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E-Government Provision in Egypt: from Citizen Perception to Business Readiness

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Abstract

The aim of the research program is firstly to aid better understanding of the public perception of the Egyptian government's web portal and, through this understanding, secondly to clarify the relationship between the ease of doing business and the usage of e-government services in Egypt. The lack of similar research conducted in Middle Eastern countries in general and in Egypt in particular is a good reason to conduct this research. Previous Egyptian studies have focused on the context of local channels for e-government provision.

A questionnaire survey measures on five scales the perception of a small, purposive sample of educated Egyptian citizens to the e-government portal. The outcomes from this questionnaire include demographic statistics and use of technology. The survey finds the respondents mostly satisfied with the e-government portal, which may encourage Egypt to apply more e-government solutions in order to accomplish different business processes.

A correlation analysis illustrates the relationship between the UN E-Government Readiness Report and the World Bank Ease of Doing Business report. The correlation tests the statistical relationship between the rankings of countries in the two reports. The report analysis examines more deeply the indicators and indexes to identify a basis for the correlation between e-government services and business procedures.

A limited case study focuses on two business processes in Egypt. By exploring the full cycle of these processes the findings identify the social and economic context of Egypt plus the importance of using e-government solutions.

The findings indicate that Egypt's e-government program should be enhanced to make business processes easier. The overall perception of educated Egyptian citizens is that the e-government portal is satisfactory. The link between e-government services, business readiness and citizen perceptions is demonstrated in the thesis. Future investment in this is only held back by the rate of illiteracy in Egypt and the perceived corruption of government employees.

This research concludes with a number of recommendations to the Egyptian government for the future development of e-government services to make doing business easier. Future research should focus on involving citizens more closely in e-government through Citizen Relationship Management (CiRM) and investigating Egypt's knowledge economy in business development.

Acknowledgment

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I would like to acknowledge the contribution of Wael El-Desouki in helping me to develop the research questionnaire and Dr Mohamed Abd El-Salam in assisting me during the analysis phase. Many thanks go to Mohamed Hesham, Mohamed Talaat and Ahmad Sameer for their support during the questionnaire preparation.

I would like to dedicate this thesis to my family. They have been so patient with me over the research years.

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Abbreviations

AAST	Arab Academy for Science and Technology
ADSL	Asymmetric Digital Subscriber Line
ARENTO	Arab Republic of Egypt National Telecommunication Organization
ARPU	Average Revenue Per User
BDD	Business Development Department
CAPMAS	Central Agency for Public Mobilization and Statistics
CIIC	Commercial International Investment Company
CiRM	Citizen Relation Management
CRM	Customer Relationship Management
EDV	Electronic Distance Voting
EEI	Egyptian Education Initiative
ENPO	Egyptian National Postal Organization
ENSTINET	Egyptian National Scientific and Technical Information Network
EMV	Electronic Machine Voting
EOI	Egyptian Olympics informatics
FDI	Foreign Direct Investment
G2B	Government to Business
G2C	Government to Consumer
GAFI	General Authority for Investment and Free Zones
GIS	Geographical Information Systems
HTML	Hypertext Markup Language
ICT	Information and Communications Technology
IDSC	Cabinet Information & Decision Support Center
IOI	International Olympiad in Informatics
IRS	Internal Revenue Service

ISP	Internet Service Provider
ITID	Information Technology Industry Development Agency
ITU	International Telecommunication Union
LAN	Local Area Network
LE	Egyptian pound
MCIT	Ministry of Communications and Information Technology
MOU	Minutes of Usage per User per month
NPM	New Public Management
NTIA	American National Telecommunications and Information Administration
SDLT	Stamp Duty Land Tax
SECC	Software Engineering Certification Center
SMS	Short Message Service
TDF	Technology Development Fund
TCP/IP	Transfer Control Protocol/Internet Protocol
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Education, Scientific and Cultural Organization
WWW	World Wide Web

Chapter One: Introduction

Although best known for its pyramids and ancient civilisations, Egypt has played a central role in Middle East politics in modern times. Especially its eventual peace with its adversary in 1979, has seen Egypt move from being a warring nation to become a key representative in the peace process. Egypt, as one of the largest countries in the Arab world, has many large cities such as Cairo, Alexandria, Behera, Dakahlia and Giza. Egypt has performed very well in the e-government United Nations Report (UNPAN, 2005), advancing 37 points in the global ranking of e-government readiness from 136th in 2004 to 99th in 2005. However, it is essential to provide Egyptian citizens with enhanced public services. Evolving ICT capabilities besides applying e-government applications would improve the level of Egyptian public service.

At the beginning of the 1980s economic research placed much emphasis on the role of advanced technologies, and in particular of the information and communications technologies, in processes of economic growth and restructuring (Gillespie et al., 1989). The concept of the "Information Economy" came to the fore, a notion underlining the strategic role played in economic development by information as a strategic resource and, consequently, by telecommunications technologies as strategic vehicles for acquiring information.

Any national development process requires a modern ICT infrastructure to support its businesses. Today, that means a large installed base of fiber networks, mobile telecoms infrastructure, universal broadband access or cable networks, and a ready supply of support businesses across the whole ICT sector that can set up and maintain all aspects of ICT provision. Without a good ICT infrastructure a city simply cannot compete in the modern world (Brady et al, 2002). People will avoid setting up their companies if ICT infrastructural and service provision is inadequate. The ICT community is also a significant part of the modern business population of any city as well as support for other sectors. Other areas such as good public transport, roads, refuse collection, energy and other public services must be high quality too, and many of these will use ICT to improve their efficiency too. Use of ICT by the Egyptian public sector would maintain business opportunities and keep Egypt competing in the Arab world particularly in investment field.

It is increasingly being seen as the answer to a plethora of problems that governments or public agencies in general face in serving their constituencies effectively. "This is especially so in developing countries, where generally the public agencies face resource constraints in improving their operations and delivering services to the citizens. In such cases, e-government has been touted as a means to save costs while at the same time improving quality, response times, and access to services" (Rajendra, 2006). In that situation government must gain the advantages of technology. However, these advantages of technology will not appear unless government changes its way of serving people. From this point of view Egypt must evolve ICT solutions to its public sector services.

The most apparent proof of changes in the public sector because of modern information and communication technologies are electronic services like general online information procurement or various inquiry possibilities which are made available to citizens by administration authorities and political institutions (Oberer, 2002). Therefore the public sector provides a variety of services to citizens. The delivery of information for these services over electronic means such as the Internet forms an important component of e-government strategy. However, providing information is not enough; it is imperative that this delivery satisfies customers of government services. Electronic government (or e-government throughout this thesis) encompasses multiple forms of electronically aided information and transactions (Elmargamid and Mclver, 2001; Fountain, 2003).

The lack of international research that discussed ICT and e-government applications in the Middle East in general and in Egypt in particular has made this research important. In addition, this research has reviewed the e-government concept from two different sides; the perception of the Egyptian citizen and the process of doing business in Egypt.

1.1) Research aim

The aim of this research is to add to an understanding of e-government processes in North Africa's most populous and most thriving enterprise culture. It will also be informed by the provision of such services in similar developing countries, where ICT infrastructure and digital literacy is concentrated in the cities, but less well organized in the largely rural populations. In addition, it will explore the relationship between the ease of doing business and the usage of e-government services in Egypt.

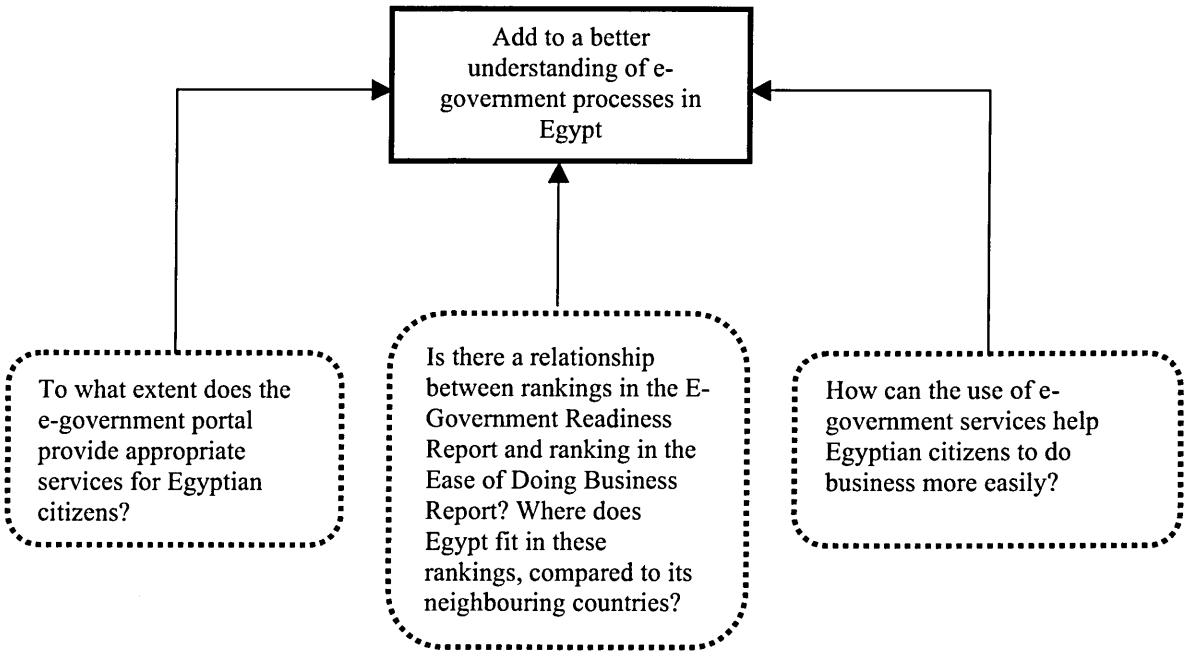
1.2) Research questions

This aim will be achieved through the following questions:

- To what extent does the Egyptian e-government portal provide appropriate services for its citizens?
- Is there a relationship between rankings in the E-Government Readiness Report (2005) published by United Nations and ranking in the Ease of Doing Business Report (2007) published by the World Bank? Where does Egypt fit in these rankings, compared to its neighbouring countries?
- How can the use of e-government services help Egyptian citizens to do business more easily?

Figure 1.1 shows the research aim and related research questions.

Figure 1.1) Research aim and research questions



1.3) Thesis outline

Figure 1.2 (see next page) will demonstrate the content and flow of the thesis. Then, a brief description of each of the chapters will follow.

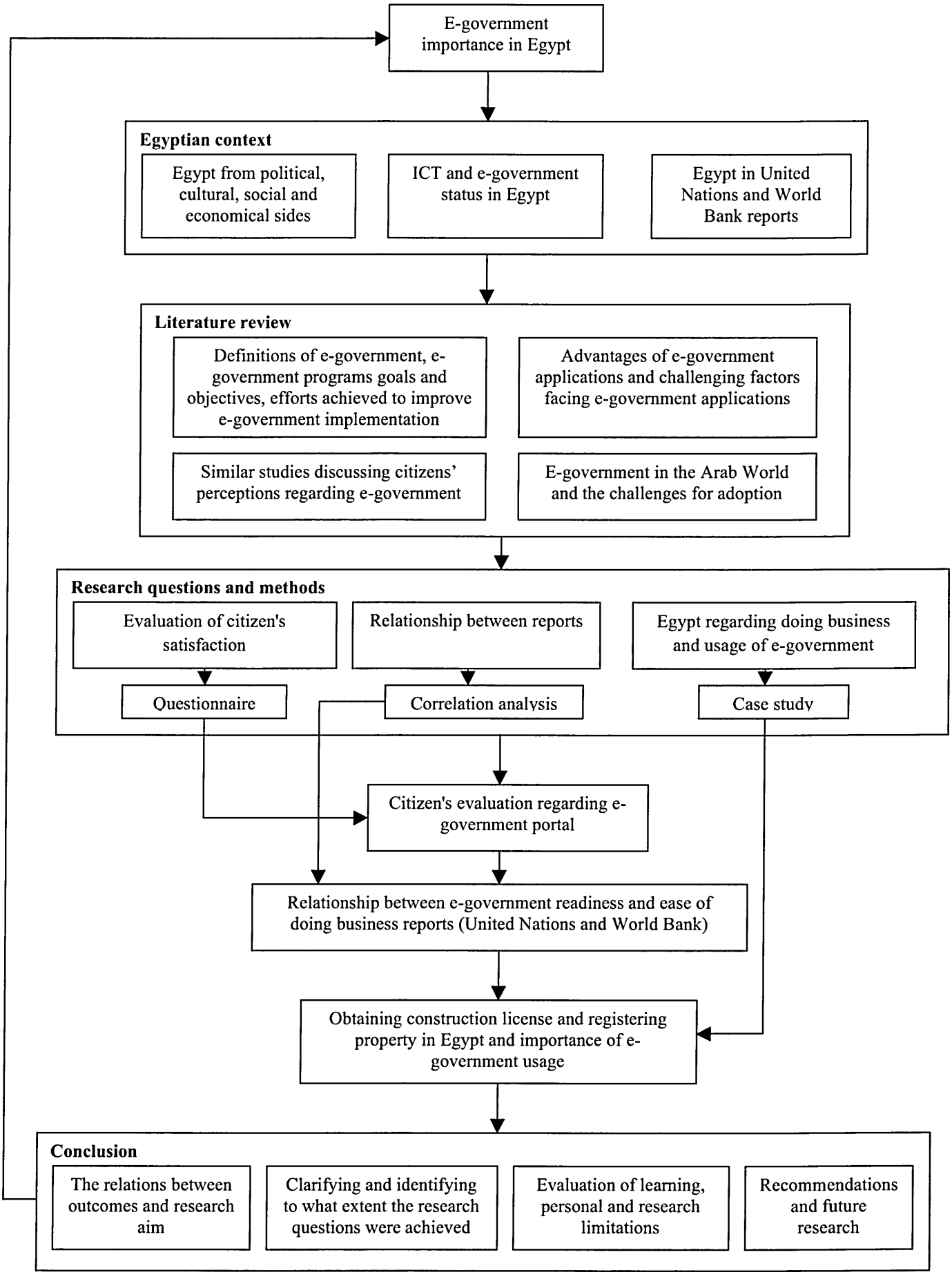
Chapter 2 provides a picture of the Egyptian context that includes political, economical, social, cultural and population factors that might play a large part in the receptiveness of citizens to e-government applications. This includes definitions of the main concepts of literacy, aliteracy and illiteracy. Chapter 3 focuses on Information and Communication Technologies (ICT) in general terms then on their application in Egypt, and particularly Egypt's e-government status. Chapter 4 presents a detailed investigation of the Egyptian performance as recorded by the E-Government Readiness Report (UNPAN, 2005) and the Ease of Doing Business Report (World Bank, 2007). This applies a comparative critique to investigate the Egyptian position compared to its neighbouring countries.

Chapter 5 will discusses the literature of e-government applications in general and definitions of e-government. It illustrates the importance of e-government in the Arab World and the challenges for e-government adoption, discussing similar studies of citizens' perceptions regarding e-government portals.

Chapter 6 describes the research questions, the best ways to answer the questions, methods chosen and reasons for using those methods. It includes a detailed description of the questionnaire, the correlation analysis and the case study. Chapter 7 provides an analysis of the questionnaire results. Chapter 8 explores the relationship between the rankings in the E-Government Readiness report (UNPAN, 2005) and the Ease of Doing Business report (World Bank, 2007) by using a correlation analysis and a reports analysis. Chapter 9 illustrates the link between doing business in Egypt and the provision of e-government services by means of a case study. In this chapter, the full cycle to obtain a license and to register a property in Egypt is demonstrated and the findings are related to the social and economic account of the Egyptian context.

Finally, chapter 10 is the conclusion, which presents the relations between outcomes and research aim. In addition, it clarifies and identifies the extent to which the research questions been achieved. Moreover, an evaluation of learning, personal and research limitations will be listed. At the end of this chapter recommendations and future research will be identified.

Figure 1.2) Thesis outline



1.4) Research contribution

The contribution of the research will focus on two main issues

- A questionnaire analysis will contribute to the knowledge regarding the use of the e-government portal in Egypt. This contribution will be achieved through the adaptation of Electronic Government Satisfaction Model (Horan and Abhichandani 2006), which tried to measure various constructs regarding citizens' perceptions regarding the e-government portal. Since using e-government applications is still a new behaviour in Egypt, the intended population will be people who are using the e-government portal. Therefore, the sample will not represent the whole of Egyptian society but it uses a small purposive sample.
- The research focuses on the effect of e-government initiatives to place Egypt in a better rank in the Ease of Doing Business Report (World Bank, 2007). The essential contribution here will be the study of relationship between the UN report (UNPAN, 2005) for e-government readiness and the ease of doing business report published by the World Bank. The proposed analysis for this relationship identifies what might be a tentative correlation between the rankings used in the two reports.

Chapter Two: Egyptian Context

This chapter provides a picture of the Egyptian context that includes political, economical, social, cultural and population factors that can play a large part in the receptiveness of citizens to e-government applications. Then follow tables and graphs that illustrate the composition of the Egyptian population. Finally, the main concepts of literacy, aliteracy and illiteracy are discussed, with the associated problems. This is the issue that could affect directly the usage of e-government in Egypt. The number of illiterate people – which might be as many as 40% of the population – may negatively affect the use of an e-government portal. This will be discussed again in chapter seven in the light of questionnaire results.

In addition, digital literacy must be mentioned. This is because of the integral use of technology while dealing with e-government services.

2.1) Profiles of modern Egypt

The country of Egypt has the second largest population on the African continent, over 80 million people. It can be divided into three main geographical regions: the Nile Valley, the Eastern Desert and the Western Desert. Figure 2.1 shows a map of the country.

2.1.1) Political profile

With its large population, history and culture, Egypt is a leader in the Arab world. The current government is headed by Prime Minister Ahmed Nazif, who was appointed by President Hosni Mubarak in 2004 with a brief to liberalise the nation's economy. Nazif has an IT and communications background. In 2005 Mubarak won his fifth term in office on a mandate of continued liberalisation. The government has been awarded notable praise in its efforts thus far, having been nominated by the World Bank in 2008 as the most improved economy in terms of the ease of doing business. On the other hand, this nomination is based on reforms far from evolving e-government applications (except for a few efforts).

Figure 2.1: Map of Egypt

This will be discussed later in chapters four and nine. A significant proportion of Egypt's population (as high as 20% by some estimates) survives on less than $2 a day, and continues to depend on the state to support basic needs such as bread and fuel. These financial supports not only place a considerable burden on the state budget, but they also encourage corruption and job abuse. E-government might be used to fight the corruption of government employees. In Egypt, applying for government services through the Internet might save money, time and effort. Further, using the e-government portal would reduce the abuse of citizens through the belief of government employees that a citizen should either pay for a service or wait.

2.1.2) Economic profile

Egypt receives $2bn per year in aid from the US, much of it a result of the Camp David Agreement with Israel. However, ties with Europe are gaining priority, and in the summer of 2001 an Association Agreement was signed with the EU for a EU-Mediterranean Free Zone to be established by 2010. This General Authority for Investments and Free Zones (2003) is a project in which Egypt obviously wants to play as large a part as possible.

In 1991 the Public Enterprise Office was established to help with the policy of privatization. The ban on the privatization of utilities has been lifted, but this has not stirred much interest. The government has even started to look into partnerships with private investors for Egypt Air. As for what is seen as the "strategic" sector, such as pharmaceuticals and flour mills, private ownership is limited to 40%. Petroleum and natural gas have also been important in recent years, accounting for 12% of GDP in 2007/2008. By 2005 Egypt was expected to be the world's sixth largest exporter of gas, once liquefied natural gas (LNG) plants started exporting to Europe and North America (Egyptian Mineral Resources Authority, 2003). There is also a large informal sector, which may account for as much as 30% of total economic activity.

Agriculture has been the mainstay of the Egyptian economy throughout its history. Unfortunately this sector has suffered in recent years. In 2003 agriculture's share of GDP was 16.4%, but by 2007/2008 it had fallen to 11%, according to the Ministry of Water Resources and Irrigation (2009). Only part of this can be attributed directly to growth in other sectors, as it is still crucial, employing about 28% of the labor force and accounting for approximately 20% of product exports. Cotton is the largest agricultural export, but land upon which cotton is being grown has been reduced, from 554,980 feddans (acres) in 2000 to 465,520 feddans in 2004 (Central Lab for Agricultural Expert Systems, 2005). Since 1994, when the government removed its subsidies on fertilizers, seeds and pesticides, agricultural output has increased.

The banking sector is controlled by the Central Bank of Egypt (CBE) and, since the sector is currently over-served, it is quite a restrictive market to get into. However, a banking law was introduced in 1994, that forces banks to hold to international banking norms. Also, the Cairo and Alexandria Stock Exchanges had a very good start to the 1990s, but appear to have run out of steam over the last decade. The decision to float the Egyptian pound (LE) in

2003 has also had a dramatic effect on the economy, with it falling some 40% in value, leading to higher costs for imported goods (Capital Market Authority, 2005). Staples such as bread were hit hard by this measure because Egypt imports much of its grain. In response, the government reintroduced a limited form of rationing in order to ensure the supply of basic foodstuffs to less advantaged members of the population.

In contrast, tourism has been quick to recover from the effects of September 11, 2001 and the US invasion of Iraq in 2003. Egypt's tourism industry had already been greatly damaged due to internal terrorist attacks in the nineties. International organizations committed $10.3bn in grants and loans in February 2002 to help cover the losses expected from 2002 to 2004. There was much speculation over whether or not the tourism industry could ever recover from the events of 2001 and 2003, but it seems that the industry is quickly making up lost ground, especially in the number of Arab tourists.

Last but not least, ICT has been growing in Egypt over the last twenty years. Many of the reasons will be illustrated in chapter three. The Egyptian government should invest more in its e-government program in light of the success of investments made in other ICT programs. The ranking of Egypt in the UN report shows the readiness of Egyptian society to embrace an e-government program. This will be discussed in chapter four.

2.1.3) Social profile

Computer penetration is much higher within the business community than the general population, suggesting greater potential for B2B than B2C sites. Large Egyptian companies have started using in-house websites to manage inventory (MCIT, 2007). However, sectors now covered by Egyptian B2C sites include stock market trading, real estate, food delivery, lifestyle products, Egyptian handicrafts, furniture and human resources industries.

One problem with dealing on the Internet is trust. Although Egyptian credit-card holders are gradually becoming used to using their credit cards on international sites such as Amazon.com, they are still wary of using their credit cards on domestic sites. Otlob.com, a portal that acts as an intermediary between customers and restaurants offering food delivery, gets around the problem by adding its service charge to the bill paid by the customer when food arrives. The customer pays this bill in cash to the restaurant. The food retailer then transfers this charge to Otlob. Yallabina.com, a site dedicated to entertainment,

began selling tickets online through credit cards in 2005, with some success. The target market for this kind of e-commerce is necessarily limited to that small segment of the population that has regular computer access and credit cards.

2.1.4) Culture profile

The main religion of the Egyptian people is Islam, with 94% of the population being Sunni Muslims. The other main religious grouping is that of Coptic Christians, who make up most of the remaining 6%. Islam plays a vital role in all aspects of society. It is a critical component of Egyptian life that influences day-to-day conduct and affects decisions made on personal, political, economic and legal levels. In Egypt, truth and problem solving are often governed by faith and the interpretation of Islamic law. However, it might be found that in a business context, empirical evidence is used more in an attempt to be objective. Islam as a religion might affect the use of the Internet in Egyptian society. For instance, gambling sites could not find a suitable environment because gambling is prohibited by Islam. However, the Islamic faith would not forbid the use of an e-government portal.

In addition, the family unit is central to Egyptian society. Family defines social status and can determine values and behavior. In Egypt, the individual is subordinate to the family or collective. Consequently, Egyptians observe a respectful attitude among relatives and demonstrate a sense of responsibility towards both the nuclear and the extended family at all times. The concept of fatalism is closely linked to Islam, as destiny is believed to be in the hands of God.

2.1.5) Population profile

In Egypt only 4% of the land is said to be cultivated and inhabited. Ninety-seven percent of the population lives in the Nile Valley, with up to one-third of the population living in either Cairo or Alexandria. In 2002 the UNDP calculated that 46.8% of the economic and social establishments are in the governorates of these two cities and that 23% of the labor force is in the same area (Ministry of State for Administrative Development, 2004). A citizen who lives in Dakahlia should have the same access to government services as one who lives in Cairo. From this point of view, efforts should be made for the development of

the use of e-government portals. Since almost half of the economic and social establishments are in Cairo and Alexandria, the government needs to offer these services in other governorates. An e-government portal may reach all over Egypt if the government has the will to do it. Moreover, most of the power is held by central, not local government, which has caused some criticism, as it is based in Lower Egypt, closer to the Nile Delta.

In addition, Egypt has a falling birth rate; in 1997 the rate was 2.33%, but it is estimated that it will be nearer 1.66% per year until 2015. Overall primary school enrolment is near 100%, though only 7.3% of the population emerges from the education system with a university degree (USAID, 2006).

The next part contains tables and graphs that illustrate the composition of the Egyptian population.

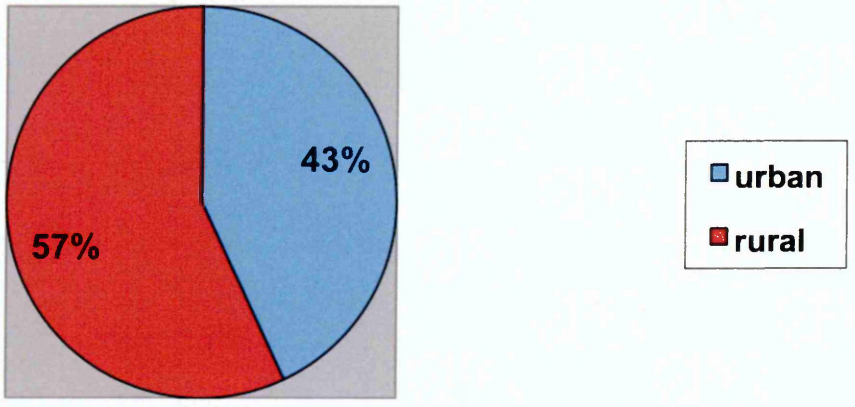
Figure 2.2: Population by governorates in 1/1/2006

Governorate	Population(000)	%
Cairo	6.759	9.28
Alexandria	4.124	5.66
Port-said	0.571	0.78
Suez	0.512	0.70
Damietta	1.097	1.51
Dakahlia	4.990	6.85
Sharkia	5.354	7.35
Kalyoubia	4.252	5.84
Kafr-el-sheikh	2.620	3.60
Gharbia	4.011	5.52
Menoufia	3.271	4.49
Behera	4.747	6.53
Ismaailia	0.953	1.31
Giza	3.143	4.32
Beni-suef	2.292	3.15
Fayoum	2.511	3.45
Menia	4.166	5.72
Asyout	3.445	4.73
Suhag	3.747	5.15

Qena	3.002	4.12
Aswan	1.187	1.63
Luxor	0.457	0.63
Red Sea	0.289	0.40
Elwadi Elgidid	0.187	0.26
Matrouh	0.323	0.44
North Sinai	0.344	0.47
South Sinai	0.150	0.21
Total	72.798	100%

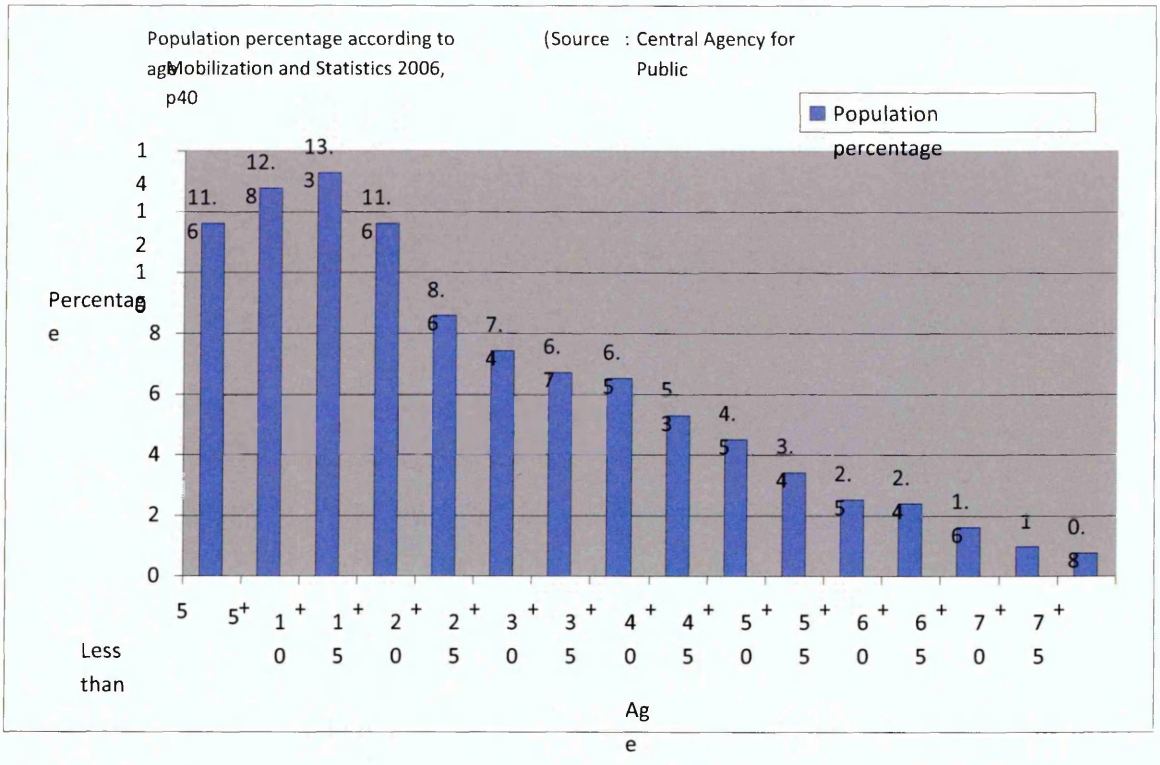
Source: Central Agency for Public Mobilization and Statistics, 2006

Figure 2.3: Urban/Rural population in 2006



Source: Central Agency for Public Mobilization and Statistics, 2006

Figure 2.4: Age of population (percentage)



Since this research is discussing e-government applications in Egypt, it is important to quantify e-literacy in Egypt. However, figures for this kind of literacy do not exist. There are, however, in section 3.5 some indicators showing Internet usage in Egypt and below are the figures for educational status.

Figure 2.5: Population distribution (10 years & over), by educational status and gender.

Educational status	Males	Females	Total
Illiterate	6,549,518	10,473,999	17,023,517
Read and write	3,932,148	2,938,932	6,871,080
Less than university certificates	828,095	626,070	1,454,165
University	3,165,673	2,205,791	5,371,464
Unknown educational status	24,277	21,668	45,945
Total	14,499,711	16,266,460	30,766,171

Source: Central Agency for Public Mobilization and Statistics, 2006

As expected, about 30% of the population is missing from the table above. This is because some people are distributed in isolated areas, such as Sinai, south Egypt and the Western Desert.

2.2) Literacy

It is clear that education is affecting the use of an e-government portal. This section, therefore, will discuss literacy and related concepts.

The National Literacy Trust (2006) suggests that all families should see reading as an important part of their daily lives and part of the culture of their home. Children, young people and adults enjoy reading for its own sake. They view reading as an essential source of information and pleasure.

Freire (2000) expanded upon the common definition of literacy, describing it as "an active phenomenon, deeply linked to personal and cultural identity. It s power not in a received ability to read and write, but rather in an individual's capacity to put those skills to work in shaping the course of his or her own life".

Breivik (1999) thought literacy cannot be taught by librarians or teachers, but must be learned by students through experiences shaped by librarians and faculty. Agee (2005) believed that the increasing demands for literacy over the last century and the seemingly endless generation of new knowledge make it obvious that the present reading sophistication of most students will need to be improved to meet tomorrow's workplace needs.

Agee (2003) listed the efforts of some organizations to achieve literacy development; he thought that many organizations across the globe are providing opportunities for readers. Illiteracy is not a new problem; some of these organizations have been active for decades. Not all literacy organizations are foundations or non-governmental organizations; some may be multi-national government groups or have single government support. Organizations may be national, state, regional, or even local in scope. Perhaps the organization with the most global influence is UNESCO. Agee (2005) pointed to the fact that workplace literacy in the next millennium will be synonymous with problem solving. It

will involve the integration of diverse literacy dimensions including reading, writing, listening, speaking, and information skills.

2.2.1) Information literacy

Behans (1997) explained that to be an informational literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information. Information literate people are those who have learned how to learn. They know how to learn because they know how knowledge is organized. Manual (2001) went further; she considered that students need information literacy skills to be successful in their academic coursework, in their professional careers, and in their personal lives. Some researchers (Beers, 1996; Dreher, 2000; Eyre, 2003; Mossberger et al., 2003; Murray, 2000) saw that many individuals are not acquiring adequate literacy skill sets to thrive in the information age.

Agee (2005) agreed that literacy traditionally includes skill in three areas: reading, writing, and arithmetic. Also, he found that approximately 90 percent of the illiterate people alive today live in the developing world, where the average level of adult literacy is around 40 percent. The level of illiteracy in these countries fell by almost 10 percent between 1970 and 1980, yet (because of population trends) the absolute number of illiterate people increased during that period by nearly seventy million. Easterbrook (2003) compared percentages rather than absolute numbers to show one important factor that contributed to a rise in literacy. He said that "global adult literacy was 47 percent in 1970 and 73 percent today. Global school enrollment for girls has skyrocketed".

2.2.2) Illiteracy and aliteracy

Illiteracy is a major problem faced by many countries. Developed countries are trying to put an end to this crisis, but most of the developing countries are just trying to reduce the number of illiterate citizens. Simply, illiteracy can refer to an individual's inability to read and write (Walker, 1995).

Illiteracy as a problem has many reasons, but the research will briefly mention two. The lack of access to books is the leading cause of illiteracy in children and this is a result of a

high percentage of low-income families having no books for children in their homes (School Library Journal, 2004). The second reason, called intergenerational illiteracy, is a socio-cultural phenomenon whereby illiterate parents inadvertently sponsor home conditions that may seriously hinder their children's reading and writing development (Cooter, 2006). This reason might take many forms, such as the unavailability of books or parents not being able to provide them.

Aliteracy is the choice not to practice literacy skills. This is gaining frequency in the USA. Gorman (2003) described the aliterate person's existence: "In their lives they read what they must but no more and write, if at all, using debased forms such as text messaging". Beers (1996) categorized aliteracy into three student behaviors:

- Dormant: students like to read but do not often make time to do it
- Uncommitted: students do not like to read but say they may read in the future
- Unmotivated: students do not like to read and do not ever expect to change their minds.

Burdick (1998) and Duchein and Mealey (1993) suggested some solutions to decrease the aliteracy problem. Burdick (1998) saw that the real challenge is to replace the negativity of aliteracy with something positive, or overcome the tendency to do what is convenient enough to stimulate the students to realize that learning can be fun, or at least be a coherent goal. She also believed in two solutions: including the involvement of students as an essential component of information literacy and continuing to integrate information skills and add free time for information exploration. Duchein and Mealey (1993) suggested that it is important to continue to inform parents, community role models and teachers about the benefits of reading aloud to students beyond the primary grades and throughout the curriculum.

2.2.3) Digital literacy

Much research in this area focused on definitions and requirements, however some focused on challenges and threats in order to achieve a good level of digital literacy.

Pianfetti (2001) described digital literacy as the electronic age demanding proficiency in utilizing and manipulating information in a nonlinear format. The individual must be able

to process information from different sources and formats so that he can draw his own conclusion and create his own knowledge path. Most studies of digital literacy skills focus on the information search strategies and habits of users and only a few stressed the cognitive and pedagogical aspects that are relevant to this skill (Martin and Anderson, 2000; Sullivan, 2000).

Several researchers considered digital literacy as a concept that is related to knowledge, skills, and attitudes, at various levels, in dealing with information in varied formats and diverse situations. Bawden and Robinson (2002) listed some terms or concepts that are similar to digital literacy such as computer literacy (or IT literacy, information technology literacy, electronic literacy or electronic information literacy); library literacy; media literacy (or 'mediacy'); network literacy (or Internet literacy or hyper-literacy). Labbo et al. (1998) offered five critical features that characterize digital literacy:

- produces the ability for lifelong learning
- often occurs in pursuit of other goals
- occurs in a social context
- requires strategic competencies
- requires critical knowledge of assembly and production

Nwagwu (2006) mention that the United Nations Development Program in 1999 observed that ICT exacerbates parallel worlds, in which the rich countries are using ICT to achieve rapid growth, whereas poor countries are not. Making the same point, the World Bank (2003) believed that the poor developing countries face an uphill task to develop and deploy large-scale ICT applications in education, research, administration and other areas of need.

Alkali (2004) and Lenham (1995) believed that digital literacy needs a large variety of skills, such as cognitive, motor, sociological, and emotional skills, in order for users to function effectively in a digital environment. Lenham (1995) assumed that the cognitive skills such as surfing the Web, deciphering user interfaces, working with databases, and chatting in chat rooms are apart from digital literacy capabilities, but he also pointed to the ability to operate digital devices properly. In the same way Alkali and Hamburger (2004) suggest that digital literacy comprises five major digital skills:

- photo-visual skills (reading instructions from graphical displays)
- reproduction skills (utilizing digital reproduction to create new, meaningful materials from preexisting ones)
- branching skills (constructing knowledge from non-linear, hyper textual navigation)
- information skills (evaluating the quality and validity of information)
- socio-emotional skills (understanding the rules that prevail in cyberspace and applying this understanding in online cyberspace communication)

Another line of research focused on people's computer skills (Dutton and Anderson, 1989; Shashaani, 1994). However, most of the existing literature is based on people's perception of their own computer skills, often referred to as self-efficacy (Bandura, 1977), instead of their actual abilities. This is identified through observations or survey items that measure users' actual knowledge of computer- and Internet-related terms and functions.

Stanley (2003) pointed to the capability of using computers (computer literacy) as one of the key factors in the digital divide. Computer literacy can be defined as the ability to utilize standard computer programs, and the know-how to both consume and produce knowledge via the Internet. In this American study it has been found that Caucasian and Asian households are much more likely to own computers than African-Americans or Hispanics, with the most significant gap existing between Caucasian and Hispanic households. In addition, approximately three-fourths of Caucasians owned computers while only half of African-Americans and one-third of Hispanics did. One-third of persons earning less than $20,000 annually said they did not own a computer because it was too difficult to use. Stanley (2003) pointed at the digital divide, through a benchmark study, where the NTIA defined the divide as "the concept that society should not be separated into information haves and information have-nots".

Other research identified the challenging factors that faced the growth of digital literacy. Burnett and McKinley (1998) and Zins (2000) believe that the modern hypermedia environments, such as the Internet, multimedia environments, and digital databases provide users with a high degree of freedom in navigating through knowledge domains, but at the same time, "confront them with problems that involve the need to utilize non-linear and branching information-seeking strategies and to construct knowledge from independent

shreds of information that were accessed in a non-orderly and non-linear way." (Eshet, 2004).

As the World Wide Web evolves, more and more information is available on the network to users. Search and classification services continue to develop and evolve to help users deal with the demands of the increasingly vast amounts of available information and to help users find material of interest to them. Although these services have certainly made online content more accessible to some, their mere existence does not guarantee, as Hargittai (2004) believed, that people will be able to navigate efficiently the literally billions of pages that make up the Web. Users differ with respect to their awareness of various search engines and the optimal ways to use them (Hargittai, 2002). He also felt that if some people are unable to find information online, while an increasing number of services relevant to daily life become easier to access on the Web (e.g., financial services, product information, government forms), then the segment of the population with low digital-literacy levels will become increasingly disadvantaged in our digital world (Hargittai, 2005).

Pianfetti (2001) focused on the improvement of teachers' digital literacy, believing that several features are crucial to the successful implementation and integration of technology in the classroom, particularly that teachers are digitally literate. These features include support, especially administrative support, time for teachers to learn new skills and to explore the ways in which those technology skills may be integrated in their curriculum, access to up-to-date resources, and the development of a community of teachers working with technology.

2.3 Summary

Egypt has a falling birth rate. In 1997 the rate was 2.33%, but it is estimated that it will be nearer 1.66% per year until 2015 (USAID, 2006). Overall primary school enrolment is near 100%, though only 7.3% of the population emerges from the education system with a university degree. This is a serious challenge to Egypt. The Egyptian government needs to increase the level of education in society. Even the quality of education must be better. Moreover, Egypt should consider the level of teachers in the national schools. The research would agree with Pianfetti (2001), who focused on the improvement of teachers' digital

literacy, believing that several features are crucial to the successful implementation and integration of technology in the classroom, particularly that teachers are digitally literate. A less educated society might be a difficult environment for e-government projects. Illiteracy is a major problem faced by many countries. Developed countries are trying to put an end to this crisis but most of the developing countries are just trying to reduce the number of illiterate citizens. In the field of education and fighting illiteracy, Agee (2003) listed the efforts of some organizations to achieve literacy development. He thought that many organizations across the globe are providing opportunities for readers. In Egypt, the efforts of the UNESCO are present through many projects.

The country of Egypt has the second largest population on the African continent, over 80 million people. With its large population, history and culture, Egypt is a leader in the Arab world. From a political view, the leadership believed in IT and communications support. This direction appeared in the nineties and continues with Nazif, who has an IT and communications background, bringing positive experience with him. The government has been awarded notable praise in its efforts, having been nominated by the World Bank in 2008 as the most improved economy in terms of ease of doing business.

On the other hand this nomination was based on reforms far from evolving e-government applications. The Egyptian government established the Ministry of Communication and Information Technology in October 1999 with the objective of fostering local competitiveness and converting Egypt into an information society. Moreover, it developed the e-government portal in cooperation with local partners. A similar agreement was signed with Oracle Corporation, indicating that both Microsoft and Oracle will make the necessary information infrastructure available for governmental entities.

However, there is still need for more trust. Egyptian credit-card holders are gradually becoming used to using their credit cards on international sites such as Amazon.com, but they are still wary of using them on domestic sites, such as the Egyptian portal. Another challenge facing e-government in Egypt is the adaptation of e-solutions, which is generally low in Egypt compared to developed countries. Older workers from different stages of education might find difficulties during the adaptation process. Low level employees are reluctant to learn about ICT. Ministers and top level government officers say that older men in their 50s and 60s refuse to learn new methods of doing things such as renewing car

licenses, especially if it involves paying money over the Internet. Moreover, Egypt is still suffering from the problem of illiteracy and this might negatively affect the e-government program.

Chapter Three: ICT & e-government in Egypt

This chapter focuses on Information and Communication Technology (ICT), first in general terms, then in Egypt itself. In addition, the e-government status in Egypt will be discussed. At the beginning the concept ICT will be demonstrated then successful applications such as killer applications for ICT will be listed. After that, challenges to ICT applications in developing countries will be shown. The research will focus on Egypt. ICT infrastructure in Egypt, historical background and ICT Industry will be illustrated. Then, efforts towards development of an information society in Egypt will be discussed. These discussions will focus on community, private investment, computer literacy and student research projects. Then, Internet history in Egypt will be shown. The next part of the current chapter will discuss e-government status in Egypt. Launching e-government in Egypt, plus the main obstacles facing the e-government project in Egypt, will be demonstrated, followed by e-government initiatives in Egypt. Finally, the role of e-government in promoting direct investments will be discussed.

3.1) Information and Communication Technology

At the beginning of the 1980s economic research placed much emphasis on the role of advanced technologies, and in particular of the information and communications technologies, in the processes of economic growth and restructuring (Gillespie et al., 1989). The concept of the "Information Economy" came to the fore, a notion underlining the strategic role played in economic development by information as a strategic resource and, consequently, by telecommunications technologies as strategic vehicles for acquiring information. Gillespie et al. (1989) believed that industrial and territorial competitiveness was seen at that time as highly dependent upon the adoption and use of ICT.

While the common use of ICT tends to refer to the newer technologies of phone and Internet, the term is best used to include the more traditional communication media such as radio and television. Batchelor and Scott (2005) see that digital convergence is gradually bringing devices to the market that includes the traditional media (phones with radio, media

centers with computing capability and television), which will increasingly blur the distinction between old and new ICT.

ICT is more than just computers or the Internet. Although there has been a tendency to focus on Internet technology, the study of technological effects on the economy and business should also be closely considered (Brady et al., 2002). Porter and Millar (1985) believe that ICTs must be conceived in a wide way to encompass the information that businesses create and use, as well as the broad spectrum of increasingly convergent and linked technologies that process that information. Therefore, ICT can be viewed as a collective term for a wide range of software, hardware, telecommunications and information management techniques, applications and devices. Traditionally, the literature suggests many different perspectives or aspects of ICT that must be considered (Brady et al., 2002).

In the next section the research will demonstrate some benefits of using ICT in many fields, such as in cities, for economic competitiveness, e-commerce and production activities.

