 555-590
- Das, T. (1983), "Qualitative research in organisational behaviour", *Journal of Management Studies*, Vol. 20, No. 3, p. 311
- Das, A., Soh, C., and Lee, P. (1999), "A Model of Customer Satisfaction with information technology Service Providers: An Empirical Study", *ACM*, pp. 190-193
- Dawes, S. (1996), "Interagency Information Sharing: Expected Benefits", Manageable Risks, *Journal of Policy Analysis and Management*, Vol. 15, No. 3, pp. 377-394
- DeLone, W. and McLean, E. (1992), "Information systems success: The quest for the dependent variable", *Information Systems Research*, Vol. 3, No. 1, pp. 60-95
- Denzin, N. (1978), *The Research Act*, New York, McGraw Hill
- Denzin N. and Lincoln, Y. (2000), *The Handbook of Qualitative Research*, 2<sup>nd</sup> (Ed.), Sage Publications, Thousand Oaks, Calif and London
- Dickerson, M. and Gentry, J. (1983), "Characteristics of Adopters and Non-Adopters of Home Computers", *Journal of Consumer Research*, pp. 225-234
- Dijksterhuis, M., Van den Bosch, F. and Volberda, H. (1999), "Where Do New Organizational Forms Come From? Management Logics as a Source of Coevolution", *Organization Science*, Vol. 10, No. 5, pp. 569-582
- Doctor, R. D. (1994), "Seeking equity in the national information infrastructure", *Internet Research: Electronic Networking Applications and Policy*, Vol. 4, No. 3, pp. 9-22
- Dodd W. and Fortune, L. (1995), "An electronic patient record project in the United Kingdom: can it succeed?", *Medinfo 95*, R.A. Greenes, H.E. Peterson and D. L. Protti, Healthcare Computing and Communications Canada, Edmonton, pp. 301-304.
- Doll, W. and Torkzadeh, G. (1988), "The measurement of enduser computing satisfaction", *MIS Quarterly*, Vol. 12, No. 2, pp. 259-274
- Dourish, P. and Bellotti, V. (1992), "Awareness and Coordination in Shared Workspaces", in *proceedings of the ACM Conference on Computer supported cooperative work (CSCW'92)*, Toronto, Ontario, ACM Press, pp. 107-114
- Dow, N., Teicher, J., and Hughes, O. (2002), "E-government: a new route to public sector quality", *Managing Service Quality*, Vol. 12, pp. 384-393

## References

---

- Drath, W. and Palus, C. (1994), "Making common sense: Leadership as meaning-making in a community of practice, Greensboro, NC: Center for Creative Leadership
- Dridi, F., Pernul, G. and Unger, V. (2001), "Security for the electronic government", *Proceedings of the European Conference on E-Government*, Trinity College, Dublin, Ireland
- Drucker, P. (1974), "New templates for today's organizations", *Harvard Business Review*, pp. 45-52
- Drucker, P. (1990), *Managing the Non-profit Organization*, Butterworth-Heinemann Ltd, Oxford, UK
- Duncan, N. (1995), "Capturing Flexibility of Information Technology Infrastructure: A Study of Resource Characteristics and Their Measure", *Journal of Management Information Systems*, Vol. 12, No. 2, pp. 37-57
- Easterby-Smith, M (1991), *Management Research: An Introduction*, Sage Publications, London
- Eisenhardt, K. (1989), "Building Theories from Case Study Research", *Academy of Management Review*, Vol. 14, No. 4, pp. 532-550
- Eisenhardt, K. and Bourgeois, L. (1988), "Politics of strategic decision making in high velocity environments: towards a mid-range theory", *Academy of Management Journal*, 31(4), pp. 737-770.
- Ellram, L. (1996), "The Use of the Case Study Method in Logistics Research", *Journal of Business Logistics*, Vol. 17, No. 2, pp. 93-137
- Europe Intelligence Wire (2003), "Government aims to help Local Authorities install CRM"
- Evans, J. and Laskin, R. (1994), "The relationship marketing process: a conceptualization and application", *Industrial Marketing Management*, Vol. 23, No. 5, pp. 439-452
- Faraj, S. and Sproull, L. (2000), "Coordinating Expertise in Software Development Teams", *Management Science*, Vol. 46, No. 12, pp. 1554-1568
- Farhoomand, A. F. and Drury, D. H. (1999), "A historiographical examination of information systems", *Communications of the Association for Information Systems*, Vol. 1, pp.1-27
- Ferioli, C. and Migliarese, P. (1996), "Supporting organizational relations through information technology in innovative organisational forms", *European Journal of Information Systems*, Vol. 5, pp. 196-207
- Fiedler, F. E. (1967), "A theory of leadership effectiveness", New York: McGraw-Hill



## References

---

- Firestone, W. (1987) Meaning in method: The rhetoric of quantitative and qualitative research, *Educational Researcher*, Vol. 16, No. 7, pp. 16-21.
- Folstad, A., Jorgensen, H., and Krogstie, J. (2004), "User Involvement in e-Government Development Projects", *ACM*, pp. 217-224
- Fombrun, C.J. (1984), "Structures of organizational governance", *Human Relations*, Vol. 37, pp. 207-223
- Freeman, R. (2001), "Governmental and nonprofit accounting: Theory and practice, Addison Wesley Publishing Company
- French, W. and Bell, C. (1999), "Organization Development – Behavioral Science Interventions for Organization Improvement", Sixth edition, Englewood Cliffs (NJ), Prentice-Hall
- Galbraith, J. (1973), "Designing Complete Organizations", Addison-Wesley, Reading, MA
- Galliers, R. (1991), "Choosing appropriate information systems research approaches: a revised taxonomy", *Information Systems Research: Contemporary Approaches and Emergent Traditions*, Nissen, H. E., Klein, H. K. and Hirschheim, R. (Eds.), Elsevier Science Publishers, North Holland, pp. 327–345
- Galpin, T. J. (1998), "When leaders really walk the talk: taking strategy work through people", *Human Resources Planning*, 21(3), 38-45
- Gant, J. P. and Gant, D. B. (2002). Web portal functionality and State government E-service. Paper presented at the Proceedings on the 35th Hawaiian International Conference on System Sciences, Hawaii.
- Gartner Group (2000), "Gartner's Four Phases of E-Government Model.", Retrieved from: <http://www.gartner.com>
- General Accounting Office (2001), "Electronic government: Challenges must be addressed with effective leadership and management", Washington, D.C.: General Accounting Office, pp.1-2
- Gent, R. (2003), "Delivering e-government: the Derbyshire experience", *VINE: The Journal of Information and Knowledge Management Systems*, Vol. 33, No. 3, pp. 125-130
- Giaglis, G. (1999), "Integrated design and evaluation of business processes and information systems", *Communications of AIS*, Vol. 2, No. 1, pp. 1-33
- Gibson, C. and Nolan, R. (1974), "Managing the four stages of EDP growth", *Harvard Business Review*, Vol. 52, No. 1, pp. 76-88

## References

---

- Giddens, A. (1984), "The Constitution of Society: Outline of a Theory of Structure", University of California Press, Berkeley, CA
- Giles, W. (1991), "Making strategy work", *Long Rang planning*, Vol. 24, No. 5, pp. 75-91
- Goffee, R. and Jones, G. (2000), "Why should anyone be led by you?", *Harvard Business Review*, September-October 2000, pp. 63-70
- Gomez-Mejia, L. and Balkin, D. (1992), "Compensation, Organizational Strategy, and Firm Performance", Southwestern Publishing Company, College Division, Cincinnati, OH
- Gore, A. (1993), "Reengineering Through Information Technology", *Accompanying Report of the National Performance Review*, retrieved from <http://govinfo.library.unt.edu/npr/library/reports/it.html>
- Gottschalk, P. (1999), "Implementation predictors of strategic information systems plans", *Information and Management*, Vol. 36, pp. 77-91
- Gouscos, D., Mentzas, G. and Georgiadis, P. (2001), "Planning and Implementing e-Government Service Delivery: Achievements and Learnings from On-line Taxation in Greece", the Workshop on e-Government in the context of the *8th Panhellenic Conference on Informatics*, Nicosia, Cyprus
- Government Online Project Service Center (2000), "Government Online Project White Paper", Beijing
- Gray, P. (1996), "The Global Information Infrastructure", *Information Systems Management*, Vol. 13, No. 3, pp. 7-14
- Gray, P. (1998), "Converging infrastructures: Intelligent transportation and the national information infrastructure", *Information Society*, Vol. 14, No. 3, pp. 247-248
- Greig, F. (1997), "Enterprise training", *International Journal of Manpower*, Vol. 18, No. 1
- Grimes, D. (1983), "Human Factors Training and Awareness", *ACM*, pp. 73-78
- Grinnell, J. and Williams, M. (1990), "Research in social work: A primer", USA: F.E. Peacock Publishers
- Guba, E. G. and Lincoln, Y. (1988), "Do inquiry paradigms imply inquiry methodologies?", In D. M. Fetterman (Ed.), *Qualitative approaches to evaluation in education*, New York: Praeger
- Gummesson, E. (1993), "Case Study Research in Management: Methods for Generating Qualitative Data", Second revised version of unpublished preliminary script, Stockholm University, Department of Business Administration



## References

---

- Gunasekaran, A., and Nath, B. (1997), "The role of information technology in business process reengineering", *International Journal of Production Economics*, Vol. 50, pp. 91-104
- Gupta, P. and Moitra, D. (2004), "Evolving a pervasive IT infrastructure: a technology integration approach", *Pers Ubiquit Comput*, Vol. 8, pp. 31-41
- Hackney, R., and McBride, N. (2002), "Non-Implementation of an IS Strategy within a UK Hospital: Observations from a Longitudinal Case Analysis," *Communication of the Association for Information Systems*, Vol.8, pp. 130-140
- Hagen, M., Kubicek, H. (2000), "One-Stop-Government in Europe: Results from 11 National Surveys", Hagen, M., Kubicek, H. (Eds.), University of Bremen, Bremen, Germany
- Hambrick, D. and Snow, C. (1989), "Strategic reward systems", in Snow, C.C. (Ed.), *Strategy, Organizational Design and Human Resource Management*, JAI Press, Greenwich, CT, pp. 929-964
- Hamel, G. and Prahalad, C. (1994), *Competing for the Future*, Harvard Business School Press, Boston
- Hammer, M. (1990), "Reengineering work: don't automate, obliterate", *Harvard Business Review*, pp.104-112
- Hammer, M. (1996), "Beyond reengineering: How the process-centered organization is changing our work and our lives", 1st Ed., New York: Harper Business
- Handy, C. (1996), "The gods of management", *Executive Book Summaries*, Vol. 18, No. 2, pp. 1-8
- Hanline, M. (1993), "Models of organization: The application of organization theory", York, PA: Matrix Publishing Company
- Hayes, M. and Jamrozik, M. (2001), "Internet distance learning: The problems, the pitfalls, and the future", *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology*, Vol. 29, pp. 63-69
- Heeks, R. (1999), "Better Information Age Reform, Reducing the Risk of Information Systems Failure", Chapter 4, in R. Heeks (ed), *Reinventing Government in the Information Age, International Practice in IT-Enabled Public Sector Reform*, London: Routledge, pp. 74-109
- Heeks, R. (2001a), "Understanding e-Governance for Development", *I-Government working paper series*, Institute for Development Policy and Management, University of Manchester, Manchester, UK, pp. 1-25