3.1.1) Using ICT applications in large cities

Egypt as one of the largest counties in the Arab World has many large cities such as Cairo, Alexandria, Behera, Dakahlia and Giza. Any large city requires a modern ICT infrastructure to support its businesses. Today, that means a large installed base of fiber networks, mobile telecoms infrastructure, universal broadband access across PSTN or cable networks, and a ready supply of support businesses across the whole ICT sector that can set up and maintain all aspects of ICT provision. Without a good ICT infrastructure a city simply cannot compete in the modern world (Brady et al., 2002). People will avoid setting up their companies if ICT infrastructural and service provision is inadequate. The ICT community is also a significant part of the modern business population of any city as well as support for other sectors. Other areas such as good public transport, roads, refuse collection, energy and other public services must also be of high quality, and many of these will use ICT to improve their efficiency too.

Pearson (2006) identified short-term and mid-term developments of the world`s major cities. In the short term, cities must ensure that they have the highest quality ICT infrastructure, across as much of the city as is possible. Areas that do not have it will not

prosper. This means a good fiber infrastructure, full broadband availability, and total mobile network coverage should already be in place, and if not, this should be rectified. Next, councils should aim for extensive coverage of non-residential areas by public wireless LANs, starting with areas of highest visitor density. These should be made free to air as far as possible for non-commercial (public service, tourist information and social communication) uses, and commercial wireless LANs should also be encouraged. Old cities like Cairo and Athens have ancient roads and buildings. Therefore, wireless technology is preferable to fixed installations that may damage the historical infrastructure.

3.1.2) Using ICT in the work environment

The effects of ICTs on firms' competitiveness do not only regard process innovation. Camagni and Capello (2005) believe that the effect of ICTs also influence product innovation, by stimulating product differentiation, the development of new market niches, and by allowing directly the implementation of new technological products and services.

Nowadays, the widespread use of ICT is changing the way people and companies work (Roberts, 2000). In recent years, a large number of people have acquired direct access to computers or other types of digital technologies, primarily for individual task development. Yet now these computers are beginning to be connected to each other and, for the first time, there is an opportunity for a large number of people and companies to use computing and communications capabilities to help coordinate their work. Specialized products have been successfully developed and commercialized.

As internal strategic factors, ICTs provide notable opportunities to firms, since they can be considered not only as tools that facilitate the development of certain processes, but also, as elements that foster the generation, accumulation and diffusion of knowledge within the organization (Brady et. al, 2002). Since knowledge has become an essential productive and strategic factor, business activities have focused on the use of this intangible asset. This situation has yielded, as a first consequence, a modification and a redefinition of the traditional inputs: jobs and capital. The massive incorporation of knowledge as a productive resource has made it necessary to redefine traditional factors to include knowledge as basic input in the business activity (Brady et al., 2002).

CRM is a strategy that integrates the concepts of knowledge management, data mining and data warehousing. These support an organization's decision-making process to retain long-term and profitable relationships with its customer (Cunningham et al, 2004). Long-term relationships with customers are the most important assets in companies and can increase their competitive advantage and improve profitability (Lin and Chan, 2002). On the other hand e-CRM refers to the marketing activities, tools and techniques delivered via the Internet and includes email, www and other facilities (Raihan, 2005). This concept ties customer relationship management to e-business (Bing and Chen, 2002).

In general, the use of ICTs – in particular the Internet – offers significant opportunities for the development of strategies (Ahuja, 2000; Brady et al, 2002; Rangaswamy and Lilien, 1997). The increase in the number of consumers using different facilities of ICTs in their purchase processes has led several firms to use ICT intensively for a wide variety of activities, ranging from the search and analysis of information to the efficient development of certain internal processes. Certainly, ICT has provided firms with a tool to obtain information, developing a communication channel and establishing a dialogue between the firm and their clients (Arnott and Bridgewater, 2002).

3.1.3) Killer applications as ICT solution

The next part will consider the development of e-applications that have universal appeal and some influence on the growth of e-government.

E-government application is at the beginning in many countries, while at the same time other e-applications are reaching maturity. Such applications are recognized by people in developing countries. Demonstrating some of those applications, which are known as 'killer applications', such as e-auctions, e-taxation and electronic voting will give a good background to the e-government application.

An appropriate definition of a killer application is an application or a service that creates compelling value and that reaches widespread popularity among large numbers of users (Xu and Gutiérrez, 2006).

Killer applications appear from many sides, starting from e-trading applications, passing by e-taxation and e-auctions, even voting modified to e-voting. Anckar and D'Incau (2002)

saw that the concept of killer application could be interpreted in a number of ways, ranging from applications that are adopted rapidly on a broad scale to ones that directly generate the highest revenues for the service providers. Following its success as a killer application of the wired Internet, some researchers seem to agree that e-mail services will become an initial killer wireless application for m-commerce (Ghosh and Swaminatha, 2001; Kannan et al., 2001).

Figure 3.1 summarizes and demonstrates killer application usage. Yuan and Zhang (2003) showed the value propositions and the proposed killer applications for e- and m-commerce:

Using killer applications might differ between developed and developing countries. Using e-services such as short message service (SMS) or mobile voice communication has increased rapidly in the last few years. Egypt now has three mobile companies, which cover more than 30% of the population. The Egyptian government originally monopolized mobile communication through one company. After that, it was privatized. Then the government gave mobile licenses to Vodafone and Etsalat. On the other hand, other services in killer applications might only now have the opportunity to exist. E-services and entertainment such as remote connection to back office, gambling, lottery and integrated personal identification are not popular in Egypt. There might be some users of these applications, but most Egyptians do not use such services. Even the GPS service was only released in 2008, which was a late step.

In Egypt, the actual delivery of such services is often complicated by technical problems (incompatibility of e-payment conditions with some banking systems), and/or legal and technological obstacles. With a high illiteracy rate (45% of the population), low penetration of information technology and limited use of credit cards, the possibility of the majority of the population to interact with e-government portals is limited.

The reasons for late adoption by developing countries are justified. As will be discussed later, the low level adoption of e-government services is largely due to the high level failure of e-government projects and low level functionality adopted in developing countries. Many obstacles are facing the growth of e-government project in Egypt as an Arabian country. Challenges including the digital divide, ICT infrastructure, internal resources, and legislation and policy issues.

While discussing the killer applications, here is a brief overview of some models representing the killer application such as e-taxation, e-auction and electronic voting.

Figure 3.1: Value proposition and the proposed killer applications

Value propositions	**Applications**
Ubiquitous communication	Mobile voice communication Short message service (SMS) E-mail Voice mail and video mail
Emergency and time critical information services	Emergency call service Personal medical services Notification, reminder, and alert service Airline schedule information Stock market information Weather information Headline news Crisis alert
Location-sensitive service	Wide or short-range navigation Nearby facilities/services locating Accompanying tour guide Local transportation information Local service directory assistant
Pocket e-Wallet	Integrated personal identification Impulsive purchase Micro-payment Banking Electronic coupons Intelligent home automation
Portable entertainment	Mobile video player TV/Radio Music Sports scores Gaming Gambling Lottery
Improving productivity of mobile workforce	Remote connection to back office Mobile job Mobile personal organizer Mobile collaboration Mobile videoconferencing

3.1.3.1) E-Taxation

One of the essential applied cases using the Web to compel people to use ICT and Internet applications, online tax systems are rapidly replacing paper-based tax reporting systems (Vikramaditya et al., 2004). Promising many advantages over the traditional method of hard copy tax filing, these systems promise faster processing, lower costs and increased efficiency. In addition, today some individuals can file simple income tax returns over the Internet, and some types of taxes are filed on magnetic media and the payment is automatically remitted by the taxpayer's bank. According to Vikramaditya et al. (2004), Electronic Tax Reporting can be defined as the process of filing tax reports and compatible supporting documentation to a taxation authority using a computer or another electronic device over publicly switched or dedicated telephone lines or via the Internet. Although mostly used by individuals, corporations are now beginning to take up this method of tax reporting.

The United States Government made significant progress in applying e-taxation through the Internal Revenue Service (IRS), the federal government agency charged with collection of taxes for the country. The IRS is most often associated with the collection of income tax levied on individuals, corporations, estates and trusts. In addition, the IRS collects excise tax, estate tax, gift tax, and generation-skipping transfer tax. The IRS also collects social security and Medicare taxes on behalf of the Social Security Administration (Vikramaditya et al., 2004). The IRS continually strives to reduce the costs of revenue collection, eliminate the paper on which records are kept and diminish the storage space necessary to handle the business of taxes in the U.S. Simultaneously the IRS constantly tries to improve the quality of the data it processes.

3.1.3.2) E-auction

The definition of an auction is a market institution with an explicit set of rules determining resource allocation and prices on the basis of bids from the market participants (McAfee and McMillan, 1987). During the past two decades, a variety of popular websites were established to support electronic auction activities as a web service. This is a programmable

Web application that is universally accessible through standard Internet protocols (Ferris and Farrell, 2003).

E-auctions refer to the virtual auctions conducted via the Internet. E-auction differs from spot auctions in several significant ways. First, the average time limit is longer than spot auctions. Second, electronic bidders may participate in a common auction via Internet at different times and different places. Third, e-auctions need to serve a scalable and growing Internet population. Fourth, bidders may obtain more information during the bid, as they can surf online or do some research on the object at the same time as they bid.

E-auction as an industry has many successful applications on the Internet. eBay was a U.S.-based dynamic pricing online trading platform located at www.ebay.com. The Company developed a web-based entity that served as an online flea market and as an online alternative to the classified advertisements to buy and sell items. Through its wholly-owned and partially-owned subsidiaries and affiliates, it operated trading platforms in the U.S., Germany, the United Kingdom, Australia, Canada, France, Austria, Italy, Spain, and South Korea. At the end of 2001, eBay's employees totaled over 1,900 workers worldwide. eBay pioneered online trading by developing a web-based community in which buyers and sellers were brought together in an efficient and entertaining format to browse, buy, and sell items, such as collectibles, automobiles, high-end or premium art items, jewellery, consumer electronics, and a host of practical and miscellaneous items.

In early 2002, the eBay trading platform was a fully automated, topically arranged, intuitive, and easy-to-use service that supported an auction format. Sellers listed items for sale and buyers bid on items of interest in a fixed-price format in which sellers and buyers traded items at a fixed price established by sellers (eBay, 2001). eBay maintained a worldwide platform that consisted of Billpoint, Half.com, eBay International, eBay Motors, eBay Stores, eBay Local Trading, and eBay Live Auctions, Skype and PayPal.

PayPal is a fast and safe way to pay and get paid online. The service allows members to send money without sharing financial information, with the flexibility to pay using their account balances, bank accounts, credit cards or promotional financing. PayPal has quickly become a global leader in online payment solutions with more than 70 million active accounts worldwide. Available in 190 markets and 19 currencies around the world, PayPal

enables global ecommerce by making payments possible across different locations, currencies, and languages.

Skype is revolutionizing the way people communicate around the world. Every day, millions of people use Skype to communicate for free through voice and video calls as well as instant messages. Many people also use Skype to call landline and mobiles with pay as you go Skype Credit or a monthly subscription. Skype certifies and sells hundreds of hardware products from more than 50 partners and works with third-party developers to create software to extend Skype's functionality. Conversations over Skype can take place on computers, mobile devices and other Skype Certified hardware.

Few Arabian websites offered e-auction services. For instance, Souq.com was launched in 2006 as the first Arabic auction and online eCommerce marketplace, offering services for individual buyers and sellers as well as businesses to come together as a single trading community. To ensure a high-level customer experience, Souq.com has coupled its platform with many services tailored to the local trading environment and suitable to the online user in the region. Backed by Maktoob.com, the largest Arab online community, Souq.com has the pedigree, power and creativity to share the online e-commerce market in the region. Today Souq.com is a well-known brand in the UAE, Saudi Arabia and Jordan, and has continuously achieved very high growth rates.

3.1.3.3) Electronic Voting

Many governments have invested a lot to apply e-voting solutions for many reasons. For example, the UK government wishes to introduce e-voting as part of their strategy to modernize government processes and to increase voter turnout at elections. It was hoped to hold an e-enabled general election sometime after 2006 (Liptrott, 2006). In the UK, voter turnouts at elections have been falling for the last fifty years from a high of 83.6% at the general election of 1950 to 59.4% in the general election of 2001 (Liptrott). This last figure brought fears that future elections could see the turnout decline to less than 50%. Recent technological developments have opened up the possibility of electronic voting and this clearly provides some opportunities and threats. On the one hand, the new technology may help to make voting more cost effective and more convenient for the voter and may even increase voter turnout. On the other, e-voting may introduce new risks and affect electoral

values, such as the secrecy of the vote and the place of voting as an observable institution in modern democracies.

E-voting is generally seen as any type of voting that involves electronic means (Svensson and Leenes, 2003). Although e-voting can be conceived in many different ways, a crucial distinction may be made between electronic machine voting (EMV) and electronic distance voting (EDV). EMV simply refers to the use of any electronic apparatus to record and count votes in a fixed public place. This may be a specialized voting machine in a voting booth or a stand-alone PC specially installed for this purpose in a voting kiosk. EDV goes a step further in the sense that it implies the electronic registration, culling and counting of votes cast from different locations. It typically allows the voter to use a more generic technology such as interactive digital TV, telephone, Short Message Service (SMS) or the Internet, to cast his vote from any preferred place, be it from the home or the office or even from a deck chair on a cruise ship somewhere in the Caribbean.

But both EMV and EDV have some threats when applied (Svensson and Leenes). If we are discussing EMV applications we should not forget some threats. First of all, the operation of voting machines by individual voters may be considered a relatively new risk. As we know from numerous studies, many people have difficulties with operating modern technical artifacts. With the introduction of machines in the voting process, there is a clear risk of complicating this process for the average voter. Secondly, there are reasons connected to the reliability and robustness of technical systems, especially computerized machines. Any complex technology may break down and can cause problems, which may be hard to correct. In the case of e-voting machines, risks of disturbances of power supply and failures in the electronic storage of the votes certainly require special measures, like verification and backup facilities, to identify errors and correct them.

Geographic position and demographic characteristics for the Egyptian state were shown in this chapter. In addition, the education status has been clarified. The last part of this chapter considers some similar applications. Demonstrating some of those killer applications, such as e-auctions, e-taxation and electronic voting, gave a good starting point to the e-government application.

3.2) Challenges to ICT applications in developing countries

In this section two challenging factors that developing countries face in the use of the ICT applications will be discussed. These challenges are inadequate planning and older workers in the general workforce. Lack of planning is a major drawback in most developing countries. This is because of planning is not taking priority in developing countries. These countries are suffering from much more serious problems, such as poverty; as a result governments are not paying attention to the planning process. On the other hand, most developing countries are recruiting older workers in leader positions. Giving positions to young people is still not implemented enough in developing countries.

3.2.1) Inadequate planning as a challenging factor in the use of ICT applications

ICT is an essential tool for the efficient administration of an organization; governments worldwide also have taken responsibility to provide national leadership in the development and application of technology in their countries. Schware (2003) showed that it is neither efficient nor desirable to implement ICT projects across government, or in any large organization, without having a policy in place with key strategies specified. This is achieved by the establishment of an administrative structure within government, with specific responsibilities to develop a national vision for ICT. It would prepare an implementation plan with key strategies and specific goals to realize the vision, and an action plan for their achievement (MCIT, 1999). A growing number of governments are in the process of establishing ICT agencies. Schware (2003) noted that the functions of such an agency recognize the three basic responsibilities that central governments worldwide must accept for ICT, which are:

1 Government as the national regulator is responsible for setting national rules for the use of technology. This point might be different between developed and developing countries. In the Arab world, the government owns most organizations. Even in Egypt, where the privatization process started at the nineties, there are many services like gas and electricity still owned by the government. Moreover, setting national rules for the use of technology is done by the government, but unskilled employees might be an obstacle to the growth of using technology. Most Egyptian expertise in this field might prefer to work in the private sector for more benefits. The private sector plays a more

important role in developed countries. Even the government in those countries could provide a different experience to do this task.

2 Government as a facilitator can seek to stimulate the use of and access to ICT by its citizens. It can encourage the development of the private sector industry by providing assistance and removing roadblocks to progress.

3 Government as the largest user of ICT must seek to use it for the cost efficient delivery of services and information to its citizens and in the efficient running of government administration. It can use the government's buying power to foster the development of the national ICT industry.

3.2.2) Older workers in the general workforce

Koning and Gelderblom (2006) recognized that ICT may harm the position of older workers. They may have used ICT less frequently, which puts them at a (further) disadvantage compared to their younger colleagues. Therefore, applying the use of ICT among older workers is important. However, with regards to the effectiveness of company policies the picture is mixed. Koning and Gelderblom (2006) found that if the worker believed that his company was counting on using ICT to increase profitability, then the profitability would be clearly higher if the worker used ICT. Furthermore, workers that have a PC at home are more likely to use ICT in their work (Koning and Gelderblom, 2006).

The Egyptian government pays a lot of attention to ICT applications, making much effort to achieve the preparation of senior management as well as providing them with adequate skills and means of communication and information technology to support their decision-making capacity; this is addressed by the administrative reform program launched in 1997 (Cabinet Information & Decision Support Center, 1997). This intention is reinforced by the considerable increase in the training budget allocation amounting to LE 9.08 million in 2001 (MCIT, 2003). The Ministry of Public Administration worked on the compilation of several databases to support its planning and decision making capacity in addition to facilitating the eventual implementation of e-government in inter-ministerial cooperation. (Ministry of Administrative Reform, 2004).

On the other hand, the Egyptian government should consider the use of ICT by older people in general. Older people in Egypt might try to avoid using computers because of lack of technology knowledge. Regarding the e-government program, people who depend on the e-government portal might be younger citizens and this is demonstrated in chapter seven. But the small current sample could not represent the whole of Egyptian society; therefore the government might consider the use of e-portal by older people.

With a high illiteracy rate (40% of the population), low penetration of information technology and limited use of credit cards, the possibility of the majority of the population to interact with e-government portals and ICT applications is diminished (CAPMAS, 2006; Kamel and Hassan, 2003).

3.3) ICT infrastructure in Egypt

Evaluative evidence for the progress and completion of government ICT projects is almost not available in the public domain. In addition, there is a lack of academic papers describing the ICT infrastructure in Egypt. As a result, information and data in the next part will heavily depend on government publications from the Ministry of Communication and Information Technology and the United Nations.

During the period 1985-1995 a public-private sector partnership for growth and development had a remarkable impact on the build-up of Egypt's information infrastructure. Over 600 information and decision support systems and centers were established across Egypt's 26 governorates targeting Egypt's socioeconomics and development planning (Ministry of Communication and Information Technology, 2006). In the past 15 years, Egypt has been moving toward a more decentralized, deregulated, liberalized, and market-oriented economy. Economic reforms and growing investment opportunities have prompt increasing foreign investment. However, incoming capital has largely been concentrated in stock market portfolio flows.

By 1997, the number of telephone lines had increased nearly tenfold from the 1980s, when there were very poor services, to reach 4.9 million lines. Communities with phone access are concentrated in the city of Alexandria and the capital, Cairo. The quality of services has greatly improved with fiber optic technology and with automatic and digital exchanges (Ministry of Communication and Information Technology, 1999).

Telecom Egypt, established from PTT in October 1997, is the incumbent provider of basic telecommunications services in Egypt (Ministry of Communication and Information Technology, 2000). The company was converted into a joint stock company that would operate local and international telecommunication networks in Egypt. The government owns 80% of the company shares. In addition, the Ministry of Telecommunications determines the rules for market regulation through the Regulatory Board for Telecommunications, whose mission is to regulate pricing, standard of services, and development and implementation of a national telecommunication policy. The board has not yet ruled to enable competition and the rapid expansion of the basic network services. The Minister heads the General Assembly of Telecom Egypt as well as the Regulatory Board.

3.3.1) Historical background

Darwish (2003) and Bilal (2000) noted the status of the ICT Infrastructure in Egypt. In 1929 the first automatic rotary electro mechanic telephone exchange opened in Auto Building in Ramses. Then followed the installation of the electro-mechanic telephone exchanges with crossbar and electronic switches. Since then, electronic exchanges have developed and digital exchanges appeared. As a result of the clarity of its advantages, whether technically or economically, Telecom Egypt had to go with this development by installing digital telephone exchanges (Bilal, 2000). The first of these was in 1987 with a capacity of 40,000 lines in Talaat Harb exchange, Cairo city center (Ministry of Communication and Information Technology, 1997).

The international service began with an international manual exchange and some wireless circuits. This service became automatic in 1981 with the installation of a similar electronic telephone exchange, then an electronic digital telephone exchange in Cairo in 1987. An electronic digital telephone exchange was established in Alexandria to go with the increasing demand in the beginning of 1990 (Bilal, 2000). The correspondent connection with the whole world takes place via the four marine co-axial cables heading to South East Asia, Greece, one to Italy and another to Lebanon. In addition the INTELSAT stations are directed to the satellite in the Atlantic Ocean, the satellite in the Indian Ocean and the marine ship station ARABSAT. Connection with the Arab East via a microwave

connection mid-Sinai to Aqaba in the Kingdom of Jordan with primary capacity of 300 channels that could be increased to 960 channels (Darwish, 2003). Optical fiber cable has been laid to connect South East Asia, India, Pakistan, Gulf Countries, Kingdom of Saudi Arabia, Arab Republic of Egypt, Italy and France (Bilal, 2000).

Furthermore, the car wireless subscribers service has been developed by installing an electronic digital telephone exchange with a capacity of 300 lines covering Cairo, Alexandria and the whole Lower Egypt as far as El Alamein, Port Fouad, and Suez. The distance from Luxor to Aswan has been covered by the tourism service (Bilal, 2000).

3.3.2) Communications infrastructure over 20 years

Current figures for fixed and mobile telecoms services do not correspond exactly with the later figures, which illustrate the ICT numbers in the last 20 years. Therefore, the next figure shows the up to date provision in Egypt in 2007.

Figure 3.2: ICT infrastructure in 2007 in Egypt

	Indicator	**2007**
Fixed services	Exchange capacity	13.75 million
	No. of fixed telephone line subscribers	11.7 million (approximately one line to every seven citizens)
	Waiting list for fixed telephone lines	22,733
	No. of exchanges in rural areas (1007 villages)	1,162
	No. of public phones cabinets	57,758 (one cabinet for every 1380 citizens)
	Total number of international connecting circuits and links	31,133 thousand
Mobile lines	No. of mobile subscribers	30.05 million (almost 38% of population)
	Mobile service companies	3
Internet penetration	Internet capacity	14.866 Gbps
	No. of internet users 8.62 million (about10% of the population)	
Information technology	Total numbers of IT companies in Egypt	2.348
	IT clubs	1.712 (exceeding 45000 citizens to each club)

Source: Ministry of Communication and Information Technology (2007)

The capacity of Central exchange increased between 2004 and 2005 by 600,000 lines and the operating lines by 800,000 lines. The number of international telephone calls was raised by 60 million minutes. Finally, mobile users increased from 6 million in 2004 to 10 million in 2005 (Ministry of Communication and Information Technology, 2005).

The research could not find matching statistics regarding the above figures. On the other hand the next figure illustrates the ICT status in Egypt over 20 years.

Figure 3.3: ICT status in Egypt over 20 years

Item		**1981**	**1999**	**2002**
Local and International Services				
Telephone lines	Line	510000	640000	990000
Number of subscribers	Subscriber	418000	490000	743000
Telephone density	%	1,0	7.6	11.0
International working telephone circuits	Circuits	160	6130	11528
Auto-connection countries	Countries	29	234	234
Direct international services subscribers	Subscribers	571	129618	157678
Amount of international telephone communications	Million minutes	28	689	1038
Wireless call services subscribers	Subscribers	----------	27755	22705
National information network subscribers	Subscribers	----------	1910	2547
Remote areas subscribers	Subscribers	----------	919	1978
ISDN subscribers	Subscribers	----------	50	9766
ADSL subscribers	Subscribers	----------	----------	447
Mobile phones services		1981	1999	2002
Wireless car telephone subscribers	Subscribers	400	6937	4867
Mobinil company	Subscribers	----------	408021	2,256,641
Misrphone (Vodafone) company	Subscribers	----------	245993	1,886,570

Iridium service subscribers	Subscribers	----------	172	204
Public phones services		1981	1999	2002
Telecom Egypt cabins	Cabins	250	5181	4855
Menatel company cabins	Cabins	----------	4624	27631

Source: United Nation Economic and Social Committee for West Asia (ESCWA), "Profile of the information society in the Arab Republic of Egypt", November 2003

3.3.3) ICT Industry

One of Egypt's primary goals is to create an expert-oriented ICT sector (Ministry of Communication and Information Technology, 2001) and to attract direct foreign investment to further develop this industry. Therefore Egypt has many investments in the ICT sector industry. It has increased the number of working companies in this field from 8 in 1995 to 151 in 2002. Capital investment rose from LE73 million in 1995 to more than LE240 million in 2002 and jumped to over LE1 billion in 2006, about 40% in information technology (Ministry of Communication and Information Technology, 2007). The labor force in this sector has also increased from 620 workers in 1995 to 4,100 in 2002. (Ministry of Communication and Information Technology, 2003)

To assist the development of foreign investments the Egyptian government decided to build a technology industry area known as the Smart Village. This is an extraordinary example of Egypt's high tech infrastructure, economic incentive packages and commitment to the future. Upon completion of all the phases there will be accommodation for approximately 30,000 employees (General Authority for Investments and Free Zones, 2003).

Established in 2001 at an investment of LE100 million, the "Smart Villages Company" is 80% owned and operated by a private consortium (General Authority for Investments and Free Zones, 2003). The remaining 20% is owned by the Ministry of Communications and Information Technology through its contribution of land for the project. The idea behind the creation of the Smart Village is to position Egypt to become a regional technology hub particularly in areas which are viewed as its strong points, namely: developing Arabic content, software development and providing IT services, such as training, infrastructure development and customization.

Egypt's second Smart Village will be located in Damietta. A consortium of Damietta businessmen and the board of directors of the Smart Village in Cairo have created a joint company to carry out the construction work for the project. The first Smart Village, located near the Giza Pyramids on the outskirts of Cairo, now houses regional operations of ICT giants such as Microsoft, Alacatel, Vodafone and Oracle (Ministry of Communication and Information Technology, 2006).

3.3.4) Software industry

Egypt has 3 main types of software industry: application solutions (56%), system infrastructure software (17%) and application tools (27%) (Information Technology Industry Development Agency, 2005). Egypt has many industries in the hardware field such as LAN hardware, servers, personal computers and server add-ons.

In 1999 the national plan for the ICT sector in Egypt expected the number of job opportunities in this sector from 1999 to 2007 to rise. The plan expected a boost by 1,000% in highly skilled labor and increasing from 20,000 medium skilled labors to 430,000 in 2007. No evidence has been found to track this plan even in public publications.

Because of the increasing investments in the ICT sector particularly in the software industry, Egypt had initiated the Information Technology Industry Development Agency (ITIDA), which is a government entity established in 2004. One of the aims for this agency is to support an export-oriented IT sector in Egypt (Ministry of Communication and Information Technology, 2005).

ITIDA's most crucial mandate is to act as the developer and promoter of the IT industry. It aims at achieving the following: expanding the local market, penetrating and developing new markets, partnering with multinationals, building and improving the competitiveness and capacities of the local companies and empowering and training the IT workforce (Ministry of Communication and Information Technology, 2005). All IT industry development activities will be implemented according to an agreed National Development Plan. A task force composed of world class IT experts and professionals have brainstormed to put together the most effective methodologies, mechanisms, initiatives, programs and projects to be employed to advance the IT industry in Egypt and position it among the most advanced IT industries worldwide. The Plan will also examine all challenges and barriers

and devise the most efficient solutions to overcome them. Strengths of the industry will be highlighted and potential opportunities identified accordingly. The Plan covers the whole economic spectrum, targeting different industries that utilize IT solutions. The overall goal is to create a critical mass of IT users expanding the base of users and thereby the volume of IT utilization.

In 2008, ITIDA announced its participating in "ICT 2008" in the French city of Lyon. About 5,000 researchers, innovators, engineers, policy makers and businessmen participated in the event organized by the European Commission's Directorate General for the Information Society and Media. Moreover, in 2009 the outsourcing unit at the London School of Economics and Political Science (LSE) and ITIDA launched the 'Beyond BRIC' Report in Central London (BRIC are the fast growing developing economy Brazil, Russia, India and China). The study, researched independently by the LSE over 5 months, provides an original analysis of the offshoring competitiveness of 14 non-BRIC countries, setting Egypt within the context of these locations. The report's findings suggest that Egypt's investment strategy in education, infrastructure and IT is paying off and is attracting offshoring and outsourcing business. Egypt scored particularly highly in terms of attractiveness of its low cost base, skilled workforce and market potential (www.itida.gov.eg).

The main objectives of ITIDA:

- Increasing exports of ICT products and services.
- Supporting and encouraging e-business in Egypt, especially among the small and medium enterprises.
- Guiding and encouraging investments in the ICT sector.
- Supporting R&D in the ICT sector and implementing its output.

The private sector plays an important role in the field of services especially when it is related to the ICT industry. The next figure shows private sector participation in the communication sector.

Figure 3.4: private sector participation in the communication sector

Type of service	No. of companies in 2007
Mobile	3
Public data network	8
Public phone service	3
Equipment manufacturing	3
Copper wire manufacturing	4
Fiber optic cables	2

Source: www.citegypt.com (2008)

Figures and numbers of employment in the previous companies were not available.

3.4) Development of an Information Society in Egypt

The establishment of an information society was first spelled out as a national goal by President Mubarak in 1999, when he announced the inauguration of a national project for the development of the information technology sector. That announcement triggered the set up of the Ministry of Communications and Information Technology (MCIT) a year later (Ministry of Communications and Information Technology, 2004). Since its establishment, MCIT has taken it upon itself to build the Egyptian information society and hence work towards bridging the digital divide. It is doing that by drawing out a comprehensive framework that lays the foundations for the Egyptian information society in the coming few years. The framework replaces the ICT national plan which has achieved many of its objectives.

The aim is to build and develop an ambitious information society and establish a strong export-oriented industry. Moreover, it plans to integrate Egypt intp the new global economy, change business processes, the functioning of governments and the relationship between citizens, businesses and the government, to advance the economy and bring about prosperity and new opportunities. The information society framework, launched by MCIT, stands on three pillars, namely making information technology accessible, providing the applications that will make an information society possible and promoting the export

potential of the industry. In fact, the success of the government in promoting ICT in Egypt and the framework for what lies ahead may well act as a guide for other emerging countries.

The next section will show some efforts done in various fields to improve the IT and telecommunication infrastructure in Egypt.

3.4.1) Community

ICT is an increasingly powerful tool for participating in global markets; promoting political accountability, improving the delivery of basic services; and enhancing local development opportunities. The ICT sector began flourishing in Egypt with the formation of the Ministry of Communications and Information Technology (MCIT) created in October 1999. The business development track of the Ministry's national plan focuses on industrial development initiatives and supporting IT companies (Ministry of Communication and Information Technology, 2000). MCIT's Business Development Department (MCIT BDD) is continually rendering services to industry, including allocating resources, conducting trade missions to exporting markets, organizing events, participating in local and international conferences and exhibitions and helping companies participate as well. An example of this effort is evident, the annual Cairo ICT Conference and Exhibition held with an emphasis on telecommunication, information technology, networking, computing and broadcasting technologies.

Regionally, MCIT actively takes part in Arab and African events, such as the ITU Telecom Africa 2001, in which there were great Egyptian efforts at providing a perspective on the industry in Egypt. Egypt hosted Telecom Africa, which took place in 2004 (Ministry of Communication and Information Technology, 2004). At those events, MCIT assists companies in promoting their products and establishing their presence in the regional markets, such as participation in specialized fairs and exhibitions, conferences, and trade missions.

Similar to international market trends, liberalization of the Egyptian IT and telecommunication sector is currently taking place (Ministry of Communication and Information Technology, 2006). By creating new regulatory frameworks, aimed at encouraging private-sector participation, and increasing competition and transparency in

the sector these are seen as an essential prerequisite for compliance with the government's commitments regarding the liberalization services and activities.

Creating an information society is a major priority for the Egyptian government. Through it, the government hopes to give every individual, business and community the opportunity to harness the benefits of the new information world. In a high level ceremony, LINKdotNET, one of Egypt's major Information Technology companies, launched a portal called the ICT Mega Club. The portal provided Arabic content and e-learning tools to users in more than 1,000 IT clubs throughout Egypt (Ministry of Communications and Information Technology, 2006).

For all Egyptian expatriates in the Information Technology industry, the Ministry of Communications and Information Technology has launched an online portal where Egyptians living and working abroad in the ICT industry would have their own place to discuss relevant topics and express their opinions. The portal includes discussion forums where a different topic would be discussed every month as well as surveys and virtual workgroups. In addition, the portal contains up-to-date information about the ICT industry in Egypt and information about investment regulations (Ministry of Communications and Information Technology, 2005). This site contains some useful information such as ICT indicators, meeting points for IT expats and events held for Egyptians IT expats abroad (www.egyptexpats.com).

3.4.2) Private investment

World giant Microsoft held its annual conference to support software developers and programmers in Egypt in 2004. The conference was attended by more than 2,000 IT professionals, half of whom were from foreign countries.

In 2004, former Prime Minister Dr. Atef Ebeid and former Minister of Communications and Information Technology Dr. Ahmed Nazif inaugurated the Technology Development Fund (TDF). The creation of a fund for technology development was first proposed in 2001 by the Commercial International Investment Company (CIIC) with the purpose of supporting ambitious ICT startup projects with a high potential for success (Technology Development Fund, 2006). The result, the Technology Development Fund, is one of

Egypt's first ICT venture capital funds focusing on early-stage financing, and a strong public-private sector partnership.

Egypt is growing into a hub for telecommunications and information technology in the region. A proactive policy and clear long term vision by the government of Egypt, in partnership with the private sector, seeks to make the ICT sector a key one in the country's economy. Egypt seeks to develop partnerships with international investors to develop its ICT landscape. Telecom Egypt, the national telephone operator, is implementing an ambitious program to modernize its infrastructure that has already borne notable success through partnerships with companies such as Ericsson, Siemens and Alcatel. There are growing opportunities for telecom investors in the telephone (both fixed and GSM) market and in the fast growing Internet connectivity market.

Another ambitious development program is MCIT's e-government project, which seeks to provide intelligent interaction between the government, citizens and the investment community. The e-government project, while striving to facilitate Egyptian citizens' dealings with the government, is also intended to enable technology transfers between local and foreign companies by having them form partnership on projects (Ministry of Communications and Information Technology, 2000).

The newly revamped Egyptian National Postal Organization is also open to innovative partnerships with the private sector to leverage its widespread network throughout Egypt. The ENPO seeks to improve customer service and develop new business services. Fields such as business delivery services, financial services, franchising and others are open for investors interested in collaborating with one of the largest networks in the country (www.egyptpost.org).

Egypt invests an important part of its budget in education and is keen to teach new technologies to students of all ages. As a result, Egyptian schools and universities produce high-quality graduates in the field of computer science and engineering that have been highly sought after by firms across the world. Egyptian ICT professionals make an effective and competitive contribution and have proven themselves across the region and beyond. In addition, Egypt has invested in giving ongoing training to ICT professionals, notably through the Software Engineering Certification Center, which supports the industry by raising standards and improving software engineering practices. The SECC provides

consultancy services to firms working in offshore software development (www.secc.org.eg).

3.4.3) Computer literacy

About 60,000 computers were sold during its first year in 2001; the 'computer for each household' scheme now targets to sell up to 6 million computers over the next seven years. Dr. Ahmed Nazif, former Minister of Communication & Information Technology, addressing a forum held to celebrate the scheme's first anniversary, revealed the figures. He indicated that the computer population in households is still very limited, now put at one million, against 12 million TV sets, 9 million stationary telephone lines and 5 million mobile telephone lines. The above target aims at reducing that gap (Ministry of Communications and Information Technology, 2003).

Egypt invested more than US$10 million from a debt swap agreement with Italy in a program to boost computer access, promote computer literacy in schools and adult literacy, and improve livelihoods (Ministry of Communications and Information Technology, 2003). Though Egypt is a leader in the Arab region in information and communications technology, relatively few Egyptians have access to a computer or the Internet. The Development Program would provide thousands of Egyptians with access to the Internet and its resources. The initiative is implemented through the Egypt ICT Trust Fund, a UNDP initiative, and the Ministry of Communications and Information Technology is overseeing it with UNDP support. The initiative builds on Technology Access Community Centers, a program supported by UNDP that has helped poor, remote communities gain access to computers and the Internet. The project would provide pupils in 50 schools with special courses in computer literacy through the Smart Schools network, which has set up e-learning links between schools. This initiative would be a first step towards making all Egyptian students computer literate by introducing an ICT learning package. It would be used as a standard course for teaching computer literacy in all preparatory schools and to use ICT in learning (Ministry of Communications and Information Technology, 2008).

3.4.4) Student research projects

From the education overview, it has been shown the major role that can be played by the IT infrastructure to push up the educational process. The communicative power of information technology can improve and enhance the learning process. The Internet, multimedia and virtual learning environments carry a huge potential for better and faster implementation of lifelong learning and for providing access to educational and training opportunities for all citizens.

So, the Egyptian government, especially the Ministry of Communication and Information Technology, has partnered with other ministries and agencies as well as the private sector to spread many national projects such as:

1 Egyptian Education Initiative (EEI)

2 Illiteracy Eradication Initiative:

3 IT clubs

4 Egyptian Olympics Informatics

From the previous sections it is clear that improving the IT and telecommunication infrastructure is a strategic objective for Egypt. The next part shows two achievements in the field of education and ICT.

Work was started in July 2004 on the LE600 million Nile University project for postgraduates' studies in engineering and IT based in Sixth of October City. The Ministry of Communication & Information Technology sponsored the project, which went over four stages for completion as of September 2006. In 2009, Nile University offered undergraduate degrees and a variety of Masters programs, such as Master of communication & information technology, Master of management of technology, executive Master of Business Administration, Master of intelligent transportation systems and Master of construction engineering & management. Moreover, it established three research centers: the Center for Wireless Intelligent Networks, the Center for Informatics Science and the Center for Innovation & Competitiveness (www.nileu.edu.eg). Numbers for current students were not available to the research.

Modeled on the International Olympiad in Informatics (IOI), Egypt's own computer programming competition, the EOI is an annual competition in information technology and

programming held under the auspices of the Ministry of Communications and Information Technology (MCIT) and Technology and Marine Transport (AAST) in which participants compete in solving various real-life problems using computer algorithms and basic IT skills. Contestants aged six to twenty covering students from elementary and high school as well as university students come from governorates across the country. In order to complete their assignments, EOI contestants are provided with the latest technology.

In line with the government's plan to increase the use of technology in Egypt, the EOI stands as an ideal launch pad, developing the future generation's knowledge and resources, and giving the young space to develop and display their creativity.

3.5) Internet history in Egypt

This section will briefly evaluate Internet usage in Egypt during the last 15 years and the current Internet environment in Egyptian society.

Full Internet services started in Egypt in October 1993, at the Egyptian Universities Network and the Cabinet Information & Decision Support Center (IDSC), via a 9.6K link to France carrying the Bitnet as well as Internet traffic. Several initiatives, by public and private organizations, were taken before that date for the provision of partial Internet services in the country. The user community was estimated by that time to be about 2,000 - 3,000 users. Egypt Telecom: the Arab Republic of Egypt National Telecommunication Organization (ARENTO) provides the basic infrastructure.

In 1994, the Egyptian domain was divided into three major sub domains. The academic sub domain 'eun' provides the service via the gateway at the Supreme Council of Universities. 'Eun' stands for the Egyptian Universities Networks and provides the service for the universities and schools. The 'sci' sub domain serves the scientific research institutes at the Academy of Scientific Research via Enstinet as well as other research centers like the National Telecommunication Institute (Cabinet Information & Decision Support Center, 1997). The gateway at IDSC/RITSEC provides its services for the governmental authorities under .gov.eg as well as to the commercial entities served via the various Internet Service Providers (ISPs).

Digital data access is provided to the end user using digital multiplexors. The first digital public backbone network installation in Cairo has been established jointly between IDSC/RITSEC and ARENTO to provide digital connectivity for the different Internet sites in Egypt (Cabinet Information & Decision Support Centre, 2002). Interconnectivity has been drastically improved by the setup of a number of digital multiplexors as the first digital backbone for data communication in the country. Fiber international connectivity was made available on SEMEWE-2 or satellite via Intelsat and thus the basic obstacles of the infrastructure limitations have been overcome. An ambitious project regarding the deployment of VSAT services for Internet connectivity will provide the rural areas in Egypt with the necessary data communication infrastructure.

Since January 1996, the gateway speeds have been increased by nearly 20 times. The user numbers have increased to 20,000 users in the government, business, and education sectors. IDSC/RITSEC started to provide connectivity to private service providers under the .com.eg domain, while some providers have their own international gateways.

Cabinet Information & Decision Support Center (IDSC) investigated Internet usage in Egypt from several perspectives. As examples there are 2 case studies in 2005 that have been chosen to show Internet impact on the Egyptian and Arabian society.

One of the studies (Cabinet Information & Decision Support Center, 2005) concerned youth and Internet usage. The study selected a sample containing 700 persons and here are some results:

> Over 70% use the Internet service at home, 52% use the Internet facility to do international phone calls, 54% think that using the Internet gets them in touch with world knowledge, 52% prefer to use Arabic sites, 46% use the Internet several times a week.

The second study (Cabinet Information & Decision Support Center, 2005) focused on the Internet from the family perspective. The sample in this study is 709 families from different governorates and here are some results:

> Over 74% of users included children. 48% spend less than LE50 monthly for internet usage, 57% believe that one of the main disadvantages of the Internet is the ease of visiting prohibited sites, 84% see the Internet as the easiest way to get information, 67% see that the Internet has a positive effect on children.

The whole picture of the case studies indicates that Egyptian youth are using the Internet for chatting and downloads in the first place, which means that it is mostly about fun usage.

Egypt has been trying to increase the usage of the Internet during the last years, so now there are many ways to connect to the Internet. For those tired of having to choose between phone and Internet, ADSL provides a continuous, high-speed connection that allows users to make and receive voice calls while online.

Broadband prices in Egypt were halved, thanks to an initiative launched by President Mubarak during Africa Telecom 2004, held in Cairo. Through this initiative, the government hopes to see the number of ADSL subscribers in Egypt grow. A national awareness campaign implemented by the Ministry of Communications and Information Technology (MCIT) will assist in the process (Ministry of Communications and Information Technology, 2005). TE Data is Egypt's largest IP based data communications carrier with a national network and a regional vision. TE Data was established in late 2001 by Telecom Egypt (Egypt's incumbent operator) to act as its data communications and Internet arm.

Figure 3.5: ADSL service tariffs

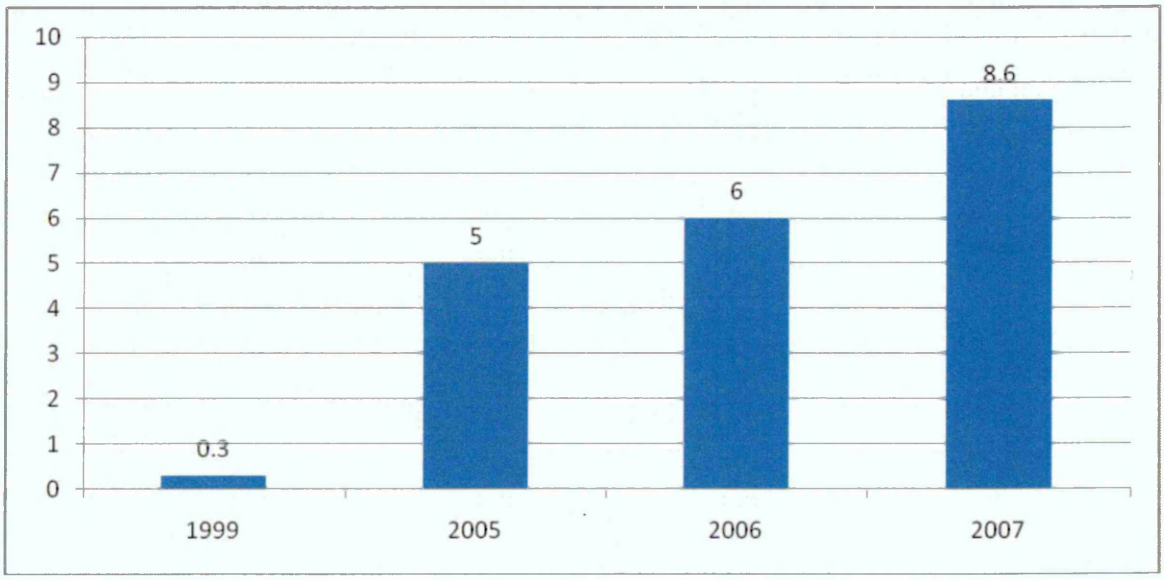
Speed	1 Month	3 Month	12 Month
256 Kbps	LE95	LE265	LE1030
512	LE140	LE405	LE1570
1024	LE255	LE650	LE2530
2048	LE375	LE1080	LE4180
4096	LE500	LE1400	LE5500

(according to TE Data website)

According to the World Bank report of 2009, Egypt is classified as a lower middle income country. The yearly income average per person is US$1,580 (approximately LE9,000). It is still expensive to have year-round Internet access, even in the case of choosing the cheapest ADSL speed.

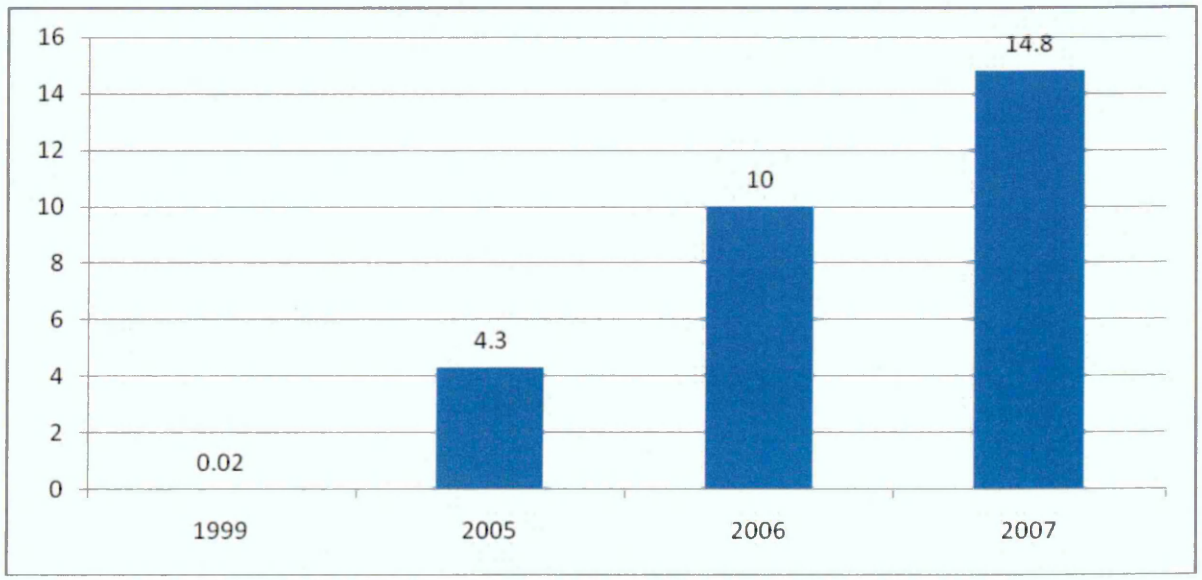
The following figures show some numbers reflecting Internet usage in Egypt and the Arab countries.

Figure 3.6: Internet users in Egypt (million)



Source: Minister of Communications and Information Technology (2007)

Figure 3.7: Internet bandwidth in Egypt (GBPS)



Source: Minister of Communications and Information Technology (2007)

Figure 3.8: Internet users in Arab countries in 2008

Internet Users, Distribution and Growth in Arab Countries 2005 - 2008			
Country	Internet Users, End 2005	CAGR** 2005-2008	Internet Users, End 2008
Egypt	5,460,000	30%	11,995,620
KSA	4,250,000	27%	8,705,628
UAE	1,653,125	14%	2,449,177
Morocco	1,550,000	45%	4,725,369
Algeria	1,456,000	41%	4,081,490
Sudan	1,300,000	62%	5,526,986
Syria	1,120,000	35%	2,755,620
Tunisia	1,068,800	25%	2,087,500
Iraq	900,000	50%	3,037,500
Kuwait	725,700	15%	1,103,699
Lebanon	720,000	16%	1,123,845
Jordan	715,000	27%	1,464,594
Palestine	475,000	19%	800,451
Yemen	378,000	58%	1,490,950
Libya	364,000	25%	710,938
Oman	245,220	27%	502,304
Bahrain	228,825	12%	321,483
Qatar	162,500	24%	309,826
Total	**22,772,170**	**33%**	**53,192,980**
** Compound Average Growth Rate (annually)			
Source: Madar Research			

In the next section the research focuses on the e-government program in Egypt.

3.6) Launching e-government in Egypt

E-governance initiatives are common in most countries, including industrialized economies, emerging economies, and developing economies. The World Market Research Centre's Global E-Government Survey World Market Research Centre (2001) lists 196 countries having e-government initiatives. The United Nations' Benchmarking E-Government Survey UNPAN (2001) lists 133 countries. According to the new eEurope 2005 Action Plan European Commission (2002) adopted by the Commission in May 2002, the goal for Europe was to provide its citizens with "modern online public services" by the year 2005 (Dittrich et al., 2003, Strejeek & Theil, 2002).

These online services are beneficial to both citizens and government. Government agencies realize benefits in the form of cost reduction and improved efficiency. Citizens receive faster, more convenient services from a more responsive and informed government. Cohen and Eimicke (2002) also pointed at the role of e-government applications in the public

sector. An important issue in public-sector management today is the increasing demand for transparency, efficiency, and effectiveness in service quality.

3.6.1) Establishing the Ministry of Communication and Information Technology and the e-government project

"Public administration and governments are central to extending information society into the fields of democratic decision-making, accountability, community building, economic development and support for civil society", stated the final report of the EU Government on-line strategic review board in 1997 (Ashby et al., 1997).

In this direction the Egyptian government established the Ministry of Communication and Information Technology in October 1999 with the objective of fostering local competitiveness and converting Egypt into an information society. The three main routes of work are Government to Government, Government to Citizen and Government to Business. The objective is to provide government services to individual citizens and enterprises on-line through secure government networks, 'one-stop shop' portals and service delivery centers located in postal offices and IT clubs (Ministry of Communications and Information Technology, 2004).

3.6.2) The beginnings of the e-government project in Egypt

The e-government project will pave the way for an informatics based Egyptian society, able to cope with the IT revolution and narrowing the digital divide between Egypt and more advanced countries. Darwish (Minister of State for Administrative Development), who refuses to say how much the huge project will cost, recalls that it actually started in 2001 when the MCIT signed a four-year cooperation agreement with Microsoft. By virtue of this agreement, Microsoft provided consultation services to connect government entities – that will provide the services – through the main gateway.

In more detail, the e-government project in Egypt had the execution time period of 7 years (from 2000 to 2007) and had the following targets: a) improve citizen services, b) create an investors' friendly environment, c) provide accurate and updated information to decision

makers, d) reduce government expenditure, and e) foster local competitiveness in a global economy.

Paying a visit to the e-government sites (www.alhokoma.org.eg, www.egypt.gov.eg, and www.edara.gov.eg) one can see that the government has launched some pilot projects for public service delivery on-line, such as the issuance of official copies of birth certificates, paying telephone bills on line, tracing lost and found items (in cooperation with the Egyptian post services) and others. This portal was developed in cooperation with local partners and was ready to be launched. A similar agreement was signed with Oracle Corporation, indicating that both Microsoft and Oracle would make the necessary information infrastructure available for governmental entities. This project would have a whole frame by 2007 as part of the Egyptian Government's current five-year development plan, while the executive development plan for the e-government project consists of five main axes that will be implemented simultaneously to make the national projects as efficient as possible.

Regarding the axes, according to Darwish in Arabic News (2003), e-government services include an important axis which involves creating the necessary infrastructure, comprising laws, regulations, technological specifications and a governmental website with appropriate rules and specifications. This axis also includes creating the government portal where citizens, companies and investors can get the services they want. The second axis involves services such as electronic payment of telephone and electricity bills, the third and fourth axes focus on the automation of ministries and their affiliated authorities. Contracts have been concluded to implement applications in the fields of planning for resources and management, including inventories, governmental purchases, budgets, accounts and personnel affairs.

In an initiative towards regional networking in innovation in public administration, the Egyptian government presented a proposal to the Italian government in 2003 to propose cooperation in the field of offering consulting and implementing e-government projects to other NEPAD African countries (Ministry of Communications and Information Technology, 2003). In this framework Egypt offered to provide technical assistance in drafting strategic objectives and proposing program frameworks, professional experience in implementation of back office automation, technical networking, government gateways and

portals, online services' delivery, in addition to providing consultation on legal and regulatory issues.

The e-government project is for the sake of citizens who should know how to use this new technology in order to benefit from the services it offers. However, users without access to the Internet don't have to go to the government website for information. All the site's information will also be available through a proposed automated telephone service. Though there is still a long way to go before Egypt can start boasting about a full e-government service, other institution specific sites can help. There are now about 500 Egyptian government-related sites on the Internet, which users can access to get the information they need, although they still need to pay a visit to the Mogamma (the huge governmental complex in Midan el-Tahrir) or various ministries in order to purchase and fill in the relevant documents. Once this giant program is fully operational, Egypt will continue to foster local competitiveness in the era of globalization and implement various international agreements successfully.

Most importantly, the project seeks to involve the private sector, Darwish (2003) concludes, adding that the authorities intend to reform the relevant legislation, with the issuing of a new E-signature Law and other essential laws. In conclusion, the e-government project is one of the MCIT's major development projects that will eventually involve all ministries and governmental bodies. Egypt launched the e-government service to Egyptian citizens some years ago. Few services are useful, but progress in the initiative is still delayed for a lot of reasons, which will be discussed later.

3.6.3) Main obstacles facing the e-government project in Egypt

Nevertheless, the actual delivery of such services is often complicated by technical problems (incompatibility of e-payment conditions with some banking systems), and/or legal and technological obstacles. With a high illiteracy rate (40% of the population), low penetration of information technology and limited use of credit cards, the possibility of the majority of the population to interact with e-government portals is limited. Therefore, we need to examine the feasibility of government in Egypt, and investigate the issue of digital divide, which refers to the "gap between those who have access to and can effectively use new information and communication tools, such as internet and those who can not."

(Digital Divide Network, 2004). The digital divide is important to look at in order to estimate the potentialities of the e-government project in Egypt and to assess the financial and technical needs of the state to accomplish such project.

Looking at the telecommunication infrastructure indicators we can see that the government accomplished several achievements in terms of telephone density, PC density, percentage of Internet users and the volume of e-commerce. Still the Ministry of Communication and Information Technology reports the following obstacles in face of successful accomplishment and penetration of e-government project:

1 E-payment is largely dependent on credit cards, the use of which is limited for a developing country suffering from economic distress like Egypt, especially as many users are cautious about using credit cards for paying on-line.

2 Automation of work flow in government offices is hindered by the absence of standards and specifications for the process of automation as well as the general reluctance to use automated systems resulting from unfamiliarity with information technology and uncertainty about security measures.

3 Process workflows need to be re-engineered to correspond to the e-government model. This, however, is faced with the general inflexibility of governmental structures and rigid organizational cultures, and is worsened by the overlapping authorities of the various supervisory upper layers of government.

4 Networking between the various state bodies is non-existent, therefore they cannot interact, exchange information nor the documents necessary for the flow of work.

5 Access to e-government among the Egyptian population is still hindered by the low penetration of personal computers, low penetration of the Internet and computer illiteracy (Ministry of Communications and Information Technology, 2003).

Achievement in e-government is not to be measured only against technical and numerical criteria, because the ultimate purpose of e-government is to advance the horizontal lines of interactive communication, integrate the participation of communities and lower strata of bureaucracy, in addition to securing efficient allocation of resources. That is, information technology is not an end in itself, but a means to achieve better governance and stimulate participation in the decision making process.

This cannot be achieved in the context of the existing hierarchical, paternalistic and authoritarian culture of state institutions that not only alienates local actors from the decision making process, but also expects them to bear the economic and social costs of a reform that they did not chose and towards which they don't feel committed. In other words, the use of information technology in state institutions is not necessarily a sign of democratic and organic communication if the general pattern of organization is based on top-down communication and where compliance and obedience to superiors is the most important value.

3.7) E-government structure in Egypt

The Egyptian government provides people with some electronic services; however, most of these services are unknown because of the lack of advertising and dissemination.

Electronic government in Egypt offers services in many fields:

1 Citizens' services: providing services to the public in an accessible, relevant and timely format, plus allowing them to share in the decision-making process.

Clear examples for such services are:

Birth Certificate Request and

National ID Replacement Request

2 Foreigners' services: this kind of service is directed to the foreigners whose accommodation is in Egypt. This type of service has the clear objective of making life easier for foreigners in Egypt.

Clear examples for such services are:

Work permits services

Education services

Accommodation services

3 Companies' services: the Ministry of Industry is assisting industrial organizations to modernize their IT infrastructure and provide online access to their websites. The ministry is also developing a central information system for most companies in Egypt,

where summary data about their activities and financial reports is stored and updated, and is using e-learning technologies in vocational training.

Clear examples for such services are:

The Ministry of Industry has developed a smart map system to improve decision-making. The smart map includes information on industries, raw materials, airports, urban and agricultural areas, and infrastructure

The Ministry of Public Enterprise has developed a website that offers access to a public enterprises database, privatization plans, links to donor agencies and brokers

4 Investors' services: helping investors to get the required information, plus facilitating the investing process by automating few processes to start an investment.

Clear examples for such services are:

The Ministry of Finance has worked with the Ministry of Transportation and MCIT to automate the port of Damietta. This includes automating procedures related to customs, exports, imports, and containers processing.

The Ministry of Finance has also automated the sales tax system and has created a unified tax and customs center to facilitate the process for investors

5 Exporters' services: the government has set a strategic priority to increase the country's exports. In order to do so, the government has asked relevant ministries to develop the necessary tools to reduce barriers to exports, including the lack of information on export opportunities and procedures.

Clear examples for such services are:

The portal is offering steps for exporting

Showing specialized information for shipping, transport packaging, and customs procedures

This research program proposes to explore and evaluate service quality and customer satisfaction in citizen services. These include:

Job services

Education services

Immigration services

Healthcare services

Car licenses services

Police services

Personal documents services

Handicapped services

Financial services

Services offered to Egyptians abroad

It is clear that these services are different in their usage. Some of them are both useful and usable; on the other hand, some services are not usable for some reason.

3.8) E-government initiatives in Egypt

E-government is a powerful tool to help Egypt bring the benefits of the emerging global information society to the largest possible segment of the population. The main drive of e-government is to modernize the citizen's experience of public services and to improve the functionality of the Egyptian government by increasing the ease with which citizens can access services and bring greater efficiency to government operations. The e-government initiative will also help encourage local markets and boost demand for ICT, since the public sector is one of the largest consumer groups in the country. To jumpstart this process, the initiative focuses on developing services that will have a high demand and attract users, such as services for business, investment, taxation, health, directory assistance, and the results of the national yearly secondary school exams. In addition to offering users easily accessible services designed and built around their needs, the initiative is also working on projects to improve productivity within the public service itself. This in turn creates the potential to free resources for other priorities. With the development of these services, hundreds of thousands of people will come in contact with the possibilities of information technology and be encouraged to become computer literate.

The e-government initiative will seek to introduce a new approach for providing government services. The project will introduce modern management practices to the

government to increase efficiency and reduce expenditure, using ICT as an important tool to achieve these objectives. Under the new e-government model, a wide array of government services will be available to citizens and investors through a 'one-stop shop' government. Web portals are being designed in a citizen-centric, investor focused fashion. To promote the concept of using ICT to automate services and provide users with convenient access to the government, the following initiatives are being pursued:

3.8.1) In transaction services sector

A Birth Certificate Request: The Civil State Organization, operating under the Ministry of Interior, launched in May 2003 an e-government project, which is the provision of online requests for birth certificates. Upon request through the system, birth certificates will be mailed by ground mail within two weeks from request. The system also features online payment and authentication in person upon delivery.

B National ID Replacement Request: The Civil State Organization also launched in 2003 another e-government project, which is the provision of online requests for lost or damaged national IDs. As with birth certificate requests, the system provides for online payment and authentication in person upon delivery.

C Query Sites:

Egypt Air: The national carrier, Egypt Air, now provides online information about flight schedules.

Electricity Bill: Citizens of Alexandria, the Delta and the Canal Zone can now make online inquiries about their electricity bills.

Exam Results: The results of the national high school certificate exams are now available to the public. In addition, test results from national universities are also available online.

Application to National Universities: Applications to national universities can now be completed and submitted online. Following submission of the application, students and their families can access the results of the application.

D Information Sites:

Edara.gov: This initiative by the Ministry of Administrative Development offers online nearly 700 downloadable forms and procedures for different government services.

Online Telephone Directory: Egypt's national telephone directory services are now available online.

3.8.2) In Geographical Information Systems (GIS)

Working closely with the private sector and coordinating efforts across ministries, the Egyptian government has drawn on geographical information systems technology to create a number of useful applications in different sectors throughout the country. Examples of these projects include the following:

A The Geographical Information System of Educational Buildings; Eleven years ago, the Ministry of Education initiated a project to develop a geographical information system that would provide information on the status of educational buildings. The system today includes 360,000 photographs and more than four million registers, including details about educational buildings and suppliers. The project is, in fact, multiple projects in one matrix, requiring intensive coordination and the unified vision of the ministry, the technology provider, and the private sector.

B CAPMAS Geographical Information System: the Central Agency for Public Mobilization and Statistics (CAPMAS) developed a system that covers five governorates through a computer network with CAPMAS and includes the various activities helping in planning and monitoring operations. The program provides maps for conducting different censuses and surveys, establishes a territorial geographical information system for governorates, and provides training on both geographical information and communications systems. Remaining governorates will be gradually included.

3.8.3) In Science and Technology

A In 1980, the Egyptian Academy for Scientific Research and Technology embarked on a project to create a nationwide system of information services to ensure the availability and use of information and research from around the world for the socio-economic development of the country. The design of the project took five years, systems analysis and design took two years, and system implementation was phased in over a three-year period. The result was a national network of information services in five socio-economic sectors in Egypt, called the Egyptian National Scientific and Technical Information Network ENSTINET. ENSTINET was the first national information service in the region and has been serving the community for the past 20 years, growing with the rapid evolution in information and communications technology.

B In the tourism sector; the Ministry of Tourism has linked all ministerial sectors with their information network and has linked its information center with affiliated entities within the ministry. The ministry is currently automating its back office and different sectors. The ministry also created a website that covers an array of activities and useful tourist information, as well as information for researchers and investors.

C In the industry sector the Ministry of Industry is assisting industrial organizations to modernize their IT infrastructure and provide online access to their websites. The ministry is also developing a central information system for most companies in Egypt, where summary data about their activities and financial reports is stored and updated, and is using e-learning technologies in vocational training. In addition, the ministry has developed a smart map system to improve decision-making. The smart map includes information on industries, raw materials, airports, urban and agricultural areas, and infrastructure.

D In the financial sector the Ministry of Finance has worked with the Ministry of Transportation and MCIT to automate the port of Damietta. This includes automating procedures related to customs, exports, imports, and containers processing. The ministry has also automated the sales tax system and has created a unified tax and customs center to facilitate the process for investors.

3.8.4) In Judicial System

The Ministry of Justice has automated several court systems, including courts in Cairo and Ismailia. The ministry's Judicial Information Technology Center serves the needs of courts and attorneys. The ministry has also automated traffic courts, the judicial supreme council, and the north Cairo primary court, and the system for judicial promotions and elections. The ministry has developed a secure database for custody of minors and the incapacitated to assist the work of social affairs offices across the country, to facilitate and increase the efficiency of services provided to the public, and to assist in decision-making at different levels of government.

It might be good to consider the e-government portal as a tool to facilitate business in Egypt as discussed in chapter nine. One of the indicators listed in the ease of doing business report was enforcing contracts; the Egyptian government might use the portal to increase the enforcement of contracts. This could be possible by providing on-line contracts forms and on-line applications to facilitate achieving business processes. A clear example for that is the availability of websites, which are specialized in business and commercial conflicts.

3.8.5) In Energy Sector

The Ministry of Electricity has established a central database for information about electricity production. The ministry has also developed a website and software programs for planning electricity generation, networks, studying electricity tariffs, predicting weights and energy, planning, rationalizing energy use. In addition, the ministry has developed a geographical information system for the electricity sector and an information system for maintenance of networks and stations.

3.8.6) In Environmental Sector

The Ministry of State for the Environment and the Egyptian Environmental Affairs Agency developed an environmental information system to strengthen and focus Egypt's efforts to protect the environment. Launched in 2000, this shared system includes a number of maps and environmental data, an urban areas information system, and a system for industrial pollution that is being used as an administration tool for environmental inspection units.

3.8.7) In International Cooperation Sector

The Ministry of Foreign Affairs, International Cooperation Sector, has begun a project to digitize agreements between Egypt and lending countries in order to facilitate decision-making and determine the needs of the state for hard currency. In addition, the ministry has established a project to link the International Cooperation Sector with the Central Bank of Egypt and the ministries of Planning and Finance. The project consists of an information network serving many types of users and providing access to databases, technical systems, grants, loans, development projects, the rules and criteria for loans from countries and foundations, the administrative system and a financial system. With data from 1990 to the present, the project benefits the Ministry of Foreign Affairs, the Ministry of Planning, the Ministry of Finance and the Central Bank.

Moreover, the Egyptian government might encourage international investments by making business procedures easier; this could be achieved through availability of on-line services, which could save time and money to accomplish the formal procedures for establishing foreign businesses. The impact of using the e-government portal on doing business will be discussed in the third research question especially in chapter nine.

3.9) Role of e-government in promoting direct investments

Egypt's national income is driven mainly from its oil exports, revenues of the Suez Canal and tourism. Direct citizens' contribution to the state budget through taxation is undermined by the low income levels and an ailing production sector. In light of the lack of national capital to vitalize a needed export oriented production, foreign direct investments are aspired to for economic growth and job creation. Yet, Egypt was cut out of the list of the 30 countries most attractive to foreign direct investments which flow to the country, decreased by 58.7% in the year 2000/2001 and continue to go down (Al-Ahram Ektesady, 2003).

The economic advisor to the Prime Minister mentions rigid customs system, unclear tax regulations, inefficient and lax bureaucracy, and the slow procedures of the legal system to be the major problems holding back the flow of foreign investments to Egypt (Al-

Karanshawy: Al-Ahram, 2004). These facts have driven the Egyptian government to review its policies and institutions and initiate a process of reforms in favour of investments. For example, a presidential decree stipulated that lands would be given for free to investors against guarantees of immediate initiation of production activities. The decrees also promise additional incentives to multinationals operating in Egypt (Al-Ahram, 2004). Other reform initiatives involve the establishment of single service points (physical 'one-stop shops') that investors and small and medium size enterprises can turn to for the issuance of the different permissions and licenses to practice their activities. This would spare foreign investors and local entrepreneurs the time and cost of resorting to the several (central and local) state agencies for the issuance of such documents.

Those physical 'one-stop shops' will be service points established in the various sites of local administrations and will be composed of representatives of the various agencies dealing with investors and local entrepreneurs and delegated to issue immediate temporary permissions and licenses to investors until their head offices issue permanent ones (Al-Akhbar, 2004). Another 'one-stop shop' pilot project is the Small and Medium Business Support Project (SMBSP), established in Mansoura and Damietta (Lower Egypt) by the Canadian International Aid Agency in cooperation with the Egyptian Ministry of Foreign Trade. The service center contacts all concerned agencies on behalf of investors to obtain the necessary operating licenses against fees (Sheikh, 2003).

Many national consultants and government officials do not see in these satellite 'one-stop shops' the ultimate solution to the problems of bureaucracy and maintain that they replicate the job of the General Authority for Investment and Free Zones (GAFI). GAFI defines itself as "Egypt's One-Stop Shop for investment" and the primary governmental authority concerned with regulating and facilitating investment (GAFI, 2004).

This leads us to the 'virtual one-stop shop' proposed by the e-government project launched by the Egyptian Information Society Initiative for government services delivery. In addition to the information network provided by Egypt's governmental services portal (www.egypt.gov.eg) targeting citizens and the business sector, the e-government program has three main projects under construction. The projects directed to local companies, foreign investors and exporters are:

1 The Tax Authority Information System, which links users to resources of financial information in order to provide accurate examination of tax returns and streamline the process of presenting tax statements.

2 The Industrial Product Information Network, which provides information and statistical data for all industrial products manufactured in Egypt.

3 The Customs Information System Program, which is a database of existing legislations and regulations on customs (www.egypt.gov.eg, 2004 and Ministry of Communications and Information Technology, 2004).

It is undeniable that these portals provide easy access to information on legislations and regulations related to customs and taxes. Yet they do not touch upon the original problems of investors and local entrepreneurs in their daily interaction with authorities and state bureaucracies. They do not offer interactive on-line services and do not touch upon the existing complicated legislative and bureaucratic system. In fact, paying a visit to these Internet sites we see that in many cases information is incomplete or offered either in Arabic or English, but not in both. It is worth noting, though, that these portals are in the experimental phase and many databases are still under construction.

In brief, we can see that the impact of information technology on the promotion of local productive sectors and foreign direct investments is conditioned by the general rigid institutional structures and inflexible organizational culture of state agencies. That is to say, e-government cannot function in a vacuum unconditioned by the overall institutional and administrative environment. Technology is a means to utilize in order to efficiently and effectively implement comprehensive development plans and not a final objective.

3.10) Summary

ICT plays an important role in the economic development of many countries. Egypt should focus more on building a more powerful ICT environment. While using ICT in developed countries on a large scale, developing countries are suffering regarding this technology. Most successful Internet applications became essential to citizens in developed countries. However, people in Egypt as a developing country try to avoid involvement in new technologies. Barriers such as illiteracy, poverty, trust and lack of the English language and

awareness are major obstacles to the growth of Internet society. But Egypt has achieved many steps towards the improvement of its ICT environment. According to government statistics, the ICT and software industries are growing. A lot of foreign investment was directed to that sector. In addition, the ICT field contains a huge number of Egyptian employees who work for the private or public sector. In addition, the government tried to spread the use of the Internet among the population. This objective needs a lot of work, plus it is ongoing process. Student research projects and computer literacy were efforts to encourage students to use and apply Internet solutions. Egypt has tried to improve its ICT environment, but still there are many efforts should be done.

The Egyptian government established the Ministry of Communication and Information Technology in 1999. Moreover, the government has launched some pilot projects for public service delivery online and a similar agreement was signed with Oracle Corporation, indicating that both Microsoft and Oracle would make the necessary information infrastructure available for governmental entities. From the above it is clear that the Egyptian government wanted to push towards an e-society and it held agreements with most popular organizations in that field. On the other hand, technical problems (incompatibility of e-payment conditions with some banking systems), and legal and technological obstacles are the main obstacles facing the growth of an e-government program. Furthermore, with the high illiteracy rate (40% of the population), low penetration of information technology and the limited use of credit cards, the possibility of the majority of the population to interact with e-government portals is limited. Therefore, the government should be aware of these challenges and it should try to solve them.

The information in this chapter depended on government publications, the ICT and e-government status in Egypt need more transparency. Other sources of data and evaluation are essential in order to provide a clearer picture of the status of e-government portal in Egypt. As a result, this research will try to provide more sources of data and methods of enquiry, detailed in Chapter 6. The research preferred to depend on a questionnaire directed to educated Egyptian citizens. This questionnaire, avoiding government publications, will provide a primary source of data and the results can introduce a more believable picture. On the other hand, results from the questionnaire cannot be generalized over Egyptian society because of the small number of participants.

In addition, the research will depend on international publications. Statistics and publications from different organizations such as the World Bank and the United Nations should give a trustworthy picture of the status in Egypt. Therefore, the research will use the E-Government Readiness Report published by the United Nations (UNPAN, 2005) and the Ease of Doing Business Report published by the World Bank (2007). These are used as secondary sources of data, and relate to the ease of doing business and the readiness of using e-government services in Egypt.

Chapter Four: Performance of Egypt in E-Government Readiness and Ease of Doing Business

This chapter presents a detailed comparative critique of Egyptian performance as recorded by the E-Government Readiness Report (UNPAN, 2005) and the Ease of Doing Business Report (World Bank, 2007). But before that, an introduction to different indexes and indicators in both reports will be demonstrated.

The E-government Readiness Index is a composite index comprising the Web Measure index, the Telecommunication Infrastructure index and the Human Capital index. The data index relied on the UNDP education index and other sub indices like the e-participation index. The Web measure index applied a model containing five stages of e-government readiness according to a scale of progressively sophisticated citizen services. The Telecommunication Infrastructure index is a composite weighted average index of six primary indices based on basic infrastructural indicators, which define a country's ICT infrastructure capacity. These are: PCs/1000 persons; Internet users/1,000 persons; Telephone lines/1,000 persons; Online population; Mobile phones/1,000 persons; and TVs/1,000 persons.

On the other hand, the Ease of Doing Business report has 10 topics, which are: starting a business, dealing with licenses, employing workers, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and closing a business. Regulations affecting 10 areas of everyday business are measured. For more details of e-government indices and business topics see Appendix Six.

The progression of the next part is shown below:

- Demonstrating an overview of the global E-Government Report and Doing Business Report.
- Showing facts regarding the Egyptian performance within the E-Government Report. These facts are demonstrated from the points of view of Arab and African countries.
- Commenting on the Egyptian performance regarding the E-Government Readiness Report.

- Illustrating some results regarding total rank (Doing Business Report).
- Investigating performance through four main business activities. This investigation will count on Egypt as African Arab country.
- Showing Egyptian performance during recent years based on six business activities.
- Monitoring Egyptian performance through Ease of Doing Business Report.

In the next part, a detailed analysis of Egyptian performance will apply. First e-government performance, then doing business performance.

4.1) An overview of Egypt's performance in the E-Government Readiness Report indexes

There are 3 factors in the E-Government Readiness Report (UNPAN, 2005): the Web Measure index, the Telecommunications Infrastructure index and the Human Capital index. In addition, from the many other measurements in this report, the position of Egypt will also be examined in the E-Government Readiness index 2005 and the E-Participation index 2005.

Web Measure index: Egypt was ranked 136 in 2003, with a total grade of 0.04; then down four places to 140 in 2004, with a total grade of 0.10. In 2005 Egypt jumped 81 places to rank at 59, with total grade of 0.45.

Telecommunications Infrastructure index: in 2003 Egypt was ranked 140, with a total grade of 0.06. In 2004 it rose by 2 places to 138, with a total grade of 0.07. In 2005 Egypt lost 2 places again to 140, with a total grade of 0.07.

Egypt was stable in 2005 regarding telecommunications infrastructure, however it lost 2 positions. This is likely to be because of the development in other countries. Many countries are paying attention to the implementation of IT infrastructure and massive investments have been directed to that field in the past few years. In other words, Egypt lost two positions, but on the other hand it kept the same grade, which is an indicator that other countries have improved but Egypt has stayed the same.

Human Capital index: Egypt was ranked 106 in 2003, with a total grade of 0.62; slightly better in 2004 at 105, with a total grade of 0.63; and again in 2005 at 103, but the total grade decreased to 0.62.

Egypt performed well in those years, however over three years an increase of only three positions was achieved. It is obvious that ICT usage is growing in Egypt, but at the same time there are some factors that might negatively affect the Human Capital index.

Egypt is trying to encourage education and learning. However, there are some obstacles facing these efforts, such as poverty and the low quality of education provision.

E-Government Readiness index: Egypt was ranked 140 in 2003, with a total grade of 0.19. In 2004 Egypt improved to 136, with a total grade of 0.22. In 2005 there was a noticeable increase: Egypt jumped 37 places to rank 99 rank, with total grade of 0.32.

E-Participation index: Egypt ranked 139 in 2003, with a total grade of 0.02. Then in 2004, it lost 4 places to 135, with the same total grade. In 2005 there was a noticeably better performance, jumping 54 places to 81, with a total grade of 0.08.

Figure 4.1: Egypt's overall position in 2003, 2004 and 2005

	2003		2004		2005	
	Position	Grade	Position	Grade	Position	Grade
Web index	136	0.04	140	0.10	59	0.45
Human index	106	0.62	105	0.63	103	0.62
Telecommunication and Technology index	140	0.06	138	0.07	140	0.07
E-participation index	131	0.02	135	0.02	81	0.08

Source: E-government Readiness Report (UNPAN, 2005)

4.1.1) A comparison of African countries

Egypt was 23rd in Africa in 2003, where Ghana, South Africa, Rwanda, Tanzania, Cameroon, Gabon, Zimbabwe, Botswana and others were better than Egypt. In 2004 Egypt became 18th behind South Africa, Seychelles, Botswana, Uganda, Namibia, Algeria, Tunisia and others. In 2005 Egypt became the 5th in Africa, after Mauritius, South Africa,

Seychelles and Botswana.

Figure 4.2: Egypt's position compared to African countries

	2003	2004	2005
African countries	1 South Africa	1 Mauritius	1 Mauritius
	2 Mauritius	2 South Africa	
	3 Seychelles	3 Seychelles	
	4 Algeria	4 Botswana	
	5 Botswana	5 Swaziland	2 South Africa
	6 Lesotho	6 Cape Verde	
	7 Namibia	7 Uganda	
	8 Tunisia	8 Namibia	
	9 Cape Verde	9 Lesotho	4 Botswana
	10 Zimbabwe	10 Algeria	
	11 Kenya	11 Tunisia	
	12 Uganda	12 Gabon	
	13 Swaziland	13 Kenya	3 Seychelles
	14 Gabon	14 Zimbabwe	
	15 Zambia	15 Tanzania	
	16 Sao Tome and Principe	16 Sao Tome and Principe	
	17 Cameroon	17 Malawi	5 Egypt
	18 Morocco		
	19 Congo		
	20 Tanzania	18 Egypt	
	21 Rwanda		
	22 Ghana		
	23 Egypt		

Source: E-government Readiness Report (UNPAN, 2005)

4.1.2) A comparison of Arab countries

In 2003 Egypt became the 10th in the Arab world: United Arab Emirates (UAE), Bahrain, Jordan, Lebanon, Qatar, Kuwait, Algeria, Oman, Saudi Arabia, Tunisia, Morocco, Syria were better. In 2004 Egypt became the 9th. Bahrain, UAE, Jordan, Qatar, Saudi Arabia,

Kuwait, Iraq, Algeria, Tunisia, Oman were better. In 2005 Egypt became the 8th behind UAE, Bahrain, Qatar, Jordan, Lebanon, Kuwait, Saudi Arabia.

Figure 4.3: Egypt's position compared to Arab countries

	2003	2004	2005
Arab countries	1 UAE	1 Bahrain	1 UAE
	2 Bahrain	2 UAE	2 Bahrain
	3 Jordan	3 Jordan	3 Qatar
	4 Lebanon	4 Lebanon	4 Jordan
	5 Qatar	5 Qatar	5 Lebanon
	6 Kuwait	6 Saudi Arabia	6 Kuwait
	7 Oman	7 Kuwait	7 Saudi Arabia
	8 Saudi Arabia	8 Oman	8 Egypt
	9 Syria	9 Egypt	
	10 Egypt		

Source: E-government Readiness Report (UNPAN, 2005)

4.2) A critique of the Egyptian performance

The previous figures point to some considerations regarding the Egyptian e-government program. The research has identified a general enhancement in program performance indicated by the Egyptian ranking over the total rank and sub ranks. Most of those indicators improved from year to year. This is a constructive act regarding involving ICT in the public sector.

This development is considered to be the result of a great effort by the Egyptian government who planned and manipulated the achieved tangible results. These results were reviewed and tested by the international standards of the UN. However, there are negative sorts of efforts, which could be supported by media in such places like the Ministry of Communications and Information Technology. Such efforts do not leave any influence. In addition, such efforts are not recognized at international level. In other words, the government statistics are not fully reliable, as can be seen in Chapter Three. Therefore, depending on the UN report might be acceptable.

This progress came from the improvement in sub indicators, such as the E-Participation indicator and the Web Measure index. These indicators are controllable and manageable by

the government. On the other hand, the Human Capital and the Infrastructure indices did not achieve good progress. Those are dependent on social and organizational considerations. The Infrastructure index focuses on considerations such as Pcs/1,000 persons; Internet users/1,000 persons; Telephone lines/1,000 persons; Online population; Mobile phones/1,000 persons; and TVs/1000 persons.

The data for the Human Capital index relies on the UNDP 'education index', which is a composite of the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio with two-thirds weight given to adult literacy and one-third to gross enrolment ratio (UNPAN, 2005).

4.3) An overview of Egypt's performance in the Doing Business Report

According to Doing Business Report (World Bank, 2007), Egypt occupied the rank of 165 out of 175 countries in the world; the worst ten countries were Egypt, Burundi, Central African Republic, Sierra Leone, Sao Tome and Principe, Eritrea, Congo Republic, Chad, Guinea-Bissau, and the Democratic Republic of the Congo.

Figure 4.4: Top ten countries in Ease of Doing Business Report

Country	Rank
Singapore	1
New Zealand	2
United States	3
Canada	4
Hong Kong	5
United Kingdom	6
Denmark	7
Australia	8
Norway	9
Ireland	10

Source: Doing Business Report (World Bank, 2007)

The next table will show how far is the difference between Singapore as a leader country and Egypt as a developing country. It will illustrate the number of procedures and days required to achieve some business activities.

Figure 4.5: A comparison between Singapore and Egypt in 2007

Business Activities		Egypt	Singapore
Starting Business	Procedures (number)	10	6
	Time (days)	19	6
	Minimum capital (% of income per capita)	694.7	6
Dealing with License	Procedures (number)	30	11
	Time (days)	263	129
	Cost (% of income per capita)	1002	22
Registering Property	Procedures (number)	7	3
	Time (days)	193	9
	Cost (% of property value)	5.9	2.8
Trading Across Borders	Documents for export (number)	8	5
	Documents for import (number)	8	6
	Time for export (days)	20	6
	Time for import (days)	25	3
Enforcing Contracts	Procedures (number)	55	29
	Time (days)	1010	120
	Cost (% of claim)	18.4	14.6
Closing Business	Time (years)	4.2	.08
	Cost (% of estate)	22	1
Paying Taxes	Payments (number per year)	41	16
	Total tax rate (% of profit)	50.4	28.8

Source: Doing Business Report (World Bank, 2007)

According to the last figure above, it can be seen that Egypt should follow the example of Singapore regarding how to make business easier for investors. For instance, obtaining a construction permit takes half the time in Singapore compared to Egypt. In addition, importing a product to Singapore would take three days, however it would take 25 days in Egypt. Moreover, closing a business in Egypt would cost the investor 22% of the estate

value. The same process in Singapore would cost only 1%. There is a significant difference between those two countries. Using more electronic ways of communicating and applying for licenses is essential for Egypt in order to enhance its performance regarding business activities.

Compared to Egypt, Arab countries were better in the total rankings, such as Saudi Arabia, Kuwait, Oman and United Arab Emirates.

Figure 4.6: Ranking of Arab countries

Best Arab countries	Rank
Saudi Arabia	40
Kuwait	48
Oman	55
United Arab Emirates	77
Jordan	78
Lebanon	86
Yemen	98
Syria	130
Egypt	165

Source: Doing Business Report (World Bank, 2007)

Saudi Arabia is one of the reformers in the region, eliminating the minimum capital requirement of 1,057 % of income per capita and reducing the days needed for a company start up from 39 to 15 days. It launched a commercial credit bureau, whose reports include the credit exposure of companies. It also accelerated trade, reducing the number of documents required for importing and cutting the time needed for handling at ports and terminals by two days for both imports and exports. Moreover, an investor in Oman would register his property in two procedures taking 16 days. On the other hand, registering property in Egypt would take seven procedures and 193 days. Another fact regarding paying business taxes activity, the number of payments yearly in the United Arab Emirates is 15, taking 12 hours per year. In Egypt, the number of payments yearly is 41, taking 536 hours per year. Figure 4.7 shows the performance of some Arab countries including Egypt.

Figure 4.7: Performance of some Arab countries in the Doing Business Report

Business Activities		Egypt	Saudi Arabia	Jordan	Lebanon	UAE
Starting Business	Procedures (number)	10	13	11	6	12
	Time (days)	19	39	18	46	63
	Minimum capital (% of income per capita)	694.7	1057.5	864.4	56.5	338.2
Dealing with License	Procedures (number)	30	18	16	16	21
	Time (days)	263	125	122	275	125
	Cost (% of income per capita)	1002	70.2	503.2	176.9	210
Registering Property	Procedures (number)	7	4	8	8	3
	Time (days)	193	4	22	25	6
	Cost (% of property value)	5.9	0	10	5.9	2.0
Trading Across Borders	Documents for export (number)	8	5	7	6	4
	Documents for import (number)	8	9	12	12	6
	Time for export (days)	20	13	24	22	18
	Time for import (days)	25	34	22	34	16
Enforcing Contracts	Procedures (number)	55	44	43	39	34
	Time (days)	1010	360	342	721	607
	Cost (% of claim)	18.4	20	16.2	27.8	18.5
Closing Business	Time (years)	4.2	2.8	4.3	4.0	5.1
	Cost (% of estate)	22	22	9	22	30
Paying Taxes	Payments (number per year)	41	14	26	33	15
	Total tax rate (% of profit)	50.4	14.9	31.9	37.3	15

Source: Doing Business Report (World Bank, 2007)

Regarding African performance, most African countries, such as South Africa, Namibia and Botswana, were better than Egypt.

Figure 4.8: Ranking of African countries

Best African countries	Rank
South Africa	29
Namibia	42
Botswana	48
Kenya	83
Ghana	94
Zambia	102
Egypt	165

Source: Doing Business Report (World Bank, 2007)

Figure 4.9 demonstrates the performance of some African countries, including Egypt. It is recognized that South Africa is one of the best African countries in this report. This good rank reflects how South Africa is reforming the ease of doing business. More precisely, it was ranked second on a worldwide scale on the ease of getting credit and 9th in the indicator of protecting investors.

Compared to Egypt's rank of 169, Namibia was ranked the 19th world wide regarding dealing with licensing. In addition, from the previous countries, Egypt was the highest regarding the minimum capital required to establish a new business by far. Moreover, Egypt was the highest in number of business tax payments per year, had the highest number of procedures to enforce a contract and, furthermore, required the highest number of procedures to obtain a license.

Figure 4.9: Performance of some African countries in the Doing Business Report

Business Activities		Egypt	South Africa	Namibia	Botswana	Kenya	Ghana
Starting Business	Procedures (number)	10	9	10	11	13	12
	Time (days)	19	35	95	108	54	81
	Minimum capital (% of income per capita)	694.7	0	0	0	0	23.2
Dealing with License	Procedures (number)	30	17	11	24	11	16
	Time (days)	263	174	105	169	170	127
	Cost (% of income per capita)	1002	33.5	134.9	457.7	37.6	1314.1
Registering Property	Procedures (number)	7	6	9	4	8	7
	Time (days)	193	23	23	30	73	382
	Cost (% of property value)	5.9	8.9	10	4.9	4.1	1.9
Trading Across Borders	Documents for export (number)	8	5	9	6	11	5
	Documents for import (number)	8	9	14	9	9	9
	Time for export (days)	20	31	32	37	25	21
	Time for import (days)	25	34	25	42	45	42
Enforcing Contracts	Procedures (number)	55	26	31	26	25	29
	Time (days)	1010	600	270	501	360	552
	Cost (% of claim)	18.4	11.5	28.3	24.8	41.3	13
Closing Business	Time (years)	4.2	2	1.5	1.3	4.5	1.9
	Cost (% of estate)	22	18	15	15	22	22
Paying Taxes	Payments (number per year)	41	23	34	24	17	35
	Total tax rate (% of profit)	50.4	38.3	25.6	53.3	74.2	32.3

Source: Doing Business Report (World Bank, 2007)

4.4) Comparing performance across four business activities

The next section will focus on four business activities:

Starting a business

Dealing with Licenses

Employing Workers

Registering Property.

The research selected these business activities because of the e-government importance of achieving them. In later chapters, the impact of e-government usage will be illustrated. Moreover, Chapters 8 and 9 will discuss the importance of e-government usage in the country's rankings. This discussion would depend on two of the listed business activities – dealing with licenses and registering property.

4.4.1) Starting a business

Egypt ranked 125, with a percentile of 0.60; Togo, Angola, Chad and Yemen were among the worst countries regarding the ease of starting a business.

Figure 4.10: Worst ten countries in the ease of starting a business

Country	Starting Business Percentile	Total Ranking
Tajikistan	0.84	133
Haiti	0.84	139
Eritrea	0.85	170
Togo	0.86	151
Angola	0.87	156
Yemen	0.88	99
Congo, Dem. Rep.	0.90	175
West Bank and Gaza	0.91	127
Chad	0.92	172
Guinea-Bissau	0.98	173

Source: Doing Business Report (World Bank, 2007)

Guinea-Bissau has shown a poor performance during the last few years. Starting a business there would take 233 days and it takes 211 days to register a property. Top countries

included Canada, Australia, New Zealand and the United States.

Figure 4.11: Best ten countries in the ease of starting a business

Country	Starting Business Percentile	Total Ranking
Australia	0.02	8
New Zealand	0.02	3
United States	0.02	4
Hong Kong	0.06	6
Ireland	0.06	10
Romania	0.06	49
Puerto Rico	0.06	19
United Kingdom	0.08	5

Source: Doing Business Report (World Bank, 2007)

The table above showed Romania in the top ten regarding the ease of starting a business, however its combined rank is 49th. The reason for that is the ease of starting a business process where it takes only 6 procedures and 10 days to achieve this process.