## References

---

- Heeks, R. (2001b), "Building e-Governance for Development: A Framework for National and Donor Action", *I-Government working paper series*, Institute for Development Policy and Management, University of Manchester, pp. 1-31
- Heeks, R. (2002), "Government in Africa: Promise and Practice", *I-Government working paper series*, Institute for Development Policy and Management, University of Manchester, Manchester, UK, pp. 1-26
- Heeks, R. (2004), "eGovernment as a Carrier of Context", *I-Government Working Paper No.15*, Institute for Development Policy and Management, University of Manchester, Manchester, U.K
- Higgs, M. and Rowland, D. (2003), "Is change changing? An examination of approaches to change and its leadership", Henley Working Paper 0313, Henley Management College, Henley, retrieved from: [www: henleymc.ac.uk](http://www.henleymc.ac.uk)
- Hitchcock, P. (1996), "The practical use of vision in small teams", *Health Manpower Management*, Emerald Group Publishing Limited, Vol. 22, No. 2, pp. 28-31
- Hitt, A. (1999), "Information technology and firm boundaries: Evidence from panel data", *Information Systems Research*, Vol. 10, No. 2, pp. 134-149
- Ho, T. (2002), "Reinventing local governments and the e-government initiative", *Public Administration Review*, Vol. 62, No. 4, pp. 434-444
- Hochstasser, B. and Griffiths, C. (1991), "Controlling IT Investment: Strategy and Management", London: Chapman and Hall
- Hodgson, L. & Aiken, P. (1998), "Organizational Change Enabled By The Mandated Implementation Of New Information Systems Technology: A Modified Technology Acceptance Model", Boston, MA, USA, pp. 205-213
- Hogan, M. and Radack, S. (1997), "The Quest for Information Technology Standards for the Global Information Infrastructure", *StandardView*, Vol. 5, No. 1, pp. 30-35
- Holland, P., Light, B. and Gibson, N. (1999), "A critical success factors model for enterprise resource planning implementation", *Proceedings of the 7th European Conference on Information Systems*, Vol. 1, pp. 273-287
- Holmes, D. (2001), "E-Gov: E-Business Strategies for Government", London, Nicholas Brealey Publishers
- Hopkins, D. (2001), "The Museum as Corporate Memory and Learning Resource", *Managing Information*, Vol. 8, No. 3, pp. 44-47
- Horna, J. (1994), *The Study of Leisure*, Oxford University Press, Oxford
- House, R. and Mitchell, R. (1974), "Path-goal theory of leadership", *Journal of Contemporary Business*, Vol. 3, No. 4, pp. 81-98



## References

---

- Howard, M. (2001), "e-Government Across the Globe: How Will "e" Change government?", *Government Finance Review*, pp. 6-9
- Hu, Y., Xiao, J., Pang, J. and Xie, K. (2005), "A Research on the Appraisal Framework of e-Government Project Success", *ICEC '05*, Xi'an, China
- Huang, C. and Chao, M. (2001), "Managing WWW in public administration: uses and misuses", *Government Information Quarterly*, Vol. 18, pp. 357-373
- Hutchinson, W., Stoney, M. (2001), "The Implications of the United Kingdom's Terrorism Act on Cyberspace", *1st European Conference on E-Government (ECEG 2001)*, Trinity College, Dublin, Ireland
- Hyppönen, H., Salmivalli, L. and Suomi, R. (2005), "Organizing for a National Infrastructure Project: The Case of the Finnish Electronic Prescription", *Proceedings of the 38th Hawaii International Conference on System Sciences*, pp. 1-10
- ICMA (2002), *Electronic Government (2002)*, "International City/County Management Association", Washington, D.C
- Info-Line (1991), "How to Develop a Vision", *American Society for Training and Development*, pp. 107, Alexandria, VA
- Ingram, H and Schneider A. (1990), *Improving Implementation Through Framing Smarter Statutes* in Matland, R. (1995), "Synthesising the Implementation Literature: the Ambiguity-Conflict Model of Policy Implementation", *Journal of Public Administration Research and Theory*, Vol. 5, No. 2, 145-175
- ISEC (2001), *Government IT projects*, Parliamentary, retrieved from: [http://europa.eu.int/information\\_society/programmes/egov\\_rd/about\\_us/text\\_en.htm](http://europa.eu.int/information_society/programmes/egov_rd/about_us/text_en.htm).
- Iivari, J. (1991), "A Paradigmatic Analysis of Contemporary Schools of IS Development", *European Journal of Information Systems*, Vol. 1, No. 4, pp. 249-272
- Järvenpää, E. and Eloranta, E. (2000), "Organizational Culture and Organizational Development", In W. Karwowski (Ed.) *International Encyclopaedia of Ergonomics and Human Factors*, Taylor and Francis Inc
- Jackson, J. and Morgon, C. (1978), *Organization Theory: A Macro Perspective for Management*. Englewood Cliffs", N.J.: Prentice Hall, Inc
- Jaeger, P. (2002), "Constitutional principles and e-government: An opinion about possible effects of Federalism and the separation of powers on e-government policies", *Government Information Quarterly*, 19(4), pp. 357-368
- Jaeger P. and Thompson K. (2003), "E-government around the world: lessons, challenges, and future directions", *Government Information Quarterly*, Vol. 20, No. 4, pp. 389-394

## References

---

- Jayaratne, T. (1993), "Quantitative methodology and feminist research", in Hammersley, M. (Ed.), *Social Research: Philosophy, Policies and Practice*, Sage, London
- Jha, B. and Bokad, P (2003), "Managing Multiplicity of Citizens' identity -A Taluka level case study", *International conference on e-governance*, Vol. 1, No. 5, pp. 24-31
- Jick, T. (1983), "Mixing qualitative and quantitative research methods: triangulation in action", *Qualitative Methodology*, pp. 135-148
- Joia, L. (2002), "Electronic government in search of a conceptualization", Available in [http://www.ebape.fgv.br/e\\_government/asp/dsp\\_oquee.asp](http://www.ebape.fgv.br/e_government/asp/dsp_oquee.asp)
- Joia, L. (2004), "Developing Government-to-Government enterprises in Brazil: a heuristic model drawn from multiple case studies", *International Journal of Information Management*, Vol. 24, No. 2, pp. 147-166
- Jones, I. (1997), "Mixing qualitative and quantitative methods on sports fan research", *The Qualitative Reports*, Vol. 3, No. 4
- Joshi, J., Ghafoor, A., Aref, W. and Spafford, R. (2001), "Security and privacy challenges of a digital government", In W.J. McIver and A.K. Elmagarmid (Eds.), *Advances in digital government: Technology, humanfactors, andpolicy* (Ch. 7, pp. 121-136). Norwell, MA: Kluwer Academic Publishers
- Jupp, V. (2001), "Government portals - the next generation of government online", *In the Proceedings of the European Conference on E-Government*, pp. 217-223
- Jury, G. (1997), "Managing technology: the environment in which technology is managed", *IEEE Engineering Management Journal*, Vol. 7, No. 1, pp. 27-32
- Kaaya, J. (2004), "The Emergence of E-Government Services in East Africa: Tracking Adoption Patterns and Associated Factors", *Sixth International Conference on Electronic Commerce*, ACM
- Kaliontzoglou, A., Sklavos, P., Karantjias, T. and Polemi, D. (2004), "A secure e-Government platform architecture for small to medium sized public organizations", *Electronic Commerce Research and Applications*
- Kallio, J., Saarinen, T., Salo, S., Tinnila, M., and Vepsalainen, A. J. (1999), "Drivers and tracers of business process changes", *Journal of Strategic Information Systems*, Vol. 8, pp. 125-142
- Kannabiran, G., Xavier, M., and Anantharaaj, A. (2004), "Enabling e-Government through citizen relation management-concept model and application", *Journal of Social Research*, Vol. 4, No. 2, pp. 1-18
- Kanter, R. (1985), "Managing the human side of change", *Management Review*, Vol. 74, pp. 52-6



## References

---

- Karsten, H., Lyytinen, K., Heilala, V., and Tynys, J. (1997), "The Impact of User Support in Successful Groupware Implementation: Case Tasman to Support Paper Machinery Delivery", *ECIS'97, The 5th European Conference on Information System*, Cork, Ireland
- Kasanen, E., Lukka, K. and Siitonen, A. (1991), "The Constructive Research Approach in Economics", *The Journal of Business Economics*, Vol. 40, pp. 301-329
- Kayworth, T. and Sambamurthy, V. (1997), "The Impact of Corporate Information Technology Infrastructure Standards on Enterprise and Business Unit It Use", *Proceeding of the 18<sup>th</sup> international conference on information systems*, pp. 462-463
- Ke, W. and Wei, K. (2004), "Successful E-Government in Singapore: How did Singapore manage to get most of its public services deliverable online?", *Communications of the ACM*, Vol. 47, pp. 95-99
- Keen, P. (1991), "Shaping the Future", *Harvard Business School Press*, Cambridge, MA
- Keep, E. (1989), "A Training Scandal?", *Personnel Management in Britain*, Blackwell, in Sisson, K. (Ed.), Oxford, p. 177
- Keller, B. and Baum, C. (2001), "Identifying and Addressing Inhibitors to E-Government", Gartner Group
- Kelley, P., Sanspree, M., and Davidson, R. (2000), "Vision impairment in children and youth", In *The lighthouse handbook of vision impairment and vision rehabilitation*, pp. 1111-1128, HOROWITZ (ed), Oxford University Press, New York
- Keselica, M. (1994), "The 'People' Part of Groupware", Vol. 18, No. 2, p. 104
- Kets De Vries, M. (1993), "Leaders, Fools", *Imposters*, Jossey-Bass, San Francisco, CA
- Kilmann, R. (1989), "Managing Beyond the Quick Fix", Jossey-Bass, San Francisco, CA
- Kimberley, J., Leatt, P. and Shortell, S. (1983), "Organization Design". In *Health Care Management*, Shortell, S. and Kaluzny, A. (Eds.), pp. 291-332, New York: Wiley
- King, J. (1982), "Local Government Use of Information Technology: The Next Decade", *Public Administration Review*, Vol. 42, No. 1, pp. 25-36
- King, G., Keohane, R. and Verba, S. (1994), "Designing Social Inquiry – Scientific interface in Qualitative Research", *Princeton University Press*
- Kitiyadisai, K. (2000), "The implementation of IT in reengineering the Thai Revenue Department", *Information Flows, Local Improvisations and Work Practices*, Proceedings of the IFIP WG9.4 Conference 2000, Cape Town

## References

---

- Klagge, J (1996), "Defining, discovering and developing personal leadership in organizations", *Leadership and Organizational Development Journal*, Vol. 17, No. 5, pp. 38-45
- Klee-Kurse, G. (2000), "One-Stop-Government in Finland", Hagen, M., Kubicek, H. (Eds.), *One Stop-Government in Europe: Results from 11 National Surveys*, University of Bremen, Bremen, Germany
- Klein, H. and Myers, M. (1999), "A set of principles for conducting and evaluating interpretive field studies in information systems", *MIS Quarterly*, Vol. 23, pp. 67-94
- Kleiner, B. and Corrigan, W. (1989), "Understanding Organisational Change", *Leadership and Organization Development Journal*, Vol. 10, No 3, pp. 25-31
- Kotter, J. (1993), "A Force for Change: How Leadership Differs from Management", *Harvard Business School Press*, Boston
- Kotter, J. (1996), *Leading Change*, Harvard Business School, Boston
- Kraemer, K. L. and King, J. L. (1977), "Computers and Local Government", New York, Praeger
- Kwon, T. and Zmud, R. (1987), "Unifying the Fragmented Models of Information Systems Implementation", Chapter 10, in R. J. Boland, Jr., and R. A. Hirschheim (Eds.), *Critical Issues in Information Systems Research*, Chichester: John Wiley and Sons Ltd
- Lado, A., Boyd, N. (1997), "Competition, cooperation, and the search for economic rents: A syncretic model", *Academy of Management Review*, Vol. 21, No. 1, pp. 110-141
- Lambrinouidakisa, C., Gritzalisa, S., Dridib, F. and Pernul, G. (2003), "Security requirements for e-government services: a methodological approach for developing a common PKI-based security policy", *Computer Communications*, Vol. 26, pp. 1873-1883
- Landwehr, C. and Heitmeyer, C. (1996), "Military message systems: Requirements and Security Model", NRL Memorandum Report 4925. Computer Science and Systems Branch, Naval research Laboratory
- Lapre, L., Arjan, V. (2001), "Bridging the gap between citizen and administration", *In the Proceedings of the European Conference on E-Government*, pp. 247-259
- Lawler, E. (1986a), "High Involvement Management", Jossey-Bass, San Francisco, CA