Arab countries occupied different ranks; some of them were lower than Egypt in the rankings, such as Jordan, Syria, and United Arab Emirates. Saudi Arabia did well in the overall rankings, however it ranked 156 regarding starting a business. The difference is because of the high cost of starting a business. It would take a minimum capital, measured by 10 times the economy's per-capita gross national income (GNI) of 1057%, which is an obstacle for any business starter. However, Saudi Arabia has recently solved this problem.

Figure 4.12: Arab performance in the ease of starting a business

Arab Countries	Starting Business Rank
Tunisia	59
Oman	81
Egypt	125
Jordan	133
Syria	144
Iraq	150
United Arab emirates	155
Saudi Arabia	156
Yemen	171

Source: Doing Business Report (World Bank, 2007)

African countries were different, some countries were better than Egypt, such as South Africa, Rwanda and Zambia. Other countries were worse than Egypt, such as Benin, Tanzania and Burkina Faso.

Figure 4.13: African performance in the ease of starting a business

African Countries	Starting Business Rank
South Africa	57
Rwanda	58
Zambia	67
Sierra Leone	80
Egypt	125
Benin	126
Tanzania	127
Burkina Faso	131
Central African Republic	132
Zimbabwe	137
Gabon	143
Ghana	145

Source: Doing Business Report (World Bank, 2007)

4.4.2) Dealing with licenses

Egypt occupied 169 position, with a percentile of 0.86; it was located in the tail of the report.

Figure 4.14: Worst ten countries in the dealing with licenses activity

Country	Licenses Percentile	Total Rank
Guinea	0.84	157
Iran	0.84	120
Burkina Faso	0.85	163
Egypt	0.85	165
Croatia	0.88	124
Zimbabwe	0.88	153
Tanzania	0.93	142
Eritrea	1.00	170
Timor-Leste	1.00	174
Afghanistan	unknown	162

Source: Doing Business Report (World Bank, 2007)

Egypt decided to encourage investments over a number of decades, but it seems there is still much to do. It takes more than 260 days and 28 procedures to obtain a building permit. This is a major obstacle in Egypt facing construction investors.

Compared to Arab countries, Egypt was the lowest, whereas some countries were achieving relatively good results, such as Yemen and Saudi Arabia. It takes 13 procedures and 107 days to obtain the same permit in Yemen, which is a huge difference.

Figure 4.15: Arab performance in the dealing with licenses activity

Arab Countries	Dealing with Licenses Rank
Yemen	39
Saudi Arabia	44
Jordan	70
United Arab Emirates	79
Syria	77
Sudan	92
Iraq	97
Egypt	169

Source: Doing Business Report (World Bank, 2007)

On an African level some countries did a good job, while others occupied the tail of list. The best results in Africa regarding dealing with licenses were Namibia, Kenya and South Africa.

4.4.3) Employing workers

Egypt occupied the 144th rank with a 0.639 percentile. The worst ten counties regarding this indicator were Greece, Angola, Niger, Paraguay, Democratic Republic of the Congo, Sierra Leone, Equatorial Guinea, Guinea-Bissau, Bolivia and Sao Tome and Principe.

The best countries were the Marshall Islands, the United States, Singapore, Tonga, Maldives, Georgia, Palau, Uganda, Australia and New Zealand.

Compared to Arab countries, some were better than Egypt, such as Kuwait, Saudi Arabia, Jordan and Lebanon. However, two countries gained poor results, Morocco and Sudan. On an African level, some countries did really well, such as Uganda, Namibia and Eritrea. Some results weaker than Egypt were Togo, Chad, Senegal, Burkina Faso and Mozambique.

Figure 4.16: Worst countries in the employing workers activity

Country	Total rank
Greece	109
Angola	156
Niger	160
Paraguay	112
Democratic Republic of the Congo	175
Sierra Leone	168
Equatorial Guinea	150
Guinea-Bissau	173
Bolivia	131
Sao Tome and Principe	169

Source: Doing Business Report (World Bank, 2007)

Figure 4.17: African performance in the employing workers activity

Country	Employing Workers rank
Uganda	8
Namibia	44
Eritrea	55
Nigeria	56
Egypt	144
Togo	145
Chad	148
Senegal	152
Burkina Faso	153
Mozambique	157
Gabon	159
Sierra Leone	171

Source: Doing Business Report (World Bank, 2007)

4.4.4) Registering a property

Egypt occupied the 141 rank with 0.68 percentile; the best countries regarding this indicator

are shown in the next figure.

Figure 4.18: Best countries in the registering a property activity

Country	Registering Property Rank
New Zealand	1
Armenia	2
Lithuania	3
Saudi Arabia	4
Slovakia	5
Norway	6
Sweden	7
Iceland	8
United Arab Emirates	9
United States	10

Source: Doing Business Report (World Bank, 2007)

This is one of the best ranks in the Arab world; the owner needs only four days and four procedures to register his property in Saudi Arabia. On the other hand, it takes seven procedures and 193 days to do the same in Egypt. It is clear that few Arab countries were as well ranked as Saudi Arabia, United Arab Emirates, Oman and Sudan. Algeria was the only country coming below Egypt in this indicator, with the rank of 152.

On an African level, some countries showed good results: Botswana, South Africa and Zimbabwe. On the other hand other African countries had poor results, such as Algeria, Nigeria, Sierra Leone and Uganda.

Figure 4.19: African performance regarding registering property activity

African country	Registering Property Rank
Botswana	34
South Africa	70
Zimbabwe	81
Egypt	141
Algeria	152
Uganda	166
Sierra Leone	168
Nigeria	170

Source: Doing Business Report (World Bank, 2007)

4.5) Comparing the Egyptian performance in recent years

Figure 4.20 shows Egyptian performance over three recent years. This illustration will look at six business activities: Starting Business, Dealing with License, Registering Property, Trading Across Borders, Enforcing Contracts and Closing Business.

Figure 4.20: Egyptian performance in 2006-2008

Egyptian Performance		2006	2007	2008
Starting Business	Procedures (number)	10	10	7
	Time (days)	34	19	9
	Minimum capital (% of income per capita)	104.9	694.7	12.9
Dealing with License	Procedures (number)	30	30	28
	Time (days)	263	263	249
	Cost (% of income per capita)	1067.1	1002	474.9
Registering Property	Procedures (number)	7	7	7
	Time (days)	193	193	193
	Cost (% of property value)	6.1	5.9	1.0
Trading Across Borders	Documents for export (number)	8	8	6
	Documents for import (number)	9	8	7
	Time for export (days)	27	20	15
	Time for import (days)	29	25	18
Enforcing Contracts	Procedures (number)	55	55	42
	Time (days)	410	1010	1010
	Cost (% of debt)	18.4	18.4	25.3
Closing Business	Time (years)	4	4.2	4.2
	Cost (% of estate)	22	22	22

Source: Doing Business Report (World Bank, 2007)

The next figure will demonstrate Egypt's position regarding business activities.

Figure 4.21: Egypt's position in 2007-2008

Business Activity	Egyptian Rank	
	2007	2008
Starting Business	125	55
Dealing with License	169	163
Employing Workers	144	108
Registering Property	141	101
Getting Credit	159	115
Protecting Investors	118	83
Paying Taxes	144	150
Trading Across Borders	83	26
Enforcing Contracts	157	145
Closing Business	120	125

Source: Doing Business Report (World Bank, 2007)

Egypt performed well during 2007-2008. There are six business activities that have been noticeably enhanced in Egypt in the last year. However, other activities did not achieve anything. Moreover, two business activities ranking were moving back. The enhanced activities are Starting Business, Employing Workers, Registering Property, Getting Credit, Protecting Investors, Trading Across Borders.

4.6) Summary

Regarding doing business in Egypt, a simple business owner based in an isolated area suffers from difficulties in transportation to main cities in order to finish procedures. At the same time, providing those businesses with e-government solutions would allow them to achieve all the government procedures, by downloading applications and paying business taxes online. In addition, this could affect directly the starting a business rank for Egypt. On the other hand, this e-government usage needs people who can deal with ICT tools, represented as the Human Capital index in the UN report.

Moreover, as discussed in Chapter 2, the educational status in Egypt has a large number of illiterate citizens, who could represent one of the obstacles facing the growth of e-government usage in Egypt. Therefore the Egyptian government should consider the

educational status and try to increase the level of ICT usage among citizens. The Egyptian government tried to develop the usage of ICT facilities in society, as discussed in Chapter 3, but it needs more effort to reach more citizens in isolated areas and agricultural societies. Applying such solutions needs a good ICT infrastructure, which is the Telecommunications Infrastructure index. In other words, achieving a better rank in the World Bank report might need improvement in other indices in the UN report. The relationship between the two reports will be discussed in Chapter 8.

Providing transactional services to achieve business processes is important to the e-government program in Egypt. As seen in the current chapter, obtaining a license in Egypt is a long and hard process. Moreover, no transactional e-services were provided in order to facilitate the process of obtaining a license. The lack of development of domestic financial systems might be considered as an impediment to online transactional services. Moreover, online transactions require a platform of adequate regulatory and legal systems to allow for electronic payments by credit card, debit card or some other e-payment system. In many developing countries like Egypt, such systems are yet to be put fully in place especially in the government sector. Most developing countries provided substantial services in early stages and then almost nothing in the transactional stage, due to lack of development of financial markets. E-transactions and e-payments also need a secure environment and are dependent on sophisticated levels of technology that for many countries like Egypt may be costly and difficult to implement and operate. According to the UN report, in total only 56 countries or 31% of the total countries offered any online transactional services through their e-government portal. Egypt was one of those countries.

Some reforms are taking place in Egypt; this was obvious in Figure 4.21, and especially in two activities, which are Starting Business and Trading Across Borders. Egypt simplified procedures, cut costs and sharply reduced the minimum capital requirement. In 2004, opening a business in Egypt, represented by Cairo, required 13 procedures, 43 days and cost 63% of income per capita. The minimum capital requirement, the put-aside capital, was 815.6% of income per capita. Today the same can be done with only 7 procedures, 9 days and costs of 28.6% of income per capita. The minimum capital requirement is now 12.9% of income per capita.

The boldest reform was to cut the minimum capital requirement. New firms had to put aside LE50,000. A ministerial decree amended article 57 of the Executive Regulation of the

Company Law, cutting the minimum capital requirement to LE1,000 or 12.9% of income per capita. Entrepreneurs now have an extra LE49,000 to invest in their businesses.

Reform efforts continued, as new logistic areas acting as one-stop shops were launched for traders at the ports. Further, the selective cargo inspection regime was broadened, the port facilities at Damietta and Alexandria were enhanced and electronic tracking systems were installed at the ports. Customs officials are now being trained systematically, cutting customs administration time for export by one day. The Egyptian government has worked hard to shorten the time goods spend at the border. The results are starting to show. Of the 10 indicators measured by Doing Business, Egypt performs best on the ease of Trading Across Borders, ranking 26 out of 178 countries. Three years ago, exporting a container from the port of Alexandria would have required on average 8 documents, 27 days and US$1,014. Today, exporting the same container requires on average 6 documents, 15 days and US$714.

For many economies the reforms captured reflect a broader, sustained commitment to improving their competitiveness. Among these are systematic reformers: Azerbaijan, Georgia and the Former Yugoslav Republic of Macedonia in Eastern Europe and Central Asia, France and Portugal among the OECD high-income economies, Egypt and Saudi Arabia in the Middle East and North Africa, India in South Asia, China and Vietnam in East Asia. Colombia, Guatemala and Mexico in Latin America, and Burkina Faso, Ghana, Mauritius, Mozambique and Rwanda in Africa. Each of these countries has reformed in at least 5 of the areas covered by the Doing Business Report, implementing up to 22 reforms in one country over the past 5 years. Egypt has made remarkable strides; however, it must remember not to be satisfied, it still remains to get to the level of Singapore, the global best.

Chapter Five: Literature Review for E-government

The first part of this chapter discusses e-government applications in general and provides definitions of e-government; programs, goals and objectives will be stated; and the advantages of e-government applications and efforts achieved to improve e-government implementation will be listed. In addition, challenging factors facing e-government applications will be described. At this stage it is important to illustrate e-government in the Arab World and the challenges for e-government adoption. Finally, similar studies discussing citizens' perceptions regarding e-government portals will be illustrated.

5.1) Introduction to e-government services and applications on the Internet

It is increasingly being seen as the answer to a plethora of problems that the governments or public agencies in general face in serving their constituencies effectively. "This is especially so in developing countries, where generally the public agencies face resource constraints in improving their operations and delivering services to the citizens. In such cases, e-government has been touted as a means to save costs while at the same time improving quality, response times, and access to services" (Rajendra, 2006). In that situation government must gain the advantages of technology. However, these advantages will not appear unless government changes its way of serving people.

The most apparent proof of changes in the public sector because of modern information and communication technologies are the emergence of electronic services like general online information procurement or various inquiry possibilities which are made available to citizens by administration authorities and political institutions (Oberer, 2002). Therefore the public sector provides a variety of services to citizens. The delivery of information for these services over electronic means such as the Internet forms an important component of e-government strategy. However, providing information is not enough; it is imperative that this delivery satisfies customers of government services. Electronic government or "e-government" encompasses multiple forms of electronically aided information and transactions (Elmargamid and Mclver, 2001; Fountain, 2003).

Due to its multifaceted structure, government provides services at different levels: for

various governments (government-to-government), for private enterprise initiators (government-to-business) and for citizenry access (government-to-citizens) (Horan et al., 2006; Holmes, 2001).

E-service and quality service should be considered when developing e-government service applications; recent e-service research has been primarily concerned with the provision and development of service between an organization and its external customers. Voss (2000) identified ten key steps in the development of an e-service strategy to help create outstanding web-based services. Mieczkowska and Barnes (2002) investigated issues of customer participation in the delivery of library services. Sousa (2002), concerned with the quality of the customer's experience, considered the issues for service design. Verma (2002) investigated the value added features e-service needs to provide to gain market share and profits. Zhu et al. (2002) developed a model linking consumer-perceived quality with e-service to the SERVQUAL dimensions. Walker et al. (2002) investigated the reasons why consumers accept or reject technology. Electronic customer relationship management (e-CRM), whilst recognizing the potential for data mining, improved segmentation and one-to-one marketing, appears to have been primarily concerned with managing the relationship and indeed the contact with customers (Storbacka and Lehtinen, 2001).

5.1.1) Definitions of e-government

"Although definitions of e-government abound, no single definition has been widely accepted. Some definitions enumerate the areas of impact on government, others read like mission and vision statements. Many of the latter definitions emphasize a (re)-orientation on the needs of citizens, businesses, and agencies, or on gains in administrative efficiency, cost savings, or on high service availability such as 24/7" (Peng and Chen, 2005). However, these definitions reflect the anticipation of desired outcomes rather than the particular technologies and tools used which may or may not enable these outcomes. For example, the notion of citizen-centric government could have been propagated long before the advent of the Internet. If the definition of e-government is to bear any meaningful sense, then it needs to reflect what the term "electronic", in connection with government, stands for (Hans, 2006).

The following points are a collection of definitions for e-government applications. The first definition is probably the most generally accepted one; the other definitions are becoming

more detailed.

Generally, e-government entails the delivery of government services and information via the Internet (Liu et al., 2002).

- Broadly, government-to-citizens service involves all the communication or transactions between government, at various levels, and citizens (Horan et al., 2006).
- E-government can be defined generally as the use of information and communication technologies (ICTs) in the public sector to improve its operations and delivery of services (Rajendra, 2006).
- E-government refers to the use by government agencies of information technologies that have the ability to transform relations with citizens, businesses, and other arms of government (World Bank, 2007).
- E-government is a process of rebuilding the present government structure, using information and communication technologies to construct a more appropriate government configuration and operation mode (Peng and Chen, 2005).
- Electronic government is the use of information technology to support government operations, engage citizens, and provide government services. This definition delineates the impact of innovative information technology on how government works and interacts (Hans, 2006).
- Electronic government is any process that the citizenry, in pursuit of its governance, conducts over a computer-mediated network. This definition emphasizes the constitutional foundation of western democratic government and connects it to the technological progress via networks (Hans, 2006).
- E-government refers to such links and processes that by using modern network communication and computer technology, the government simplifies, optimizes, integrates and recombines governmental management function and service function and then operates them on the network, which can break the limitation of temporal, spatial and organization separation to raise governmental efficiency and offer a efficient, excellent and uncorrupted service for the public (Saxena, 2005).

5.1.2) Goals and objectives of e-government

Electronic services to citizens are put in place and internal processes are being made more effective by the use of new technologies (Johnssen, 2006). When government acts to innovate and implement new ideas and technologies, issues arise those are common to all organizations, such as the costs and benefits of adopting new technologies, and the effect of technologies on productivity and customer service. The goals and objectives of e-government derive from the areas that government most needs to improve in the early 21st century. Government requires vast amounts of information in making decisions and delivering services. The Internet and the World Wide Web provide a tool for collecting and disseminating information at an extremely low cost (Cohen and Eimicke, 2003). The efforts to implement electronic government and electronic administration are part of the key objectives of the e-Europe plan:

- "Bringing every citizen, home and school, every business and administration, online and into the digital age.
- Creating a digitally literate Europe, supported by an entrepreneurial culture ready to finance and develop new ideas.
- Ensuring that the whole process is socially inclusive, builds consumer trust and strengthens social cohesion" (Risztics and Jankovits, 2005).

5.1.3) Advantages of e-government applications

E-governance initiatives are common in most countries, including industrialized economies, emerging economies, and developing economies. According to the new eEurope 2005 Action Plan (European Commission, 2002) adopted by the Commission in May 2002, the goal for Europe was to provide its citizens with "modern online public services" by the year 2005 (Dittrich et al., 2003; Strejeek and Theil, 2002). The World Market Research Centre's Global E-Government Survey (World Market Research Centre, 2001) lists 196 countries having e-government initiatives. The United Nations' Benchmarking E-Government Survey (UNPAN, 2001) lists 133 countries. These online services are beneficial to both citizens and government. Government agencies realize benefits in the form of cost reduction and improved efficiency. Citizens receive faster, more

convenient services from a more responsive and informed government (Cartet and Belanger, 2004).

Ancarani (2005) also pointed to the role of e-government applications in the public sector. An important issue in public-sector management today is the increasing demand for transparency, efficiency, and effectiveness in service quality. Although the relationship between customers and firms has become increasingly complex, the availability of information and communication technology has provided an opportunity to improve service quality through electronic interactions (Ancarani, 2005). If correctly applied, the Internet is a powerful tool that allows public-service managers to reduce costs, increase efficiency, and build profitable customer relationships. Some researchers are bearing in mind that e-governance is the second revolution in public management after NPM (New Public Management), which may transform not only the way in which most public services are delivered, but also the fundamental relationship between government and citizen (Saxena, 2005). Oberer (2002) considered one of the major benefits is that e-government causes an improvement of the relationship between administration, citizens and business. Since the 1990s economies experienced changes because of information and communication technologies. These changes have taken place in the public sector too. He believed that the use of ICT enables the development of e-government and causes an improvement of the relationship between administration, citizens and business.

At the level of service, e-government promises a full service available 24 hours a day and seven days a week, greater accessibility, the capability to obtain government services without visiting government offices, and reduced service cost (Hans, 2006). The potential benefits of e-service include ease of access to information, direct access and contact with specific representatives, greater accessibility to services, and cost savings and efficiencies in services provision (de Ruyter et al., 2001; Boyer et al., 2002). The evaluation issue to be addressed is the extent to which firms are capable of re-engineering processes and offices to provide e-services effectively (de Ruyter et al., 2001; Oliveira et al., 2002).

Governments also can enhance the performance by using e-services to improve the responsiveness, efficiency and transparency of the public sector, the importance of e-government is rising as more citizens turn to the Internet as a medium for communication and commerce. Government agencies are responding to this increase in demand by offering more information and services online (Cartet and Belanger, 2006). At the level of basic

factors (government accountability and general acceptance of state institutions), e-governance contributes to the functioning of democracy by online provision of government information which would otherwise be difficult to obtain or unavailable, and through online debates and plebiscites (Teicher et al., 2002). Despite the benefits of e-government – increased government accountability to citizens, greater public access to information, and a more efficient, cost-effective government – the success and acceptance of e-government initiatives, such as online voting and license renewal, are contingent upon citizens' willingness to adopt this innovation (Cartet and Belanger, 2006).

Thompson et al. (2005) identifies the benefits for citizens and businesses in the USA by using citizens and businesses e-government for three main purposes:

1) To access information; searching for information across several governmental databases such as FedStats (statistical information), Library of Congress, SBA research and statistics department, Internal Revenue Service, Social Security Administration, etc.

2) To transact with government electronically; includes submission and receipt of information online to apply and obtain licenses, permits, patents, reports, loans, etc.

3) To participate in government's decision making; involves citizens' participation in rule making such as using e-mails or chat rooms to comment and discuss regulations, e-voting, and e-mailing government officials.

Chen (2007), again in the USA, listed 5 main benefits from the usage of electronic government applications:

- Electronic government will help break down agency and jurisdictional barriers to allow more integrated whole-of-government services across the three tiers of government (Federal, State, and Local). With electronic government, the provision of seamless access will be taken much further and will make government much more approachable. Citizens in Egypt need more accessible government services, especially those remote areas such as al Saeed governorates (higher Egypt) and desert places. A lot of Egyptian citizens who live in isolated and remote places have to visit main cities which are relatively far in order to accomplish tasks such as paying taxes and registering properties. Putting into consideration that transportation in Egypt is

difficult, accessibility of e-government services will pave the way for more reachable government services.

- Government in the off-line environment can be difficult to access. While some business can be conducted by phone, it often requires a visit to a government office. This can be problematic for people in regional and remote locations. Electronic government offers the potential to dramatically increase access to information and services. Providing e-government services to business process in remote places in Egypt can encourage business owners to follow the roles without trying to break the law.
- The underlying goal of electronic government is to improve service quality for all citizens. Electronic government represents convenient and reliable services, with lower compliance costs as well as higher quality and value. Egyptian citizens go through poor government services everyday (obtain licenses, paying taxes etc).
- Cross-agency initiatives can lead to high value services that provide efficiency benefits for both citizens and government. Scope for cross-agency initiatives exists where several services are closely related – that is, where information needs to be acquired from more than one agency (e.g., business services).
- Electronic government helps build an image of a country as a modern nation, an attractive location for people to visit, and businesses to invest.

This has the potential to dramatically increase access to information and services, lower compliance costs as well as raise quality and value and helps build an image of a country as a modern nation.

5.2) Efforts achieved to improve e-government implementation

Given the private sector's experience and success with its development of e-commerce, a government might wish to closely examine what has been done to avoid mistakes and help to direct resources to beneficial applications for both government and public. This point was identified in several sources, including a strategy called Citizen Relation Management (CiRM), a technology with a broad citizen focus, to maintain relationships and encourage citizenship (Schellong, 2005). Recent policy initiatives have advocated a Citizen

Relationship Management (CzRM) strategy in conjunction with e-government to respond to the challenges facing public agencies. CzRM promises higher service quality at lower costs. CzRM was originally a private sector business strategy, part of the "entrepreneurial" paradigm that was applied to the public sector in the mid-1990s (Larsen and Milakovich, 2005).

Relationships between consumers and commercial organizations of all kinds have been revolutionized by the phenomenal rise of e-commerce. Similarly, the increasingly widespread use of the Internet offers a potential transformation of government-citizen relationships in the development of e-government both internally and to interact with citizens, businesses and other governments. Most advanced industrial nations have put considerable political support and financial resources behind the development of e-government. In 2005, the UK for example had a '.gov' domain of around 8 to 23 million pages and spent £14.5 billion a year on information technology in the pursuit of the Prime Minister's commitment to have all government services electronically available. In spite of these resources (greater than 1 per cent of GDP in most industrialized nations is spent on government information technology), e-government has lagged behind e-commerce (Cartet and Belanger, 2006).

5.2.1) Challenging factors facing e-government application

E-government services have had an impact in some countries, but have faced problems in other developed countries. In countries where information literacy is low and not widespread, and the planning economy period leads the present system of government, then implementation is very difficult (Shi et al., 2002). Basu (2004) examined the latency of the developing countries in the field of e-government applications. Most of the developing countries are still at varying stages of the formulation/approval process. The delays appear to be a consequence of lack of international cooperation to this end. The implementation phase would require translating commitment into action at both levels: national and regional. The big challenge would be to bring national e-strategies into overall development and governance practices. He also noted that numerous people in developing countries do not have access to ICT, even if the infrastructure is available. The digital divide is ever present, and there is a large gap between the educated elite who can afford technology, and the uneducated poor who cannot. Heeks (2003) was a little pessimistic, in that he believed

most implementations of e-government in developing countries fail, with 35 percent being classified as total failures (e-government was not implemented or was implemented but immediately abandoned), and 50 percent as partial failures (major goals were not attained and/or there were undesirable outcomes). Failures come at a high price for the world's poorer countries; six categories of potential costs of e-government failure were identified by Heeks (2003):

1) Direct Financial Costs. The money invested in equipment, consultants, new facilities, training programs, etc.
2) Indirect Financial Costs. The money invested in the time and effort of public servants involved.
3) Opportunity Costs. The better ways in which that money could have been spent, if it was not spent on the e-government failure.
4) Political Costs. The loss of 'face' and loss of image for individuals, organizations and nations involved in failure.
5) Beneficiary Costs. The loss of benefits that a successful e-government project would have brought.
6) Future Costs. An e-government failure increases the barriers for future e-government projects.

He believed that key problem among e-government practitioners is a lack of awareness of these costs. Most costs are intangible; few are ever measured in the event of e-government failure; e-government failures are often hushed up. This may explain why, despite the high costs of failure and the high prevalence of failure, many officials and politicians are still very keen on e-government.

Duquenoy et al. (2005) argued that current Critical Success Factors (CSFs) in e-government did not take into account the full range of characteristics that apply to this sector, and that new e-government CSFs were needed in order to improve the success rate of e-government projects. They aimed at identifying the main characteristics of e-government in order to assess the range of aspects that are likely to affect the success or failure of an e-government project. Setting out the concept of e-government, and its importance in an e-society was the beginning of this study. Noting the failure rate of e-

government projects, the research followed with a discussion of CSFs. Then, identifying the range of aspects of e-government and aligning these to CSFs. Elnaghi et al. (2007) identified the shortage of leadership in e-government projects. In this research Elnaghi et al. (2007) have presented an argument based on a thorough detailed literature review reinforcing the importance of leadership in e-government evolution process. Elnaghi et al. (2007) suggested that a new style of leadership, which has certain characteristics was required in order to advance the agenda of e-government, and reach the highest level of maturity. Furthermore, the development should be signposted where it could encapsulate the whole aspect of e-government.

Ebrahim and Irani (2005) and Ndou (2004) concluded that the public sector was not flexible enough. The public sector must change and reengineer its processes to adapt to the new technology and culture of an e-government. This can be problematic and can result in some stakeholders resorting to politics due to their reluctance to share information, which might be perceived as a reduction of their authority (Ebrahim and Irani, 2005). If this and other forms of resistance are not managed using change management or similar initiatives, the gap between the technology and the social context in which it operates will not be bridged. Irani et al. (2006) assumed that all e-government portals identified a transaction stage along the pathway to full systems integration. He believed that figures suggested a significant number of project failures occurred at this stage and that research to identify and overcome the challenges presented at this stage is critical. In this study the transaction stage is clearly delineated as the point at which online technology ceases to be peripheral to the agency's activity. In addition, he presented this organizational challenge and an appropriate research strategy is defined to uncover the problems that arise at this point. Finally, Irani et al. (2006) gave a partial explanation for this failure, which was that "the transaction stage presented the first real challenge to the broader organizational structure of a government agency". Schware and Deane (2003) directly blamed the public sector in e-government development practice for redundancy of efforts and costs. Separate agencies within governments have redundant planning committees for e-government. Committees within these agencies seldom have the mandate to influence ICT or telecommunications policy. Lack of coordination results in duplication of projects, redundant spending on similar projects and equipment, software licenses and consulting services. They also noted that the ICT sector lacks the means and motivation to generate innovations required to support new

initiatives in e-government. They commented that funding e-government projects in developing countries is usually driven by individual government departments that frequently depend upon on aid from donors. Once this financing ceases, there is often insufficient funding to continue the project.

One of the challenges in delivering e-government services is to design the websites to make it easier for citizens to find desired information. Current evaluations of government website design mainly concentrate on features that would enhance usability, but few of them answer why some Web design is better than others to facilitate citizens' information searches. In part motivated to enhance the quality of service and operate more efficiently, government interest in the Internet continues to expand. Unfortunately, despite these ever increasing applications, little effort has been placed in the evaluation of government service provided through the Web (Wang et al., 2005).

Edmiston (2003) identified four barriers to develop e-government applications supporting local government in the USA: acceptance of a new public service delivery paradigm, privacy concerns, equitable access, and transition financing. These appear to be the major obstacles holding citizens back from using e-government services. Gilbert and Balestrini (2004) pointed to the barriers to adoption (experience, information quality, financial security, low stress, trust and visual appeal). Jager and Thompson (2003) mentioned some direct and indirect challenges to implement e-government:

1) sustaining committed executive leadership
2) building effective e -government business cases
3) maintaining a citizen focus
4) protecting personal privacy
5) implementing appropriate security controls
6) maintaining electronic records
7) maintaining a robust technical infrastructure
8) addressing IT human capital concerns
9) ensuring uniform service to the public.

In addition, as broad challenges, defining the parameters of e-government and making e-government function so that it does not conflict with other laws. Jaeger and Thompson (2003) also stated that an e-government system may fail if the government did not take an active role in educating citizens about the value of e-government. It would also fail if the users did not have the ability to use the technology to enable access of useful information and services. This would lead to a low user base, as the system would not be equally accessible by all citizens.

Regarding trust as a challenging factor affecting e-government programs, Chee (2005), Tassabehji and Elliman (2006) and Dashti et al. (2009) conducted three studies to evaluate e-service. Chee (2005) used focused group and semi-structured interviews. He analyzed data using a qualitative in-depth analysis. The population was the people who deal with the tax-filing system in Singapore. At the same point of interest, Tassabehji and Elliman (2006) conducted research about the extent to which trust issues inhibit a citizen's take-up of online public sector services or engagement with public decision and policy-making. They argued that a citizen's decision to use online systems is influenced by their willingness to trust the environment and agency involved. This study addressed one aspect of individual 'trust' decisions by providing support for citizens trying to evaluate the implications of the security infrastructure provided by the agency. Based on studies of the way both groups (citizens and agencies) express their concerns and concepts in the security area, the study developed a software tool – trust verification agent (TVA) – that can take an agency's security statements (or security audit) and conclude how effectively this meets the security concerns of a particular citizen. This enabled citizens to state their concerns and obtain an evaluation of the agency's provision in appropriate "citizen friendly" language. Dashti et al. (2009) used the survey approach. He discussed the impact of an individual's perceived trust on his/her trust in e-government. The research chose the survey approach to be the most suitable data collection option. The study was carried out online by a marketing research company that randomly selected and invited subjects who met the criteria specified (i.e. Canadian residents over 19 years of age). For the sample size, 250 were participants. The study provides empirical evidence of the relationships among perceived trust by e-government, trust in e-government, and intentions to use e-government websites. The findings indicate that perceived trust by e-government is a significant factor in the adoption of government websites.

5.3) E-government in the Arab world

Much of the existing research focused on e-governments in developed countries in the Western countries. On the other hand, very little is known about e-government development efforts and current developments in Arab countries (Chatfield and Alhujran, 2007a). However, some studies presented a review of e-government initiatives in Gulf countries (Kostopoulos, 2004; Pons, 2004; Sahraoui, 2005). Others did so in a single country background (e.g., Abusin, 2007; Almahandi, 2004; Al-shehry et al., 2006; Ciborra and Navarra, 2005; Zaied et al., 2007). Catfield and Alhujran (2007) classified Arab countries into the following three groups based on their progress in term of e-government service delivery capabilities: Arab e-government leaders (UAE, Bahrain, and Qatar); Arab e-government up-and-coming (Jordan, Lebanon, Kuwait, Egypt, Saudi Arabia, Morocco, Tunisia, Algeria, Oman, and Syria; Arab e-government laggards (Yemen, Iraq and Sudan). In this study, the authors based their categorization upon the e-government service delivery capabilities provided to the public. The Arab e-government leaders delivered advanced e-government service capabilities to their citizens, including e-democracy facilities. The Arab e-government up-and-coming group, in which most of the Arab countries are clustered, is also offering some promising or innovative e-government service delivery capabilities to the public. In contrast, the Arab e-government laggards group offers the public limited information content and e-government services.

Regarding citizens' adoption, a small number of e-government adoption studies have been undertaken in the Arab world. For example, AlShishi (2006) explored e-government adoption in Oman from both demand and supply side perspectives. From the demand side perspective, the study found a correlation between e-government adoption and the participants' characteristics such as ICT literacy, age, education, and income. According to this study, citizens who are young, educated, and have a higher income are likely to adopt e-government services faster than others. In addition, e-government adopters are likely to be computer and Internet literate. This study also examined the main barriers to citizen adoption of e-government information and services. The lack of citizen ICT literacy, awareness and knowledge about e-government, and the lack of trust were the most significant.

In Jordan, Ciborra and Navarra (2005) explored the main challenges facing e-government

implementation in this country. According to them, Jordan is one of the rare countries in the Middle East with a history of commitment to good governance and ICT-related initiatives. At the time of their study the implementation of e-government in Jordan was at an early, but crucial stage. The King was very committed to the success of ICT led projects, which signaled high-level commitment to e-government initiatives. The recently formed Ministry of Information and Communication Technology (MoICT) – previously the Ministry of Post and Communication – is the government body in charge of implementing e-government initiatives. The MoICT is in the delicate phase of coordinating a number of activities with all other government ministries and departments. The main objectives are the creation of a shared vision about e-government and a government wide network infrastructure to enable the government to introduce knowledge management, empower, and connect government staff.

In a recent study, AlAwadhi and Morries (2008) studied G2C e-government services adoption in Kuwait. In this study, a questionnaire was administrated to 1013 students. The findings showed that facilitating conditions, peer influence, performance expectancy, and effort expectancy were significant determinants of e-government services adoption in this country. The authors suggested investigating other factors such as culture and trust as bases for future research.

In Egypt, as an Arab country, education and ICT literacy are essential to develop e-government solutions among society. In addition, it is the right time in Egypt to pay more attention to the e-government trial in order to move from the Arab e-government up-and-coming (Jordan, Lebanon, Kuwait, Egypt, Saudi Arabia, Morocco, Tunisia, Algeria, Oman, and Syria) to be among the Arab e-government leaders (UAE, Bahrain, and Qatar). This classification was drawn by Catfield and Alhujran (2007).

5.3.1) Challenges for e-government adoption in the Arab world

Most of the developing countries, including the Arab countries, understand the vast potential of e-government (Basu, 2004). As a result, e-government initiatives have flourished in developing countries (Ndou, 2004). However, the literature reported the low level adoption of e-government services, largely due to the high level failure of e-government projects and low level functionally adopted in developing countries (Dada, 2006; Heeks, 2003). A review of the literature identifies the following challenges, including

the digital divide, ICT infrastructure, internal resources, and legislation and policy issues. These challenges are particularly apparent in the Arab world.

5.3.1.1) Digital divide

In spite of the increased number of people who are utilizing e-government services, the digital divide is still a major challenge for many citizens to gain advantage from them (Bertot, 2003; Jaeger and Thompson, 2003; Mossenburg et al., 2003; Thomas and Streib, 2003). Any government – especially in developing countries – needs to ensure that more citizens have access to its online services. In fact, ICT literacy and e-readiness are critical factors to enable the public to benefit from e-government services.

5.3.1.2) ICT infrastructure

ICT infrastructure is documented as one of the major challenges for e-government initiative implementation (Jaeger and Thompson, 2003; Ndou, 2004 and Pons, 2004). Providing reliable telecommunication infrastructure, Internet access and opening new service delivery channels (cellular phones and kiosks) is necessary to provide e-government services to all citizens and businesses. Also, integration of data and technology across the government, as well as interconnection between all the governmental departments, are two essential factors to provide a central point of entry to all e-government services (Huang and Bwoma, 2003).

5.3.1.3) Internal resources

E-government system development requires the allocation of resources such as financial and human resources and the rigorous management of these resources. In developing countries, e-government projects are usually dependent upon financial aid from external donors. Usually this financial aid will not be sufficient to complete the whole project. For this reason, projects are often discontinued at some stage, causing project failure (Dada, 2006; Schware and Deane, 2003). Another challenge for these countries is the shortage of qualified personnel and the lack of professional training (Basu, 2004; Dada, 2006; Ndou, 2004). Qualified staff and training programs are essential requirements for e-government success.

In addition, implementing e-government introduces new ways of performing and processing tasks. Thus, change management issues need to be addressed. One of the

important issues to overcome is employee resistance to change, as they assume that ICT would replace them and therefore would increase the possibility of losing their jobs (Ndou, 2004).

5.3.1.4) Legislation and policy issues

Using Internet applications involving e-government demands a range of new policies, laws and rules to deal with electronic activities. For instance, regulations on electronic stamps and electronic signatures are required. Policy issues such as privacy and security on data collected by the government agencies about citizens, are also a large concern (Basu, 2004). People usually have concerns about privacy and misuse of their personal information when this information is shared over the nternet (Carter and Belanger 2005). Therefore, governments must ensure high security and privacy standards on government websites by adopting and strategically communicating its information security policy in order to earn users' trust and a continuous willingness to adopt e-government services (Alhujran and Chatfield, 2008).

5.4) Citizens' perceptions regarding e-government portals

This section will show related studies to citizens' awareness and perception regarding e-government programs and initiatives, plus the performance of e-government modules in developed and developing countries. Demonstrating these studies would be upon consideration of its scope, methods used findings and relation to current research. Some of these studies are related directly to the current research, they might use the same methods or discuss the same components, such as the questionnaire part. In addition, a couple of researchers Shi (2009) and Al-Fakhri et al. (2008) showed the content through a comparison between countries. Such comparison could be useful to Egypt, especially when applying solutions from other successful countries.

Shi (2009) examined the accessibility of provincial government websites in China and state level websites in Australia. He found that there were serious accessibility problems on Chinese e-government websites in the first audit, and the situation was even worse in the second audit (first audit 2004, second audit 2005). He concluded that no efforts have been made to build accessible e-government websites in China. As for the Australian e-

government websites, although they generally did well in terms of accessibility, some small errors found in the first audit were not eliminated in the second audit. Concluding these results were achieved by examining the accessibility of the home pages of the 30 province-level Chinese government websites and the 8 state- or territory-level Australian government websites on December 24, 2004 and September 19, 2005.

On the other hand, Al-Fakhri et al. (2008) explored the comparison between e-government initiatives in Saudi Arabia and neighbors, such as the United Arab Emirates. He focused on the awareness of Saudi government employees about the implementation of e-government. In addition, he showed the problems and challenges that faced the Saudi government as it tries to implement an e-government program. Many of these problems are shared between Arab countries, including Egypt. In this study, he identified 13 problems facing the e-government initiative in Saudi Arabia.

Kannabiran et al. (2008), Kolsaker and Kelley (2006) and Shackleton et al. (2004) showed disadvantages in their e-government programs.

Kannabiran et al. (2008) analyzed the factors related to access to and usage of the services offered through RASI (Rural Access to Services through the Internet) in India. His scope was to assess the level of awareness of the various types of services that are being offered, find out the factors that influence the extent of utilization of services, identify the level of satisfaction of citizens towards the services and find out the problems faced by the end-users (citizens) and kiosk operators. Data for his empirical research was collected through survey and interviews during two time periods (2004 and 2006). The survey questionnaire was designed based on initial discussions with citizen users, kiosk operators and government officials. After that, pilot testing was applied before administering to a large number of respondents. The data obtained from the citizen users was coded and analyzed using the statistical software SPSS. The current research will use a questionnaire as one of the research methods, in addition it will use SPSS in order to calculate data and show statistics. The conclusion of Kannabiran et al. (2008) showed that the project has largely deviated from its objectives, due to lack of government support, non-scalable technology and ownership issues. Moreover, it was observed that most of the services have experienced a substantial decrease in usage during 2004 to 2006. He indicated some direct reasons, like the lack of locations of the kiosks, relatively high fees and the non-variety of services offered.

Illustrating problems regarding e-government programs in developing countries such as Saudi Arabia was expected, especially because they are at the launching stage of the e-government initiatives. However, other advanced e-government programs in developed countries showed some shortages too. Kolsaker and Kelley (2006) and Shackleton et al. (2004) focused on their e-government programs in the UK and Australia. Comparing to Egypt, India and Saudi Arabia, UK and Australia reached advanced stages regarding their e-government applications.

Kolsaker and Kelley (2006) proposed that the UK e-government strategy hitherto has failed to value knowledge sufficiently. They found that the UK has adopted a techno-centric model which, in their analysis, fails to engage citizens as anticipated, underplays the importance of Knowledge Management (KM) and clashes with the traditional values of public service. They believed that there appears to be an over-emphasis upon technological solutions and a corresponding neglect of organisational issues, such as culture and practices. They argued that the UK government should realize how to ensure organisational learning, how to address management deficiencies and how to overcome resistance to knowledge-creation and sharing. In addition, they noticed that tensions might arise between the political and implementation levels, between policy objectives and administrative capabilities, between long-term goals and short-term expediencies and in various forms of collaborations.

In order to deliver their results, they adopted a socially based approach to the question of whether the assumptions underpinning current e-government communication initiatives are at odds with the historically embedded practices and culture of public sector officials and servants. Plus, they investigated whether the existing mechanisms for interface, coordination and control are congruent with the rules of e-governance and provision of e-services.

On the other hand Shackleton et al. (2004) presented a study that examined the current status of Australian local government electronic service delivery, exploring the appropriateness of current e-business maturity models for evaluating the progress local governments are making towards electronic service delivery. His research involved an evaluation of local government websites (detailed case study of one local council has been applied). The objective of the first stage of the study was to examine the content and level of maturity of different aspects of Victorian council websites. Then, a context matrix was

developed and used to examine the presence of a number of features, such as basic information, email facilities and the ability to make a payment. The analysis of quantitative data from this pilot study supported to identify the extent of development and the directions in which local governments are moving in the area of e-government. In brief, the research was based on two-stage approach. Stage one was a quantitative study of the characteristics of 20 local government websites. It identified the common features and provided some indication of maturity levels of those sites. Stage two was a case study of the approach of one municipal council and a resultant examination of its maturity level in the implementation of e-government services. The study involved working with staff over a period of six months, observing and interviewing them as they developed and implemented the last iteration of the council's web page.

They found a failure to move from Web-based information to e-service provision and he pointed this as the most notable thing in the local government sector in Australia. In addition, the results indicated that apart from Web-based information provision, little progress has been made in the transition to electronic service delivery in most areas of local government. Furthermore, they noticed, in an effort to promote and enhance the use of websites, local governments have started to make non-integrated moves toward e-democracy and e-governance, suggesting that conventional linear e-business and e-government maturity models may not be appropriate for this sector. In summary, the review of council websites found that service maturity varied according to service type and that there was no consistency. Services relating to governance are generally more mature with a greater level of sophistication compared with other services. He admitted that limited e-commerce facility is available; some councils accept rate payments over the Internet but little else.

Next, research by Dwivedi and Williams (2008), Chee et al. (2005), Kolsaker and Kelley (2008), Horan and Abhichandani (2006), Reddick (2008), Mofleh et al. (2008) and Shafi and Weerakkody (2007) discussed citizens' satisfaction regarding their e-government services. Mofleh et al. (2008) and Shafi and Weerakkody (2007) applied their research in Qatar and Jordan, which are developing Arabian countries like Egypt. On the other hand, Reddick (2008), Horan and Abhichandani (2006), Kolsaker and Kelley (2008), Chee et al. (2005) and Dwivedi and Williams (2008) applied their studies in developed countries, which are the US, the UK and Singapore. Regarding research methods, Dwivedi and

Williams (2008), Kolsaker and Kelley (2008), Horan and Abhichandani (2006), Reddick (2008), Mofleh et al. (2008) and Shafi and Weerakkody (2007) used a questionnaire survey in their studies. It is the same method that would be used in the current research. In addition, some of them would use the case study approach, which is also used in the current research.

Chee et al. (2005) explored the success story of Singapore's electronic tax-filing (e-filing) system, to reveal how trust-building mechanisms have been incorporated into its techno-structure to attract a phenomenal rate of public user acceptance. This example should be considered in Egypt, especially because of the high number of Egyptian citizens who deal with the tax authority. This study has adopted an in-depth case research methodology. The case study for this research was conducted using several methods of data collection. Focused, semi-structured interviews were conducted with organizational members associated with various developmental phases of the e-filing system. They concluded that the restoration of public trust can only be achieved through a blend of socio-political strategies and Information Technology. They proposed a clearer distinction between developmental implications for e-governments and the respective complementary roles of IT.