## References

---

- Lawler, E. (1986b), "Reward systems and strategy", Gardner, J., Rochlin, R. and Sweeney, H. (Eds.), *Strategic Planning Handbook*, Wiley, New York, NY
- Layne, K. and Lee, J. (2001), "Developing fully functional E-government: A four stage model", *Government Information Quarterly*, Vol. 18, No. 2, pp. 122-136
- Leavitt, H. (1965), "Applied organizational changes in industry: Structural, technological and humanistic", In *Handbook of Organizations*. J. G. March (Ed). Rand McNally, Chicago
- Lederer, A. and Mendelow, A. (1993), "Information Systems Planning and the Challenge of Shifting Priorities", *Information and Management*, Vol. 24, No. 6, pp. 319-328
- Lederer, A. and Sethi, V. (1988), "The Implementation of Strategic Information Systems Planning Methodologies", *MIS Quarterly*, Vol. 12, No. 3, pp. 444-461
- Lee, A. (1989), "A scientific methodology for MIS case studies", *MIS Quarterly*, Vol. 13, pp. 33-50
- Lee, C. (1993), "The vision thing", *Training*, February, pp. 25-34
- Lekvall, P. and Wahlbin, C. (1993), *Information för marknadsföringsbeslut*, IHM
- Lenk, K. and Traunmuller, R. (2002), "Preface to the focus theme on e-government", *Electronic Markets*, Vol. 12, pp. 145-7
- Lerouge, C. and Webb, H. (2003), "Managing Training in a Technology Context", *SIGMIS Conference*, Philadelphia, Pennsylvania, ACM
- Lester, J. and Stewart J. (2000), "Public Policy: An Evolutionary Approach", 2nd Edition, Wadsworth, Belmont
- Lewis, D. (1996), "The Organizational Culture Saga – from OD to TQM; a Critical Review of the Literature", *Leadership and Organization Development Journal*, Vol. 17, No. 1, pp.12-19
- Levtzion-Korach, O., Tennenbaum, A., Schnitzen, R., and Ornoy, A. (2000), "Early motor development of blind children", *Journal of Paediatric and Child Health*, Vol. 36, pp. 226-229
- Libicki, M. (1995), "Book Review: Information Technology Standards: Quest for the Common Byte", *StandardView*, Vol. 3, No. 4, Digital Press, Washington St., Newton, pp. 159-161
- Lieber, A. (2000), "E-Government initiatives meeting", retrieved from: [ostiwebmaster@osti.gov](mailto:ostiwebmaster@osti.gov)

## References

---

- Lloyd, P. and Whitehead, P. (1996), "Transforming organisations through groupware", *Springer*
- London, C. and Higgot, K. (1997), "An employee reward and recognition process", *The TQM Magazine*, Vol. 9, No. 5, pp. 328-335
- Luke, A. W. (1982), "Office Automation and the Management of Change", *ACM*, pp. 104-106
- Mabin, V., Forgeson, S. and Green, L. (2001), "Harnessing resistance: using the theory of constraints to assist change management", *Journal of European Industrial Training*, MCB University Press, pp. 168-191
- Malhotra, N. (2004), *Marketing Research: An Applied Orientation*, 4<sup>th</sup> Ed., Prentice Hall International, London
- Mallalieu, G., Harvey, c., and Hardy, C. (1999), "The wicked relationship between organizations and information technology (industry trend and event)", *Journal of End User Computing*, Vol. 11, No. 4, pp. 40-50
- Maoz, M., Close, W. and Herschel, G. (2001), "CRM Suites Magic Quadrant 2001: Only One Leader", *Gartner Research Note*
- Markus, M. and Lee, A. (1999), "Special issue on intensive research in information systems: using qualitative, interpretive, and case methods to study information technology— forward", *MIS Quarterly*, Vol. 23, pp. 35–38
- Ministry of Economic and Planning (2006), Ministry of Economic and Planning in Saudi Arabia, retrieved from: <http://webserver.planning.gov.sa/i-mop/home/>
- Miriam, I. (2001), *Designing Electronic Government around the World: Policy Developments in the USA, Singapore, and Australia*, In Prins, J. E. (Ed.), institutional change, Cambridge: Kluwer Law International
- Marsh, P., Rosser, E. and Harre, R. (1978), *The Rules of Disorder*, Routledge & Kegan Paul, London
- Matland, R. (1995), "Synthesising the Implementation Literature: the Ambiguity-Conflict Model of Policy Implementation", *Journal of Public Administration Research and Theory*, Vol. 5, No. 2, pp.145-175
- Myers, M. (1997), "Qualitative Research in Information Systems", *MIS Quarterly*, Vol. 21, No. 2, pp. 241-242
- Mayers, M. and Avison, D. (2002), "Qualitative research in Information Systems: A reader", London, Sage
- McAdams, J. (1996), "The Reward Plan Advantage", Jossey-Bass, San Francisco, CA



## References

---

- McClure, D. (2000), "Electronic Government: Federal Initiatives are Evolving Rapidly but they Face Significant Challenges", Washington DC, US General Accounting Office, retrieved from: <http://www.gao.gov>
- McCosh, A. M., Rahman, M., and Earl, M. J. (1981), "Developing Managerial Information System", *the MACMILLAN Press Ltd*, ISBN 0-333-23374-3
- McCracken, G. (1988), *The Long Interview*, Newbury Park, CA: Sage.
- McGrath, J. (1982), "Dilemmatics: the study of research choices and dilemmas", In McGrath, J. (Ed.), *Judgement Calls in Research*, Sage, Beverly Hills, CA
- McMillan, J. and Schumacher, S. (2001), "Research in education: A conceptual introduction", USA, Welsley Longman, Inc
- Miles, M. and Huberman, A (1994), *Qualitative Data Analysis*, Sage Publications, Thousands Oaks, CA
- Miles, R. and Snow, C. (1992), "Causes of failure in network organisations", *California Management Review*, Summer, pp. 53-72
- Milne, D. (2006), "Saudi government in moves to spread net", retrieved from <http://www.itp.net/news/>
- Milward, H. (1994), "Non profit contracting and the hollow state", *Public Administration Review*, Vol. 54, No. 1, pp. 73-77
- Min, S., Suh, E. and Kim, S. (1999), "An Integrated Approach Toward Strategic Information Systems Planning," *Journal of Strategic Information Systems*, Vol.8, No.4, pp. 373-394
- Mintzberg, H. (1978), "Patterns in strategy formation", *Management Science*, Vol. 24, No. 9, pp. 934-48
- Mintzberg, H. (1979), "The structuring of organizations: A synthesis of related research", Upper Saddle River, NJ: Prentice-Hall
- Mintzberg, H. (1983), "Structure in Fives", Prentice Hall, Englewood Cliffs, NJ
- Mintzberg, H. (1994), "The fall and rise of strategic planning", *Harvard Business Review*, January-February 1994, pp. 107-14
- Mintzberg, H. (1996), "Managing government, governing management", *Harvard Business Review*, Vol. 76, No. 3, pp.75-83
- Mitretek Systems (2002), "e-Government", Mitretek Systems Inc., Retrieved from: <http://www.mitretek.org/EGovernment.htm>

## References

---

- Mohan, L., and Holstein, W. (1990), "EIS: It can work in the public sector", *MIS Quarterly*, Vol. 14, No. 4, pp. 434-448
- Moon, M. (2001), "The Evolution of E-Government among Municipalities: Rhetoric or Reality", *Paper presented at the American Political Science Annual Meeting*, San Francisco, CA
- Morden, A. (1996), *Principles of Management*, McGraw-Hill, London
- Morell, J. and Stewart, S. (1996), "Standards Development for Information Technology: Best Practices for the United States", *StandardView*, Vol. 4, No. 1, pp. 42-51
- Moussa, A. and Schwere, R. (1992), "Informatics in Africa: lessons from World Bank experience", *World Development*, Vol. 20, No. 12, pp. 1737-1752
- Mouton, J. (1996), "Understanding social research", Pretoria, Van Schaik
- Munson, K., Wolfe, E. and Raca, N. (2001), "CRM Implications for Government", *White Paper Series*, USA, People Soft
- Murphy, E.C. (1996), "Leadership IQ", Wiley, New York, NY
- Nachmias, C. and Nachmias, D. (1976), "Research Methods in the Social Sciences", New York, St. Marten's Press
- Nachmias, C. and Nachmias, D. (1996), "Research Methods in the Social Sciences", 5<sup>th</sup> (Ed.) New York, St. Martin's Press
- NACO (2000), "National Association of Counties: 2000 E-Government Survey", *National Association of Counties*, Washington, D.C
- Nadler, D. and Tushman, M. (1988), "Strategic Organization Design, Scott", Foresman, Glenview, IL
- Nambisan, S. and Agarwal, R. (1998), "The Adoption and Use of National Information Infrastructure: A Social Network and Stakeholder Perspective", *Proceedings of the international conference on Information systems*, Finland, Helsinki, pp. 313 – 318
- National Research Council, Committee on Computing and Communications Research to Enable Better Use of Information Technology in Government (2002), "Information technology research, innovation, and e-government". Washington, DC: National Academy of Sciences. Retrieved August 25, 2003, retrieved from: [http://search.nap.edu/html/itr\\_e-1Jov/](http://search.nap.edu/html/itr_e-1Jov/)
- Nau, D. (1995), "Mixing Methodologies: can bimodal research be a viable post-positivist tool?", *The Qualitative Report*, Vol. 2, No. 3