Dwivedi and Williams (2008) presented an empirical analysis of the influence of demographic variables on citizens' adoption of a recent UK e-government initiative, the Government Gateway. This topic is related to the current research. The current research showed that most e-government users are young or middle age. This is normal, but the reasons for that will be discussed later.

Dwivedi and Williams (2008) used three key demographic characteristics – age, gender and education – that provide insights into Government Gateway adopters and non-adopters. Data on these variables were collected on a nationwide scale by employing a postal survey. A self-administered questionnaire was considered to be the most appropriate primary survey instrument in this investigation. The collated data was analysed using SPSS and the calculation of response percentages, chi-square values and logistic regression in order analyse the key variables in that study. They found that the three variables of age, education, and broadband access at home significantly influence citizens' adoption of the Government Gateway, whilst gender was found to be non-significant. From their point of view, that means that, in the case of the Government Gateway, non-adopter categories such

as older people and people with lower levels of educational attainment should be targeted first as a priority. An important consideration for government agencies and policy makers responsible for e-government deployment is to encourage the segments of society that are traditionally seen as being slow to adopting emerging e-services such as the Government Gateway. By doing so they would help to reduce the socio-economic gaps and consequently the digital divide.

Kolsaker and Kelley (2008) also conducted their study in the UK. The scope of their study was the further understanding of citizens' attitudes towards electronic government (e-government) and e-governance. This objective is directly related to the first objective of this thesis, which is measuring the citizen's perception regarding the e-government portal in Egypt. A 10% response rate provided them with 302 completed questionnaires; 216 users of e-government portals and 86 non-users. The data were analysed using SPSS. In addition, correlation matrices, ANOVA testing and Varimax method which maintains independence among variables were used. They found that, whilst interest in e-government is generally low overall, users appreciate personalisation, user-friendliness and the ability to communicate. Users and non-users perceive moderate value in e-government for knowledge acquisition and communication, but little as a vehicle of democratic engagement. Those using e-government frequently are more positive than other groups. They believed that in order to improve usage, non-users need to be tempted online in a secure environment, that users should be provided with personalised pages in line with their expectations, that elected members should be encouraged to view the Web as a means of reaching out to voters, and that citizens should be educated in exploiting the potentially valuable online tools to enhance participation.

Horan and Abhichandani (2006) and Reddick (2008) conducted their studies to measure the citizens' satisfaction regarding their e-government services in the US. While Reddick (2008) used information technology (IT) directors in local governments, Horan and Abhichandani (2006) used regular citizens. Horan and Abhichandani (2006) presented the results of a statistical analysis of an online survey conducted in evaluating e-government initiatives (in the field of metro transportation). An online survey was designed comprising questions related to the EGOVSAT model, demographics and past user experience with technologies. The sample for the survey respondents was gathered in various ways. Initially, a databank provided by a commercial organization was utilized. Subsequently, a

URL for the online survey was provided. Focus group participants were chosen from a group of survey respondents who had agreed to participate in the follow up study. They found that Utility, Efficiency and Customization are important factors that influence emotional satisfaction. The Utility construct was very strong. Features related to efficient access were also found to be determinants of overall satisfaction in using online public transportation informational services. The Customization construct was found to be a limited determinant of emotional measures. They argued that government websites have been known to generate a considerable amount of Internet traffic. This led to an overall realization of the importance of e-government initiatives by citizens and by government agencies at various levels.

In the other study from the United States, Reddick (2008) examined the perceived effectiveness of e-government by Information Technology (IT) directors in local government. He suggested four hypotheses in his study that examined the impact of the perceived effectiveness of e-government on e-government usage. A survey and cover letter introducing the project were sent to IT directors serving cities with populations of 75,000 residents or greater. The methods of analysis of the survey results were Chi-square statistics, to test whether there was a relationship between e-government usage and different perceived factors of e-government effectiveness. This study also used Ordinary Least Squares (OLS) regression to examine the relationship between the perception of e-government effectiveness and its usage. He found that websites were the most effective service channel for getting information; the telephone was the most effective service channel for solving a problem; while in person at a government office was the most effective service channel for citizens to access city services. In addition, he realized that e-government usage was positively related to managerial effectiveness, having a champion of e-government and perceived effectiveness of citizen access to online information. He recommended that cities should be cognizant that e-government is a major force in citizen-initiated contacts with their government in the states. Plus, reaching higher levels of e-government diffusion involves providing more transaction-based services and the ability for citizens to solve problems online.

Finally, Mofleh et al. (2008) and Shafi and Weerakkody (2007) applied their studies in developing and Arabian countries. Both aimed to measure citizen satisfaction regarding the e-government portal and they used a questionnaire as research method. In addition, they

applied case studies in their researches and used mixed method. They were important to the current research because they aimed at the same scope, they used the same data collection methods and they were conducted in the Arabian environment.

Mofleh et al. (2008) investigated Jordan's deployment of e-government and examined how far it was citizen-centric. They used multi-method approaches combining qualitative and quantitative methods. Four main approaches have been used to collect and analyse the required data. Document analysis of more than 80 governmental publications was used to examine people's consideration in e-government proposed strategies and future ICT projects. This involved reviewing government plans, strategies, and published online reports. An online questionnaire targeting a sample of 660 participants representing the Jordanian e-society was used to discover the level of demand for e-government services. Website content analysis of 30 government websites was also carried out. The aim of this analysis is to examine the responsiveness of government's websites to different citizens' needs. The sample included websites of core government ministries and agencies. 19 semi-structured interviews with managers from the e-Government Program Office, Ministry of Information Communication Technology, and Ministry of Planning, which directs funding for a number of ICT based projects, in addition to IT managers from across other ministries and government agencies in Jordan. They found that the majority of people would use government websites for informative online services. However, as the level of government services increases, the intention of participants to use them decreases, with the majority of people not willing to access advanced services online. They concluded that these results reflected the low demand of the Jordanian e-society for e-government services, with the majority of participants still preferring traditional face-to-face government services. This is the same case in Egypt, people are avoiding e-government portal and prefer to deal with government in traditional ways.

On the other hand, Shafi and Weerakkody (2007) focused on why the progress of e-government has been slow in Qatar and what the disparity is between the government's and citizens' expectations of e-government in Qatar. They used informal open-ended interviews with two citizens (users) and six government workers involved in the Qatari e-government project. In addition, a survey questionnaire was distributed to 100 Qatari residents. They found that, despite a superior ICT infrastructure, issues such as lack of awareness, bureaucratic business practices and citizens' satisfaction levels with the current national e-

government strategy were influencing the adoption of e-government services in the State of Qatar. Furthermore, they admitted that although the Qatari e-government efforts are ranked highly in the region, much more was needed in terms of providing better, more value-added and user-friendly services that meet the citizens' high expectations for e-government.

5.5) Summary

A small number of e-government adoption studies have been undertaken in the Arab world. For instance, AlShishi (2006) explored e-government adoption in Oman from both demand and supply side perspectives. The study found a correlation between e-government adoption and the participants' characteristics, such as ICT literacy, age, education and income, and this was also present in the current questionnaire results in chapter seven. The current results mentioned that the majority of respondents were young. According to AlShishi's (2006) study, citizens who are young, educated and have a higher income, are likely to adopt e-government services faster than others. In addition, e-government adopters are likely to be computer and Internet literate. This point was considered in the current small sample, as the research wanted to ensure the usage of ICT among the respondents in order to get more reliable results about their perception. This biased small sample does not represent the whole Egyptian society, but it could be considered as a small number of people who expressed their opinion regarding the Egyptian portal.

The current research did not set out to demonstrate all the problems; however, it has shown some which also relate to Egypt. For instance, Al-Fakhri et al. (2008) pointed at the lack of knowledge about e-government in Saudi society, the lack of trust in accomplishing tasks online among Saudi government employees, the lack of studies and research in Saudi Arabia regarding e-government, the dominance of English as a computer language and predicting that e-government would reduce the role of employees in accomplishing work. But he did give some useful recommendations, which could be implemented in Egypt. Based on his findings, the country should consider several reforms, such as increasing the awareness of the e-government program among government employees and the public at large; making Internet access more available across the full spectrum of society; equipping public facilities for Internet usage; developing a legal framework for secure e-transactions; adopting a flexible approach to technological change and the IT environment more

generally.

In Egypt, government should learn from other e-government initiatives. Further more, it should be aware of other programs problems because Egypt still at the beginning of e-society, error corrections might be very cheap now compared to the future.

The EGOVSAT model considered these broad perspectives and presents a causal construct, comprising features that promote confidence, trust, openness and citizen-centric delivery in utilizing online government initiatives. The current research has chosen to adapt this model. EGOVSAT tried to measure some important components regarding citizen satisfaction towards e-government applications. This choice was based on the following: that the model included various performance and emotional measures. In addition, the model was being applied to online Advanced Transportation Information Services (ATIS), a form of government-to-citizen online service delivery in the United States. The match with the current research was apparent; the objective of the questionnaire was measuring the citizen's satisfaction towards the e-government portal in Egypt. Although the EGOVSAT model was used by Horan and Abhichandani (2006) in a transportation system, the current research used it for an e-government portal. Both are government services, but the research reported in this thesis could not apply the study to the same kind of sample because of some difficulties such as cultural and financial factors. In other words, although this measurement has been utilized for the domain of ATIS (Horan et al., 2006), it is also designed to evaluate other government-to-citizen Web-based initiatives.

Chee et al. (2005) illustrated an example which should be considered in Egypt, especially because the high number of Egyptian citizens who deal with the tax authority. This study has adopted a case study method, which will be used in Chapter 9.

Some of the previous studies like Mofleh et al. (2008) were important to this thesis, because they aimed at the same scope, they used same data collection methods and they were conducted in a similar environment. After the previous demonstration, the current study would use a joint approach of quantitative (questionnaire and reports comparison) and qualitative (case study) strategies to explore the research questions of this research. The usual reason for choosing a mixed research approach is that it may capitalise on the strengths and resolve the weaknesses of each single method (Mingers, 2003).

Investigating a research problem using multiple research design provides rich insight, because the problem is approached from differing perspectives. This allows the researcher

to develop a more accurate explanation of the phenomenon (Kaplan and Duchon, 1988; Mingers, 2003).

Chapter Six: Research Methodology

The aim of this research is to add to a better understanding of e-Government processes in Egypt. This aim will be achieved through the following questions:

- To what extent does the Egyptian e-government portal provide appropriate services for its citizens?
- Is there a relationship between rankings in the E-Government Readiness Report (UNPAN, 2005) published by United Nations and ranking in the Ease of Doing Business Report (2007) published by the World Bank? Where does Egypt fit in these rankings, compared to its neighbouring countries?
- How can the use of e-government services help Egyptian citizens to do business more easily?

This chapter describes, explains and justifies the methods chosen to answer each research question. The relationship between the questions and the outcomes is discussed throughout the chapter to demonstrate how the main research aim will be achieved.

6.1) Relations between research questions and research aim

In order to understand the processes of e-government in Egypt, the three research questions took different, but linked, approaches to the problem. The literature showed the history of e-government development, but not from the perspective of the Egyptian citizen. The questionnaire, explained in detail in section 6.4, was designed to discover the perceptions of the citizens about their e-government portal.

As many citizens are business people, another aspect of the research was to explore the rank of Egypt in two important international reports. The E-Government Readiness Report (UNPAN, 2005) and the Ease of Doing Business Report (World Bank, 2007) show, by means of common indexes and indicators, how countries rank against each other. This is explained in detail in section 6.5. One of the indexes, that of Human Capital (UNPAN,

2005) looks at the nation level of education. As national statistics show (Figure 2.5) Egypt has an illiteracy level of at least 40%, which can negatively affect the use of e-government services. The indicators in the Ease of Doing Business report (World Bank, 2007) show the government requirements for a number of core business activities and this question explores the extent to which these indicators are linked to e-government readiness.

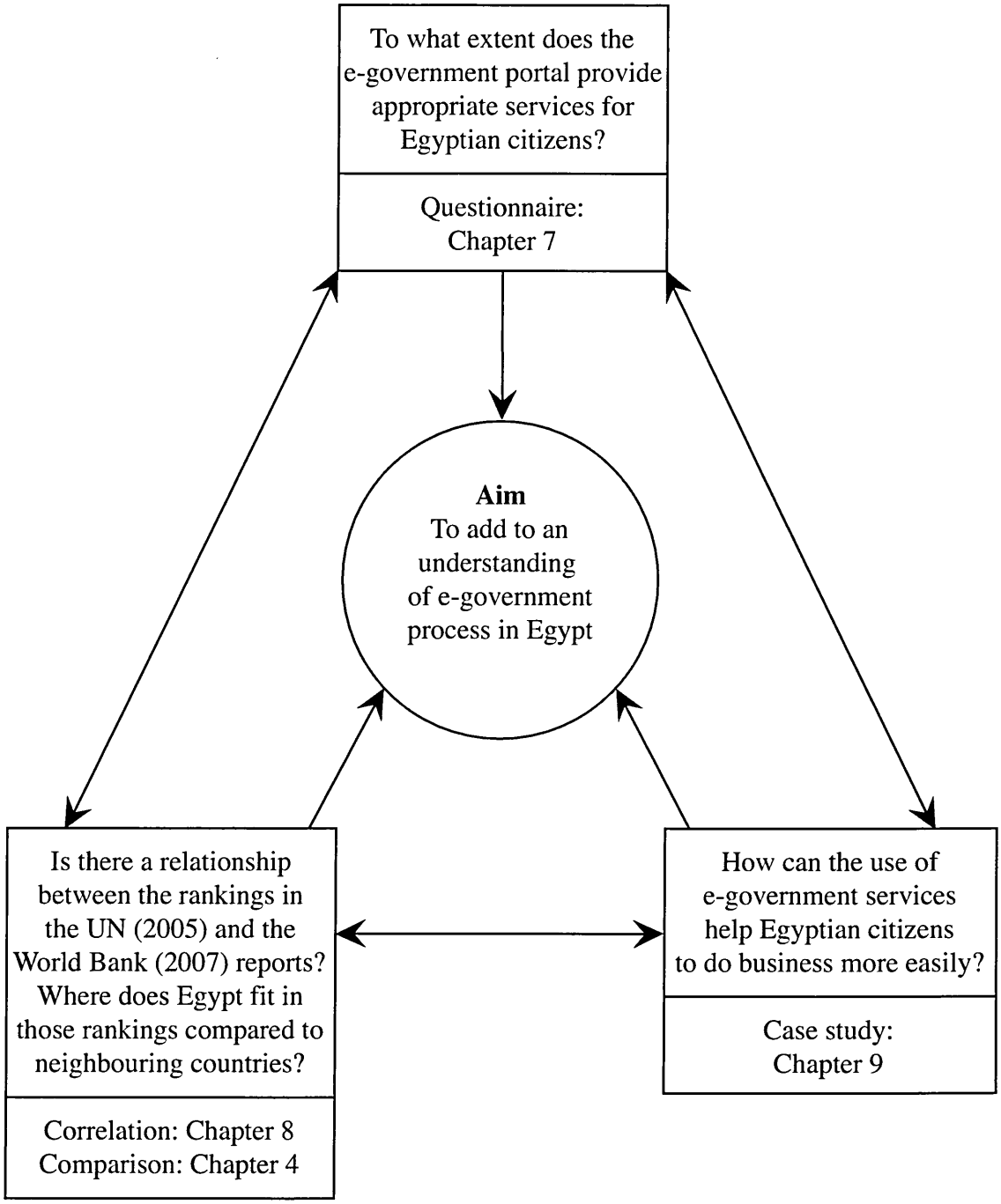
The third question brings together the two previous approaches by investigating business processes in Egypt. This question is answered through a case study, which is explained in section 6.6. It is proposed that the use of e-government services by the owners of small and medium businesses is vital in Egypt's economy.

The links between these questions is shown in Figure 6.1 on the following page.

6.1.2) Integration between research questions and methods

In order to achieve the first research question, a questionnaire provided a snapshot of what is going on with e-government portal in Egypt. It reflected the perception of a small purposive sample of Egypt's urban citizens regarding their e-government portal. In addition, it supplied the research with appropriate demographic statistics, which were used further in the analysis phase. The questionnaire targeted the citizen's perception regarding the five constructs, utility, reliability, flexibility, customization and efficiency. To answer the second research question, empirical and theoretical literature were used to discuss the concepts that inform the World Bank and the United Nations reports to identify additional basis for the correlation. There is more to be discovered in future regarding this area of research such as the relationship between e-government usage and level of education. Finally, a case study was applied in order to answer the third research questions. Using the Ease of Doing Business Report (World Bank, 2007) this case study focused on two of the ten topics. The research demonstrated the full cycle to obtain a license and to register a property in Egypt putting into consideration the social, political and economic accounts of the Egyptian context.

Figure 6.1: Links between the research aim and the research questions



All three research questions aim to explore the usage of e-government applications. They tried to discover the perception regarding the Egyptian e-government portal (questionnaire), assure the positive effects for using e-government applications on the business projects performance (correlation), demonstrate the condition of a sample of business processes in Egypt and show the current effect of using traditional approaches to achieve these business processes. The aim of the case study was to compare similar successful business solutions using e-government applications in other countries in order to demonstrate that Egypt may also simulate these good examples using the e-government portal. Figure 6.2 (on the following page) shows the potential outcomes of each research question and how these relate to the other questions.

At the beginning of the study the aim of the research questions was to explore the use of e-government services in Egypt and to show the perception of using the portal. However, the research made a transition between finishing the questionnaire and starting the correlation between two reports. The correlation of Egypt's ranking in the two reports switched the focus to business; then the case study showed the potential of e-government in the business environment. This move is justified. The research first wanted to measure and indicate the usage of e-government in a small purposive sample for the Egyptian society. Then, the research considered the importance and effect of an educated citizen's perception regarding the success of the Egyptian e-government portal. In another way, the research wanted to link the citizens' acceptance and usage of e-government portal at the business level and that usage could make business processes much easier. In Egypt, initiatives such as e-government program need to be trusted first by citizens then applied in small and medium businesses. In addition, more of e-government services might apply if educated citizens trusted and were satisfied with the process. If citizens trusted the portal and got used to it, it might end up with thousands or millions of transactions made through the Internet.

Figure 6.2: Potential outcomes and research questions

Research aim: To add to an understanding of e-government processes in Egypt		
Research Question	**Potential outcomes**	**Related to questions**
To what extent does the Egyptian e-government portal provide appropriate services for its citizens?	Evaluation of citizens' satisfaction with the e-government portal. Identification of the importance of education in the perception of services provided by the e-government portal.	Is there a relationship between rankings in the E-Government Readiness Report (2005) published by United Nations and ranking in the Ease of Doing Business Report (2007) published by the World Bank? Where does Egypt fit in these rankings, compared to its neighbouring countries?
	Understanding of the use of the e-government portal for business purposes and its link with the satisfaction level.	How can the use of e-government services help Egyptian citizens to do business more easily?
Is there a relationship between rankings in the E-Government Readiness Report (2005) published by United Nations and ranking in the Ease of Doing Business Report (2007) published by the World Bank? Where does Egypt fit in these rankings, compared to its neighbouring countries?	Understanding of the links between the rankings in these two international reports.	To what extent does the Egyptian e-government portal provide appropriate services for its citizens?
	Comparison of Egypt's rankings in the E-Government Readiness Report (2005) and the Ease of Doing Business Report (2007).	How can the use of e-government services help Egyptian citizens to do business more easily?
How can the use of e-government services help Egyptian citizens to do business more easily?	Facilitation of business processes through the use of e-government services. Identification of the important effects of e-government usage in doing business.	To what extent does the Egyptian e-government portal provide appropriate services for its citizens?
		Is there a relationship between rankings in the E-Government Readiness Report (2005) published by United Nations and ranking in the Ease of Doing Business Report (2007) published by the World Bank? Where does Egypt fit in these rankings, compared to its neighbouring countries?

In exploring the business view, the research investigated the relationship between the country's rank in terms of both e-government readiness and ease of doing business, compared to their neighbouring countries in Africa and the Arab states. In addition, the research showed the link between two rankings by using Spearman's test. Applying this

correlation was expected to show the positive effect of using e-government services while doing businesses.

The case study illustrated certain business processes in Egypt (registering property and obtaining a construction license), in order to demonstrate the positive effect of e-government and some of the good progress made by the Egypt government. It also expected to identify some of the weaknesses and bureaucracy in Egypt that hinder business processes, that is, using traditional ways instead of ICT and e-government solutions. This brought the research through a full circle back to the usage of e-government portal in Egypt especially because there were over a million citizens who applied for these services every year.

6.2) Research approach

Quantitative approaches deal with numerical measurements. By contrast, qualitative approaches deal with how people understand their experiences. Thus, qualitative methods aim to explore meaning, and might well be chosen for the investigation of issues, which, for ethical, practical or epistemological reasons, are difficult to 'measure'. Epistemological reasons mean that there is a philosophical concern about whether something can be known (Cohen et al., 2007).

The main features of quantitative and qualitative research are shown in figure 6.3, on the following page. This research used the quantitative method because:

1 The aim is to construct statistical models in an attempt to explain what is observed.

2 Researcher knows in advance what he is looking for.

3 Recommended during latter phases of research

4 All aspects of the study are carefully designed before data is collected

5 Researcher uses tools, such as questionnaires or equipment to collect numerical data

6 Data is in the form of numbers and statistics.

Figure 6.3: Features of qualitative and quantitative research

Qualitative	Quantitative
All research ultimately has a qualitative grounding	There's no such thing as qualitative data. Everything is either 1 or 0
The aim is a complete, detailed description.	The aim is to classify features, count them, and construct statistical models in an attempt to explain what is observed.
Researcher may only know roughly in advance what he/she is looking for.	Researcher knows clearly in advance what he/she is looking for.
Recommended during earlier phases of research projects.	Recommended during latter phases of research projects.
The design emerges as the study unfolds.	All aspects of the study are carefully designed before data is collected.
Researcher is the data gathering instrument.	Researcher uses tools, such as questionnaires or equipment to collect numerical data.
Data is in the form of words, pictures or objects.	Data is in the form of numbers and statistics.
Subjective - individuals' interpretation of events is important e.g., uses participant observation, in-depth interviews etc.	Objective – seeks precise measurement & analysis of target concepts, e.g., uses surveys, questionnaires etc.
Qualitative data is more 'rich', time consuming, and less able to be generalized.	Quantitative data is more efficient, able to test hypotheses, but may miss contextual detail.
Researcher tends to become subjectively immersed in the subject matter.	Researcher tends to remain objectively separated from the subject matter.

Source: Miles and Huberman (1994)

This research used qualitative method because:

1-The current research has some qualitative grounding.

2- The design emerged as the study unfolds.

3- In some cases the researcher was the data gathering instrument.

6.3) Applied methods

Multi methods were used to study the importance of e-government in Egypt. Questionnaire was developed to measure the perception of small sample regarding e-government portal. A questionnaire is a pre-formulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives (Sekaran, 2003). In addition, the research counted on reports published by the United Nations and the World Bank. The

research tried to point at correlation or link between county rankings in the two reports. The research studied the probability of correlation by using statistical and constructs indicators. In addition, a case study presented the full cycle of business processes in Egypt would be demonstrated. The case study could be defined as the detailed examination of a single example of a class of phenomena. Or as a research design that takes as its subject a single case or a few selected examples of a social entity (Marshall, 1998). In addition, it is a way of organizing social data so as to preserve the unitary character of the social object being studied. The current case study pointed at the cost and time needed to achieve business processes plus the hard routine and long steps needed to accomplish missions in Egypt. Also, this case study illustrated the usage of e-government services to achieve these processes in an easier way. Figure 6.4 demonstrates the methods used.

Figure 6.4: Applied methods

Questions	Methods applied	Outcomes
To identify and evaluate the main e-government services in Egypt, in terms of their public provision	questionnaire	-normality result -reliability result -descriptive statistics -frequency statistics -correlation results (Pearson correlation) -dependency results
Point towards the direct relationship between the e-government services readiness and ease of doing business in countries.	correlation analysis	-correlation results according to (Spearman correlation) - links between reports constructs
Achieving business processes (obtaining a license and registering property)	case study	-Difficulties while dealing with business processes in Egypt - The importance of e-government usage in the Egyptian business environment in order to save time and money

6.3.1) Justification for methods used

The conducted research could be considered as exploratory, descriptive. Exploratory study because not much is known about the situation at hand. As can be seen in the previous chapter, there is a lack of e-government research in the Middle East; therefore this conducted research does not have enough information to start. As a result, an establishing questionnaire was needed to give an idea about the citizen's perception regarding e-government services in Egypt.

As illustrated in section 5.4, the EGOVSAT model (Horan and Abhichandani, 2006) considered broad perspectives and presents a causal construct comprising features that promote confidence, trust, openness and citizen-centric delivery in utilizing online government initiatives. The current research has chosen to adapt this model. EGOVSAT tried to measure some important components regarding the citizen satisfaction towards e-government applications. This choice was based on the following reasons; the model included various performance and emotional measures. In addition, the model was being applied to online Advanced Transportation Information Services (ATIS), a form of government-to-citizen online service delivery in the United States. The match with the current research was apparent; the objective of the questionnaire was measuring the citizen's satisfaction towards e-government portal in Egypt. Although the EGOVSAT model was used by Horan and Abhichandani (2006) in a transportation system, the current research used it for an e-government portal. Both are government services but the research reported in this thesis could not apply the study to the same kind of sample because of some difficulties such as cultural and financial factors. In other words, although this measurement has been utilized for the domain of ATIS (Horan et al., 2006), it is also designed to evaluate other government-to-citizen web-based initiatives.

It is a descriptive study because the conducted questionnaire provides information about the participant's experience of information technologies; data regarding knowledge and skills for various information technology applications. In addition, descriptive demographic information is included.

Because the main focus of this research is to investigate and interpret the perceptions of users regarding e-government services within a context that has rarely been investigated plus the importance of e-government usage, the purpose of this research becomes an

exploratory research that utilizes quantitative and approach technique. However, it also has some qualitative approach elements through the use of the case study method, which proved to enhance, enrich, and validate the interpretation of the quantitative findings. Perception of citizens regarding e-government services according to demographic characteristics and their relationship with other studies discussed in the literature review and in the questionnaire analysis. The integration of the two approaches in this research: quantitative and qualitative, although by different degrees, contributes to avoiding the limitations that one approach might produce. Thus, it becomes clear that the use of integrated or combined approach of both quantitative and qualitative elements provides more accurate view of a phenomenon, increases validity and confidence of the researcher by avoiding the weakness of adopting a single approach (Bryman, 2008).

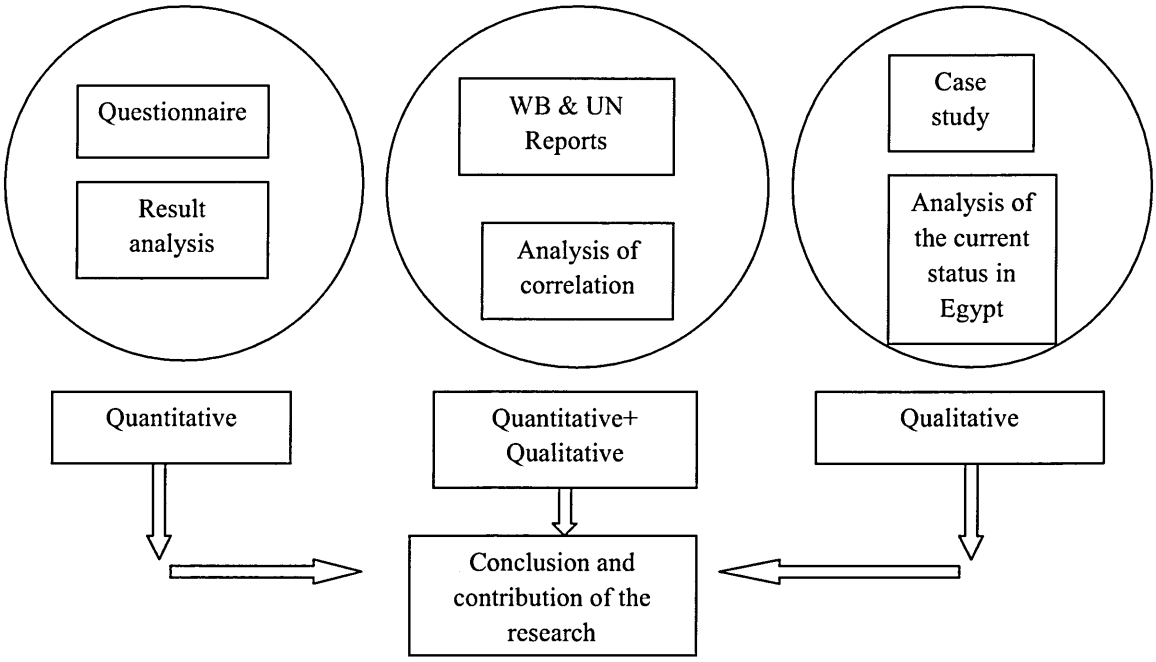
In relation to the design of this research, it adopts a survey design, which is widely used research method in answering exploratory questions related to a particular context. Survey questionnaires have certain advantages according to Black (1999) and Zikmund (2003).

- They reach a geographically dispersed sample simultaneously and at a relatively low cost.
- Standardized questions make the responses easy to compare.
- They capture responses people may not be willing to reveal in a personal interview.
- Results are not open to different interpretations by the researcher.

The use of exploratory research design was useful to investigate untested phenomena within a particular unique context, which is the Egyptian context in the current research. Although this approach does not provide conclusive answers to problems or issues investigated, it provides new insights concerning the current and desired status of the Egyptian e-government portal. Moreover, exploration of some correlations among the UN and World Bank reports can be used to encourage citizens and the Egyptian government to believe more in the importance of e-government usage.

Next, Figure 6.5 illustrates the integration of the research methods in order to deliver the research contribution.

Figure 6.5: Integration of research methods



6.3.2) Sources of data

The research used primary data such as the questionnaire information. On the other hand, the research used secondary data in the form of the E-Government Readiness Report (2005) published by the United Nations and Ease of Doing Business Report (2007) published by the World Bank.

The conducted research depended upon quantitative and qualitative data. This is because of the ability to analyze the received data. The analysis of the questionnaire and the case study depended on qualitative bases. In addition, statistical methods would be used. Moreover, outcomes would be displayed using tables, charts and graphs.

6.4) The questionnaire

The questionnaire was designed to collect data in order to answer the first research question: To what extent does the Egyptian e-government portal provide appropriate services for its citizens?

6.4.1) Sample

Population refers to the entire group of people, events or things of interest that the researcher wishes to investigate (Sekaran, 2003). The intended population in the conducted questionnaire would be the Egyptian citizens who use the e-government portal. Sample is a subset of the population. It comprises some members selected from it. By studying the sample, the researcher should be able to draw conclusions that would be generalized to the population of interest. The reasons for using a sample, rather than collecting data from the entire population, are self-evident. In research investigations involving several hundreds and even thousands of elements, it would be practically impossible to collect data from, or test, or examine every element. Even if it were possible, it would be prohibitive in terms of time, cost, and other human resources. Study of a sample rather than the entire population is also sometimes likely to produce more reliable results.

The questionnaire sample contained 130 respondents. This sample was chosen from one of the HSBC branches in Cairo (60 respondents). In addition, 70 participants were from a manufacturing company (Egyptian Canadian for Plastic Industries) in Alexandria. It is logical to consider the majority of users would be middle aged; this is because of computer literacy, language knowledge and other reasons.

As discussed in Chapter 2, Egypt has an illiteracy problem; the population of the intended research is citizens who use the e-government portal and know English. This population might represent 5% or less of the Egyptian population; as a result this questionnaire does not reflect the whole Egyptian society. In Egypt only 4% of the land is said to be cultivated and inhabited, and 97% of the population lives in the Nile Valley. Up to one-third of the population lives in either Cairo or Alexandria and makes up 23% of the labor force. Therefore, the sample was constructed from those people who live in Alexandria to ensure the usage of e-government facilities.

Furthermore, national demographics (see Figure 2.4) showed that majority of the population is under 35 years. In the selected sample 92% of respondents were less than 35 years old. The sample also showed that only 2% of respondents had an elementary certificate; on the other hand the rest of the sample had a high school degree, college degree or higher degrees (see Figure 2.5). It means that all the respondents were educated, which

might be considered a biased sample because this is not the normal case in Egypt. To answer the research question, the sample needed to focus on educated respondents to ensure the usage of ICT facilities especially the e-government portal.

Before the questionnaire was administered, it was confirmed that respondents were using e-government services and the e-government portal. This step was achieved by using an elimination question to find out whether the respondents had used the e-government portal or not.

6.4.2) Questionnaire structure

The questionnaire contained 3 sections (personal data, using technology and e-government portal opinion). See Appendix 1 for a sample of the covering letter and full questionnaire.

Section One: Personal data: contained 3 questions (age, gender and education status). Age was coded from 1 to 5, gender was coded 1 for male 2 for female, and education status was coded from 1 to 5. This part used the dichotomous scale and category scale.

Section Two: Using technology: aimed to discover each participant's experience of information technologies. Data was gathered regarding knowledge and skills for various information technology applications. This part used the dichotomous scale and category scale.

The same technique was used to code this section but had some differences in questions 2 and 6. This was because of the possibility for a respondent to tick more than one choice, therefore question 2 and 6 in section b were divided into sub questions. Question 2 was divided into 6 questions with 1 for yes and 2 for no and question 6 was divided into 7 questions with 1 for yes and 2 for no.

Section Three: E-government portal: considered what each participant thought about E-services provided by the Egyptian Government. It was the most important section in the questionnaire because it contained the questions directed to measure the 5 main concepts. Questions in this section were coded directly to 1 to 5. This part used the Likert scale to examine how strongly subjects agree or disagree with statements on a five point scale.

The result for coding the questionnaire was 51 variables; all of them were coded 1 to 2, 5, 6 or 7. The questions directed to each part of the questionnaire, including the five constructs, are shown in Figure 6.6.

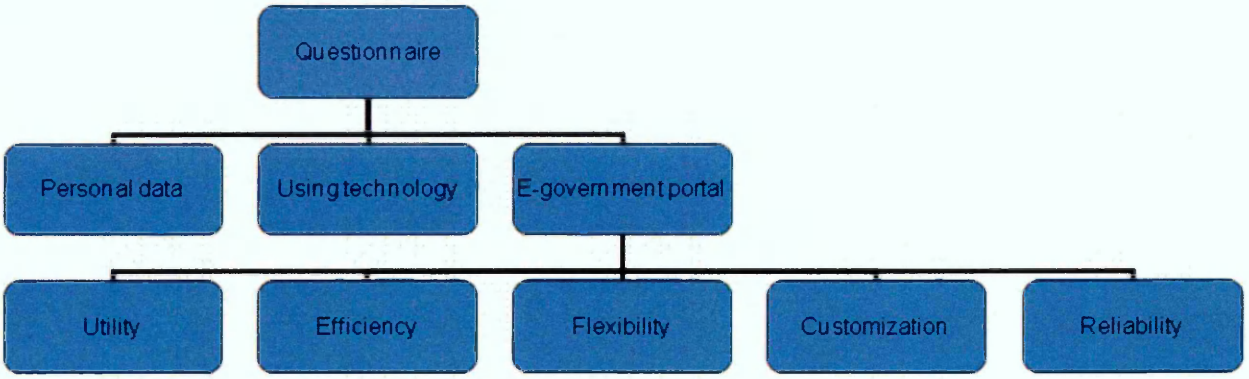
Figure 6.6: Questionnaire components

Data required	Questions
Demographic data	Section a
Using technology	Section b
Utility	C3a, c1, c3b, c15, c4a, c4b
Reliability	C10, c2, c5a, c5b, c3c
Flexibility	C18, c9, c12, c6a, c6b, c3d
customization	C7a, c7b, c7c, c7d, c16, c17
Efficiency	C8a, c8b, c8c, c4c, c11, c14, c13

6.4.3) Questionnaire constructs

The research had adapted the E-GOVSAT model, which tried to evaluate citizen's satisfaction with online governmental information services. Horan and Abhichandani (2006) applied this to online advanced transportation information services, a form of government-to-citizen online service delivery. In addition, it was formulated with an aim to provide a scale using government-to-citizen web-based initiatives, which could be evaluated in terms of satisfaction derived by citizens. It contained five construct which are utility, reliability, efficiency, customization and flexibility; shown in the next Figure 6.7.

Figure 6.7: Questionnaire structure and constructs



Here is Figure 6.8 to clarify the above five constructs.

Figure 6.8: Construct definitions

Construct	Definition
Utility	Fayish et. al., 2005; Muylle, Moenaert and Despontin, 2004; Zhang and Dran, 2001 and Horan et. al., 2006 agreed that utility examines whether the website is usable or not.
Reliability	Fayish et al. 2005; Muylle et al. 2004; Wang, Tang and Tang 2001; Zeithaml et al. 2000; Zhang and Dran, 2001 and Horan et. al., 2006 demonstrated reliability as a construct to examine whether the website functions appropriately in terms of technology as well as accuracy of the content
Customization	O'Looney, 2001 and Horan et. al., 2006 illustrated customization as the ability of an Internet website or service to be shaped or reshaped so as to better meet the individual needs or wants of a user
Efficiency	Fayish et al., 2005; Huizingh, 2000; Zhang and Dran, 2001 and Horan et. al., 2006 believed that efficiency examines the accessibility and organization of the features and information available in the website.
Flexibility	Zeithaml, 2000 and Horan et. al. 2006 suggested that facility of providing dynamic information provides various options of accessing the information and offers the facility of customizing the information contained in the website.

Definitions given above were listed in academic research, however definitions might differ slightly according to the point of view of each researcher. Therefore, the research would count on the above definitions. However, other definitions would be true but the research preferred to go with this point of view because it served the research directions. In addition, many other constructs are essential while evaluating e-government portals but the research

could not evaluate all constructs therefore the research had chosen to focus on these constructs. It might be important to consider other constructs in future research.

Figure 6.9, on the following page, shows questions directed to each construct.

6.4.4) Links between constructs and questions

Utility as defined above means the examination whether the website is usable or not. The first question whether the new e-government portal offered required information more efficiently than the regular way. If the portal introduced information more efficiently, it might be more usable. Second question was learning how to use the portal. Third question to what extent the portal is helpful comparing to the regular way. Fourth question discussed the value of the information displayed. Next question was the registration process. Final question was about the user-friendly environment. From the research point of view, all of the previous questions were around the usability of the portal. Therefore, they would be included in the utility construct.

Reliability considered as a construct to examine whether the website functions appropriately in terms of technology as well as accuracy of the content. In another way, can citizen depend on the portal or not? This was the first question. Next was discussing the availability of needed information in the portal. Third was testing to what extent the portal content was containing specific answers rather than general ones. Then, the question was discussing degree of matching real life procedures and fees. Last question directed to the general view of the portal regarding accuracy. All the previous questions directed to measure functions and accuracy of the portal.

Efficiency could be used to examine the accessibility and organization of the features and information available in the website. It is logic that this group of questions would get around the display of the portal plus the basic features in the portal. Therefore the first, second and third questions were asking for portal layout. Two questions were directed for speed and integrated functions, which could be considered as basic features of the portal.

Figure 6.9: Questions related to each construct

Construct	Questions directed in questionnaire
Utility	1) Compared to existing government services and facilities, did the new e-government portal appear to be offering required information more efficiently or not? (Q-c3a in Appendix 1C). 2) Learning how to use the e-government portal for you were considered as extremely easy or extremely difficult? (Q-c1 c3a in Appendix 1C). 3) Compared to existing government services and facilities, does the new e-government portal appear to be more helpful to accomplish the required tasks or less helpful? (Q-c3b in Appendix 1C) 4) Did the e-government portal provide valuable information through every step when surfing the portal? (Q-c15 in Appendix 1C) 5) Procedures and transactions on the e-government portal were easy registration or complicated registration? (Q-c4a in Appendix 1C) 6) Were procedures and transactions on the e-government portal user friendly or difficult to understand? (Q-c4b in Appendix 1C)
Efficiency	1) Did you find the (layout) or organization of data in the e-government portal appeared to be accurate or not? (Q-c8a in Appendix 1C) 2) Did you find the (layout) or organization of data in the e-government portal appeared to be organized appropriately or not organized at all? (Q-c8b in Appendix 1C) 3) Did you find the (layout) or organization of data in the e-government portal appeared to be visually pleasing or poor visual included? (Q-c8c in Appendix 1C) 4) Were required steps to accomplish the tasks logically sorted? (Q-c14 in Appendix 1C) 5) Was the required service speedy accessible? (Q-c13 in Appendix 1C) 6) Did e-government portal need more functions or integrating many functions? (Q-c4c in Appendix 1C) 7) Did e-government portal help you in finding all the wanted services? (Q-c11 in Appendix 1C)
Flexibility	1) While using the e-government portal, did you find the provided services available 24 hours a day? (Q-c9 in Appendix 1C) 2) Was there any facility allowed you to receive required information in many formats (e.g. figures, word documents or PDF formats? (Q-c18 in Appendix 1C) 3) Did you find real time information (e.g. exchange prices or airport schedule) conveyed the latest updates? (Q-c12 in Appendix 1C) 4) Was the e-government portal enabling to request multiple services at a time or limited requests per once provided? (Q-c6a in Appendix 1C) 5) Could change personal data or not? (Q-c6b in Appendix 1C) 6) Were payment methods limited or it offered a variety of payment methods? (Q-c3d in Appendix 1C)
Customization	1) Save your record to future reference or does not save your records? (Q-c7a in Appendix 1C) 2) Choose reply or notification methods or no flexibility to choose reply or notification method? (Q-c7b in Appendix 1C) 3) Determine the day to deliver required information or can not identity the day to deliver required information? (Q-c7c in Appendix 1C) 4) Could find your previous record easily or was it difficult to find your previous records? (Q-c7d in Appendix 1C) 5) While logging in, did you find some news which was related to your interests? (Q-c16 in Appendix 1C) 6) Were you able to request information the way you wanted to? (e.g. on mobile devices or e-mail format.)? (Q-c17 in Appendix 1C)
Reliability	1) Heavily depends on e-government portal or rarely depends on e-government portal? (Q-c2 in Appendix 1C) 2) Each time you need information you found it available on the e-government portal? (Q-c10 in Appendix 1C) 3) Whether information provided through e-government portal is believed to be answering my questions or does not offer very specific answers to my questions? (Q-c5b in Appendix 1C) 4) Compared to existing government services and facilities, does the new e-government portal appear to be matching with real life procedures and fees? (Q-c3c in Appendix 1C) 5) Compared to existing government services and facilities, does the new e-government portal appear to be accurate or not accurate? (Q-c5a in Appendix 1C)

Customization is the ability of an Internet website or service to be shaped or reshaped so as to better meet the individual needs or wants of a user. Logically questions were directed to that area. Questions regarding saving previous records, choosing notification method, flexibility while choosing delivery date, availability of different file formats to fulfill different needs and availability of news that matches individual interests.

Flexibility is that facility of providing dynamic information provides various options of accessing the information and offers the facility of customizing the information contained in the website. Options were the keyword in this construct. Therefore questions directed in this section were regarding the following options: availability of 24 hours service; availability of changing personal data; variety of payment methods; and others.

It is clear that there are similarities between constructs. However, the research had chosen to go with the previous description in order to fulfill the research needs and interests.

6.4.5) Pilot study

The next step in questionnaire development was to draft the questionnaire with the knowledge of the constructs, the communication method to be used and the approximate length of the questionnaire. Issues such as the question wording, response format, sequences of questions, and the characteristics of the questionnaire had to be considered. Then a pilot study is used as part of the development of the questionnaire. According to Teijlingen and Hundley (2001), the main advantage of conducting a pilot study is the following:

1 The pilot study might provide evidence warning to the areas where the research project could fail.

2 It indicates whether the proposed questionnaire and methods are so complicated or unsuitable.

3 It might provide advance warning about where the research protocols may not be followed.

In view of that, conducting a pilot study was valuable for this research project in terms of increasing the accuracy of the results through accomplishing the above points. A directed

pilot study, containing 10 respondents, was useful to avoid some mistakes such as complicated technology questions.