## References

---

- Neuman, W. (2000), *Social Research Methods: Qualitative and Quantitative Approaches*, 4<sup>th</sup> Ed., Allyn and Bacon, Boston Mass and London
- Nohria, N. (1995), "Note on organizational structure", Boston, MA: Harvard Business School Publishing
- Nolan, R. (1979), "Managing the crisis in data processing", *Harvard Business Review*, Vol. 57, No. 2, pp. 115-126
- Norris, D. (1999), "Leading Edge Information Technologies and Their Adoption: Lessons from U.S. Cities", *Information Technology and Computer Applications in Public Administration: Issues and Trends*, in G. D. Garosn (Ed.), Hershey, P A: Idea Group Publishing
- Norris, D. and Kraemer, K. (1996), "Mainframe and PC Computing in American Cities: Myths and Realities", *Public Administration Review*, Vol. 56, No. 6, pp. 568-76
- Norris, D., Fletcher, P. and Holden, S (2001), "Is Your Local Government Plugged In?", *Highlights of the 2000 Electronic Government Survey*, , ICMA, Washington, D.C.
- Norris, R. and Pang, L. and (2002), "Applying customer relationship management (CRM) to government", *The Journal of Government Financial Management*, Vol. 51, No. 1, pp. 40-45
- Nowlan, S. (2001), "eCRM in the Public Sector", USA, Pricewaterhouse-Coopers
- Nunnally, J. (1978), *Psychometric Theory*, (3<sup>rd</sup>) McGraw-Hill, New York and London
- O'Brien M. J. and Al-Biqami N. M. (1999), "Survey of Information Technology and the Structure of the Saudi Arabian Construction Industry", *8th International Conference on Durability of Building Materials and Components*, Vol. 4, NRC Research Press, National Research Council of Canada, Ottawa, Canada, pp. 2327-2337
- O'Sullivan and E. Rassel, G. (1999), "Research Methods for Public Administrators", New York: Longman Inc
- Oakland, J. S. (1993), "Total Quality Management", Butterworth-Heinemann, Oxford
- OECD (2003), "The case for e-government: the excerpts from OECD report "The e-government imperatives"", *OECD Journal on Budgeting*, Vol. 3, No. 1, pp. 61-96.
- Okiy, R. B. (2005), "Funding Nigerian libraries in the 21st century: Will funding from alternative sources suffice?", *The Bottom Line: Managing Library Finances*, Vol. 18, No. 2, pp. 71-77
- Olowu, B. (1999), "Redesigning African civil service reforms", *Journal of Modern African Studies*, pp. 1-23

## References

---

- Orlikowski, W. and Baroudi, J. (1991), "Studying information technology in organizations: research approaches and assumptions", *Information Systems Research*, Vol. 2, pp. 1-28
- Orlikowski, W. and MIT (1992), "Learning form notes: organizational issues in groupware implementation", Mass.: Massachusetts Institute of Technology, Cambridge
- Orlikowski, W., Yates, J., Okamura, K., and Fujimoto, M. (1995), "Shaping Electronic Communication: The Metastructuring of Technology in the Context of Use", *Organization Science*, Vol. 6, No. 4, pp. 423-444
- Osbourne, D., Gaebler, T. (1992), "Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector", Addison Wesley, Reading, MA
- Oyomno, G. (1996), "Sustainability of governmental use of microcomputer-based information technology in Kenya", *Global Information Technology and Socio-Economic Development*, M. Odedra-Straub (Ed.), Ivy League Publishing, World Bank, Washington DC
- Pacific Council on International Policy (2002), "Roadmap for E-Government in the Developing World", pp. 1-29
- Papantoniou, A., Hattab, E., Afrati, F., Kayafas, E. and Lournos, V. (2001), "Change Management, a Critical Success Factor for e-Government", *IEEE*
- Papazafeiropoulou, A., Pouloudi, A. and Doukidis, G. (2002), "A framework for best practices in electronic commerce awareness creation", *Business Process Management Journal*, Vol. 8, No. 3, pp. 233-244
- Parasuraman, A. (1991), *Marketing Research*, 2<sup>nd</sup> Ed., Reading, Mass.: Addison-Wesley
- Parasuraman, A. (2002), "Technology readiness and e-service quality: insights for effective e-commerce", *E-Commerce Seminar Series North Carolina State University*, Raleigh, NC
- Parasuraman, A., Zeithaml, V.A., and Berry, L.L. (1991), "Refinement and Reassessment of the SERVQUAL Scale", *Journal of Retailing*, Vol. 67, No. 4, pp. 420-450
- Parasuraman, A., Zeithaml, V.A., and Berry, L.L. (1994), "Alternative Scales for Measuring Service Quality: A Comparative Assessment Based on Psychometric and Diagnostic Criteria", *Journal of Retailing*, Vol. 70, No. 3, pp. 201-229
- Pardo, T. (2000), "Realizing the promise of digital government: It's more than building a Web site", Unpublished manuscript, Albany, NY



## References

---

- Pardo, T. and Scholl, H. (2002), "Walking Atop the Cliffs: Avoiding Failure and Reducing Risk in Large Scale E-Government Projects", *the 35th Hawaii International Conference on System Sciences*, Maui, HI
- Pattison, M. (1997), "Legal Implications of Doing Business on the Internet", *Information Management and Computer Security*, pp. 29-34
- Patton, M. (1990), *Qualitative Evaluation and Research Methods*, 2nd ed., Sage, Thousand Oaks, CA, p. 39
- Patton, M. and University of California, L. A. C. f. t. S. o. E. (1987), "How to Use Qualitative Methods in Evaluation, (2<sup>nd</sup>) Sage Publications, Newbury Park, Calif and London
- Pennings, J. (1976), "Measures of organizational structure: A methodological note", *American Journal of Sociology*, Vol. 79, No. 3, pp. 686-704
- Peters, T. and Waterman, R. (1982) *In Search of Excellence: Lessons from America's Best Run Companies*, Harper and Row, London
- Peters, R., Janssen, M., Engers, T. (2004), "Measuring e-Government Impact: Existing practices and shortcomings", *Sixth International Conference on Electronic Commerce*, ACM
- Pfeffer, J., and Salancik, G. (1978), "The External Control of Organizations: A Resource Dependence Perspective", New York: Harper & Row
- Piercy, N. and Lane, N. (2003), "Transformation of the Traditional Salesforce: Imperatives for Intelligence, Interface and Integration", *Journal of Marketing Management*, Vol. 6, No. 3, p.563
- Prahalad, C. (2004), "Interview: Co-Creating Unique Value with Customers", *Business Strategy Review*, Vol. 15, No. 2, pp. 13-16
- Premkumar, G., Ramamurthy, K. and Crum, M. (1997), "Determinants of EDI Adoption in the Transportation Industry", *European Journal of Information System*, Vol. 6, No 2, pp. 107-121
- Quinn, J.B. (1980), "Strategies for Change: Logical Incrementalism", Irwin, Homewood, IL
- Rai, A., Lang, S. and Welker, R. (2002), "Assessing the validity of IS success models: An empirical test and theoretical analysis", *Information Systems Research*, Vol. 13, No. 1, pp. 50-69
- Rainer, A. (2004), "Web-Centric Business Process Modelling", *Int. J. Electronic Business*, Vol. 2

## References

---

- Ranganathan, C. and Dhaliwal, J. (2001), "A survey of business process reengineering practice in Singapore", *Information and Management*, Vol. 39, pp. 125-134
- Read, C. and Kleiner, B. (1996), "Which training methods are effective?", *Management Development Review*, Vol. 9, No. 2, pp. 24-29
- Reddick, C. (2004a), "A two-stage model of e-government growth: Theories and empirical evidence for U.S. cities", *Government Information Quarterly*, 21(1), pp. 51-64
- Remenyi, D., Williams, B., Money, A. and Swartz, E. (1998), *Doing Research in Business and Management*, Sage Publications, London
- Reynolds, M. and Regio, M. (2001), "E-Government as a Catalyst in the Information Age, Microsoft E-Government Initiatives", *E-Government 2001*, retrieved from: [www.netcaucus.org/books/egov2001/](http://www.netcaucus.org/books/egov2001/)
- Richards, T. and Richards, L. (1994), "Using computers in qualitative analysis", in Denzin, N. and Lincoln, L. (Eds.), *Handbook of Qualitative Research*, Sage, Thousand Oaks, CA
- Rideout, T.B. (1991), "Changing Your Methods from the Inside", *IEEE*, Vol. 8, pp. 99-111
- Roberts, H. and Barrar, P. (1992), "MRPII implementation: key factors for success", *Computer Integrated Manufacturing Systems*, Vol. 5, No. 1, pp. 31-8
- Rockart, J. and Short, J. (1991), "The network organization and the management of interdependence", In *The Corporation of the 1990's*, M. Scott Morton (Ed.), Oxford University Press, NY
- Rogers, E. (1983) *Diffusion of Innovations*, New York: Free Press
- Rogers, Y. (1994), "Exploring Obstacles: Integrating CSCW in Evolving Organizations", *CSCW'94*. Chapel Hill, NC, New York: ACM, pp. 67-77
- Rogers, E. (1995), "Diffusion of innovations" (4th Edition), New York: Free Press
- Rossman, G. and Wilson, B. (1991), "Numbers and words revisited: being 'shamelessly eclectic'", *Evaluation Review*, Vol. 9, No. 5, pp. 627-643
- Rothwell, W. and Kazanas, H. (1989), *Strategic Human Resource Development*, Prentice-Hall, Englewood Cliffs, NJ
- Royce, D. (1995), "Research methods in social work", 2<sup>nd</sup> Ed., Chicago, Nelson Hall, Inc



## References

---

- Saanen, Y., Sol, H. and Verbraeck, A. (1999), "Snapshots of e-commerce's opportunities and threats", *Electronic Markets*, Vol. 9, No. 3, pp. 181-9
- Sauer, C. (1999) Deciding the future for IS failures: not the choice you might think, *Rethinking Management Information Systems*, R. Galliers and W.L. Currie, Oxford University Press, Oxford, UK, pp. 279-309
- Saunders, M., Lewis, P. and Thornhill, A. (1997), *Research Methods for Business Students*, London: Pitman Publishing
- Savas, E. (1982), "Privatizing the public sector: How to shrink government", Chatham, NJ: Chatham House Publishers
- Scavo, C., and Shi, Y. (1999), "World Wide Web Site Design and Use in Public Management", *Information Technology and Computer Applications in Public Administration: Issues and Trends*, David, G., Hershey, G. (Ed.), PA: Idea Group Publishing, pp. 246-66
- Schaefer, R. J. (1995), "National information infrastructure policy: a theoretical and normative approach", *Internet Research: Electronic Networking Applications and Policy*, Vol. 5, No. 2, pp. 4-13
- Schein, E. (1988), *Defining Organisational Culture*, Jossey-Bass, London
- Schein, E. (1992), "Organizational Culture and Leadership", 2nd Edition, Jossey-Bass, San Francisco
- Schermerhorn, J. (1989), *Management for Productivity*, John Wiley & Sons, New York, NY
- Scholtes, P. (1995), "Do reward and recognition systems work?", *Quality Magazine*, December, pp. 27-9
- Scott, R. (1995), "Institutions and Organizations", Thousand Oaks, CA: Sage Publications
- Seifert, J. W. (2004), "The transformative potential e-government in transitional democracies", Congressional Research Service
- Seneviratne, S. J. (1999), "Information Technology and Organizational Change in the Public Sector", *Information Technology and Computer Applications in Public Administration: Issues and Trends*, David G., Hershey, G. (Ed.), PA: Idea Group Publishing, pp. 41-61
- Senge, P. and Roberts, C. (1994), *The Fifth Discipline Fieldbook*, Nicholas Brealey Publishing, London

## References

---

- Sharifi, H. and Zarei, B. (2004), "An adaptive approach for implementing e-government in I.R. Iran", *Journal of Government Information*, Vol. 30, No. 5-6, pp. 600-619
- Shepherd, I. (2001), "Providing Learning Support for Blind and Visually Impaired Students Undertaking Fieldwork and Related Activities", University of Gloucestershire, retrieved from: <http://www.glos.ac.uk/gdn/disabil/>
- Sherif, M. (2001), "A Framework for Standardization in Telecommunications and Information Technology", *Communication Magazine*, Vol. 39, No. 4, pp. 94-100
- Sherry, L. (2003), "Sustainability of innovations", *Journal of Interactive Learning Research*, Vol. 13, pp. 209-236
- Silverman, D. (1998), "Qualitative research: meanings or practices?", *Information Systems Journal*, Vol. 8, pp. 3-20
- Smith, E. (1996), "A study of the penetration of competency-based training in Australia", *Research in Post-Compulsory Education*, Vol. 1, No. 2, pp. 169-186
- Smith, A., (2003), "Opinion: Citizen Relationship Management", retrieved from: <http://www.crm-forum.com>
- Socitm (2002), "Local e-government now: a worldwide view. Joint publication of the Improvement and Development Society (IDea) and the Society of Information Technology Management (Socitm)", London, UK
- Stake, R. (1995), "The Art of Case Study Research", San Francisco, Sage Publications
- Stamoulis, D. and Georgiadis, P. (2000), "Vision, Roles and Steps for Governments in Transition to the Digital Age", *Proceeding in the 11<sup>th</sup> international workshop on 4-8 September*, Vol. 143, No. 1, pp. 41-50
- Stanton, D. (2006), "New Saudi e-government service could be world-beater", retrieved from <http://www.itp.net/news/>
- Storey, A. and Teare, R. (1991), "Formulating a strategy for growth in a regional contract catering company", *International Journal of Contemporary Hospitality Management*, Vol. 3, No. 3, pp. 1-3
- Sumner, M. (1999), "Critical success factors in enterprise wide information management systems projects", *Proceedings of the Americas Conference on Information Systems (AMCIS)*, pp. 232-4
- Suomi, R. (2002), "Building the Internet - lessons from Railways", in *the 6th International Scientific Conference WWDU 2002 World Wide Work*, Bertelsgaden, Germany



## References

---

- Symonds, M. (2000), "A survey of government and the internet", *The Economist*, Vol. 355, No.8176, pp.53-55
- Synder, N. and Graves, M. (1994), "Leadership and vision", *Business Horizons*, January-February 1994
- Taket, A. and White, L (1997), "Working with heterogeneity: a pluralist strategy for evaluation", *Systems Research and Behavioural Science*, Vol. 14, No. 2 pp. 101-111
- Tambouris (2001), "European cities platform for online transaction services: The euro city Project", *In the Proceedings of the European Conference on E-Government*
- Tambouris, E., Gorilas, S., Boukis, G. (2001), "Investigation of Electronic Government, *Panhellenic Informatics Conference*, Workshop Tracks on eGovernment, Cyprus. UK Online (2002), <http://www.ukonline.gov.uk>
- Tapscott, D. (1996), *The Digital Economy*, New York: McGraw Hill.
- Tapscott, D. (1997), "The Digital Economy", Sao Paulo: Makron Books
- Tarn, K. (1998), "The impact of information technology investments on firm performance and evaluation: Evidence from newly industrialized economies", *Information Systems Research*, Vol. 9, No. 1, pp. 85-98
- Teare, R., Adams, D., Storey, A. and Boersma, T. (1992), "Creating business synergy: a new passenger services strategy for P and O European Ferries", in Teare, R., Adams, D. and Messenger, S. (Eds.), *Managing Projects in Hospitality Organizations*, Cassell, London, pp. 5-32
- Then, D. (1996), "A study of organizational response to the management of operational property assets and facilities support services as a business resource – real estate asset management", Heriot-Watt University, Edinburgh
- Tollmar, K., Sandor, O. and Schomer, A. (1996) "Supporting Social Awareness @Work Design and Experience", *Proceeding of the 1996 ACM conference on Computer Supported Cooperative Work*, pp. 298-307, United State, Boston
- Tornatzky, L. and Klein, K. (1982), "Innovation Characteristics and Innovation Adoption-Implementation: A Meta-Analysis of Findings", *IEEE Transactions on Engineering Management*, Vol. 29, No. 1, pp. 28-45
- Turban, E., McLean, E., and Wetherbe, J. (1996), "Information Technology for Management", New York, John Wiley and Sons, Inc
- Ulrich, D. and Lake, D. (1990), "Organizational Capability", Wiley, New York, NY
- United Nations (2003), "UN Global E-Government Survey 2003", retrieved from: <http://www.unpan.org/egovernment3.asp>



## References

---

- United Nations (2004), "Global E-government Readiness Report 2004: Toward Access for Opportunity", Department of Economic and Social Affairs, retrieved from: [unpan1.un.org/intradoc/groups/public/documents/un/unpan019207.pdf](http://unpan1.un.org/intradoc/groups/public/documents/un/unpan019207.pdf)
- United Nations (2005), "Global E-government Readiness Report 2005, retrieved from: <http://www.unpan.org/egovernment5.asp>
- UNPA and ASPA (2001), Benchmarking e-Government: A Global Perspective, <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan003984.pdf>
- United Nations - ASPA (2002), "Benchmarking e-government: A global perspective: Assessing the progress of the UN member states", New York: United Nations American Society for Public Administration
- Van Manen, M. (1977), "Linking ways of knowing with ways of being practical", *Curriculum Inquiry*, Vol. 6, No. 3, pp. 205-228
- Van Wingen, R., Hathorn, F., and Sprehe, J. (1999), "Principles for information technology investment in US Federal Electronic Records Management", *Journal of Government Information*, Vol. 26, No. 1, pp. 33-42
- Vidgen, R., Avison, D., Wood, B., and Wood-Haper, T. (2002), "Developing Web Information Systems: from Strategy to Implementation", Avison, D. and Fitzgerald, G. (Ed.), Elsevier Science, ISBN 0-7506-57634
- Wagner, C., Cheung, K., Lee, F., Ip, R. (2003), "Enhancing E-government in Developing Countries: Managing Knowledge through Virtual Communities", *The Electronic Journal on Information Systems in Developing Countries (EJISDC)*, Vol. 14, No. 4, pp. 1-20
- Wakid, S. and Radack, S. (1997), "Measurement-Based Standards for future Information Technology Systems", *StandardView*, Vol. 5, No. 1, pp. 36-40
- Waldman, D.A. (1994), "Designing performance management systems for total quality implementation", *Journal of Organizational Change Management*, Vol. 7, No. 2, pp. 31-44
- Walsham, G. (1995), "Interpretive case studies in IS research: nature and method", *European Journal of Information Systems*, Vol. 4, pp. 74-81
- Walsham, G. (2001), "Making a World of Difference IT in a Global Context", Wiley, England
- Walter, H., Abler, B., Ciaramidaro, A. and Erk, S. (2005), "Motivating forces of human actions: Neuroimaging reward and social interaction", *Brain Research Bulletin*
- Wang, Y. (2002), "The adoption of electronic tax filing systems: an empirical study", *Government Information Quarterly*, Vol. 20, pp. 33-352



## References

---

- Wanga, J., Caob, J., Leckiea, J. and Zhang, S. (2004), "Managing E-Government IT Infrastructure: An Approach Combining Autonomic Computing and Awareness Based Collaboration", *Fourth International Conference on Computer and Information Technology*
- Wangler, B., Persson, A. and Soderstrom, E. (2001), "Conceptual Modeling for B2B Integration", *International Conference on Advances in Infrastructure for Electronic Business, Science and Education on the Internet (SSGRR 2001)*, L'Aquila, Italy
- Ward, J., and Griffiths, P. (1996), *Strategic Planning for Information Systems*, Wiley Series in Information Systems, Chichester, UK: John Wiley and Sons
- Warkentin, M., Gefen, D., Pavlou, P. and Rose, G. (2002), "Encouraging Citizen Adoption of e-Government by Building Trust", *Electronic Markets*, Vol. 12, No. 3, pp. 157-162
- Wassenaar, A. (2000), "E-Governmental Value Chain Models - E-government from a business (modelling) perspective", *DEXA conference, Workshop on Electronic Government*, IEEE Press, pp. 289-293, Greenwich, England
- Wasserman, S., and Faust, K. (1994), "Social Network Analysis: Methods and Applications", UK: Cambridge University Press.
- Wastell, D., Kawalek, P. and Willetts, M. (2000), "SPRINT: A Business Process Reengineering (BPR) Framework for Implementing the Information Society", *Proceeding in the 11<sup>th</sup> international workshop on 4-8 September*, pp.396-400
- Watts, D. (2001), "Managing Legal Risks Online: A Guide for Victorian Government Web Sites", *Multimedia Victoria*, State Government of Victoria, Australia
- Webster, M. (1994), "Strategic Hospitality Management: The Case of Swallow Hotels", Leeds Metropolitan University
- Wee, S. (2000), "Juggling toward ERP success: keep key success factors high", ERP News, February, retrieved from: <http://www.erpnews.com/erpnews/erp904/02get.html>
- West, D. (2001a), "An Assessment of City Government Websites", Brown University Urban E-Government
- West, D. (2001b), "E-Government and the Transformation of Public Service Delivery", *Paper presented at the American Political Science Association Annual Meeting*, San Francisco
- West, D. (2002), "Global E-government Report: 2002", retrieved from: [www.insidepolitics.org/egovt02int.PDF](http://www.insidepolitics.org/egovt02int.PDF)
- West, D. (2004), "E-Government and the transformation of service delivery and citizen attitudes", *Public Administration Review*, Vol. 64, No. 1, pp. 15-27



## References

---

- Wheelwright, S. and Hayes, R. (1984), *Restoring our Competitive Edge*, Collier Macmillan, Basingstoke
- Whitson, T. and Davis, L. (2001), "Best practices in electronic government: Comprehensive electronic information dissemination for science and technology", *Government Information Quarterly*, Vol. 18, pp. 79-91
- Willcocks, L. and Lester, S. (1994), "Information Systems Investments: Evaluations at the Feasibility stage of project", *Technovation*, Vol. 11, No. 5
- Wills, M. (1994), "Managing the Training Process: Putting the Basics into Practice", *Journal of European Industrial Training*, Vol. 18, No. 6, pp. 4-28
- Wilson, E. (1997), "Introduction: The What, Why, Where and How of National Information Initiatives", in Kahin, B. and Wilson, E. J. (Eds.), *National Information Infrastructure Initiatives: Vision and Policy Design*, MIT Press, Cambridge, MA
- Wimmer, M. (2002), "Integrated service modelling for online one-stop government", *Electronic Markets*, Vol. 12, No. 3, pp. 149-56
- Wimmer, M. and Bredow, B. (2001), "E-Government: Aspects of Security on Different Layers", *IEEE*, pp. 350-355
- Wimmer, M. and Bredow, B. (2002), "A Holistic Approach for Providing Security Solutions in e-Government", the *35th Hawaii International Conference on System Sciences*, pp. 9-18
- Wimmer, M., Traunmüller, R., Lenk, K. (2001), "Electronic Business Invading the Public Sector: Considerations on Change and Design", In *Proceedings of the 34th Annual Hawaii International Conference on System Sciences (HICSS-34)*. IEEE, pp. 39-45
- Winter, S (1999), "New Directions for Implementation Research, Policy Currents", Vol. 8, No. 4, pp. 1-5
- Wood-Harper, T., Ibrahim, O. and Ithnin, N. (2004), "An Interconnected Success Factor Approach for Service Functional in Malaysian Electronic Government", *Sixth International Conference on Electronic Commerce*, ACM
- Xavier, M. (2002), "CRM-Concepts, Tools and Applications", *South Asian Journal of Management*, Vol. 9, No. 2, pp. 23-31
- Yin, R. (1984) *Case Study Research: Designs and Methods*, Thousand Oaks, California, Sage
- Yin, R. (1994), "Case Study Research: Design and Methods", 2nd (ed.), Sage Publications, Thousand Oaks, CA