6.4.6) Data analysis methods and techniques used

The questionnaire showed four types of results:

1 The reliability of the questionnaire results using Cronbach's Alpha.

2 The normal distribution of data using the One-Sample Kolmogorov-Smirnov Test (Nonparametric test).

3 The statistical results with a description and frequency of events.

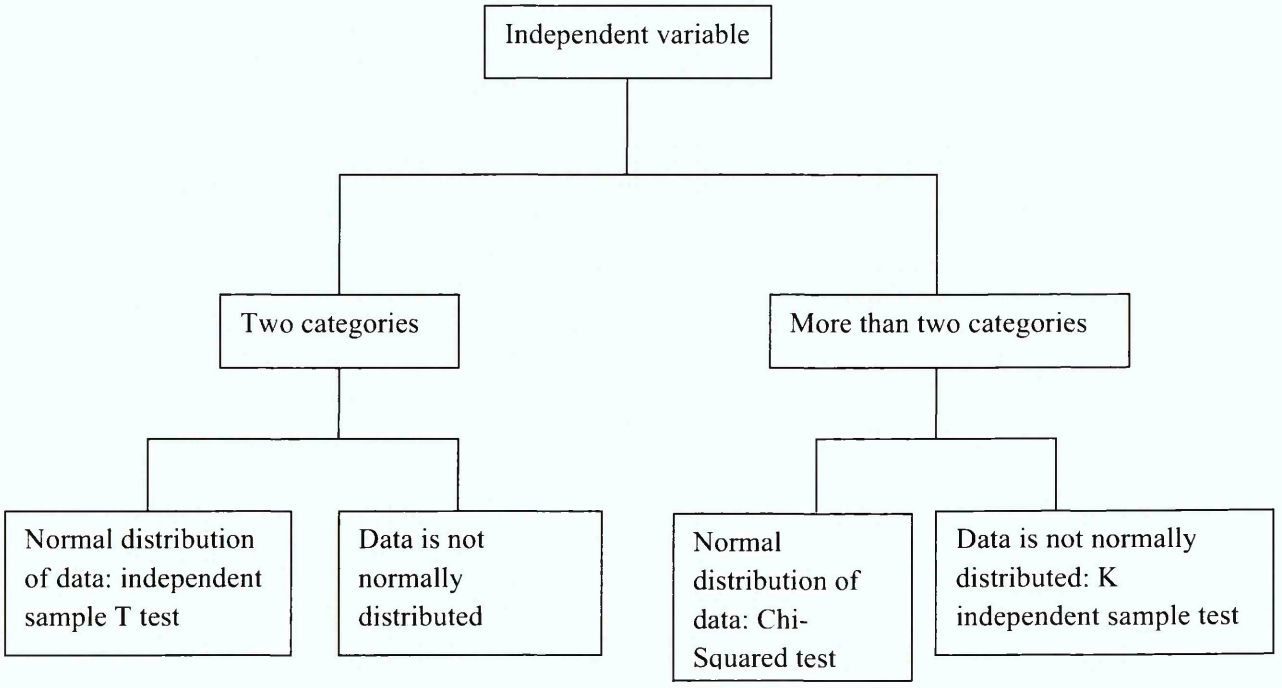
4 The relationship between independent variables and main five constructs (utility, flexibility, customization, reliability and efficiency). See Figure 6.10.

Figure 6.10: Measures of independent variables

Independent variables	
Age (Chi-Squared)	Gender (independent-sample t test)
Education status (Chi-Squared)	Frequency of using computer (Chi-Squared)
Purpose for using the Internet (independent-sample t test)	Frequency of using the Internet (Chi-Squared)
Submitting personal data through the Internet websites (independent-sample t test)	Internet availability at home (independent-sample t test)
Availability of computer at home, work, friends or relatives (independent-sample t test)	

According to normality and number of categories in each independent factor, the most suitable analysis method was used either the independent-sample t test or Chi-Squared test. The next figure demonstrates how to choose a suitable test while measuring the effects of the independent variable on the main constructs.

Figure 6.11: Choosing a suitable test



The correlation between different variables used the Pearson Correlation and determined the significance of these correlations. See Figure 6.12.

Figure 6.12: Using the Pearson correlation

Variables using Pearson correlation	
Ability to buy something through the Internet	Perception of the ease of learning using the e-government portal
Ability to put personal data on the Internet	Perception of the extent to which this portal is user friendly
Ability to do banking processes through the Internet	Ease of registration using the e-government portal
Availability of Internet at home	Perception of the accuracy layout of e-government portal
Use of the Internet in general	Perception of the extent to which this portal is organized

6.5) The correlation analysis

The question to be answered here was: Is there a relationship between rankings in the E-Government Readiness Report (UNPAN, 2005) published by United Nations and ranking in the Ease of Doing Business Report (2007) published by the World Bank? Where does Egypt fit in these rankings, compared to its neighbouring countries?

Studying the World Bank and UN reports was essential to accomplish this method. The UN report (UNPAN, 2005) presents an assessment of the countries according to their state of e-government readiness and the extent of e-participation worldwide. The UN Global E-government Survey 2005, like its predecessors, ranks the 191 Member States of the UN according to a quantitative composite index of e-readiness based on website assessment, telecommunication infrastructure and human resource endowment. The E-government Readiness Index is a composite index comprising the Web Measure index, the Telecommunication Infrastructure index and the Human Capital index, which relied on the UNDP education index for its data. Other sub indexes include the e-participation index.

The Web Measure index applied a model containing five stages of e-government readiness according to scale of progressively sophisticated citizen services. As countries progress, they are ranked higher in the model according to a numerical classification corresponding to the five stages. Emerging presence is stage one, representing information that is limited and basic. Enhanced presence is stage two, in which the government provides greater public policy and governance sources of current and archived information, such as policies, laws and regulation, reports, newsletters, and downloadable databases. Interactive presence is stage three, in which the online services of the government enter the interactive mode with services to enhance convenience of the consumer such as downloadable forms for tax payment, application for license renewal. Audio and video capability is provided for relevant public information. Transactional presence is stage four, that allows two-way interaction between the citizen and his/her government. Networked presence is stage five, which represents the most sophisticated level in the online e-government initiatives. It can be characterized by an integration of G2G, G2C and C2G (and reverse) interactions. The government encourages participatory deliberative decision-making and is willing and able to involve the society in a two way open dialogue.

The Telecommunication Infrastructure index 2005 is a composite weighted average index of six primary indices based on basic infrastructural indicators, which define a country's ICT infrastructure capacity. These are: PC's/1000 persons; Internet users/1000 persons; Telephone Lines/1000 persons; Online population; Mobile phones/1000 persons; and TV's/1000 persons.

On the other hand, the Ease of Doing Business report (World Bank, 2007) investigated the regulations that enhance business activity and those that constrain it. Ease of Doing Business presented quantitative indicators on business regulations and the protection of property rights that could be compared across 175 economies from Afghanistan to Zimbabwe and over time. Regulations affecting 10 areas of everyday business are measured: starting a business, dealing with licenses, employing workers, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and closing a business. Each area was evaluated according to factors like number of procedures, number of days needed and cost of procedure. All of that, regarding every country could produce information for many research fields. Therefore, these reports were chosen in order to identify the status of Egypt compared to other countries and the effect of e-government services on business processes. The research demonstrated cases in different fields showing that e-government applications had many successes in achieving business processes.

In this method, a correlation between E-government Readiness and Ease of Doing Business ranks was calculated. In addition, it demonstrated the basis for correlation between the World Bank and UN report constructs. By applying this method, links between the two reports were likely to be both quantitative and qualitative. The quantitative side was accomplished by using Spearman's correlation and the significance of that correlation. The qualitative links between the constructs in the two reports were demonstrated through discussion of constructs in each report.

6.6) The case study

The third research question was: How can the use of e-government services help Egyptian citizens to do business more easily?

Case studies are commonly used by IT/IS researchers as a method for data collection (Myers and Avison, 2002). Yin (1994) defined the case study as an empirical inquiry that investigates a real-life phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident. Case studies can be conducted about programs, implementation process, decisions, and organizational change (Miles and Huberman, 1994). Subsequently, the case study is a suitable method because this research focuses on a specific program - the e-government program in Egypt. A case study may require multiple data collection methods in order to establish case construct. Yin (1994) categorized these methods to include:

1 Direct observation of activities and phenomena and their environment.

2 Indirect observation or measurement of process related phenomena.

3 Interviews- structure, semi- structured, or unstructured.

4 Records and charts about previous use of technology relevant to the case.

In this research, records, charts and indirect observations were employed as the data collection method for the case study.

The case study showed obtaining a license for construction permit and registering property processes in Egypt. Discussion of findings was related to the social and economic aspects of the Egyptian context. In addition, the research expected to identify how e-government usage could affect the business process performance.

6.7) Summary

In order to answer the research questions, the methods of questionnaire, correlation analysis and case study were applied. An investigation of the awareness and acceptance of e-government usage must start with the citizens of Egypt, since these are the people likely to develop business ventures in the future. Therefore, questionnaire would be applied in order to measure level of satisfaction regarding the Egyptian e-government portal.

Bias in the questionnaire sample was explained and justified because of the need to ensure that respondents were familiar with computer use in general and the e-government portal in

particular. Therefore the research selected educated citizens who knew English and were familiar with ICT applications.

The questionnaire contained three parts, which were personal data, using technology and constructs. After that, the correlation analysis between countries ranking in UN and WORLD BANK reports plus a construct analysis to show links between the two reports. Then, a case study identified the status in Egypt plus showing obstacles facing the process accomplishment. In addition, the case study would show other countries, which had developed in e-government solutions and how business services could be reformed, especially to counteract the poor reputation and difficulties facing business in Egypt.

Chapter Seven: Citizens' Perception

The questionnaire results showed a snapshot of the e-government portal status in Egypt, reflecting the perception of a small purposive sample of Egypt's urban citizens. It provided a link between the citizen's acceptance and usage of the e-government portal at the business level and how that usage could improve business processes in Egypt.

Using the SPSS software, the research applied a reliability test. There are many models of reliability testing, such as Split-half which splits the scale into two parts and examines the correlation between the parts. The strict parallel model assumes equal means across items. The Alpha (Cronbach) model was applied in the questionnaire because this model of internal consistency, based on the average inter-item correlation was needed in many parts of the analysis. The result of the questionnaire reliability was 0.603. In addition, **0.7** is regarded by many researchers as a minimum figure for an adequate test score (Chan, et al., 1998; Kline, 1993; Nunnally, 1978), others said that **0.6** is a satisfactory score for exploratory research (Teo and King, 1996; Elragal, 2001).

7.1) Demographic results

The questionnaire had 130 respondents, where 20 were excluded. Figure 7.1 showed 71% of respondents were between 20 and 35 years old, similar to Shafi and Weerakkody (2007). More than 21% were under 20; this means that the majority of respondents were more likely to be young people under 35. Figure 7.2 showed that 52% of respondents had a college degree, 32% had a high school certificate and 18% had a university degree.

Figure 7.1: Age distribution

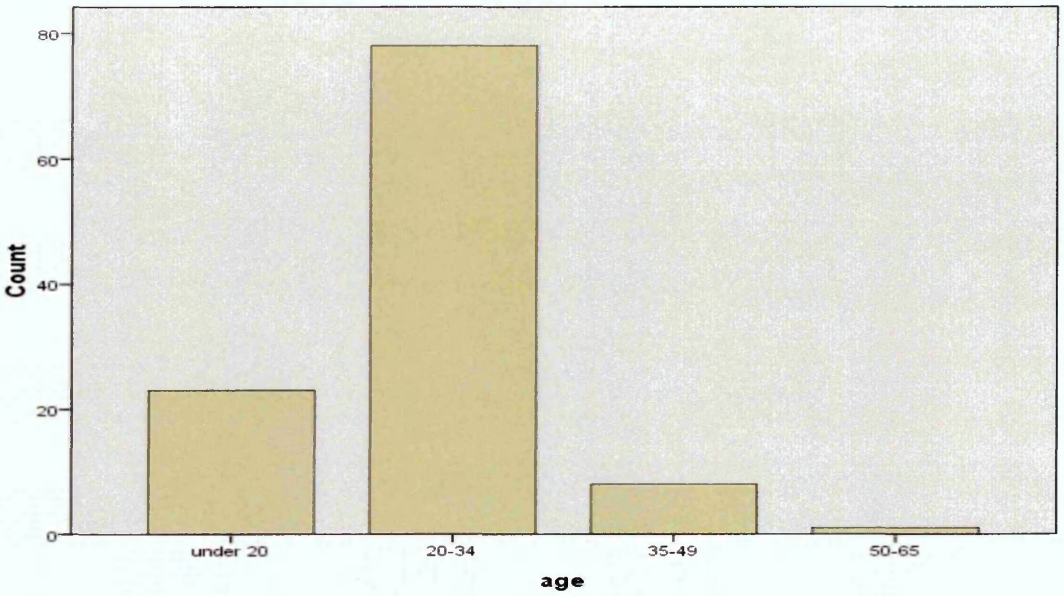
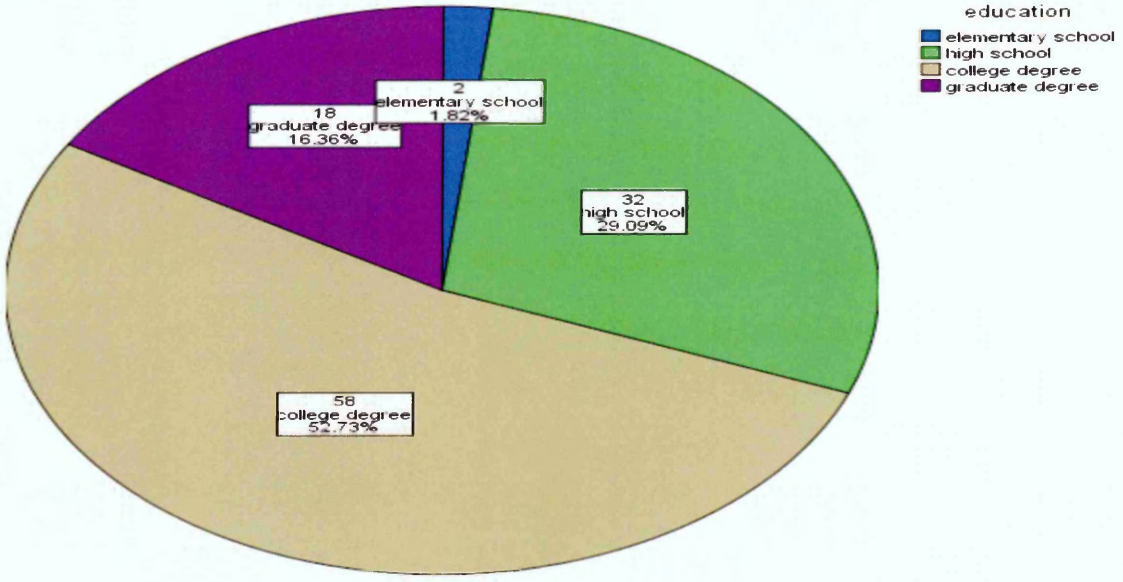
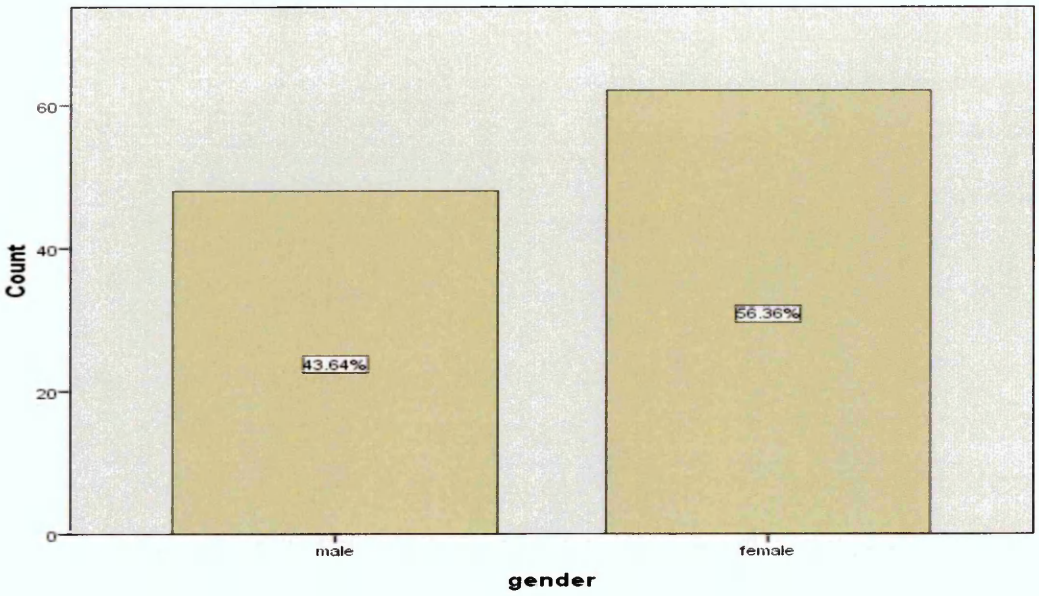


Figure 7.2: Education status



More than 56% of respondents were female (see Figure 7.3). No claim is made for this result because it came from a purposive sample. However, because of cultural factors, it was expected that a normal representative sample would show a lower percentage of female respondents.

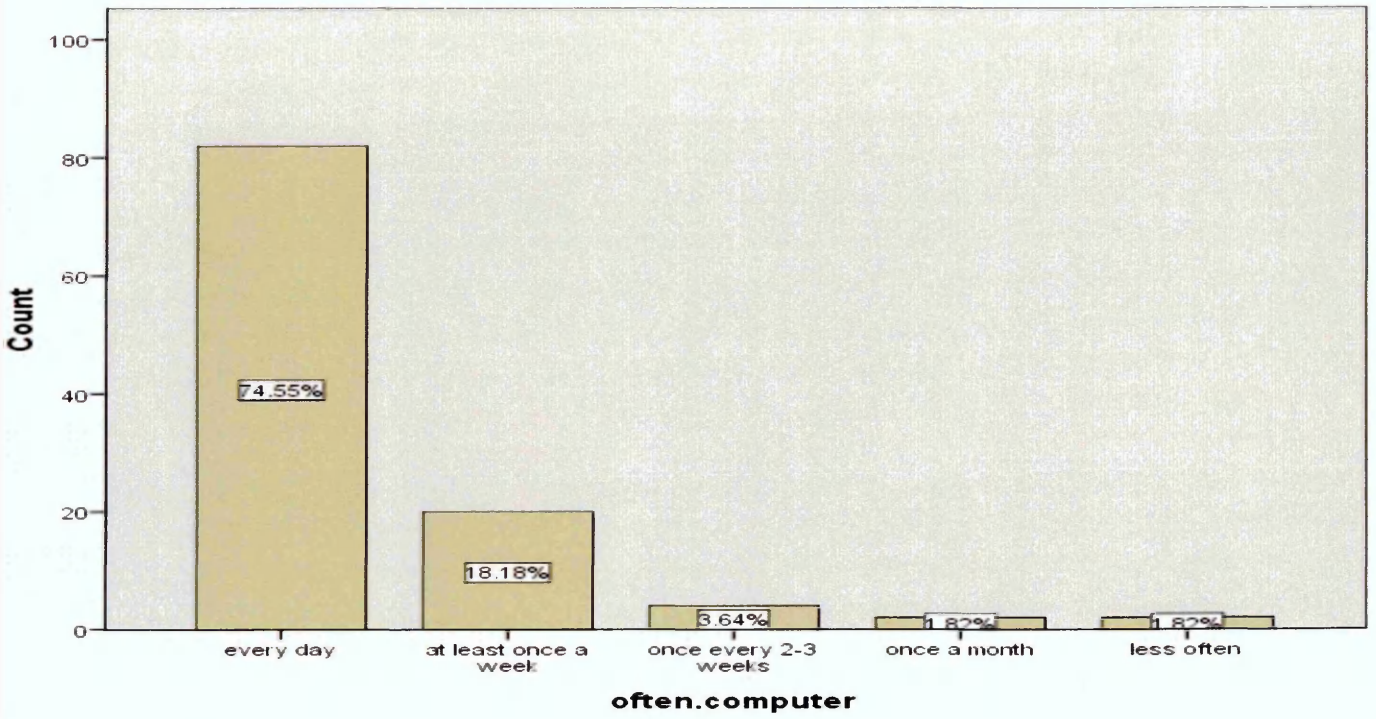
Figure 7.3: Gender distribution



7.2) Use of computers and the Internet

A high percentage of respondents used the computer every day (Figure 7.4). This is because the sample was selected from people who were aware of the e-government portal and such citizens could be considered as advanced computer users. Of the respondents, 18% used computers at least once a week. More than 93% have a computer at home and more than 92 % of respondents have an Internet service at home. Of these, 70% use the Internet every day, while more than 21% do so at least once a week.

Figure 7.4: Frequency of using computers



This high percentage could be an outcome of their education status or of the Egyptian government initiative, sponsored by the Ministry of Communication and Information Technology, to provide a PC for every Egyptian home with low cost installments that were suitable for many families. This result is unexpected compared to Dwivedi and Williams (2008) who conducted a study in the UK and showed that 85% of their sample has Internet access at home. This is an indicator of the Egyptian government efforts to reduce the cost of Internet access at home to approximately LE45 per month.

Similar to Mofleh et al. (2008), these results showed that more than 98% of respondents used the Internet for finding information. This is also parallel to Reddick (2008), which stated that government websites were the most effective service channel for getting information. Figure 7.5 shows the figures for other common uses of the Internet.

Figure 7.5: Purposes of Internet usage

Purpose of using Internet	Percentage
Finding information	98.2%
Buying products	39.1%
Entertainment	70.9%
Banking	35.5%
Contacting people	91.8%
Finding a job	38.2%

Of the respondents, 49% submitted personal details such as their credit card number over the Internet and bought goods and services. On the other hand 51% were not able, or preferred not to do it. A calculation of Pearson's correlation showed that this was an expected strong positive result (see Appendix 4).

Figure 7.6: Personal data and Internet buying

		Personal data		
		Yes	No	Total
Buying	Yes	40	3	43
	No	14	53	67
	Total	54	56	110

Thirty-seven respondents used Internet banking and submitted personal data through the Internet. Applying Pearson's correlation to the sample showed that there is a strong positive correlation between the ability to do banking processes through the Internet and the ability to put the personal data on the Internet (see Appendix 4). The results show that 53 of respondents did not do banking processes through the Internet and declined to put their personal data on the Internet. They represented almost half of the sample size. These results must be of interest to the Egyptian government. Further research should

investigate how educated and capable citizens can be encouraged to pay government fees and expenses through the e-government portal. In particular, this should focus on trust for e-government services.

In this purposive sample, there appears to be a strong link between perceiving ease of registration through e-government portal and the perception of the extent to which this portal is user friendly (see Appendix 4). The reason might be that a user who believes that portal is user friendly, also believes it is easy to register through portal. There is also a strong positive correlation between the perception of the accuracy layout of e-government portal and the perception of the extent to which this portal is organized. (See Appendix 4).

7.3) Perception of the e-government portal

The results of the third part of the questionnaire are presented here showing firstly questions about the portal content and secondly questions related to options and capabilities included in the portal. The second aspect is based on the adaptation of the model from Horan et al. (2006). Figures 7.7 and 7.8 show the questions and overall results from these aspects.

Figure 7.7 Overall perception of the portal's content

Content	Agree	Disagree
UTILITY		
Compared to existing government services, the e-government portal appeared to offer required information more efficiently.	71%	11%
The e-government portal provided valuable information through every step when surfing the portal.	70%	15%
RELIABILITY		
The e-government portal matched real life procedures and fees.	79%	13%
Information provided through the e-government portal was believed to be accurate.	81%	8%
Answering the required questions.	39%	29%
Each time a citizen needed information it could be found on the e-government portal.		
FLEXIBILITY		
Availability of real time information (e.g. exchange prices or airport schedule) conveyed the latest updates.	74%	17%
CUSTOMIZATION		
While logging in, a citizen could find news related to personal interests.	58%	21%
EFFICIENCY		
Required steps to accomplish the tasks were logically sorted.	80%	11%
The e-government portal offered many functions.	23%	42%

Figure 7.8 Overall perception of the portal's options and capabilities

Options and Capabilities	Agree	Disagree
UTILITY		
Learning how to use the e-government portal was considered easy.	80%	6%
The e-government portal was more helpful to accomplish the required task.	66%	13%
Transactions on the e-government portal were easily registered.	83%	10%
RELIABILITY		
Citizens depended on the e-government portal rather than using other methods for some services.	14%	73%
FLEXIBILITY		
The portal was user friendly, data could be amended easily and a variety of payment methods cold be used.	71%	13%
The portal was enabled to request multiple services at a time.	31%	31%
The portal allowed the citizen to receive required information in many formats (e.g. figures, Word or PDF documents) and the ability to request information in the preferred way (e.g. on mobile devices or by e-mail).	49%	27%
CUSTOMIZATION		
The portal permitted finding previous records easily and allowed records to be saved for future reference.	61%	21%
The portal allowed choice of reply or notification methods and determining the day to deliver services.	32%	31%
EFFICIENCY		
The organization of data in the e-government portal appeared to be accurate.	74%	8%
The portal was visually pleasing, organized appropriately, speedily accessible & available 24 hours a day.	10%	80%
The e-government portal was helpful in finding all the required services.	26%	40%

Shafi and Weerakkody (2007) found in their study that the majority of respondents believed that the portal need more integrated functions. The greater part of these respondents was happy with the accuracy of the contents of the Egyptian portal.

Figure 7.9: Overall perception of satisfaction

Construct	Percentage of satisfaction
Utility	85%
Reliability	67%
Flexibility	31%
Customization	45%
Efficiency	66%

7.3.1) Perception of utility

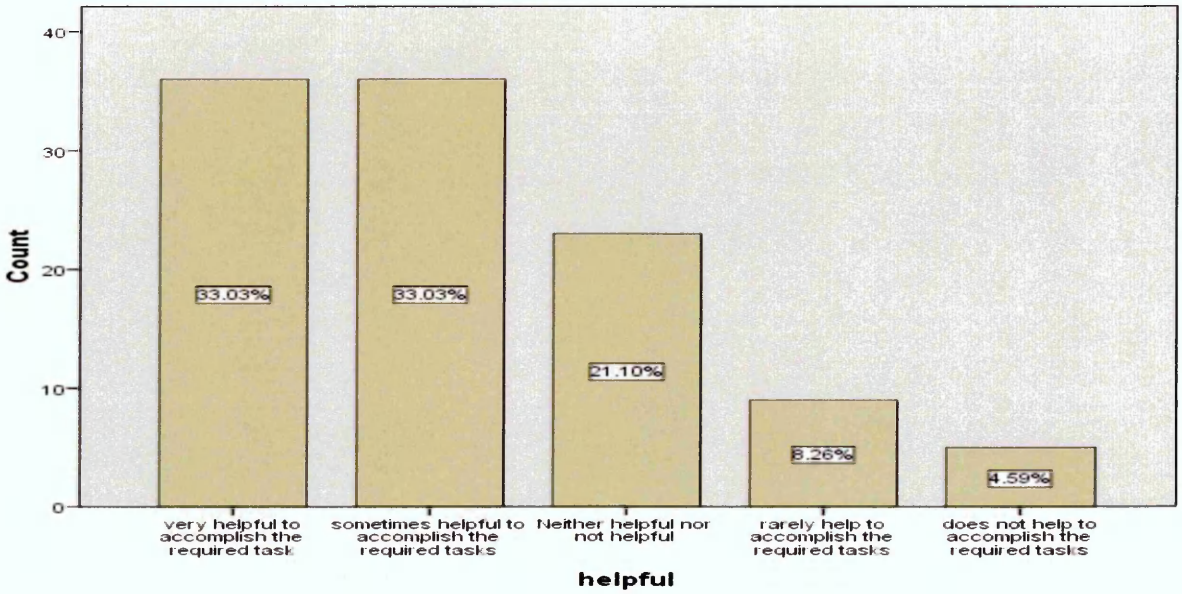
The majority of respondents had a good impression of the utility of the e-government portal. This result was parallel to Development Authority of Singapore (2006), which conducted a study distributed through the Internet; the sample is exceeding 400 citizens. It showed that more than 85% of the sample is satisfied with the overall quality of e-government service utility. More than 85% of Egyptian respondents were satisfied, 2.7% were moderately satisfied and 11.8% were not satisfied with utility. This appears to be a good result, which indicates that the e-government initiative has provided citizens with a usable service. Figure 7.10 shows the more detailed results and this is followed by discussion.

Figure 7.10: Questions and responses for the utility construct

Question	Satisfied	Dissatisfied
Compared to existing government services and facilities, did the new e-government portal appear to be offering required information more efficiently or not? (Qc3a)	71%	11%
Learning how to use the e-government portal for you were considered as extremely easy or extremely difficult? (Qc1)	80%	6%
Compared to existing government services and facilities, does the new e-government portal appear to be more helpful to accomplish the required tasks or less helpful? (Qc3b)	66%	13%
Did the e-government portal provide valuable information through every step when surfing the portal? (Qc15)	70%	15%
Procedures and transactions on the e-government portal were easy registration or complicated registration? (Qc4a)	83%	10%
Were procedures and transactions on the e-government portal user friendly or difficult to understand? (Qc4b)	71%	13%

Similar to Shafi and Weerakkody (2007), more than 71% of respondents considered that the Egyptian portal offered required information efficiently; however more than 11% disagreed. Over 80% thought it was easy to learn how to use the portal, but 6.3% believed it difficult. This result indicates that the e-government program will encourage people to use it especially when it saves time and money. Similar to Shafi and Weerakkody (2007), 71% of the respondents believed that the portal was user friendly, whereas 13% described it as hard to use. Over 66% of the respondents considered that the portal was helpful to accomplish the required tasks, but 12.7% believed it to be unhelpful. This is lower than the utility average in general, and may be a result of the lack of help facilities constructed in the portal's site.

Figure 7.11: Perception of the help options



Of the respondents, 83% felt it was easy to register within portal, and 10% found it difficult to register. This is a good result, which shows that it is easy to deal with e-government portal; however the research could not generalize the previous result.

The research studied the relationship between frequency of Internet use and the utility perception by applying the Chi-squared test. Therefore, the research assumed a null hypothesis that there is no relationship between the two variables. On the other hand, the alternative hypothesis assumed that there is a relationship.

It was observed that the more frequent the use of the Internet the more likely the respondent is to perceive utility. By applying a Chi-squared test the Asymp. Significance is .031< 0.05, which means that the research cannot reject the alternative hypothesis. As a result it can be suggested that in this sample the frequent users of the Internet perceive the utility of the e-government portal. Figure 7.12 shows the significant results.

Figure 7.12: Chi-squared test for the relationship between frequency of Internet use and perception of utility

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-squared	23.365	64	.031
Likelihood Ratio	41.196	64	.988
Linear-by-Linear Association	3.085	1	.079
N of Valid Cases	110		

7.3.2) Perception of reliability

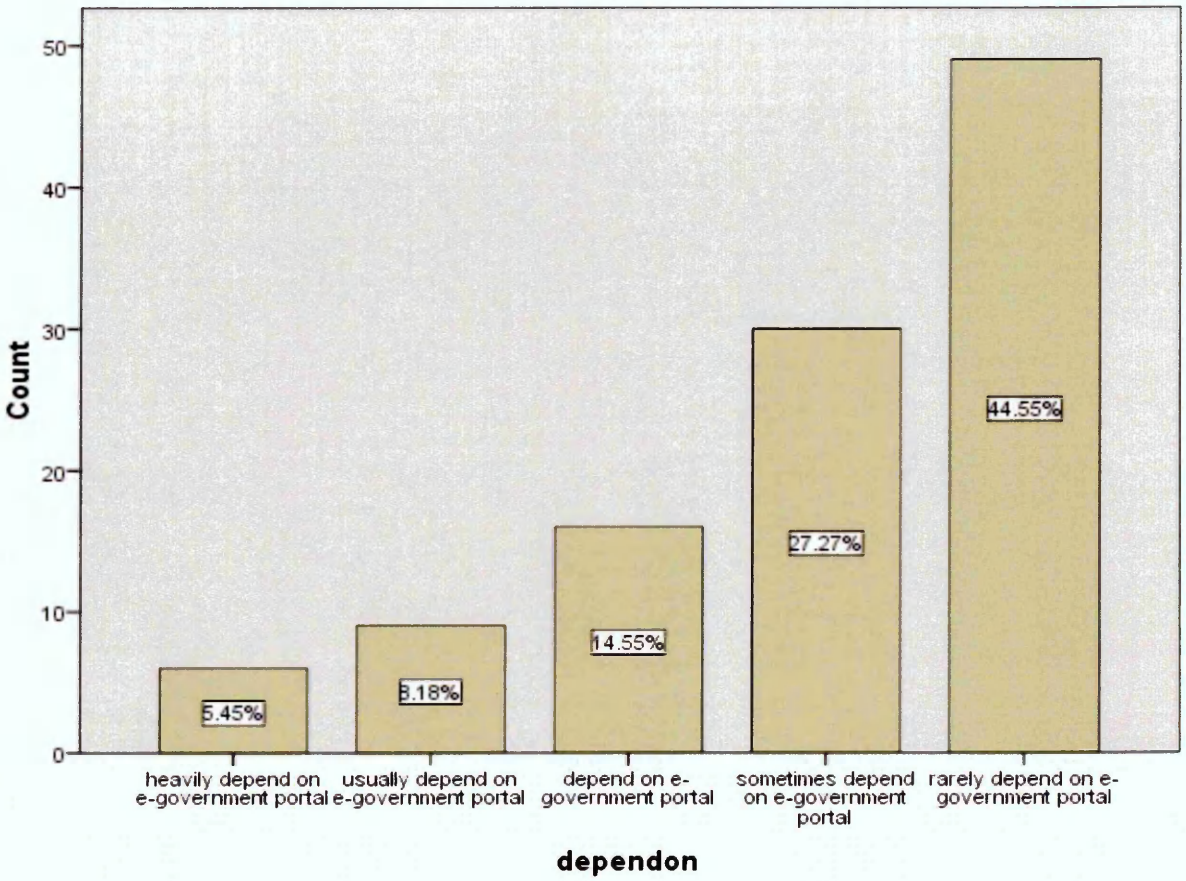
More than 67% of respondents believed that the reliability of the portal was satisfactory. This is a fair outcome, although 18% were not satisfied by the reliability.

Figure 7.13: Questions and responses for the reliability construct

Question	Satisfied	Dissatisfied
Heavily depends on e-government portal or rarely depends on e-government portal? (Qc2)	14%	73%
Each time you need information you found it available on the e-government portal? (Qc10)	44%	39%
Whether information provided through e-government portal is believed to be answering my questions or does not offer very specific answers to my questions? (Qc5b)	39%	29%
Compared to existing government services and facilities, does the new e-government portal appear to be matching with real life procedures and fees? (Qc3c)	79%	13%
Compared to existing government services and facilities, does the new e-government portal appear to be accurate or not accurate? (Qc5a)	81%	8%

However, the majority of respondents do not heavily depend on the portal. This is a frustrating result compared to the perception of utility results.

Figure 7.14: Perception of the level of dependency



Most respondents agreed that information in the portal matched real procedures and fees and this result reflected the respondents' trust regarding the portal's web content. The difference was small between those who were satisfied (39%) and those who were dissatisfied (29%) with specific answers from the portal. This low percentage negatively affects the reliability perception. The study by Shafi and Weerakkody (2007) demonstrated the general satisfaction regarding the reliability of portal content. The results here showed that more than 44% think portal always provides the needed information but 39% disagree. Surprisingly, 81% believed that the portal is accurate and only 8% believed it was rarely accurate.

In the Independent Samples test, the research applied a null hypothesis that assumes there is no significant difference for the mean answer between the two variables (perception of

reliability and availability of computers at friend's or relative's home). On the other hand, the alternative hypothesis assumes that there is a significant difference. The result indicates that the two tailed significance is .061 & 0.14> 0.05 (no significance has been noticed). As a result the research cannot reject the null hypothesis. This means that there is no significant difference for the mean answer between two variables. That indicates that the answers for perception of reliability were not related to the answers of the availability of computers at a friend's or relative's home.

7.15: Independent samples test for the relationship between perception of reliability and the availability of computers at a friend's or relative's home

	Levene's Test for Equality of Variances		**t-test for Equality of Means**						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	4.184	.043	2.428	108	.061	1.2722	.5240	.2334	2.3109
Equal variances not assumed			2.385	94.057	.14	1.2722	.5335	.2130	2.3314

The lack of Internet access at home is a major barrier for e-government usage for the Egyptian citizens, so the Egyptian government tried to provide PCs and Internet connections for homes at affordable prices. A respondent who has a computer at home may not be guaranteed free use of it because of other users in the family. Visiting friends and relatives is a strong cultural activity in Egypt and availability of a computer at a friend's home might encourage respondents to use the Internet and e-government portal.

By applying an Independent Samples test, the research applied a null hypothesis that assumes there is no significant difference for the mean answer between the two variables (availability of computers at a public facility and perception of reliability). On the other hand, the alternative hypothesis assumes a significance difference for the mean answer between the two variables. The result indicates that the two tailed significance is .704 & 0.663> 0.05 (no significance has been noticed). As a result the research cannot reject the null hypothesis. This means that there is no significant difference for the mean answer between two variables. That indicates that the answers for perception of reliability were not related to the answers of the availability of computers at a public facility. Figure 7.16 will show the results.

7.16: Independent samples test for the relationship between perception of reliability and the availability of computers at a public facility

		Levene's Test for Equality of Variances					
		F	Sig.	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
eliability	**Equal variances assumed**	2.920	.090	108	.704	-.2292	.6022
	Equal variances not assumed			70.861	.663	-.2292	.5243

7.3.3) Perception of flexibility

The results of the questionnaire indicated that age affects the perception of flexibility. In Egyptian society, young people are more flexible with technology. As a result they perceive the flexibility of the portal more easily than others. Respondents who had had a high school education showed the highest perception regarding flexibility; that is more

than 55% of this category perceived that the portal had flexibility. Figure 7.17 presents the detailed results.

Figure 7.17: Questions and responses for the flexibility construct

Question	Satisfied	Dissatisfied
While using the e-government portal, did you find the provided services available 24 hours a day? (Qc9)	47%	42%
Was there any facility allowed you to receive required information in many formats (e.g. figures, word documents or PDF formats? (Qc18)	49%	23%
Did you find real time information (e.g. exchange prices or airport schedule) conveyed the latest updates? (Qc12)	74%	17%
Was the e-government portal enabling to request multiple services at a time or limited requests per once provided? (Qc6a)	31%	31%
Could change personal data or not? (Qc6b)	32%	39%
Were payment methods limited or it offered a variety of payment methods? (Qc3d)	21%	

Compared to Kolsaker and Kelley (2008), who stated that interest in e-government is generally low overall, this questionnaire showed that nearly 31% considered the portal to be a flexible tool while and more than 56% believed it was not flexible. This is a low result compared to the perception of reliability and utility. This is caused by the dissatisfaction of respondents while using the e-government portal; firstly, in changing their personal data; secondly, in that the portal offered multiple services at one time; thirdly, that there was a variety of payment methods. If the portal were perceived as flexible, then it would be more interesting to use by citizens.

There was an almost even split between respondents about the perception of 24 hour availability, but a large proportion believed that real time information conveyed accurate updates. Finally in this section, almost half the respondents were satisfied that they could receive information in a variety of document formats.

7.3.4) Perception of customization

Of the respondents 45% were satisfied with the customization capabilities of the portal; on the other hand 41% were not satisfied. Overall, respondents did not perceive the portal as a customized tool.

Figure 7.18: Questions and responses for the customization construct

Question	Satisfied	Dissatisfied
Save your record to future reference or does not save your records? (Qc7a)	61%	21%
Choose reply or notification methods or no flexibility to choose reply or notification method? (Qc7b)	32%	31%
Determine the day to deliver required information or can not identity the day to deliver required information? (Qc7c)	24%	40%
Could find your previous record easily or was it difficult to find your previous records? (Qc7d)	46%	30%
While logging in, did you find some news which was related to your interests? (Qc16)	58%	21%
Were you able to request information the way you wanted to? (e.g. on mobile devices or e-mail format.)? (Qc17)	49%	27%

Similar to Horan and Abhichandani (2006), there was a general satisfaction regarding records saved for a future reference, as one of the customization capabilities. Almost half of respondents believed that they could find their previous records easily. It was interesting to see that almost the same percentage were satisfied with the various ways of reply or notification methods, as were dissatisfied. This also considered as one of the customization options. Almost twice as many respondents believed that they could not choose the day to deliver the information. This option may affect the use of the portal, in that choosing the delivery date would encourage use of the e-government service. Nearly half the respondents were satisfied that they were able to request information the way they wanted. (e.g. on mobile devices or e-mail format) and many found some news related to their interests as they logged into the portal.

The research studied the relationship between age and the perception of customization by applying a Chi-squared test. Therefore, the research assumed a null hypothesis that there is no relationship between the two variables. On the other hand, the alternative hypothesis assumed that there is relationship.

It was noticed that age might affect the perception of customization. By applying a Chi-squared test the Asymp. Significance is $.016 < 0.05$, which means that the research should reject the null hypothesis and accept the alternative hypothesis. As a result the research indicates that the age of the respondents has an effect on the perception of customization. Figure 7.19 shows the results.

Figure 7.19: Chi-squared test for the relationship between age and perception of customization

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-squared	26.437	54	.016
Likelihood Ratio	36.119	54	.971
Linear-by-Linear Association	1.197	1	.274
N of Valid Cases	110		

7.3.5) Perception of efficiency

Most of the respondents were satisfied with the efficiency of the portal (66%), while 26% were not satisfied.

Although three-quarters of the respondents thought that the layout of the portal was accurate, and over half thought that it was organized appropriately, only 22% of respondents thought that the portal was visually pleasing. This could be a result of poor portal design, which usually contains broken animation, pictures and multimedia objects.

Figure 7.20: Questions and responses for the efficiency construct

Question	Satisfied	Dissatisfied
Did you find the (layout) or organization of data in the e-government portal appeared to be accurate or not? (Qc8a)	74%	8%
Did you find the (layout) or organization of data in the e-government portal appeared to be organized appropriately or not organized at all? (Qc8b)	57%	15%
Did you find the (layout) or organization of data in the e-government portal appeared to be visually pleasing or poor visual included? (Qc8c)	22%	54%
Were required steps to accomplish the tasks logically sorted? (Qc14)	80%	11%
Was the required service speedy accessible? (Qc13)	10%	80%
Did e-government portal need more functions or integrating many functions? (Qc4c)	23%	42%
Did e-government portal help you in finding all the wanted services? (Qc11)	26%	40%

Unlike results in Horan and Abhichandani (2006), fewer than one quarter of respondents were satisfied that the e-government portal had many integrated functions, whereas 42% believed that the portal needed more functions. This compares to Shafi and Weerakkody (2007), who stated that the majority of their respondents need more integrated functions. It was expected that it was more important in first stages to provide usable functions; integrated functions would come as future priority. A similar number of respondents were satisfied that the e-government portal helped them find all the services they wanted and a corresponding number were dissatisfied.

The majority of respondents were satisfied that the steps needed to accomplish tasks were logically sorted, but only 10% thought that the portal was speedy to access. This could be a result of poor ICT infrastructure compared with developed countries, and Kannabiran et

al. (2008) stated that lack of ICT infrastructure and low access speed were the main problems while using the e-government portal.

The results of the questionnaire, in common with other research, identified that education status was affecting the perception of efficiency and other constructs (Shafi and Weerakkody, 2007; Reffat, 2003; Navarra and Cornford, 2003 and Bhattacherjee, 2002).

The research studied the relationship between education status and the perception of efficiency by applying a Chi-squared test. Therefore, the research assumed a null hypothesis that there is no relationship between the two variables. On the other hand, the alternative hypothesis assumed that there is a relationship. It was observed that the education status of respondents might affect the perception of efficiency. By applying a Chi-squared test the Asymp. Significance is .016< 0.05, which means that the research should reject null hypothesis and can accept the alternative hypothesis. As a result this indicated that the education status of the respondents affected the perception of efficiency. Figure 7.21 shows the significance results.

The best results regarding efficiency were observed from the category of respondents who had obtained a graduate degree included in the sample. This suggested that the higher the education status of the respondent, the more likely they were to perceive the efficiency of the e-government portal.

Figure 7.21: Chi-squared test for the relationship between education status and the perception of efficiency

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-squared	40.213	42	.016
Likelihood Ratio	43.190	42	.420
Linear-by-Linear Association	6.127	1	.013
N of Valid Cases	110		

The research studied the relationship between the frequency of using the Internet and the perception of efficiency by applying a Chi-squared test. Therefore, the research assumed a null hypothesis that there is no relationship between the two variables. On the other hand, the alternative hypothesis assumed that there is relationship. It was noticed that the frequency of using the Internet could affect the perception of efficiency by respondents. By applying a Chi-squared test the Asymp. Significance is .012< 0.05, which means that the research should reject the null hypothesis and accept the alternative hypothesis. As a result this indicated that the frequency of using the Internet by respondents affects the perception of efficiency. Figure 7.22 shows the results.

7.22: Chi-squared test for the relationship between the frequency of Internet use and perception of efficiency

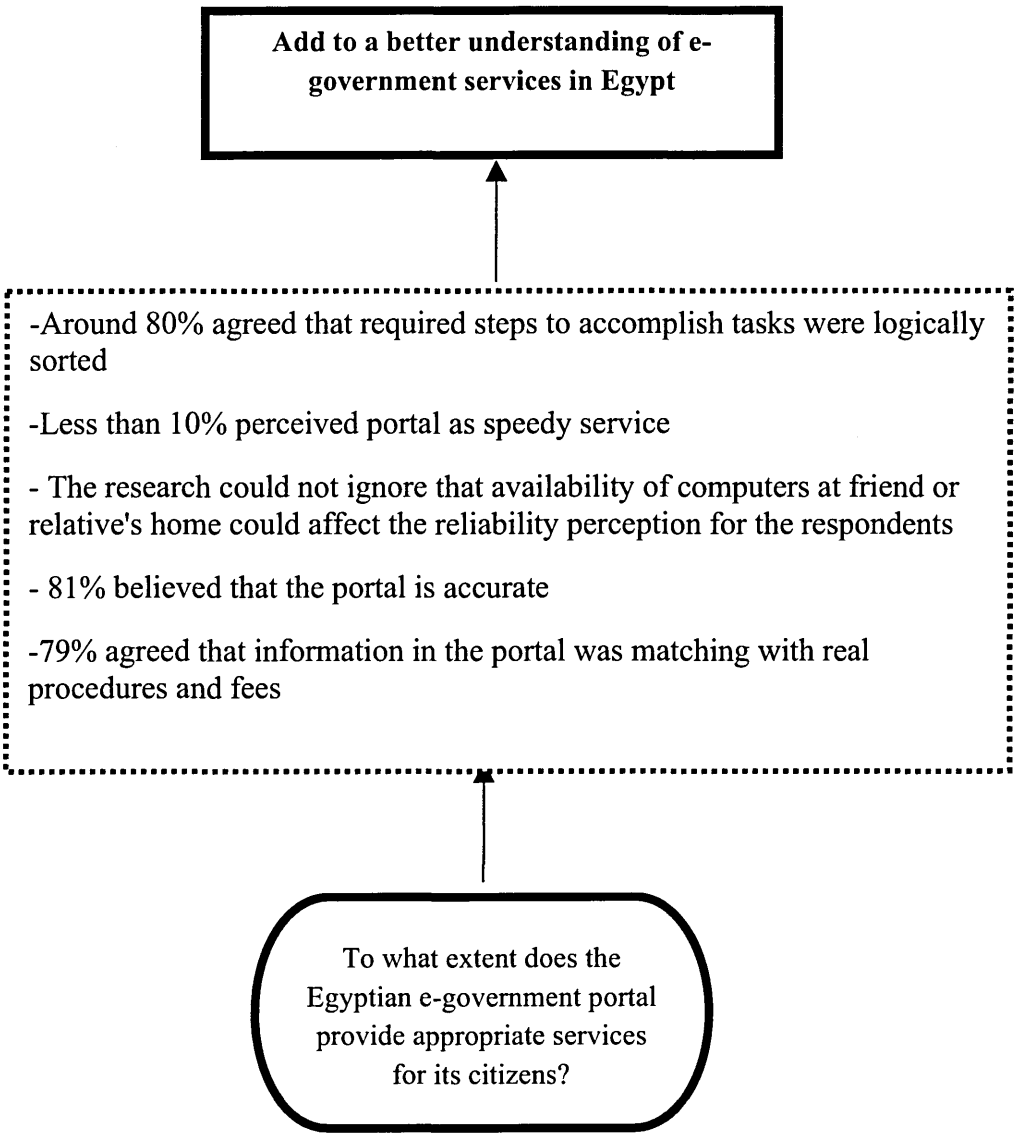
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-squared	21.070	56	.012
Likelihood Ratio	44.162	56	.874
Linear-by-Linear Association	1.158	1	.282
N of Valid Cases	110		

This result makes sense because using the Internet for a period of time would provide search capabilities on the web. In other words, users who frequently use the Internet were more likely to perceive the efficiency of the portal, rather than infrequent Internet users.

7.4) Summary

The next figure 7.23 will show the research question and research aim associated with these findings and it will demonstrate how these questionnaire results help to achieve the research objective by adding to the knowledge and understanding of the e-government program in Egypt. This is followed by a discussion of the integration between the research aims.

Figure 7.23: First research question and research aim



All three questions aim to explore the usage of e-government applications as well as identifying the advantages of using it in Egypt. The perception of a small sample of educated citizens regarding the Egyptian e-government portal (questionnaire), and the correlation between the readiness of e-government applications and the business performance, both linked to a case study that demonstrated the condition of a sample of business processes in Egypt and showed the current effect of using traditional approaches to achieve these business processes.

AlShishi (2006) explored e-government adoption in Oman and some similarities between Egypt and Oman have been noted, since both are Arabian countries. Trust as factor strongly affects citizens in Egypt, Oman and other countries in the Arab region, which suffers from lack of human qualified capital and shortage of resources.

In Egypt, initiatives such as e-government program first need to be trusted by citizens then applied it in business field especially before they could be used in small and medium businesses. For instance, it would be easier for educated Egyptian citizens to apply for a birth certificate through the portal. In fact, millions of citizens apply for a birth certificate every year using the regular government offices and waiting in long queues. If citizens trusted the portal and were used to it, thousands or millions of applications could be made through the Internet. Even though only 10% of questionnaire respondents thought that the e-government portal offered a speedy service, it may be quicker than waiting in a queue.

The results of this questionnaire showed the partial satisfaction of a small sample of educated Egyptian citizens with the e-government portal. As time and further developments allow, more usage by citizens and involvement of e-government in businesses will occur. The focus of the third research question was to investigate the importance of e-government usage for business processes in small and medium sized enterprises. It showed, by using real examples (see Chapter 9) how time and cost can be reduced. Therefore, the satisfactory response of citizens to the portal can be linked to the development of business processes to show the growing importance of e-government in Egypt. To support this outcome, the UN and World Bank reports (see Chapter Four) showed the position of Egypt, in terms of both e-government readiness and ease of doing business, compared to their neighboring countries in African and Arab states. The rank of Egypt in the UN report (UNPAN, 2005) was seen to be improving and this may be one of the reasons that justify the overall satisfaction of the small sample.

Although the e-government program is improving technically it is still ignored socially. This is because any government program established over the past few years has been a negative experience for Egyptian citizens. The Egyptian e-government program was established to save time and effort for the Egyptian citizen and was launched in order to enhance the performance of the public sector service. Even if the Egyptian government

continually improves the technical capabilities without enhancing the social awareness of its facilities, the e-government program will not benefit citizens and businesses.

Finally, these results show a small purposive sample, which was generally satisfied with the portal; however this does not represent the whole society. The descriptive statistics, Chi-squared and independent sample t test results showed that it could be a reasonable start for the e-government portal and might encourage the use of the portal for other simple functions such as paying business taxes or getting a small shop license. Instead of spending hours and money, the e-government portal would be an easier and cheaper solution for achieving some business processes. This discussion will continue in Chapter 9 in relation to the case study, which also identified the same benefits.

Chapter Eight: Correlation Between E-government Readiness and Ease of Doing Business

This chapter will illustrate the relationship between e-government readiness and the ease of doing business by using correlation analysis then report analysis. The correlation analysis used the E-Government Readiness Report (UNPAN, 2005) and the Ease of Doing Business Report (World Bank, 2007) to test the statistical relationship between the ranking of countries in the two reports. The report analysis examined more deeply the indexes/ indicators used in the UN and World Bank reports to identify a basis for the correlation between e-government services and doing business.

8.1) Correlation analysis

Not all countries are common to both reports, therefore, 155 countries were chosen because they appear in both.

The next section explains the correlation between the E-government and Ease of Doing Business and the significance of that correlation. Following that, the significance of the correlation between e-government readiness and main topics in the Ease of Doing Business report is studied. Spearman's correlation test was used and based on six of the business topics:

1 Ease of doing business

2 Ease of starting a business

3 Ease of getting credit

4 Ease of trading across borders

5 Ease of enforcing contracts

6 Ease of closing a business.

The justification for using Spearman's correlation test is that the data on E-government services and Ease of Doing Business is in the form of country rankings, as explained above.

Consequently, this is statistically the appropriate measure. The logic of the test is that closer agreement between country rankings produces a high value (closer to 1) of the Spearman correlation coefficient, which is potentially more likely to be statistically significant. On the other hand, when pairs of country rankings disagree, the coefficient is low (closer to zero) and is more likely to be statistically insignificant. The results of the test are presented and discussed below and the detailed calculations are presented in Appendix 5.

Figure 8.1 Correlation results

Topic	Observed correlation value	p-value	Description
Ranks of countries	0.715>0.5	<0.05	Strong (Appendix 5.1)
e-government readiness and ease of starting a business	0.514>0.5	<0.05	Strong (Appendix 5.2)
e-government readiness and ease of getting credit	0.678>0.5	<0.05	Strong (Appendix 5.3)
e-government readiness and ease of trading across borders	0.605>0.5	<0.05	Strong (Appendix 5.4)
e-government readiness and ease of enforcing contracts	0.609>0.5	<0.05	Strong (Appendix 5.5)
e-government readiness and ease of closing a business	0.558>0.5	<0.05	Strong (Appendix 5.6)

There are some useful indicators in the literature that link to some of these business topics. Lander et al. (2008) point to the direct effect of e-government services on doing business in general and Kraemer and King (2006) believe that applying e-government services would enhance both starting and closing a business. Sharma and Gupta (2003) indicate the use of e-government services to make the process of obtaining credit easier, while Chamberlain and Castleman (2005) demonstrate advantages for business regarding the use of e-government services. Finally, Thomas and Streib (2003) think that involving e-government services could improve international trading.

8.2) Report analysis

Based on the research literature, there are possible links between the two reports. Many academic studies showed the effect of e-government usage on managing routine processes, where solutions were presented as useful tools for governments and citizens. Egypt suffers from government bureaucracy, unqualified employees, bribes and wasting of time, which may be present in the working environment. Applying for construction license or registering property can be difficult in Egypt, but facilitating such processes by evolving technology might increase the level of service. By using e-government solutions (if available), Egyptian citizens might save time and cost while obtaining a birth certificate or applying for a construction permit. In other words, the research showed that e-government usage might impact positively on the business cycle in Egypt.

8.2.1) Similarities and differences between UN and World Bank reports

The UN report (2005) used three main indexes; Web Measurement, Telecommunication Infrastructure, and Human Capital. The World Bank report (2007) tested ten indicators:

1 Starting a business

2 Obtaining a license

3 Registering a property

4 Employing workers

5 Trading across borders

6 Enforcing contracts

7 Getting credit

8 Protecting investors

9 Paying taxes

10 Closing a business.

Both reports were published in English but the publication years were different because, while doing this stage of the research, these were the most up to date versions available. In

addition both used the questionnaire method to collect data from countries all over the world. The UN report (2005) measured e-government readiness status and the World Bank report (2007) measured the difficulty of business processes. Using e-government solutions to perform business processes was mentioned in many places within the two reports.

From different points of view, it is logical to consider that the UN report (2005) sub-indexes are related to the ease of doing business indicators. For instance, the data for the Human Capital index, which is included in the UN report, (2005) relies on the UNDP 'education index'. This is a composite of the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio, with two-thirds weighting given to adult literacy and one-third to gross enrolment ratio. This index reflects the education status in countries. As discussed in Chapter 2, Egypt has a problem with illiteracy problem therefore scored only .62 compared to developed countries such as USA .97, UK .99 and Canada .98. Consequently, Egypt might consider applying more effort to enhance the education status in the country and improve the business processes. Processes such as obtaining a license or starting a business need at least a citizen who can read and write to complete the required forms. Moreover, illiterate people cannot use the e-government portal in order to achieve any business process, even if this service is provided. Therefore, applying e-government services to facilitate business needs educated people who can deal with the ICT applications in general and the e-government portal specifically.

Finally, the Telecommunication Infrastructure index is a composite weighted average index of six primary indices based on basic infrastructural indicators, which define a country's ICT infrastructure capacity. These are:

1 PCs/1000 persons;

2 Internet users/1000 persons;

3 Telephone lines/1000 persons;

4 Online population;

5 Mobile phones/1000 persons;

6 TVs/1000 persons.

Egypt scored .072 in that index compared to other countries such as USA .75, UK .65 and UAE .36. Egypt might consider applying more investment in developing the ICT

infrastructure all over the country to help facilitate business processes. Providing on-line services to citizens needs the availability of PCs and telephone lines, which are considered in the Telecommunication Infrastructure index.

8.2.2) Relation between the UN report and business process

The UN report (2005) listed that e-government includes electronic interactions of three types: government-to-government (G2G); government-to-business (G2B); and government-to-consumer/citizen (G2C). The government-to-business type was listed as a basic element in e-government solutions. As an example, the report included details of a project in Canada, which ended up with the most complete on-line source of public tenders and private construction available in the country. This, together with various examples from other countries demonstrated the success of using e-government in business processes. If something like this Canadian project were to be applied in Egypt, it would be an appropriate step to protect citizens from having to pay bribes or be abused by government employees. In Canada the project was designed for better performance; however Egypt might need such project in order to fight corruption, because fighting corruption is more important than better performance.

The UN report (2005) also described a project in India where Chennai Interactive Business Services (CIBS) had developed an English language web portal offering a wide range of local content directed at residents and potential investors in Chennai. The portal received over 10,000 visitors daily hits and provided information on everything such as links to government agencies to lists of government tenders. Similar government designed portals for business tasks were also listed in countries such as Australia and the U.S.

Additionally, the UN report mentioned a land registering process, which is one of the ten indicators listed in the World Bank report (2007). This e-government solution to facilitate business is explained as a case study in Chapter 9, where it can be seen that such a process would enhance business performance in Egypt.

8.2.3) Relationship between the World Bank report and e-government

Figure 8.2 shows the business indicators affected and, in some cases improved, by the usage of e-government solutions.

Figure 8.2: Business indicators with e-government solutions

Business Indicator	E-government engagement	Country
Starting a business	Registration simplified, and agencies linked through a central electronic portal	Serbia
Registering property	Notaries given electronic access to the registry, reducing time by 20 days	Romania
	2 online procedures at a cost of 0.1% of the property value	New Zealand
Paying taxes	Electronic filing system	Bulgaria and Latvia
	Time needed to comply with taxes fell by 17 days	Madagascar
Trading across borders	Electronic filing of cargo documents reduced delays in ports	Germany and Australia
	New customs code adopted, allowing electronic filing of cargo declarations	Serbia
	New customs clearance process allows traders to file cargo declarations before shipments arrive and pay tariff and port fees electronically	Pakistan
	Introducing electronic mechanisms that speed up the release of cargo from customs.	India, Korea, Serbia and Taiwan

In 2007 Tanzania was one of the best reformers in the ease of doing business, according to the World Bank report. It achieved reforms in four indicators: starting a business, registering property, protecting investors and trading across borders. These last two were achieved by the e-government solutions of electronic data interchange and risk-based inspections at customs; as a result, the time to clear imports fell by 12 days.

An example of improvements to the starting a business indicator by the usage of e-government came from Serbia. In May 2004 registration was simplified and agencies linked through a central electronic database, which checks the authenticity of data. The

government registry no longer has the authority to refuse registration if the application is complete and these rules ensure automatic registration within 5 days.

Croatia reduced delays by 18 months in the registering property indicator, and the backlog of unissued titles by 36%, by computerizing the registry and making the process administrative. In the same indicator, e-government solutions played an important role in improving the level of service in New Zealand. It is easier to register property there than anywhere else in the world and the entire process can be completed in two online procedures at a cost of 0.1% of the property value. Lawyers certify land transfer documents for their clients and submit them electronically for registration. Confirmation is returned within minutes.

Regarding the paying taxes indicator, e-government solutions were mentioned in Bulgaria and Latvia, where tax-payers were provided with an electronic filing system which facilitated the process. The business indicator of trading across borders also utilized e-government services to reduce procedures and number of days to import and export goods. For example, electronic filing of cargo documents has reduced delays in many ports like Sydney and Hamburg.

All these cases could be considered as lessons to the Egyptian government to avoid paying bribes and save time.

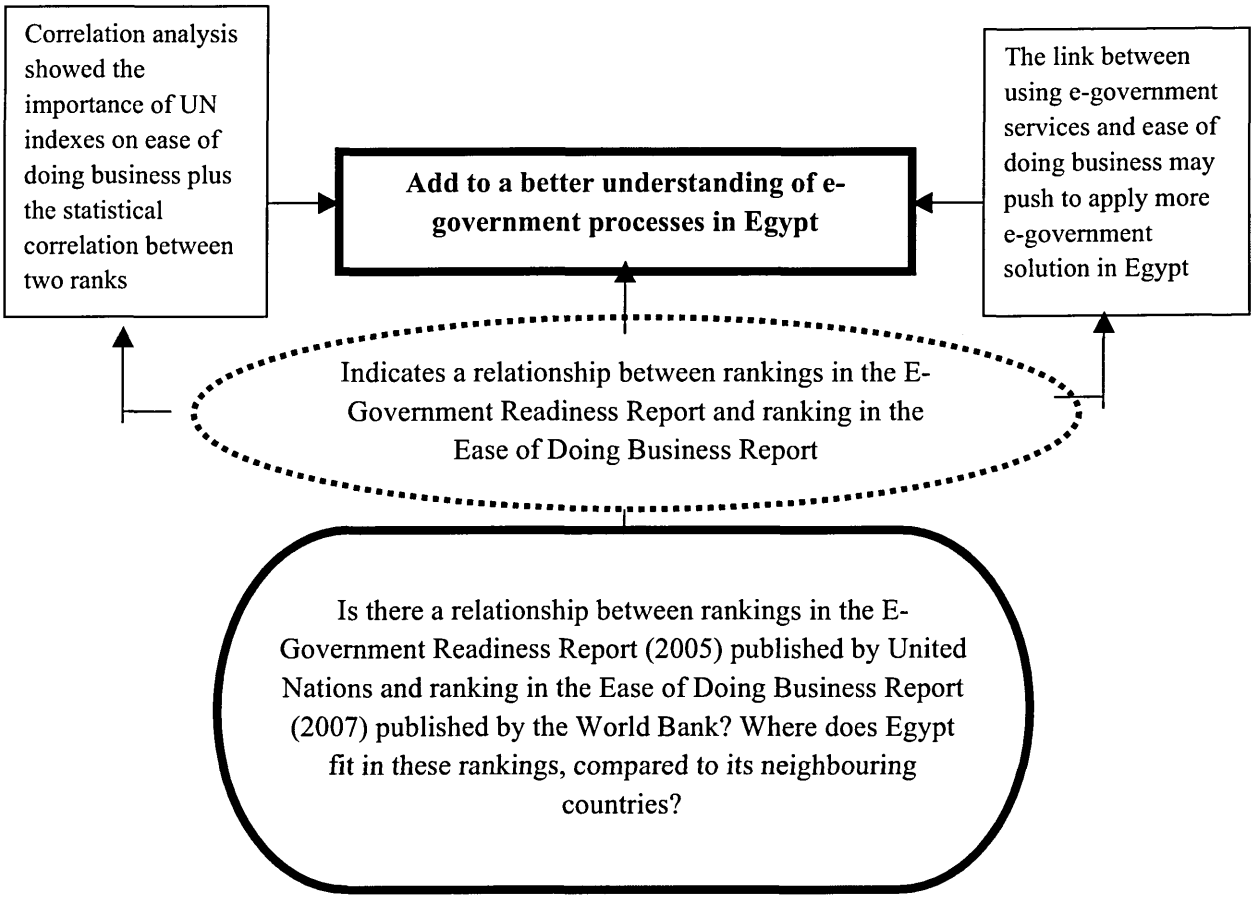
8.3) Summary

The next figure 8.3 will demonstrate the second research question and its relationship with the research aim followed by discussion to clarify the intended integration.

The relationship between ranking in the E-Government Readiness Report (UNPAN, 2005) and the Ease of Doing Business Report (World Bank, 2007) has been explored in this chapter to answer the second research question. Positive correlations were identified between the ranking of countries in the UN report (2005) and business indicators in the World Bank report (2007). This appears to indicate that where countries have high e-government readiness, they also provide an environment where doing business is easy. Egypt's rank in these two reports indicates that more work needs to be done by the

government to improve e-government readiness and the services that make it easier to do business.

Figure 8.3) Relationship between findings and second research question



The level of education in Egypt, which is ranked in the human capital index (UNPAN, 2005), shows that illiteracy is at a level of 40% in the population (see Chapter 2.1.5). This has a negative effect on the usage of the e-government portal and the facilitation of business, because people who cannot read and write need to use government offices and government employees; therefore they are at risk from unnecessary delays and costs, including bribes. The Telecommunication Infrastructure index (UNPAN, 2005) also shows that Egypt has a low rank. Government funded improvements in telecommunications infrastructure may encourage an increase in literacy and a desire for better education to use

ICT (see Chapter 3). This may enhance business development and the need for improved e-government services.

The UN and World Bank reports showed the position of Egypt, in terms of both e-government readiness and ease of doing business, compared to their neighboring countries in Africa and the Arab states. Egypt's rank has improved over recent years (see Chapter 4.5) as a result of government policies. The findings of the questionnaire (see Chapter 7) showed an overall satisfaction with the e-government portal, based on a small sample of educated citizens. In spite of the bias, this outcome should encourage the government to continue its development of e-government services, especially to improve the ease of doing business in Egypt.

In conclusion, exploring the relationship between these two reports showed the importance of using e-government services to enhance business processes. The research aim was to identify some of the hidden similarities between the Ease of Doing Business report (World Bank, 2007) and the E-government Readiness report (UNPAN, 2005). Clearly, the citizens' readiness is the essential factor in the usage of e-government solutions. The next step would be for the Egyptian government to improve business services through the e-government portal, as shown in the following chapter.

Chapter Nine: Investigating Egyptian Business Processes

This chapter will answer the third research question "How can the use of e-government services help Egyptian citizens to do business more easily?" To accomplish this a case study will be conducted, based on two of the topics listed in the Ease of Doing Business report (World Bank, 2007). First the current processes in Egypt will be shown, then examples of how e-government usage can affect the business process performance.

Assumptions and guidelines regarding the two topics will be clarified and cultural and social obstacles facing the e-government program in Egypt will be discussed. The two topics to be used in the case study are: dealing with licenses and registering property.

9.1) Dealing with licenses

Construction companies are under constant pressure from government to comply with inspections, licensing and safety regulations and from customers to be quick and cost-effective. These conflicting pressures point to the trade-off in building regulation, the trade-off between protecting people (construction workers, tenants, passers-by) and keeping the cost of building affordable.

In many countries, especially poor ones, complying with building regulations is so costly in time and money that many builders choose not to. Builders might pay bribes to pass inspections or simply build illegally leading to hazardous construction. In Egypt, complicated processes such as obtaining a license require many interactions with government employees. Even if the process is free, the government employee might ask for money to accomplish it. In other countries compliance, especially through e-government services, is simple, straightforward and inexpensive, yielding better results.

The indicators (World Bank, 2007) for dealing with licenses record all procedures officially required for an owner in the construction industry to build a warehouse. These include submitting project documents (building plans, site maps) to the authorities, obtaining all necessary licenses and permits, completing all required notifications and receiving all necessary inspections. They also include procedures for obtaining utility connections, such as electricity, telephone, water and sewerage. The time and cost to complete each procedure under normal circumstances are calculated. All official fees associated with legally completing the procedures are included.

The research assumes that the owner is aware of all existing regulations and does not use an intermediary to complete the procedures unless required to do so by law. In fact, government regulations are not clear~~ly~~ enough to the Egyptian citizens. Many procedures such as import, export, paying taxes and trading are not explained to the citizens. Therefore, the e-government portal should be used to publish the regulations or steps needed to accomplish the required process.

Several assumptions about the business and its operations are used in this case study. The business is a small to medium size limited liability company, located in the most populous city, domestically owned and operated, in the construction business, with 20 qualified employees. Most of these assumptions may affect the usage of e-government services. For instance, the majority of small size companies might have not the intention to deal with any e-services even in its business processes. This is because of many reasons such as the lack of education, awareness and trust.

The warehouse to be built is assumed to be:

- a new construction (there was no previous construction on the land).
- with complete architectural and technical plans prepared by a licensed architect.
- connected to electricity, water, sewerage (sewage system, septic tank or their equivalent) and one telephone landline. Obtaining the telephone landline might be the easiest process because Telecom Egypt is trying to develop itself and has a website which offers many services over the Internet.
- used for general storage, such as of books or stationery. The warehouse will not be used for any goods requiring special conditions, such as food, chemicals or pharmaceuticals.
- 30 weeks to construct (excluding all delays due to administrative and regulatory requirements).

9.1.1) Procedures required to obtain a construction license in Egypt

According to the World Bank report (2007), obtaining a construction license needs 28 procedures over 250 days, which could be considered a complicated process. It could be so complicated that the constructor might choose to leave the whole job.

Figure 9.1 shows the step-by-step process to obtain a license for the construction of a building. A discussion of the main points of the process follows.

Figure 9.1: Dealing with licenses - the process in Egypt

Days	Procedures	Cost (LE)
1	1) Obtain cadastral documents from the Survey Department (e-government service might help)	110
9	2) Obtain technical approvals from independent syndicate engineer	1750
1	3) Submit building permit application to municipal authority (e-government service might help)	Free
60	4) Receive inspection and obtain project clearance from Civil Defense	Free
30	5) Obtain project clearance from water authority	Free
30	6) Obtain project clearance from electricity authority	Free
1	7) Receive inspection prior to permit issuance from the municipality	Free
1	8) Pay real estate tax at the tax authority (e-government service might help)	30
1	9) Obtain building permit (e-government service might help)	2000
1	10) Receive on-site inspection from the municipality - 1	Free
1	11) Receive on-site inspection from the municipality - 2	Free
1	12) Receive on-site inspection from the municipality - 3	Free
1	13) Receive on-site inspection from the municipality - 4	Free
1	14) Receive on-site inspection from the municipality -5	Free
1	15) Receive on-site inspection from the municipality - 6	Free
1	16) Receive on-site inspection from the municipality -7	Free
1	17) Receive on-site inspection from the municipality - 8	Free
1	18) Receive on-site inspection from the municipality -9	Free
1	19) Receive on-site inspection from the municipality - 10	Free

1	20) Receive final inspection from by a committee from the municipality	Free
1	21) Obtain letters from municipality about water and sewage connection (e-government service might help)	Free
1	22) Obtain certificate of natural disaster	102
60	23) Obtain water and sewerage connection (e-government service might help)	15000
1	24) Apply for electricity connection (e-government service might help)	Free
1	25) Receive electricity inspection	Free
1	26) Obtain electricity connection	15000
1	27) Obtain phone connection	850
75	28) Register the building with the real estate registry (e-government service might help)	2000

To obtain cadastral documents from the survey department should take one day and cost LE110. The measurement specification documents include the cadastral delimitation statement, the cadastral map signed by survey authority, and the aerial colored cadastral map for the construction site. This process needs to be signed off by the survey authority. The signature of the government employee might require a bribe to speed it along. Both the cadastral map and the aerial colored cadastral map for the construction site could be offered through the e-government portal to make this step faster and easier.

Obtaining technical approvals from independent syndicate engineer should take 9 days and cost LE1750. The constructor must submit documents including:

1 Approval of the colored cadastral map.

2 Approval of probe estimation.

3 Execution supervision certificate.

4 Approval of architectural drawings.

5 Accounting book.

6 Report confirming the construction quality of the building foundations.

7 Soil investigation report.

At least documents 1, 4 and 5 could be submitted through the e-government portal, although sending such documents through Internet might be difficult for a citizen.

Submitting the building permit application to the municipal authority should take 1 day. To obtain a building permit, constructor must file with the District Department the following documents, along with the ones described in the previous procedures:

1 Original ownership contract of the plot of land (notarized).

2 Measurement specification statement from the Survey Department.

3 Survey plan (arial photography) specifying the location. The survey plan must be approved by an accredited syndicate engineer.

4 Alignment license, issued by the Urban Planning Department of Cairo Governorate.

5 Probe estimation, approved by a syndicated engineer.

6 Execution supervision certificate, issued by a syndicate engineer or consultant engineer, if the building value is more than LE1 million.

7 A receipt attesting the payment of fees for the duty for examination of the drawings and details.

8 A general drawing of the site (scale minimum 1:1,000).

Sending and receiving most of the previous documents could be changed to electronic attachments, using the authority website, if it exists. Completing documents online would be faster and easier, but there may be an illiteracy problem. Constructors who work in main cities might have been educated, whereas rural areas may have less educated constructors and workers. Even the owner might have a difficulty while using a website. This is a significant cultural and social problem in a developing country such as Egypt.

Procedure 4 requires inspection and project clearance from Civil Defense and could take up to 60 days. Engagement of e-government services should enhance this step and reduce number of days required.

Procedures 5 and 6 require clearance from water and electricity authorities. Both are free of charge and each procedure takes up to 30 days. Sending the clearance to the constructor might take more than a week, whereas delivery through e-mail or the authority's website (if it exists) would be quicker.

Receiving inspection prior to permit issuance from the municipality takes one day.

Paying real estate tax to the tax authority takes one day and costs EL30. Paying the taxes through the e-government portal might take a few hours at most, instead of a whole day. Many countries use an online payment method for taxes. Egypt should consider the e-payment method to facilitate the whole process.

To obtain a building permit takes 30 days and costs LE2000. The government established a 30 day statutory time limit for issuing building permits and these are counted only after all preliminary approvals are obtained. For this, government employees might ask for bribes to complete the procedure during the required period, otherwise it will take longer.

Procedures 10 to 19 require on-site inspection from the municipality on a regular basis (usually once a month but inspections can occur once every 2 weeks). Each inspection takes a day at most and it is assumed that the site is inspected every 3 weeks on average. The process is free of charge, however the constructor may pay to receive pass inspection results, either to speed the process or to ensure that even shoddy work is passed.

After construction is done, the municipality makes a final inspection to certify that the warehouse conforms to the specifications outlined in the building permit. This is procedure 20, which lasts one day and is free of charge.

Obtaining letters from the municipality about water and sewage connection and ~~about~~ electricity cables installation is procedure 21. It takes one day and is free of charge.

The next procedure is to obtain certificate of natural disaster, which takes 1 day and costs LE102.

To get water and sewerage connection takes up to 60 days. The constructor submits an application to the municipal department to obtain a letter to be provided to the water utility. Then the construction company submits an application to the competent water authority, along with the original license and a copy of the building permit. Fees include about LE10,000 for the water connection and LE5,000 for the sewerage connection. Submitting the applications, first to the municipal department, and second to the competent water authority should be available on-line. Lots of complicated steps could therefore be reduced.

Procedure 24 is to apply for an electricity connection, which is free and could be achieved within a day. For the electricity authority to extend the electric cable network,

the company must submit the electrical design drawings to be endorsed by the authority and electricity company.

The next procedure requires the electricity inspection, which is free and can be achieved in one day. Procedure 26 is to get the electricity connection. This takes up to 19 days and costs LE15,000.

To get a phone connection costs LE850 and takes up to 18 days, and the construction company must submit the following documents:

Title deed for the unit or lease contract, if not owned by the applicant.

Copy of applicant's identification.

Operators license for factories, stores, commercial stores, and workshops.

Again, all of the documents needed could be available on-line, to be completed at the constructor's convenience instead of visiting crowded and busy authorities.

The last procedure is to register the building with the real estate registry within 75 days, which costs the constructor LE2000. The constructor must submit a building registration form, the building permit for the warehouse, and the primary purchase contract of the land on which the warehouse had been built. If these documents had been available on-line from the beginning of the process, procedure 28 could be a very simple step.

9.1.2) Use of e-government services and ICT in dealing with licenses

Dealing with licenses in Egypt is one of the worst processes in Egypt. It takes 28 procedures and over 250 days to get a building license and for this reason, Egypt is ranked 169 worldwide (World Bank, 2007).

There is some electronic participation in this process in the governorate of Assiut, and the Ministry of Housing, Utilities and Urban Communities list the requirements to obtain a building permit on their respective web sites. However, this is not the case in many other main governorates. In Egypt, having forms online can save businesses at least one trip to the municipality that can mean a whole afternoon not wasted in traffic. Information about the procedures and process for obtaining a building permit helps businesses with their project planning.

In other countries that use e-government and ICT solutions things are different. In Oman and Singapore, free downloadable application forms and online documentation

processing save builders time and money. In China, Beijing and Shanghai now process applications for construction permits electronically and allow construction companies to apply for safety certificates online, reducing delays by 2 weeks. Morocco set up an electronic one-stop shop for construction permits at the end of 2006, reducing the time to obtain a building permit from 30 days to 20 (World Bank, 2007).

Honduras launched electronic processing of applications for fixed telephone lines, cutting the time for approval from two weeks to one. Kuwait installed a new automated system in all agencies responsible for issuing technical approvals. The time to obtain an approval for a phone line dropped from 30 days to 20, for electricity from 2 weeks to 1, and for a water plan from 14 days to 5 (World Bank, 2007).

From the above it is obvious that using ICT and e-government services is helping public sector services. It is proposed that offering e-government services in Egypt ~~will~~ could reduce the number of days by 30%, which happened before in other countries and for the same reason (Honduras, for example). At the same time the number of procedures could be cut by 20% and obtaining a license could take 176 instead of approximately 263 days. As a result, the ease of dealing with licenses percentile will drop from 0.86 to 0.72 (see Appendix 7), and automatically the ease of doing business percentile will be 0.70. The rank would then be 158 instead of 169 (ranking is fully dependent on the percentile). Of course, this assumes no changes in other countries' processes.

Based on this proposal, it can be seen that Egypt must consider the importance of developing full e-government and ICT support for this process.

9.2) Registering property

Registering property is based on an owner who wants to purchase land and a building in the largest business city. It is assumed that the property is already registered and free of title dispute. The case study covers the full sequence of procedures necessary to transfer the property title from the seller to the buyer. Every required procedure is included, whether it is the responsibility of the seller or the buyer, or must be completed by a third party on their behalf. Moreover, the case study will show the possibility of applying online processes.

Three indicators are constructed:

- Number of procedures to register property.
- Time to register property (in calendar days).
- Official costs to register property (as a percentage of the property value).

A large share of the property in developing countries is not formally registered, limiting financing opportunities for businesses. Recognizing this constraint, some developing country governments have embarked on extensive property titling programs. Yet bringing assets into the formal sector is of little value unless they stay there.

Many titling programs in African and Arabian countries were useless because people bought and sold property informally neglecting to update the title records in the property registry. This case shows that completing a simple formal property transfer in the largest business city of an African country costs 12% of the value of the property and takes more than 100 days on average. Worse, the property registries are so poorly organized that they provide little security of ownership. For both reasons, formalized titles quickly go informal again. Using e-government services in order to ease of registering property process might be one of solutions. Moreover, electronic services might reduce the cost so some people could prefer to go on-line.

Efficient property registration reduces transaction costs and helps to keep formal titles from slipping into informal status. Simple procedures to register property are also associated with greater perceived security of property rights and less corruption. The rich have few problems protecting their property rights. They can afford to invest in security systems and other measures to defend their property. But small owners cannot. Rich, educated Egyptians are more likely to use an e-government system to register their property, because they have access to the necessary technology and their property is more valuable. However, in time the use of such services may be taken up by middle class business people as they understand the need to safeguard their property by registering it.

9.2.1) Procedures required to register a property in Egypt

Figure 9.2 shows that registering a property in Egypt needs 7 procedures, costs LE2000 and 0.5% of the property value, and takes over 190 days to complete.

Figure 9.2: Registering a property - the process in Egypt

No. of days	Procedures	Cost (LE)
15	1) Request for registration presented by the buyer	Free
30	2) Site inspection by the measurement department	Free
42	3) Payment and issuance of the inspection's report	Free
67	4) Final contract is drafted and approved in the Lawyers Syndicate	0.5% property value
7	5) The buyer obtains the contract from the real estate registry	2000 (registration fee)
31	6) Seller and buyer sign the contract before the real estate registrar	Free
1	7) The buyer picks-up the new contract/title at the Registry	Free

Most of the procedures require the services of professional people, such as lawyers the real estate registrar. The major outlay for this process is not money, but time. Developing a secure, online register of property would improve the procedure.

9.2.2) Usage of e-government services and ICT in registering property

Egypt, as represented by Cairo in the global Ease of Doing Business report (World Bank, 2007), ranks low on the registering property topic in the world - 101 out of 178 countries. While the same 7 procedures are required to register property nationwide, the time and cost to register property vary across governorates due to different local practices. Registering property is easiest in Assiut with 33 days at a cost of 0.7% of property value, whereas a citizen in Alexandria spends 5 months to do the same. In Cairo, registering property is the most challenging as it takes 193 days and costs 1.0% of property value.

The example of good performance in Assiut shows that districts and governorates can look for good practices within Egypt, not just internationally. If other locations were to adopt Assiut's time and cost to register property, Egypt would climb 50 places in the global ranking regarding timely and inexpensive property registration, comparable to Germany. This improvement would be based on many reasons like the usage of e-government services and the lower legal costs in Assiut. In Alexandria and Cairo, the longest procedure is the drafting and approval of the purchase and sales contract by the lawyers' syndicate. A citizen has to wait one and a half months in Alexandria and more than 2 months in Cairo. Then it takes another month in both cities for the contract to be

signed at the real estate registry. Compare that with Assiut where both procedures can be completed in 12 days.

Having the site inspected and obtaining the inspection report are sources of delay, it takes the measurement department one month to do the inspection in Cairo and additional 42 days to issue the inspection report. In Alexandria, the two procedures take a little over 2 months. The causes of the delay in Alexandria and Cairo include lack of qualified personnel and outdated or inadequate equipment. In Assiut, the longest delay is at the real estate registry, where almost half of the total time needed to register property. It is also cheaper to complete all registration procedures in Assiut - 0.7% of property value as compared to 1% in both Alexandria and Cairo. One of the reasons is lower legal costs in Assiut. Theoretically, drafting the final sales contract at the lawyers' syndicate costs 0.5% of property value (capped at LE5000) in any Egyptian city. In practice, the lawyers' syndicate in Assiut accepts a lower rate, LE500 on average.

According the World Bank Report (2008), registering a property takes 7 procedures and up to 193 days in Egypt, while the same process takes 2 procedures and just 21 days in the UK. Egypt achieved a good advance in 2008, when the rank improved from 141 in 2007 to 101. Registering a property in Cairo cost 5.9% of property value and 90% of properties were either not registered or registered at below market values. The government decided to lower the rate and since April 2007 it costs 1% of property value. As a result, revenues from title registrations rose by 39% between the 6 months before the reform and the 6 months after (World Bank, 2008).

How did this happen? A property registration reform working group was created to look at how fees could be lowered. With the stroke of a pen, they converted the registration fee paid by the buyer to obtain the contract from the real estate registry from 3% of the property value to a low fixed fee schedule capped at LE2,000. Other fees were abolished too, such as the fee charged when submitting the request for registration to the real estate registry, LE500 to get the property inspected by the measurement department and LE10,000 to obtain the inspection report. As a result, the total cost to register dropped from 5.9% to 1%. This reform made Egypt the top reformer in the Middle East and North Africa (World Bank, 2008). The reform paid off and property registration increased in both urban and rural areas in the 5 months after the reform (World Bank, 2008).

Egypt could even do more. The real cause of this achievement was not related to any enhancement of the procedure. This achievement was because of reducing expenses and

taxes. In other words, Egypt reduced neither the number of procedures nor the number of days. The aim of this section is to explore how Egypt may apply ICT and e-government services to enhance the process of registering property. The relationship between the Ease of Doing Business report (World Bank, 2007) and the E-government Readiness report (UNPAN, 2005) was illustrated in Chapter 8 and examples of ICT applications and e-government programs were identified to support the public service sector.

Many countries are embracing new technologies in property registration. One in 3 has made registration electronic in the last 5 years, with rich countries leading the way. Countries that transfer records from paper to electronic form benefit from shorter processing times. Going electronic makes it easier to identify errors and overlapping titles, so improving title security. The Land Registration Act of the UK, the first major overhaul of land registration since 1925, came into force in October 2003. The Act sets up a new system of electronic dealing with land, so that the register accurately reflects land ownership at any given time. The reform allows users to investigate title to land online, with the absolute minimum of additional searches, inspections and inquiries, and to get fast computerized updates of title. Implementation is not complete yet, but time to register is already reported to have declined by 30% (World Bank, 2005).

Since 2003, 13 countries have introduced electronic registration, including Belgium, Ireland, Mauritius and Norway. This cut the average time to start a business in those countries from 40 days to 17. With no contact between the entrepreneur and the public official, no bribes can change hands. Keeping such records updated in Egypt would cut the need for a new valuation and site inspection by the measurement department each time a property is transferred. Electronic records would solve the numbering and filing problems in Egypt (Sub National Report, 2008). In Egypt, each procedure in registering property can cause corruption and delays. Global data show that there is no need to have seven separate procedures to register a property. The procedures related to obtaining the contract from the real estate registry signing it and picking up the new title could easily be combined. Egyptian cities could look to Armenia, Croatia, Ghana and the Dominican Republic as recent examples of successful reforms.

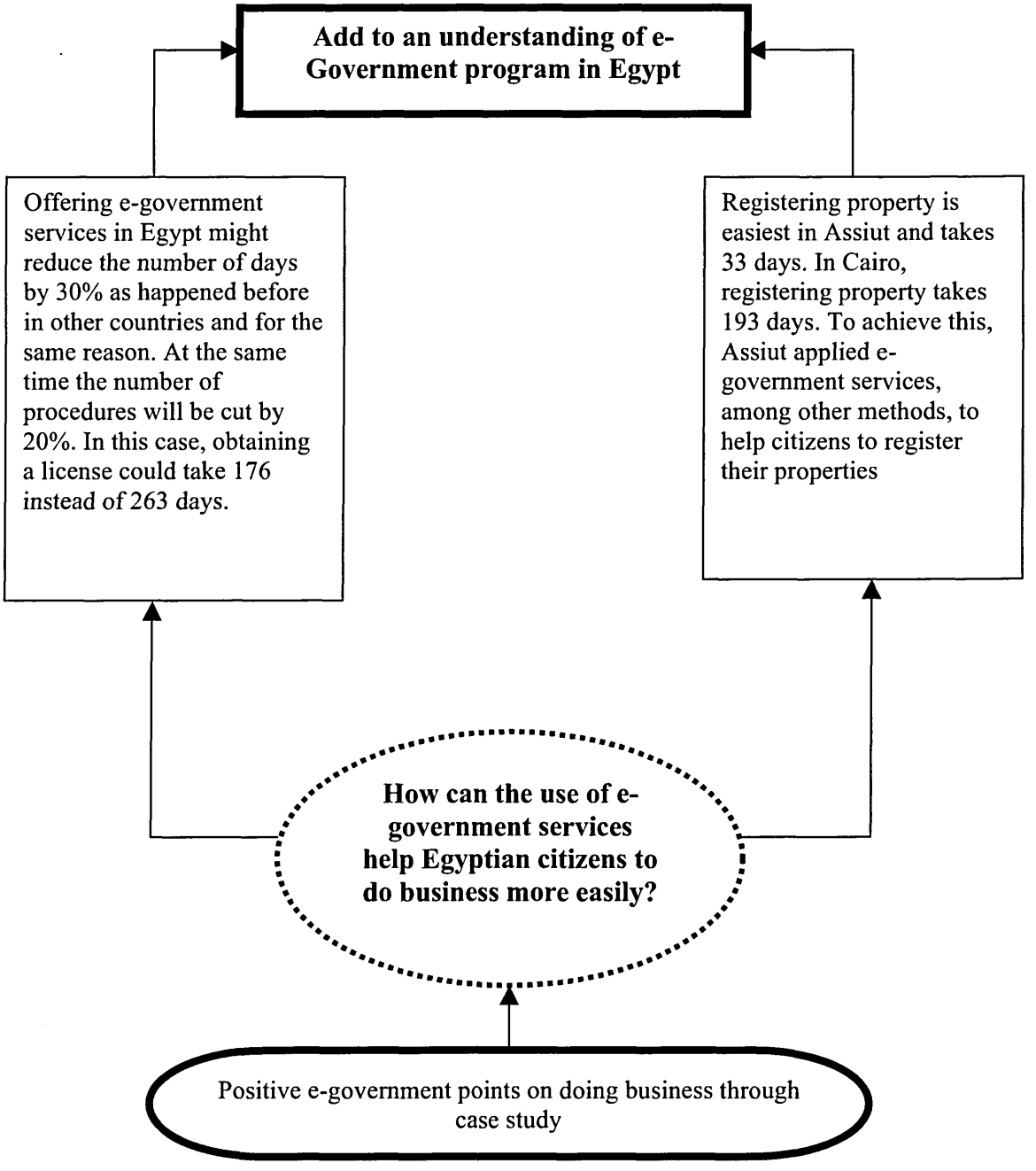
9.3) Summary

Obtaining a construction license and registering property in Egypt require complicated and expensive procedures, both in time and money. A comparison with the procedures

in other countries showed that business in Egypt would be made much easier by applying e-government services to these. The usage of ICT and e-government solutions was demonstrated, together with the direct returns to Egypt if usage of e-government solutions were implemented to perform business processes.

The next figure 9.3 will demonstrate the third research question and its relationship with the research aim followed by a discussion to clarify the intended integration.