## References

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- Yin, R. (2003), "Case study research: Design and methods (3 ed.), Thousand Oaks, Calif, Sage
- Younis, T. (1990), "Implementation in Public Policy", Dartmouth, Aldershot
- Zairi, M. (1994), "Leadership in TQM Implementation: Some Case Examples", *the TQM Magazine*, MCB University Press, Vol. 6, No. 6, pp. 9-16
- Zairi, M. (1999), "Managing excellence: policy and strategy", *The TQM Magazine*, Vol. 11, No. 2, pp. 74-79
- Zand, D. (1997), "The leadership triad", *Soundview Executive Book Summaries*, Vol. 19 No. 6, pp. 1-8
- Zhou, X. (2004), "E-Government in China: a content analysis of national and provincial web sites". *Journal of Computer Mediated Communication*, Vol. 9, No. 4, Retrieved from: <http://www.ascusc.org/jcmc/vol9/issue4/zhou.html>.
- Zmud, R. and Mitchell, V. (1999), "The effects of coupling IT and work process strategies in redesign projects", *Organization Science*, Vol. 10, No. 4, pp. 424-438
- Zweers K and Planque', K. (2001), "Electronic Government, From the Organizational Based Perspective Towards the Client Oriented Approach", In: *Designing E-Government*, Prins J.E.J. (Ed.), Kluwer Law international, pp. 92

Dear Participant,

Thank you for participating in this study. This survey forms part of my PhD study with the following title:

**Model for E-Government Implementation: An Empirical Study of Critical  
Factors in the Saudi Public Sectors**

The topic of e-government is gaining increasing attention all over the world. However, understanding how to implement e-government successfully still remains challenging in the current time. The concept of e-government is referred to

*“The transformation of public sector internal and external relationships through net-enabled operations, IT and communications, in order to improve government services delivery, constituency participation, and internal government operations”*

The University of Brunel in the United Kingdom, where I am carrying out a PhD study are currently exploring the factors that lead to achieving the adoption of e-government. The study itself explores the conceptualisation and understanding of the e-government implementation. The main aim of the study in which we are now inviting you to take part is to explore this area in order to propose a model for e-government implementation. The purpose of this survey is to evaluate the content validity of the critical factors that have been derived in this study. The questionnaire, which you may fill it either in Arabic or English, should not take more than 20 minutes of your time to complete.

We would like to assure you that all data and information provided will be regarded as strictly confidential. No organisation or individual will be named in any ensuing publication. Furthermore, if you would like to receive a copy of the findings of this research please fill in the tear-off slip on the last page of the questionnaire.

If there is any inquiry or questions you might have, please do not hesitate to contact us through the email: [taltameem@yahoo.com](mailto:taltameem@yahoo.com)

Your co-operation is appreciated

Yours sincerely,

Prof. Mohamed Zairi  
Research Supervisor

Dr. Sarmad Alshawi  
Research Supervisor

Mr. Torki Altameem  
Research Associate



Please take a few minutes to answer carefully the questions on the following pages by choosing the appropriate answer and/or filling in the blanks.

Part One – Background about your organisation	
1) What best describes the size of your organisation in terms of number of employees? a) Less than 100 b) Between 101-500 c) Between 501-1000 d) Between 1001-2000 e) Between 2001-5000 f) More than 5000	2) Which of the following represents your role in the organisation? a) Senior management b) Chief Information Officer (CIO) c) IT Manager d) Functional department manager e) Technical staff f) Administrative Staff g) Other .....
3) How often do you see yourself involved in decision making? a) Always b) Sometimes c) Rarely d) None e) Other .....	4) Who is in charge of setting up e-government implementation Strategy? a) CIO b) IT Manager c) External consultants d) Other .....
5) Who is responsible for implementing e-government in your organisation? a) IT department b) Administration department c) Committee from different departments d) Other.....	

**Part Two – E-Government Related to Critical Factors**

Please read each statement carefully and circle the degree of your response (agree or disagree) that best expresses your view in term of your experience of e-government in your organisation using the following scale:

- 1 = Strong Disagree      2 = Disagree      3 = Neutral  
 4 = Agree      5 = Strong Agree      NA = Not Applicable

**Section I – Governing Factors**

Statements	Strong Disagree	Disagree	Neutral	Agree	Strong Agree	Not Applicable
<b>A – Vision</b>						
1-Our organisation has a clear, comprehensive vision to implement e-government	1	2	3	4	5	NA
2-Our organisation vision effectively encourages employee’s commitment to e-government implementation	1	2	3	4	5	NA
3-Our organisational vision is well understood among employees in term of e-government	1	2	3	4	5	NA



Statements (continue)	Strong Disagree	Disagree	Neutral	Agree	Strong Agree	Not Applicable
<b>B – Strategies (How do you see your organisation)</b>						
4-Our organisation has clear goals and objectives for 2 to 5 years plans	1	2	3	4	5	NA
5-Our organisation defined formal methods and processes for establishing e-government strategies	1	2	3	4	5	NA
6-Our organisation is ready for e-government in social and technical terms	1	2	3	4	5	NA
<b>C - Top Management Support</b>						
7-Top management encourages and participates in e-government implementation	1	2	3	4	5	NA
8-There is direct interaction between the top management and others	1	2	3	4	5	NA
9-Top management commits and shares long term policies with the others	1	2	3	4	5	NA
<b>D – Leadership</b>						
10-The leadership is committed to e-government implementation	1	2	3	4	5	NA
11-E-government is a priority for the leadership	1	2	3	4	5	NA
12-The leadership is active to mobilize human resources for e-government	1	2	3	4	5	NA
<b>E- Citizen-Centric</b>						
13-The organisation is implementing e-government as “customer-centric”	1	2	3	4	5	NA
14-Our organisation measures citizen satisfaction regularly	1	2	3	4	5	NA
15-There is a link between the organisation and citizens such as email for collecting suggestion	1	2	3	4	5	NA
<b>F – Funding</b>						
16-Our organisation suffers from lack of funds in term of e-government projects	1	2	3	4	5	NA
17-Our organisation considers e-government as long-term investment	1	2	3	4	5	NA
18-Our organisation is monitoring e-government projects to avoid overrun exceeding the original fund	1	2	3	4	5	NA
<b>Section II – Technical Factors</b>						
<b>A - IT Infrastructure (in your organisation)</b>						
19-IT infrastructure is ready for the e-government initiatives	1	2	3	4	5	NA
20-IT infrastructure accommodate integration with e-government requirement	1	2	3	4	5	NA
21-The IT infrastructure is continuously improved	1	2	3	4	5	NA



<b>Statements (continue)</b>	Strong Disagree	Disagree	Neutral	Agree	Strong Agree	Not Applicable
<b>B – IT Standards</b>						
22-Our organisation have identified IT standards to evaluate all requests for IT purchases and modifications	1	2	3	4	5	NA
23-The defined IT standards are adopted and practiced	1	2	3	4	5	NA
24-IT standards are reviewed regularly	1	2	3	4	5	NA
<b>C - National Information Infrastructure</b>						
25-Monthly subscription to the internet is affordable	1	2	3	4	5	NA
26-Network coverage is continuously improved	1	2	3	4	5	NA
27-Network is monitored to avoid internet crash	1	2	3	4	5	NA
<b>D – Collaboration</b>						
28-Our organisation collaborates with other organisations using Information and Communication Technologies (ICT)	1	2	3	4	5	NA
29-Our organisation integrates their functions and departments to improve communication and share information via ICT	1	2	3	4	5	NA
30-Our organisation regularly coordinates with its collaborators	1	2	3	4	5	NA
<b>E – Security (with respect to your organisation)</b>						
31-Our organisation treats security of information and transactions as crucial requirement	1	2	3	4	5	NA
32-There are set protocols such as Public Key Infrastructure (PKI) and electronic signature	1	2	3	4	5	NA
33-Online security and transactions are regularly monitored	1	2	3	4	5	NA
<b>F – Relative Advantage</b>						
34-I am aware of e-government advantages	1	2	3	4	5	NA
35-Our organisation is believing in e-government as better to existing state	1	2	3	4	5	NA
36-Our organisation promotes e-government advantages for gaining high performance in the implementation	1	2	3	4	5	NA
<b>G - Citizen Relationship Management (CzRM)</b>						
37-There are clear procedures to get citizens feedback	1	2	3	4	5	NA
38-Our organisation has effective citizen relationship practices	1	2	3	4	5	NA
39-Our organisation continuously improves citizen relationship management practices	1	2	3	4	5	NA



Statements (continue)	Strong Disagree	Disagree	Neutral	Agree	Strong Agree	Not Applicable
<b>Section III – Organisational Factors</b>						
<b>A - Reward System</b>						
40-There are clear reward systems in the organisation	1	2	3	4	5	NA
41- Incentives are in place at all levels to motivate employees	1	2	3	4	5	NA
42-All employees are aware of the existences of the reward system	1	2	3	4	5	NA
<b>B – Technical Staff</b>						
43-Our organisation technical staff are sufficient in term of e-government implementation	1	2	3	4	5	NA
44-The technical staff have the required experience in term of e-government implementation	1	2	3	4	5	NA
45-There is full-time technical staff for e-government implementation	1	2	3	4	5	NA
<b>C – Policy and Legal Issues</b>						
46-The legislation for e-government is in place	1	2	3	4	5	NA
47-Legislative issues are resolved and changed	1	2	3	4	5	NA
48-There is identical policy and legislation for all agencies related	1	2	3	4	5	NA
<b>D – Training</b>						
49-Our organisation provides regular training sessions	1	2	3	4	5	NA
50-The resources for education and training have been put in place	1	2	3	4	5	NA
51-Education and learning are encouraged and supported	1	2	3	4	5	NA
<b>E – Change Management</b>						
52-Structural changes being introduced prior to e-government implementation	1	2	3	4	5	NA
53-Changes Management is in place	1	2	3	4	5	NA
54-The need of change management is being introduced by top management	1	2	3	4	5	NA
<b>F - Implementation</b>						
55-Our organisation uses formal method in implementing e-government	1	2	3	4	5	NA
56-The e-government implementation are regularly monitored and reviewed	1	2	3	4	5	NA
57-Our implementation in term of e-government matches with actual plans and goals	1	2	3	4	5	NA



<b>Statements (continue)</b>	Strong Disagree	Disagree	Neutral	Agree	Strong Agree	Not Applicable
<b>G – Organisation Structure</b>						
58-Our organisation take into account the status of committee and project team activities regarding e-government	1	2	3	4	5	NA
59-There is a clear understanding on responsibilities and authorities within the organisation regarding e-government	1	2	3	4	5	NA
60-Our organisation is aware of departments coordination regarding e-government	1	2	3	4	5	NA
<b>H - Business Process Re-Engineering (BPR)</b>						
61-Our organisation implements BPR within departments and functions processes	1	2	3	4	5	NA
62-The organisation has a well-defined framework and guidelines for BPR implementation	1	2	3	4	5	NA
63-Monitoring after e-government implementation is in place	1	2	3	4	5	NA
<b>I – Awareness</b>						
64-There are regular seminars and conferences relative e-government	1	2	3	4	5	NA
65-Resources are available for conferences and workshops	1	2	3	4	5	NA
66-The e-government awareness policies are regularly used	1	2	3	4	5	NA
<b>J – Organisation Culture</b>						
67-Our organisation has a sharing culture that enables high performance and productivity	1	2	3	4	5	NA
68-Our organisation is aware of organisation culture as an important measurement to determine the capability to implement e-government	1	2	3	4	5	NA
69-Our organisation culture is an innovation culture	1	2	3	4	5	NA
<b>K – Quality</b>						
70-The organisation considers the quality of the service essential	1	2	3	4	5	NA
71-The procedures for quality evaluation are in place	1	2	3	4	5	NA
72-Quality measurements are conducted annually	1	2	3	4	5	NA

**Part Three - E-Government Benefits**

Following from the previous section, please read the statements carefully and check the responses that the best reflect your views:

1 = Strong Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strong Agree

NA = Not Applicable



Statements	Strong Disagree	Disagree	Neutral	Agree	Strong Agree	Not Applicable
<b>E-Government is likely to provide the followings:</b>						
1. Delivers electronic and integrated public services from single point of access (One Stop portal)	1	2	3	4	5	NA
2. Available 24 hours a day, 7 days a week	1	2	3	4	5	NA
3. Speeds up decision making and service delivery	1	2	3	4	5	NA
4. Saves cost and capture revenue	1	2	3	4	5	NA
5. Provides government with efficient and effective decision making	1	2	3	4	5	NA
6. Improves quality of service delivery to citizens, and businesses and government agencies	1	2	3	4	5	NA
7. Re-builds government-citizen relationship	1	2	3	4	5	NA
8. Enables government to move businesses online	1	2	3	4	5	NA
9. Fosters economic development	1	2	3	4	5	NA
10. Enables innovative approaches to governance	1	2	3	4	5	NA
11. Source of information dissemination between the government and citizens	1	2	3	4	5	NA
12. Provide information and advice online to public	1	2	3	4	5	NA
13. Enhances operational efficiencies at departmental and organisational level	1	2	3	4	5	NA
14. Provides a range of information online to the public	1	2	3	4	5	NA
15. Increases speed and time of public services delivery	1	2	3	4	5	NA

#### Part Four – E-Government Barriers

Please identify the extent to which you have encountered the following barriers, by rating each on a scale from 1 to 5 or NA where

1= Not Problem

2 = Insignificant Problem

3 = Minor Problem

4 = Major Problem

5 = Extreme Problem

NA = Not Applicable

#### E-Government Obstacles/barriers

1. Insufficient IT infrastructure to deploy e-government effectively	1	2	3	4	5	NA
2. Lack of computer literate citizens	1	2	3	4	5	NA
3. Data protection and privacy issues	1	2	3	4	5	NA



Statements	Not Problem	Insignificant Problem	Minor Problem	Major Problem	Extreme Problem	Not Applicable
4. Lack of funding to deploy e-government	1	2	3	4	5	NA
5. Cost of security and attaining public trust	1	2	3	4	5	NA
6. Public polices and legal issues in application of the ICT	1	2	3	4	5	NA
7. Resistance to technology adoption	1	2	3	4	5	NA
8. Lack of technical human resources	1	2	3	4	5	NA
9. Lack of communication infrastructure and integration among organisations	1	2	3	4	5	NA

**In relation to the e-government project that have been undertaken within your organisation, with which you familiar, how successful is this project in your view?**

<b>Very unsuccessful</b>	←—————→			<b>Very successful</b>
1	2	3	4	5

**Your own experiences and comments on the topic of e-government**

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**Thank you for your cooperation**



**If you like to receive a copy of the findings of this research, please complete the information below, and return it with the questionnaire.**

**Name :** .....

**Organisation :** .....

**Phone No. :** .....

**E-mail :** .....

**Address :** .....

.....

.....

.....



عزيزي المشارك

نشكرك على المشاركة في هذه الدراسة. يمثل هذا المسح جزء من رسالتي لنيل درجة الدكتوراه تحت عنوان:

نموذج لتطبيق الحكومة الإلكترونية – دراسة تجريبية للعوامل الأساسية في القطاعات العامة بالمملكة العربية السعودية

يكتسب موضوع الحكومة الإلكترونية أهمية متزايدة على نطاق العالم، ولكن تفهم كيفية تنفيذ الحكومة الإلكترونية بنجاح لا يزال يمثل تحدياً كبيراً في الوقت الحالي. مفهوم الحكومة الإلكترونية يشير إلى

"انتقال وتحول العلاقات الداخلية والخارجية للقطاع العام خلال العمليات القائمة على الشبكة وخلال عمليات تقنيات المعلومات والاتصالات من أجل تحسين عمليات تقديم الخدمات الحكومية ومشاركة الوحدات والعمليات الحكومية الداخلية".

جامعة برونييل بالمملكة المتحدة التي أقوم فيها بالتحضير لنيل درجة الدكتوراه تقوم حالياً باستكشاف العوامل التي تقود إلى تحقيق عملية تبني الحكومة الإلكترونية. الدراسة نفسها تستكشف التصور والفهم الخاص بتنفيذ الحكومة الإلكترونية. الهدف الأساسي من الدراسة التي أدعوكم للمشاركة فيها الآن يتمثل في استكشاف هذا المجال من أجل تقديم نموذج لتنفيذ الحكومة الإلكترونية. الغرض من هذا المسح هو تقييم صحة محتوى العوامل الأساسية التي تم استقائها في هذه الدراسة. الاستبيان الذي يمكنكم تعبئته بالعربية أو الإنجليزية لن لا يستغرق أكثر من 20 دقيقة من وقتكم.

نود أن نؤكد لكم بأننا سنحافظ على سرية جميع البيانات والمعلومات المقدمة، ولن يتم ذكر اسم أي مؤسسة أو شخص في أي منشورات صادرة. بالإضافة إلى ذلك إذا كنتم ترغبون في الحصول على نسخة من نتائج هذا البحث يرجى تعبئة العنوان بالصفحة الأخيرة من الاستبيان.

إذا كانت لديكم أي استفسارات أو أسئلة يرجى عدم التردد في الاتصال بنا خلال البريد الإلكتروني:

[taltameem@yahoo.com](mailto:taltameem@yahoo.com)

نقدر تعاونكم

المخلص

أ. د. محمد زائيري  
المشرف على البحث

د. سارمد الشاوي  
المشرف على البحث

تركي التميم  
باحث دكتوراه



يرجى التمعن لدقائق قليلة للإجابة بعناية على الأسئلة التي ترد في الصفحات التالية عن طريق اختيار الإجابة الصحيحة و/ أو ملئ المساحات الفارغة:

الجزء الأول - خلفية حول منطمتك	
(1) ما هو أفضل وصف لمنشأتك من حيث عدد العاملين؟ أ) أقل من 100 ب) بين 101-500 ج) بين 501-1000 د) بين 1001-2000 هـ) بين 2001-5000 و) أكثر من 5000	(2) ما الذي يمثل دورك في المنشأة مما يلي: أ) إدارة عليا ب) مسئول معلومات أول ج) مدير تقنية معلومات د) مدير قسم وظيفي هـ) تابع للجهاز الفني و) تابع للجهاز الإداري ز) أخرى .....
(3) إلى أي مدى ترى نفسك مشاركاً في صنع القرار؟ أ) دائماً ب) أحياناً ج) نادراً د) لا يحدث إطلاقاً هـ) أخرى .....	(4) من هو المسئول عن وضع استراتيجيات لتنفيذ الحكومة الإلكترونية؟ أ) مسئول المعلومات الأول ب) مدير تقنية المعلومات ج) الاستشارات الخارجية د) أخرى .....
(5) من المسئول عن تنفيذ حكومة إلكترونية في منشأتك؟ أ) قسم تقنية المعلومات ب) قسم الإداري ج) لجنة من إدارات مختلفة د) أخرى .....	

### الجزء الثاني - العوامل الأساسية لتطبيق الحكومة الإلكترونية

يرجى قراءة العبارات بعناية ووضع دائرة حول درجة استجابتك (الموافقة أو مخالف) التي تعبر بشكل أفضل عن رأيك فيما يتعلق بتجربة الحكومة الإلكترونية في منشأتك مستخدماً المقياس التالي:

- 1- أخالف بشدة  
2- أخالف  
3- محايد  
4- أوافق  
5- أوافق بشدة  
6- لا ينطبق

#### القسم 1- العوامل المهيمنة

العبرة	أخالف	أخالف	محايد	أوافق	أوافق بشدة	لا ينطبق
أ- الرؤية						
1- منشأتنا لديها رؤية واضحة وشاملة نحو تنفيذ الحكومة الإلكترونية	1	2	3	4	5	لا ينطبق
2- منشأتنا تشجع بفعالية التزام العاملين تجاه تنفيذ الحكومة الإلكترونية	1	2	3	4	5	لا ينطبق
3- رؤية منطمتنا مفهومة بشكل جيد بين العاملين فيما يتعلق بالحديث عن الحكومة الإلكترونية	1	2	3	4	5	لا ينطبق
ب- الاستراتيجيات ( كيف ترى منشأتك)						
4- منشأتنا لديها أهداف واضحة لخطط تمتد من 2 إلى 5 سنوات	1	2	3	4	5	لا ينطبق



لا ينطبق	بشدة أو أقل	أوافق	محايد	أخالف	بشدة أو أقل	العبارة
لا ينطبق	5	4	3	2	1	5- منشأتنا حددت أساليب وعمليات رسمية لتأسيس استراتيجيات الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	6- منشأتنا مستعدة للحكومة الإلكترونية من النواحي الاجتماعية والتقنية
<b>ج - دعم الإدارة العليا</b>						
لا ينطبق	5	4	3	2	1	7- الإدارة العليا تشجع تنفيذ الحكومة الإلكترونية وتشارك فيها
لا ينطبق	5	4	3	2	1	8- هنالك تفاعل مباشر بين الإدارة العليا والآخرين
لا ينطبق	5	4	3	2	1	9- تنفذ الإدارة العليا سياسات طويلة المدى وتشارك فيها مع الآخرين
<b>د- القيادة</b>						
لا ينطبق	5	4	3	2	1	10- القيادة ملتزمة بتطبيق الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	11- الحكومة الإلكترونية تمثل أولوية للقيادة
لا ينطبق	5	4	3	2	1	12- القيادة تعتبر نشطة في تجنيد الموارد البشرية للمساهمة نحو الحكومة الإلكترونية
<b>هـ - التركيز على المواطن</b>						
لا ينطبق	5	4	3	2	1	13- المنشأة تقوم بتنفيذ الحكومة الإلكترونية كـ "تركيز على العميل"
لا ينطبق	5	4	3	2	1	14- منشأتنا تقوم بقياس مدى رضا المواطن بشكل دوري ومنتظم
لا ينطبق	5	4	3	2	1	15- هنالك وسائل ربط بين المنظمة والمواطنين مثل البريد الإلكتروني بغرض جمع الاقتراحات
<b>و- التمويل</b>						
لا ينطبق	5	4	3	2	1	16- منشأتنا تعاني من نقص التمويل تجاه مشروعات الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	17- منشأتنا تنظر إلى الحكومة الإلكترونية باعتبارها استثمار طويل الأجل
لا ينطبق	5	4	3	2	1	18- تقوم منشأتنا بمراقبة و برصد مشاريع الحكومة الإلكترونية لتجنب أن تتجاوز مصروفات التشغيل التمويل الأصلي
<b>القسم 2 - العوامل التقنية</b>						
<b>أ- البنية التحتية لتقنية المعلومات</b>						
لا ينطبق	5	4	3	2	1	19- البنية التحتية لتقنية المعلومات جاهزة لمبادرات الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	20- البنية التحتية لتقنية المعلومات تستوعب التكامل مع متطلبات الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	21- البنية التحتية لتقنية المعلومات يتم تطويرها باستمرار



لا ينطبق	أوافق بشدة	أوافق	محايد	أخالف	أخالف بشدة	العبارة
<b>ب- معايير تقنية المعلومات</b>						
لا ينطبق	5	4	3	2	1	22- قامت منشأتنا بتحديد معايير تقنية معلومات لتقييم جميع الطلبات لمشتريات تقنية المعلومات وتعديلاتها
لا ينطبق	5	4	3	2	1	23- معايير تقنية المعلومات المعرفة يتم تبنيها وممارستها
لا ينطبق	5	4	3	2	1	24- تتم مراجعة معايير تقنية المعلومات بشكل منتظم
<b>ج - البنية التحتية للمعلومات القومية</b>						
لا ينطبق	5	4	3	2	1	25- الاشتراك الشهري في الإنترنت معقول وممكن توفيره
لا ينطبق	5	4	3	2	1	26- تغطية الشبكة يتم تطويرها بشكل مستمر
لا ينطبق	5	4	3	2	1	27- هنالك مراقبة للشركة لتجنب تحطم الإنترنت
<b>د- التعاون (مع المنشآت الأخرى)</b>						
لا ينطبق	5	4	3	2	1	28- منشأتنا تتعاون مع المنظمات الأخرى التي تستخدم تقنيات المعلومات والاتصال
لا ينطبق	5	4	3	2	1	29- تتبنى منظمتنا سياسة التكامل بين مهامها وإداراتها لتطوير الاتصال والمشاركة في المعلومات خلال تقنية المعلومات والاتصالات
لا ينطبق	5	4	3	2	1	30- منشأتنا تنسق بصورة منتظمة مع المنظمات المتعاونة معها
<b>هـ - الأمن ( فيما يتعلق بمنشأتك)</b>						
لا ينطبق	5	4	3	2	1	31- منشأتنا تتعامل مع أمن المعلومات والمعاملات باعتباره مطلب أساسي
لا ينطبق	5	4	3	2	1	32- هنالك مراسيم مثل البنية التحتية للمفاتيح العامة (PKI) و التوقيع الإلكتروني.
لا ينطبق	5	4	3	2	1	33- تتم مراقبة منتظمة بالنسبة للأمن والمعاملات على الشبكة
<b>و- المزايا النسبية</b>						
لا ينطبق	5	4	3	2	1	34- أنا مدرك لمزايا الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	35- منشأتنا تؤمن بالحكومة الإلكترونية باعتبارها أفضل وضع قائم
لا ينطبق	5	4	3	2	1	36- تقوم منشأتنا بالترويج لمزايا الحكومة الإلكترونية للحصول على مستوى أداء رفيع من حيث التنفيذ.
<b>ز - إدارة علاقة المواطنين</b>						
لا ينطبق	5	4	3	2	1	37- هنالك إجراءات واضحة للحصول على ردود فعل المواطنين
لا ينطبق	5	4	3	2	1	38- منشأتنا لديها ممارسات فعالة بالنسبة لعلاقات المواطنين



لا ينطبق	أوافق بشدة	أوافق	محايد	أخالف	أخالف بشدة	العبارة
لا ينطبق	5	4	3	2	1	39- تقوم منشأتنا بصفة دائمة بتطوير ممارسات إدارة علاقة جيدة مع المواطن
<b>القسم 3- العوامل التنظيمية</b>						
<b>أ- نظام المكافأة</b>						
لا ينطبق	5	4	3	2	1	40- هنالك أنظمة مكافأة واضحة في المنشأة
لا ينطبق	5	4	3	2	1	41- يتم تطبيق المكافأة على كل مستويات المنشأة لتحفيز العاملين
لا ينطبق	5	4	3	2	1	42- جميع العاملين مدركون لوجود نظام مكافأة
<b>ب- عاملو التقنية</b>						
لا ينطبق	5	4	3	2	1	43- عدد العاملين بالتقنية يعتبر كافي بالنسبة لتنفيذ الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	44- عاملو التقنية لديهم الخبرة المطلوبة من حيث تنفيذ الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	45- هنالك فريق عامل متفرغ لتنفيذ الحكومة الإلكترونية
<b>ج- الخطة والموضوعات القانونية</b>						
لا ينطبق	5	4	3	2	1	46- التشريعات بالنسبة للحكومة الإلكترونية حددت ووضعت
لا ينطبق	5	4	3	2	1	47- يتم تحديث التشريعات وتغييرها
لا ينطبق	5	4	3	2	1	48- هنالك خطة وتشريعات مشابهة بالنسبة لجميع الجهات ذات الصلة
<b>د- التدريب</b>						
لا ينطبق	5	4	3	2	1	49- توفر منشأتنا حلقات تدريب منتظمة
لا ينطبق	5	4	3	2	1	50- المصادر الخاصة بالتعليم والتدريب موضوعة في مكانها الصحيح
لا ينطبق	5	4	3	2	1	51- هنالك دعم للتعليم والتعلم
<b>هـ- إدارة التغيير</b>						
لا ينطبق	5	4	3	2	1	52- يتم إدخال التغييرات الهيكلية قبل تنفيذ الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	53- التغييرات الإدارية في منشأتنا في مكانها الصحيح
لا ينطبق	5	4	3	2	1	54- الحاجة لإدارة التغيير يتم تقديمها بواسطة الإدارة العليا
<b>و- التنفيذ</b>						
لا ينطبق	5	4	3	2	1	55- تستخدم منشأتنا طريقة رسمية لتنفيذ الحكومة الإلكترونية



لا ينطبق	بشدة أوافق	أوافق	محايد	أخاف	بشدة أخاف	العبارة
لا ينطبق	5	4	3	2	1	56- تنفيذ الحكومة الإلكترونية يتم رصده ومراجعته بانتظام
لا ينطبق	5	4	3	2	1	57- تنفيذنا الخاص بالحكومة الإلكترونية يتماشى مع الخطط الواقعية
<b>ز- هيكل التنظيم</b>						
لا ينطبق	5	4	3	2	1	58- منشأتنا تضع في الاعتبار وضع اللجنة وأنشطة فريق المشروع بخصوص الحكومة الإلكترونية.
لا ينطبق	5	4	3	2	1	59- هنالك فهم واضح حول المسؤوليات والصلاحيات داخل المنظمة بخصوص الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	60- منشأتنا تدرك التنسيق بين الإدارات فيما يتعلق بالحكومة الإلكترونية
<b>ح- إعادة تشكيل العملية التجارية</b>						
لا ينطبق	5	4	3	2	1	61- تقوم منشأتنا بتنفيذ تشكيل العملية التجارية داخل الإدارات وعمليات الوظائف
لا ينطبق	5	4	3	2	1	62- المنشأة لديها إطار محدد وموجهات بالنسبة لتنفيذ العملية التجارية.
لا ينطبق	5	4	3	2	1	63- يتم توفير مراقبة العمليات بعد تنفيذ الحكومة الإلكترونية
<b>ط- الوعي</b>						
لا ينطبق	5	4	3	2	1	64- هنالك منتديات ومؤتمرات منتظمة
لا ينطبق	5	4	3	2	1	65- هنالك مصادر متاحة للمؤتمرات وورش العمل
لا ينطبق	5	4	3	2	1	66- خطط وعي الحكومة الإلكترونية مستخدمة بشكل منتظم
<b>ي- ثقافة المنشأة</b>						
لا ينطبق	5	4	3	2	1	67- منشأتنا لديها ثقافة تعاونية تمكن من القيام بأداء رفيع وإنتاجية عالية
لا ينطبق	5	4	3	2	1	68- منشأتنا على وعي بثقافة المنظمة باعتبارها قياس مهم لتحديد القدرة لتنفيذ الحكومة الإلكترونية
لا ينطبق	5	4	3	2	1	69- ثقافة منظمنا تمثل ثقافة ابتكاريه
<b>ك- الجودة</b>						
لا ينطبق	5	4	3	2	1	70- المنشأة تراعي جودة الخدمة
لا ينطبق	5	4	3	2	1	71- تم إعداد الإجراءات الخاصة بتقييم الجودة
لا ينطبق	5	4	3	2	1	72- قياسات الجودة يتم تنفيذها بشكل دوري



## الجزء الثالث - فوائد الحكومة الإلكترونية

يرجى قراءة الأحكام بعناية ومراجعة الاستجابات التي تعكس وجهات نظرك بشكل أفضل كما فعلت في الجدول السابق  
 1= أخالف بشدة  
 2= أخالف  
 3- محايد  
 لا ينطبق  
 4= أوافق  
 5- أوافق بشدة

من المرجح للحكومة الإلكترونية أن توفر الآتي:

العبارة	بشدة أخالف	أخالف	محايد	أوافق	بشدة أوافق	لا ينطبق
1- تقديم الخدمات الإلكترونية والمتكاملة العامة من نقطة واحدة (التوقف في نقطة واحدة)	1	2	3	4	5	لا ينطبق
2- أن تكون متواجدة لمدة 24 ساعة يومياً، لمدة 7 أيام في الأسبوع	1	2	3	4	5	لا ينطبق
3- سوف تزيد من سرعة صنع القرار وتسليم الخدمة.	1	2	3	4	5	لا ينطبق
4- توفر التكلفة وتساعد على الحصول على الدخل	1	2	3	4	5	لا ينطبق
5- تزود الحكومة بعملية صنع قرار بفاعلة ودقة	1	2	3	4	5	لا ينطبق
6- تطور نوعية تقديم الخدمة للمواطنين والجهات التجارية والحكومية	1	2	3	4	5	لا ينطبق
7- تقوم بإعادة بناء العلاقة بين الحكومة والمواطن	1	2	3	4	5	لا ينطبق
8- تمكين الحكومة من تحريك العمل على الشبكة	1	2	3	4	5	لا ينطبق
9- تغذي التنمية الاقتصادية	1	2	3	4	5	لا ينطبق
10- إعطاء الفرصة للطرق الابتكارية في الحكم	1	2	3	4	5	لا ينطبق
11- مصدر نشر المعلومات بين الحكومة والمواطنين	1	2	3	4	5	لا ينطبق
12- سوف توفر المعلومات والمشورة على الشبكة للجمهور	1	2	3	4	5	لا ينطبق
13- سوف يعزز من الفعاليات التشغيلية على مستوى الإدارة والمنشأة	1	2	3	4	5	لا ينطبق
14- سوف يوفر مجموعة من المعلومات على الشبكة للجمهور	1	2	3	4	5	لا ينطبق
15- يزيد من السرعة ووقت تقديم الخدمات العامة	1	2	3	4	5	لا ينطبق

## الجزء 4 عوائق الحكومة الإلكترونية

يرجى تحديد إلى أي مدى واجهت العقبات التالية عن طريق وضع كل واحدة منها على المقياس من 1 إلى 5 أو على خانة " لا ينطبق".

1- لا توجد مشكلة  
 2- مشكلة غير واضحة  
 3- مشكلة بسيطة  
 4- مشكلة رئيسية  
 5- مشكلة متفاقمة  
 6- لا ينطبق







إذا كنت ترغب في الحصول على نسخة من نتائج هذا البحث يرجى تعبئة المعلومات الموضحة أدناه وإعادتها مع الاستبيان.

الاسم: .....

المنشأة: .....

رقم الهاتف: .....

عنوان البريد الإلكتروني: .....

العنوان: .....

.....

.....

.....

**Interview Questions:**

- What is your role with the government?
- Who is primary responsible for leading the implementation of e-government?
- When did your department start implementing e-government concept?
- What kind of services does your ministry or department's provides through e-government in Saudi Arabia? And is these services are available online?
- Does your organisation cooperate with other organisation(s) in term of e-government implementation? If yes how is it performed?
- On your opinion, what are the critical factors for e-government adoption in Saudi Arabia?
- What aspects in your program do you think would be replicable for other agencies in Saudi Arabia government?
- What are the benefits from implementing e-government in your organisation?
- What are the obstacles your organisation faces while implementing e-government program?
- What are the recommendations or suggestions you would give to the other agencies attempting to implement e-government initiatives?



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