Figure 9.3) Relationship between findings and third research question



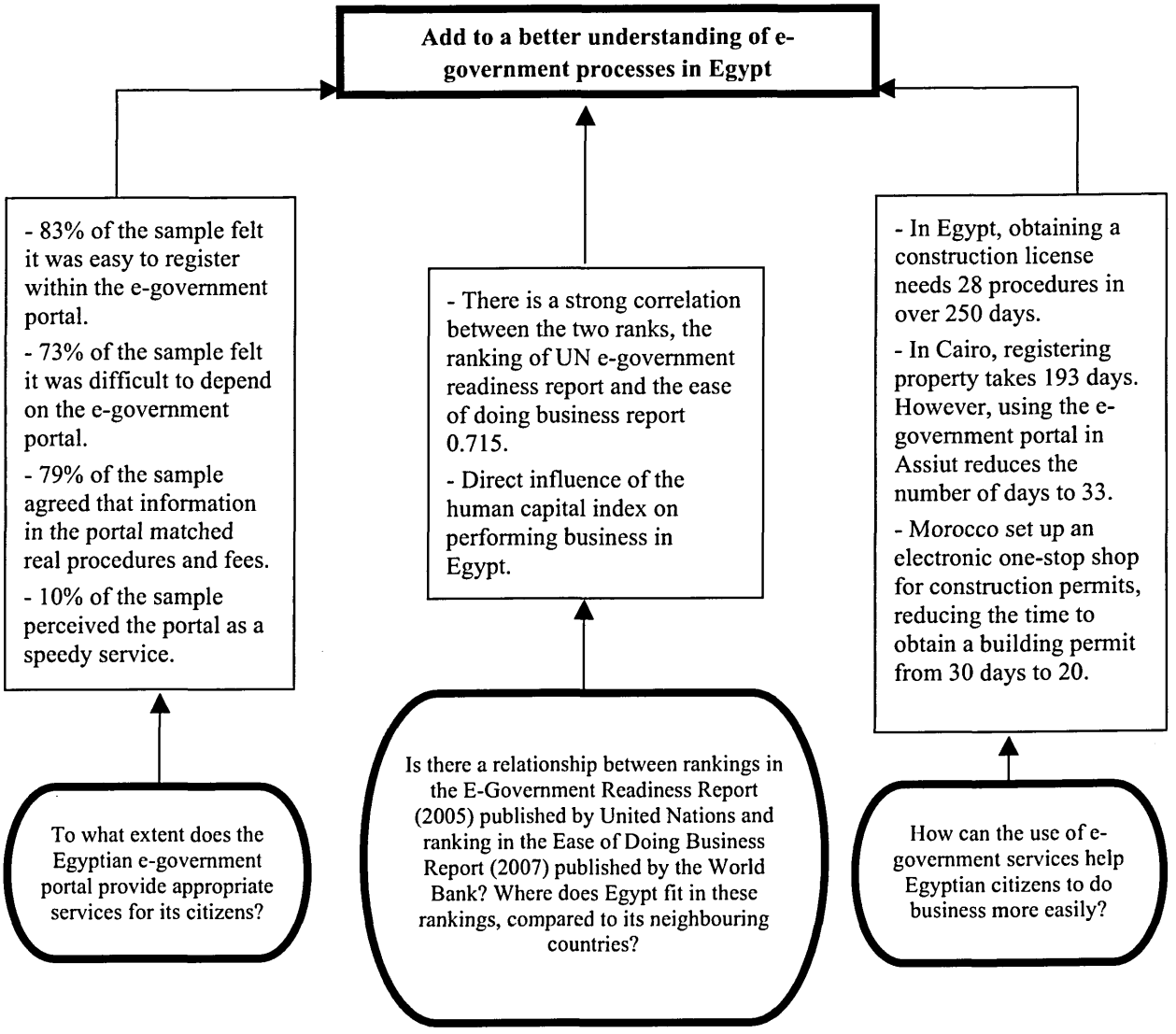
Findings related to the first research question (Chapter 7) showed that in a small purposive sample of educated Egyptians there was some general satisfaction with the e-government portal, providing access to government services. The second research question (Chapter 8) explored the relationship between rankings in the E-Government Readiness Report (UNPAN, 2005) and in the Ease of Doing Business Report (World Bank, 2007). This also compared the position of Egypt to that of its neighbouring countries. The third research question, investigated in this chapter, demonstrated the need for adequate e-government services to support business procedures and allow Egyptian citizens to carry out their work and daily life more easily. Examples from other countries showed how this could be done.

Chapter Ten: Conclusion

This chapter draws the conclusion of the research by examining the relationship between research questions and outcomes. The extent to which the aim of the research has been achieved and an evaluation of learning, personal and research limitations, are identified. Finally, recommendations for the current e-government program in Egypt and future research will be suggested.

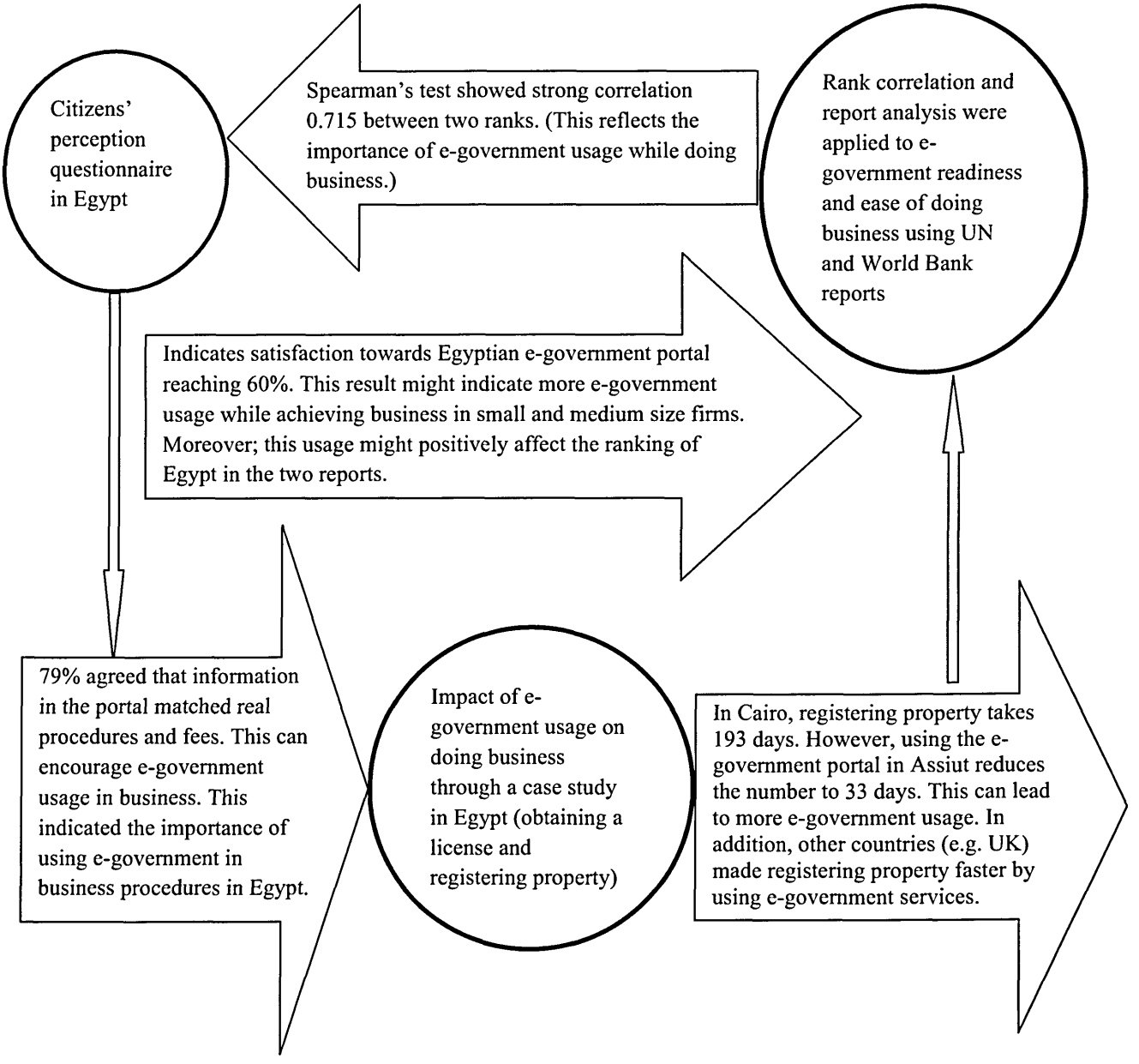
10.1) Relationship of the outcomes

Figure 10.1) Role of the research questions in achieving the research aim.



The integration between the results of the empirical work and the research questions use the diagram that discussed the relationship between research questions in the methodology chapter (Figure 6.2). This shows the results generated from methods and the impact of these results on the research questions. After that, the diagram is explained.

Figure 10.2: The interaction between research results and methods



The research looked for answers to the following three questions:

- To what extent does the Egyptian e-government portal provide appropriate services for its citizens?
- Is there a relationship between rankings in the E-Government Readiness Report (2005) published by United Nations and ranking in the Ease of Doing Business Report (2007) published by the World Bank? Where does Egypt fit in these rankings, compared to its neighbouring countries?
- How can the use of e-government services help Egyptian citizens to do business more easily?

To answer these, three methods were used: questionnaire, correlation analysis and case study. Outcomes from these methods appear in Figure 10.2 as they relate to the research questions. For instance, the questionnaire showed a partial satisfaction regarding the e-government portal. On the other hand, the small purposive sample had a bias toward educated Egyptians who use a computer. This did not reflect the whole society but it might indicate the sense of satisfaction regarding the e-government portal. This result should give the Egyptian government an indication to develop more citizens' awareness regarding the portal and to increase citizens' readiness to use e-government solutions. The outcome of the questionnaire has influenced the case study by indicating the level of satisfaction. In other words, as the case study examined the involvement of e-government in business processes, it showed the procedures that could be automated by using e-government solutions. The current questionnaire results are a positive input to the usage of e-government in business explored in the case study of Egypt's procedures.

The outcome from the case study pointed at the importance of e-government usage in Egypt especially that of dealing with licenses. It takes 28 procedures and over 250 days to get a building license and for this reason, Egypt ranked 169 worldwide (World Bank, 2007) and needs more e-government engagement to reduce time and procedures. This importance is related to saving time and money, therefore, it would be good idea to use the portal and could positively affect the citizens' perception regarding the e-government portal. Moreover, the results from the correlation analysis showed the positive effects of e-government usage on doing business tasks. This result could be used as positive input to the citizens' perception regarding e-government services and positive input towards the usage of e-government in business.

The aim of this research was to add to an understanding of e-government processes in Egypt. The outcomes of each research question and the links between them have achieved this aim and suggested further research issues to be continued in the future.

10.1.1) Evaluation of the perception of main e-government services in Egypt

Egypt's e-government program is at the beginning and these kinds of initiatives take a long time to penetrate society, especially in the case of a developing country. The questionnaire sample demonstrated that while around 2% of respondents had an elementary certificate, the rest of the sample had a high school degree, college degree or higher degree. This should be considered a biased sample because this is not the case in Egypt. The country has illiteracy problem, which affects more than 40% of the population. For the purpose of this research, the focus was on educated respondents to ensure the usage of ICT facilities, especially the e-government portal, and to collect appropriate data.

The research questionnaire provided a small picture of what is going on with e-government services in Egypt and reflected the citizens' perception regarding their e-government portal. These results showed both good and poor impressions regarding the portal. Therefore, more studies should be done to discover more about the Egyptian perception regarding the e-government portal.

10.1.2) Relationship between E-government Readiness and Ease of Doing Business reports

There appears to be a relationship between e-government readiness and ease of doing business. This objective was achieved through empirical and theoretical study. There is more to be discovered in future regarding this area of research such as the relationship between e-government usage and level of education. Even more, it is felt that the reports from the UN and the World Bank offer a source of material to be used further in both e-government and e-business research, especially in developing countries.

Indicating this relationship between the two reports, the Ease of Doing Business Report (World Bank, 2007) identified the use of e-government services several times. This report illustrated that using e-government services would enhance the business process in different situations. Furthermore, guidelines directly from the World Bank

recommended the increase and transfer of some business processes to electronic version. This direct relationship supported the research and provided a clear support for the effect of using e-government services in business processes in Egypt.

10.1.3) Doing business in Egypt and impact of e-government usage

The third question explored the ways in which the use of e-government services can help Egyptian citizens to do business more easily. The results of the questionnaire to answer the first research question indicated that there was some satisfaction with the e-government portal. Although the sample was small and biased toward educated people, the result was encouraging. This systematic research examined the perception of Egyptian citizens to e-government, and how this could affect business procedures. As educated citizens are more likely to do business, they are more likely to use the e-government services to do so. And then, they may be more likely to promote these services to their friends and family.

10.2) Limitations of the research

Doing PhD research requires being familiar with research methods, approaches and designs to accomplish the study. Skills with a variety of techniques are involved. For example, using observation over the whole period of research provided good results regarding government applications and services in both Egypt and the UK. It gave background information to the services available and to the attitude of the population to these services.

However, the presence of limitations and obstacles is a fact in all research, and the researcher must find a way to overcome these. This research was frustrated by the lack of statistics and government information available in Egypt. As can be seen in chapters three and four, many resources simply projected figures for government plans, although a few were useful. The National Research Centre, the largest multidisciplinary research and development centre in Egypt, provided very little in relevant data and was very difficult to get information from. Employees in the public information service would not offer help without strong connections and relationships to facilitate the needed information. This level of frustration continued throughout the research.

This lack of information and statistics in Egypt contrasted strongly with the extent and quality of statistics and documentation provided elsewhere. It was much easier to get information on other countries, such as the USA, in the public domain. Without statistical sources such as the UN and World Bank reports, it would have been almost impossible to complete this research

10.2.1) Personal research strengths and limitations

Doing a PhD research is a learning process providing a variety of skills. Personally, even just starting the PhD added a lot of knowledge, through developing a proposal to finding suitable fields of interests. Research, for a person whose first language is not English, is a challenge. The whole research process enhanced the language skills over the years in order to meet the research requirements. In other words, choosing the appropriate way to illustrate research content is as important as the content itself.

Supervision, as a Split PhD student was a difficult factor, when working distantly. E-mails and telephone calls are fine tools for communication, however they are not sufficient all the time. Placing the research team together in one place is an important concern, so they can interact with each other without difficulty. As a researcher, visiting England from time to time to meet the research supervisors was essential. On the other hand those visits were limited in time and frequency (once or twice a year, each time for a maximum three weeks).

Distributing the researcher's time between research, job and personal life is not a simple job, especially when the country of residence is different from the country of study. Achieving multiple tasks at a time could be possible, but tasks that have a long-term obligation need a good level of patience and focus over a number of years. Generally, conducting such a level of research, without doubt affects the researcher in a positive way.

10.3) Recommendations

The research recommends a special focus on the development of CiRM in Egypt, because in that concept the citizen is treated as a customer. This view is essential for Egypt in the first stages of the e-government program. This could encourage more people to use e-government services once they feel they are customers as well as just

citizens. In addition, the Egyptian government should be aware of the categories of potential costs of e-government failure identified by Heeks (2003), especially the financial costs. This is because financing such initiatives in poor countries takes a greater priority on the government agenda. Furthermore, Egypt might agree with Elnaghi et al. (2007) and try to accelerate towards new style of leadership, which has certain characteristics to advance the agenda of e-government, and reach the highest level of maturity. Other advice directed to the Egyptian government from Ebrahim & Irani (2005), is that the public sector was not flexible enough and must re-engineer its processes to adapt to the new technology and culture of an e-government. Egypt has a long way to go towards a mature model of e-government, therefore in the later stages Egypt must consider the evaluation of e-government sites. Wang et al. (2005) noted this as one of the challenging factors. Egypt should also focus on the trust factor mentioned by Dashti et al. (2009), Chee (2005) and Tassabehji & Elliman (2006), where a citizen's decision to use online systems is influenced by their willingness to trust the environment and agency involved.

The following recommendations are proposed from the research program reported in this thesis. They continue to develop the links identified between the citizens' use of the e-government portal, the readiness of the country for e-government, and the ways to improve business services through the e-government portal.

- Countries at the establishment stage of e-government initiatives, such as Egypt, must take into consideration challenging factors facing other advanced e-government projects. This might be good for Egypt for two reasons: first, knowing errors and mistakes from the beginning is better than knowing them at later stages; second, the Egyptian government should realize that they are still at the beginning of the e-government initiative and there will be mistakes and errors which would take efforts to be solved. In other words, it will not be a perfect initiative; the evidence here comes from reports of the e-government programs of other countries.
- The current research does not identify all the problems, however it shows some that are related to Egypt. Based on these findings, the Egyptian government should consider several reforms, such as increasing the awareness of e-government program among government employees and the general public; making Internet access more available across the full spectrum of society; equipping public facilities for Internet usage; developing a legal framework for

secure e-transactions; adopting a flexible approach to technological change and the IT environment more generally.

- The Egyptian e-government program is in its early stages; therefore the government needs to pay more attention to its processes. The government tried to launch this program years ago however still a lot of efforts should be achieved. The absence of marketing campaigns regarding the e-government program is obvious. Encouraging people to use something new needs a lot of awareness. There is a lack of advertising in Egypt regarding the e-government program. Many government campaigns were directed to other issues such payment of taxes, vaccination programs and education. On the other hand, Egyptian television paid no attention to the e-government program, and no advertisements were shown. It is clear that the Egyptian government needs to use television and other media to promote the e-government portal.
- Encouraging people to use e-government services is essential. The Egyptian government should increase the citizen`s awareness regarding e-government services. Promoting e-government services might take many forms; discounted services might be one of them. Reducing the cost of e-government services will push the Egyptian citizen to use the portal for many reasons. This research clearly indicates that using e-government service saves cost, time and effort.
- Egyptian e-government program was ranked 99 in the UN E-Government Readiness Report (UNPAN, 2005). There are 98 countries better than Egypt; therefore the government should emulate successful e-government programs all over the world. Many strategies, plans and techniques were used in other countries like United States of America, Canada and Singapore. Choosing an appropriate plan or tool from another country, then trying to apply it in Egypt would be a good choice.
- Global changes are penetrating all societies and communities, bringing more innovations, competitions, product and services and introducing new trends, directions, and ways to do things differently (Kamel, 2001). The Internet has introduced new ways for doing business. According to Kamel and Hassan (2003), the Egyptian population of more than 75 million represents many attractions for local and foreign banks to expand their business. The current individual bank customers represent 13% of the population. Among those

customers, number of credit and debit card holders is less than 7% which directly reflects the great potential for plastic money in Egypt. Therefore, the Egyptian government should obtain this chance and encourage citizens to deal with the Internet. If the Egyptian government were to provide more options for payment methods and getting credit, there may be more usage of e-government services.

10.4) Future research

The following suggestions arise from this research program and continue to address aspects not covered or out of scope. The need for further study of e-government and e-business in developing countries is highly important.

- Upcoming research may discuss the ease of doing business report and e-government report. Future research might be conducted in the business topics. The current research discussed two business topics however there are many topics which are still undiscovered. Uncovered business areas such as protecting investors, trading across borders, getting credit, enforcing contracts, starting a business, closing a business and employing workers. Illustrating the relationship between undiscovered business areas and e-government services usage will add to the e-government application's importance.
- Advanced research in the e-government report may be present. E-government report contains many undiscovered measurements indexes such as web measurement index, telecommunications infrastructure measurements index and human capital measurements index. Web measure index assessments are based on a questionnaire, which allows testing presence or absence of specific electronic facilities available. Future research might test the correlation between web measurements and e-government performance across countries.
- Over the past quarter century, the rate of knowledge creation and dissemination has increased significantly. One reason is due to the rapid advances in information and communications technologies (ICTs) that have significantly decreased the costs of computing power and electronic networking (Chen & Dahlman, 2005). With the increased affordability, the usage of computing power and electronic networking has surged, along with the efficient dissemination of existing knowledge. Modern ICTs also enable researchers in different locations

to work together, which consequently enhance the productivity of researchers, resulting in rapid advances in research and development and the generation of new knowledge and technologies.

The World Bank has developed the Knowledge Economy Index (KEI) which is an aggregate index representing the overall preparedness of a country or region towards the Knowledge Economy (KE). The KEI is constructed as the simple average of 4 sub indexes, which represent the following 4 pillars of the knowledge economy:

1 Economic Incentive and Institutional Regime (EIR): includes tariff & nontariff barriers, regulatory quality and rule of law.

2 Education and Training: contains adult literacy rate, secondary enrolment and tertiary enrolment.

3 Innovation and Technological Adoption: which includes royalty and license fees payments and receipts, patent applications granted by the US patent and trademark office and scientific and technical journal articles.

4 Information and Communications Technologies (ICT) Infrastructure: contains following indicators, telephones per 1,000 people, computers per 1,000 people and Internet users per 10,000 people.

Studying direct relationships between this index and the Ease of Doing Business Report would be valuable. Trying to discover the correlation between sub-indexes in the Knowledge Economy Index Report and business topics available in Ease of Doing Business Report would add good contribution to the body of knowledge.

- Future development of the research in the future can be in done in the field of fighting corruption. E-government applications may be a good partner against the corruption especially in Egypt, which has been suffering from this disaster since decades. A high percentage of government employees who are working in public service are corrupt, a lot of them are asking money from the citizen to solve his problem or to work out for his need. Egypt is highly ranked regarding corruption problem worldwide. Future research may take into consideration using e-government services to reduce government employees' corruption. This will place Egypt in better rank within preventing corruption reports, provide

trouble-free life for Egyptian citizens and enhanced reputation for foreign investment.

- Further development of the research in the future can be in many issues such as CRM applications and its relation with the e-government services. Although people know CRM as a strategy that integrates the concepts of knowledge management, data mining, and data warehouse in order to support the organization's decision-making process to retain long-term and profitable relationships with its customer. On the other hand much research is directed nowadays to show a rising interest about the CRM techniques in the public sector services. This research may take an essential role in the e-government initiative in Egypt and other countries.

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Appendices

Appendix 1: The questionnaire

Appendix 2: Normal distribution results

Appendix 3: Relationships between independent variable and the five constructs

Appendix 4: Correlation between dependent variables using the Pearson correlation

Appendix 5: Spearman's correlation analysis used to show the relationship between e-government readiness and ease of doing business

Appendix 6: E-government Readiness report and Ease of Doing Business report – assumptions

Appendix 7: Excel calculations regarding the use of e-government services in obtaining a construction permit

Dear Participant,

This survey is part of a study to evaluate the degree of citizen's satisfaction when using the Egyptian E-government portal. It aims to investigate the impact of the quality of Web Portal for the Egyptian Government on the Egyptian citizen satisfaction.

You are kindly requested to complete the following questionnaire, which should not take longer than 15-20 minutes. Participation is completely voluntarily and all responses are strictly confidential.

Your contribution to this research is greatly appreciated. If you have any questions regarding this questionnaire, please don't hesitate to contact me on my mobile phone 012-7800-807 or my e-mail: shetehy@yahoo.com.

Finally, if you are interested to receive a copy of results of this survey please tick the following box. ☐

Best Regards

Adham El Shetehy

PhD Candidate

A) Personal Data: this section is about personal information of the participants

1- Your age (years)

☐ Under 20

☐ 20-34

☐ 35-49

☐ 50-65

☐ Over 65

2- Your gender

☐ Male

☐ Female

3- Your highest completed level of education

☐ Elementary school

☐ High school

☐ College degree

☐ Graduate degree

☐ Post Graduate degree

B) Using Technology: This section aims to know participant's experience of information technologies. (Data regarding knowledge and skills for various information technology applications.)

1- How often do you use a computer?

☐ Every day

☐ At least once a week

☐ Once every 2-3 weeks

☐ Once a month

☐ Less often

☐ Do not know

2- Where do you usually use a computer? (Can tick more than one).

☐ At home

☐ At work

☐ At the house of friend or relative

☐ At a public facility (e.g. library or Internet café)

☐ At college/university

☐ (OTHER)

3- To what extent are you able to use a keyboard?

☐ I can type very or fairly well

☐ I can type a little

☐ I can not type at all

☐ Do not know

4- How often do you use the internet?

☐ Every day

☐ At least once a week

☐ Once every 2-3 weeks

☐ Once a month

☐ Less often

☐ Do not know

5- Do you have access to the internet from home?

☐ Yes

☐ No

6- Here are list of things which people often use the internet for. Please indicate which of these things you have used the internet for. (Can tick more than one)

☐ Finding information

☐ Buying something

☐ Entertainment

☐ Internet banking

☐ Contacting a person or company

☐ Looking for a job

☐ (OTHER)

7- Have you submitted personal details such as credit card number over the internet?

☐ Yes

☐ No

C) E-government Portal: This section concerns about what you think about E-services provided by the Egyptian Government.

1-Learning of how to use the –e-government portal for me was considered as:

Extremely easy	1	2	3	4	5	Extremely difficult

2-To what extent you depend on the e-government portal rather than using other methods for some services.(e.g. train schedule or opening hours for

government authorities):

Heavily depend e-government portal	1	2	3	4	5	Rarely depend on e-government portal

3-Compared to existing government services and facilities, the new e-government portal appears to be:

a) Offering required information more efficiently	1	2	3	4	5	Lower availability of required information
b) More helpful to accomplish the required task	1	2	3	4	5	Does not help to accomplish tasks
c) Matching with real life procedures and fees	1	2	3	4	5	Different from current procedures and fees in real life
d) It offered a variety of payment methods	1	2	3	4	5	Payment methods were limited

4-Procedures and transactions on the e-government portal were:

a) Easily registration	1	2	3	4	5	Complicated registration
b) User friendly	1	2	3	4	5	Hard job (difficult to understand)
c) Integrating many functions	1	2	3	4	5	Need more functions

5-Information provided through e-government portal is believed to be:

a) Accurate	1	2	3	4	5	Not accurate
b) Answering my Questions	1	2	3	4	5	Does not offer very specific answers to my questions

6-The experience of surfing the portal to you:

a) Enabling to request multiple services at a time	1	2	3	4	5	Limited requests per once
b) Could change data easily	1	2	3	4	5	Could not change data once provided

7-The current e-government portal offered you services in a way that helped you:

a) Save your record to future reference	1	2	3	4	5	Does not save your records
b) Choose reply or notification methods	1	2	3	4	5	No flexibility to choose reply or notification method
c) Determine the day to deliver required information	1	2	3	4	5	Can not identity the day to deliver required information
d) You can find your previous record easily	1	2	3	4	5	Difficult to find your previous records.

8-The (layout) or organization of data in the e-government portal appeared to you as:

a) Accurate		1	2	3	4	Not accurate
				5		
b) Organized	appropriately	1	2	3	4	Not organized at all
				5		
c) Visually Pleasing		1	2	3	4	Poor visual included
				5		

9-When you tried to use the e-government portal you found the provided services available 24 hours a day:

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

10-Each time you need information you found it available on the e-government portal:

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

11-The available e-government portal helped me in finding all the wanted services:

Strongly	Disagree	Neither agree	Agree	Strongly agree

disagree		nor disagree		
1	2	3	4	5

12-You found real time information (e.g. exchange prices or airport schedule) conveyed the latest updates:

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

13-The required service was speedy accessible:

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

14-Required steps to accomplish the tasks were logically sorted:

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

15-The e-government portal provided valuable information through every step when surfing the portal:

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

16-While logging in, you found some news which was related to your

interests:

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

17-You were able to request information the way you wanted to.(e.g. on mobile devices or e-mail format.):

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

18-There was a facility allowed you to receive required information in many formats (e.g. figures, word documents or PDF formats.):

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

Thank you for completing this survey

Appendix 2: Normal distribution results

One-Sample Kolmogorov-Smirnov Test

age			utility
20-35	N		4
	Normal Parameters	Mean	17.7500
		Std. Deviation	1.5000
	Most Extreme Differences	Absolute	.298
		Positive	.202
		Negative	-.298
	Kolmogorov-Smirnov Z		.595
	Asymp. Sig. (2-tailed)		.870
35-50	N		2
	Normal Parameters	Mean	16.0000
		Std. Deviation	5.6569
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999
under 20	N		2
	Normal Parameters	Mean	15.0000
		Std. Deviation	2.8284
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

gender			utility
female	N		2
	Normal Parameters	Mean	17.5000
		Std. Deviation	2.1213
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		,999
male	N		2
	Normal Parameters	Mean	11.5000
		Std. Deviation	3.5355
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

education			utility
graduate degree	N		2
	Normal Parameters	Mean	22.0000
		Std. Deviation	4.2426
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999
college degree	N		3
	Normal Parameters	Mean	17.3333
		Std. Deviation	1.5275
	Most Extreme Differences	Absolute	.253
		Positive	.253
		Negative	-.196
	Kolmogorov-Smirnov Z		.438
	Asymp. Sig. (2-tailed)		.991
high school	N		3
	Normal Parameters	Mean	12.3333
		Std. Deviation	4.1633
	Most Extreme Differences	Absolute	.292
		Positive	.292
		Negative	-.212
	Kolmogorov-Smirnov Z		.506
	Asymp. Sig. (2-tailed)		.960

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

often.computer			utility
every day	N		7
	Normal Parameters	Mean	14.1429
		Std. Deviation	3.9340
	Most Extreme Differences	Absolute	.186
		Positive	.186
		Negative	-.177
	Kolmogorov-Smirnov Z		.491
	Asymp. Sig. (2-tailed)		.969
at least once a week	N		2
	Normal Parameters	Mean	17.5000
		Std. Deviation	2.1213
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

home.computer			utility
yes	N		3
	Normal Parameters	Mean	17.3333
		Std. Deviation	1.5275
	Most Extreme Differences	Absolute	.253
		Positive	.253
		Negative	-.196
	Kolmogorov-Smirnov Z		.438
	Asymp. Sig. (2-tailed)		.991
no	N		2
	Normal Parameters	Mean	15.5000
		Std. Deviation	3.5355
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

work.computer			utility
yes	N		3
	Normal Parameters	Mean	17.3333
		Std. Deviation	1.5275
	Most Extreme Differences	Absolute	.253
		Positive	.253
		Negative	-.196
	Kolmogorov-Smirnov Z		.438
	Asymp. Sig. (2-tailed)		.991
no	N		2
	Normal Parameters	Mean	17.5000
		Std. Deviation	2.1213
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

friend.computer			utility
no	N		2
	Normal Parameters	Mean	17.5000
		Std. Deviation	2.1213
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999
yes	N		2
	Normal Parameters	Mean	16.5000
		Std. Deviation	.7071
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

public.computer	university.computer			utility
yes	no	N		2
		Normal Parameters	Mean	12.0000
			Std. Deviation	.0000
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
no	no	N		2
		Normal Parameters	Mean	17.5000
			Std. Deviation	2.1213
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
	yes	N		2
		Normal Parameters	Mean	22.0000
			Std. Deviation	4.2426
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

internet	internetho me	finding informati on	buyin g	entertainm ent	banki ng	contacti ng	jo b			utility
every day	yes	yes	no	yes	no	yes	no	N		2
								Normal Parameter s	Mean	14.50 00
									Std. Deviati on	2.121 3
								Most Extreme Difference s	Absolut e	.260
									Positiv e	.260
									Negativ e	-.260
								Kolmogor ov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
			yes	yes	yes	yes	ye s	N		2
								Normal Parameter s	Mean	16.50 00
									Std. Deviati on	4.949 7
								Most Extreme Difference s	Absolut e	.260
									Positiv e	.260

									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
							no	N		2
								Normal Parameters	Mean	12.0000
									Std. Deviation	1.4142
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
at least once a week	yes	yes	no	no	no	yes	no	N		2
								Normal Parameters	Mean	17.5000
									Std. Deviation	2.1213
								Most Extreme	Absolut	.260

								Differences	e	
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

personaldata			utility
yes	N		2
	Normal Parameters	Mean	13.0000
		Std. Deviation	5.6569
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999
no	N		2
	Normal Parameters	Mean	17.5000
		Std. Deviation	2.1213
	Most Extreme Differences	Absolute	.260
		Positive	.260
		Negative	-.260
	Kolmogorov-Smirnov Z		.368
	Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

age	gender	education	often.computer	home.computer	work.computer	friend.computer	public.computer			reliability
20-35	female	graduate degree	every day	yes	yes	yes	no	N		2
								Normal Parameters	Mean	18.0000
									Std. Deviation	.0000
		college degree	every day	yes	yes	no	no	N		2
								Normal Parameters	Mean	12.0000
									Std. Deviation	2.8284
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
					no	no	no	N		2
								Normal Paramet	Mean	11.5000

								ers		
									Std. Deviation	.7071
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
						yes	no	N		2
								Normal Parameters	Mean	14.0000
									Std. Deviation	4.2426
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-		.999

								tailed)		
	male	college degree	every day	yes	yes	yes	yes	N		2
								Normal Parameters	Mean	11.5000
									Std. Deviation	.7071
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

university.computer	internet	interneth ome	finding information	buying	entertainment	banking	contacting			reliability
	everyday	yes	yes	no	yes	no	yes	N		2
								Normal Parameters	Mean	12.0000
									Std. Deviation	4.2426
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
				yes	yes	yes	yes	N		2
								Normal Parameters	Mean	13.0000
									Std. Deviation	1.4142
								Most Extreme Differences	Absolute	.260
									Positive	.260

									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
	at least once a week	yes	yes	no	no	no	yes	N		2
								Normal Parameters	Mean	16.0000
									Std. Deviation	2.8284
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

job	personaldata			reliability
yes	yes	N		2
		Normal Parameters	Mean	10.0000
			Std. Deviation	1.4142
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
	no	N		2
		Normal Parameters	Mean	16.0000
			Std. Deviation	7.0711
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
no	yes	N		2
		Normal Parameters	Mean	14.0000
			Std. Deviation	1.4142
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
	no	N		2
		Normal Parameters	Mean	16.0000
			Std. Deviation	2.8284

		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

age	gender	education	often.computer	home.computer	work.computer	friend.computer	public.computer			flexibility
	female	graduate degree	every day	yes	yes	yes	no	N		2
								Normal Parameters	Mean	15.0000
									Std. Deviation	.0000
		college degree	every day	yes	yes	no	no	N		2
								Normal Parameters	Mean	18.0000
									Std. Deviation	.0000
					no	no	no	N		2
								Normal Parameters	Mean	21.0000
									Std. Deviation	2.8284
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov		.368

								Z		
								Asymp. Sig. (2-tailed)		.999
						yes	no	N		2
								Normal Parameters	Mean	16.0000
									Std. Deviation	.0000
	male	college degree	every day	yes	yes	yes	yes	N		2
								Normal Parameters	Mean	18.0000
									Std. Deviation	1.4142
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

university.computer	internet	interneth ome	finding information	buying	entertainment	banking	contacting			flexibility
no	every day	yes	yes	no	yes	no	yes	N		2
								Normal Parameters	Mean	19.0000
									Std. Deviation	1.4142
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
				yes	yes	yes	yes	N		2
								Normal Parameters	Mean	17.5000
									Std. Deviation	.7071
								Most Extreme Differences	Absolute	.260

									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
	at least once a week	yes	yes	no	no	no	yes	N		2
								Normal Parameters	Mean	20.5000
									Std. Deviation	.7071
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

job	personaldata			flexibility
yes	yes	N		2
		Normal Parameters	Mean	18.5000
			Std. Deviation	3.5355
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
	no	N		2
		Normal Parameters	Mean	18.5000
			Std. Deviation	6.3640
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
no	yes	N		2
		Normal Parameters	Mean	18.5000
			Std. Deviation	2.1213
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
	no	N		2
		Normal Parameters	Mean	20.5000
			Std. Deviation	.7071

		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

age	gender	education	often.computer	home.computer	work.computer	friend.computer	public.computer			customization
20-35	female	graduate degree	every day	yes	yes	yes	no	N		2
								Normal Parameters	Mean	11.0000
									Std. Deviation	2.8284
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
		college degree	every day	yes	yes	no	no	N		2
								Normal Parameters	Mean	16.5000
									Std. Deviation	.7071
								Most Extrem	Absol	.260

								e Differences	ute	
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
					no	no	no	N		2
								Normal Parameters	Mean	16.5000
									Std. Deviation	2.1213
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
						yes	no	N		2
								Normal Parame	Mean	16.0000

								ters		
									Std. Deviation	4.2426
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
	male	college degree	every day	yes	yes	yes	yes	N		2
								Normal Parameters	Mean	19.0000
									Std. Deviation	2.8284
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirno		.368

								v Z		
								Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

university.computer	internet	interneth ome	finding information	buying	entertainment	banking	contacting			customization
no	every day	yes	yes	no	yes	no	yes	N		2
								Normal Parameters	Mean	18.5000
									Std. Deviation	7.7782
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
				yes	yes	yes	yes	N		2
								Normal Parameters	Mean	17.0000
									Std. Devia	1.4142

									tion	
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
	at least once a week	yes	yes	no	no	no	yes	N		2
								Normal Parameters	Mean	16.5000
									Std. Deviation	.7071
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-		.999

								tailed)		

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

job	personaldata			customization
yes	yes	N		2
		Normal Parameters	Mean	22.0000
			Std. Deviation	7.0711
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
	no	N		2
		Normal Parameters	Mean	18.5000
			Std. Deviation	4.9497
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
no	yes	N		2
		Normal Parameters	Mean	17.5000
			Std. Deviation	2.1213
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
	no	N		2

		Normal Parameters	Mean	16.5000
			Std. Deviation	.7071
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

age	gender	education	often.computer	home.computer	work.computer	friend.computer	public.computer			efficiency
20-35	female	graduate degree	every day	yes	yes	yes	no	N		2
								Normal Parameters	Mean	26.0000
									Std. Deviation	1.4142
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
		college degree	every day	yes	yes	no	no	N		2
								Normal Parameters	Mean	19.0000
									Std. Deviation	1.4142
								Most Extreme Differences	Absolute	.260

									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
					no	no	no	N		2
								Normal Parameters	Mean	18.5000
									Std. Deviation	.7071
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
						yes	no	N		2
								Normal Parameters	Mean	20.0000
									Std. Deviation	1.4142

								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
	male	college degree	every day	yes	yes	yes	yes	N		2
								Normal Parameters	Mean	17.0000
									Std. Deviation	1.4142
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

university.computer	internet	interneth ome	finding information	buying	entertainment	banking	contacting			efficiency
	every day	yes	yes	no	yes	no	yes	N		2
								Normal Parameters	Mean	17.5000
									Std. Deviation	3.5355
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		999
				yes	yes	yes	yes	N		2
								Normal Parameters	Mean	19.0000
									Std. Deviation	1.4142
								Most Extreme Differences	Absolute	.260
									Positive	.260

									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999
	at least once a week	yes	yes	no	no	no	yes	N		2
								Normal Parameters	Mean	17.0000
									Std. Deviation	1.4142
								Most Extreme Differences	Absolute	.260
									Positive	.260
									Negative	-.260
								Kolmogorov-Smirnov Z		.368
								Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

One-Sample Kolmogorov-Smirnov Test

job	personaldata			efficiency
yes	yes	N		2
		Normal Parameters	Mean	17.5000
			Std. Deviation	2.1213
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
	no	N		2
		Normal Parameters	Mean	19.5000
			Std. Deviation	2.1213
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
no	yes	N		2
		Normal Parameters	Mean	18.0000
			Std. Deviation	.0000
		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999
	no	N		2
		Normal Parameters	Mean	17.0000
			Std. Deviation	1.4142

		Most Extreme Differences	Absolute	.260
			Positive	.260
			Negative	-.260
		Kolmogorov-Smirnov Z		.368
		Asymp. Sig. (2-tailed)		.999

Test distribution is Normal.

Appendix 3: Results for the relationship between independent variables and main five construct

Utility

Independent Samples Test

Utility against gender

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	.306	.581	.095	108	.924	6.989E-02	.7329	-1.3829	1.5227
	Equal variances not assumed			.095	100.591	.924	6.989E-02	.7341	-1.3864	1.5262

Utility against gender: no significant difference noticed. Changing the gender does not affect the utility perception regarding the respondents.

Sig.= 0.581,

Sig.>=0.1

Independent Samples Test

Utility against using of computers at home

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	.687	.409	-1.832	108	.070	-2.6865	1.4665	-5.5934	.2203
	Equal variances not assumed			-2.199	7.296	.062	-2.6865	1.2220	-5.5525	.1794

at home: no significant difference noticed. Changing in the availability of computers at home does not affect the utility perception regarding the respondents.

Sig.=0.409,

Sig. >= 0.1

Independent Samples Test

Utility against using of computers at work

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	.533	.467	-.088	108	.930	-6.3886E-02	.7275	-1.5058	1.3781
	Equal variances not assumed			-.088	107.999	.930	-6.3886E-02	.7254	-1.5018	1.3740

b- at work: no significant difference noticed. Availability of computers at work does not affect the utility perception regarding the respondents.

Sig.= 0.467,

Sig.>=0.1

Independent Samples Test

Utility against using of computer at friend

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	.728	.395	-.552	108	.582	-.4018	.7279	-1.8446	1.0410
	Equal variances not assumed			-.557	107.962	.579	-.4018	.7211	-1.8312	1.0276

c- at friend or relative: no significant difference noticed. Availability of computers at a friend or relative does not affect the utility perception regarding the respondents.

Sig.= 0.395,

Sig.>=0.1

Independent Samples Test

Utility against using of computers at public facility

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	1.758	.188	-1.464	108	.146	-1.1833	.8082	-2.7853	.4187
	Equal variances not assumed			-1.647	67.350	.104	-1.1833	.7187	-2.6177	.2510

at public facility: no significant difference noticed. Availability of computers at a friend or relative does not affect the utility perception regarding the respondents.

Sig.=0.188,

Sig.>=0.1

Independent Samples Test

Utility against using of computer at university

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	.854	.358	-.203	108	.840	-.2364	1.1658	-2.5471	2.0743
	Equal variances not assumed			-.165	12.640	.872	-.2364	1.4334	-3.3420	2.8692

at college or university: no significant difference noticed. Availability of computers at public facility does not affect the utility perception regarding the respondents.

Sig.=0.358,

Sig.>=0.1

Independent Samples Test

Utility against availability of internet access at home

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	1.735	.191	-.771	108	.443	-1.0760	1.3959	-3.8429	1.6910
	Equal variances not assumed			-1.039	9.373	.325	-1.0760	1.0358	-3.4049	1.2530

Utility and availability of internet access at home: no significant difference noticed. Availability of internet access at home does not affect the utility perception regarding the respondents.

Sig.=0.191,

Sig.>=0.1

Independent Samples Test

Utility against finding information

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.427	.122	-.703	108	.484	-1.9074	2.7144	-7.2879	3.4731
Equal variances not assumed			-.346	1.009	.788	-1.9074	5.5118	-70.5441	66.7293

Independent Samples Test

Utility against buying something

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	1.232	.269	.104	108	.917	7.740E-02	.7449	-1.3991	1.5539
	Equal variances not assumed			.101	80.566	.920	7.740E-02	.7681	-1.4510	1.6058

		Levene's Test for Equality of Variances		t-test for Equality of Means						

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	.113	.738	-1.784	108	.077	-1.4071	.7888	-2.9706	.1565
	Equal variances not assumed			-1.832	61.220	.072	-1.4071	.7682	-2.9430	.1289

Independent Samples Test

Utility against entertainment

Independent Samples Test

Utility against internet banking

		Levene's Test for Equality of Variances		**t-test for Equality of Means**						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	**Equal variances assumed**	.114	.736	-.600	108	.550	-.4554	.7586	-1.9591	1.0483
	Equal variances not assumed			-.600	78.169	.550	-.4554	.7593	-1.9670	1.0562

Independent Samples Test

Utility against contacting persons

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	.030	.863	.976	108	.331	1.2882	1.3204	-1.3290	3.9055
	Equal variances not assumed			1.030	9.696	.328	1.2882	1.2505	-1.5099	4.0863

Independent Samples Test

Utility against looking for a job

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	Equal variances assumed	1.475	.227	1.703	108	.091	1.2577	.7383	-.2058	2.7212
	Equal variances not assumed			1.606	71.317	.113	1.2577	.7829	-.3033	2.8187

Utility and Purposes of using the internet:

No significant difference noticed. using the internet for finding information(sig=1.22),buying something(sig=0.269),entertainment(sig=0.738),internet banking(sig=0.736) and contacting persons(sig=0.863)looking for a job(sig=0.227) does not affect the utility perception regarding the respondents.

Independent Samples Test

Utility against submitting personal data

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
utility	**Equal variances assumed**	.197	.658	-.545	108	.587	-.3955	.7261	-1.8348	1.0438
	Equal variances not assumed			-.545	107.953	.587	-.3955	.7254	-1.8333	1.0423

Utility and submitting personal data through the internet websites:

No significant difference noticed. Submitting personal data through the internet websites does not affect the utility perception regarding the respondents.

Sig.=0.658,

Sig.>=0.1

Reliability

Reliability against Gender

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	**Equal variances assumed**	.118	.732	.712	108	.478	.3844	.5399	-.6857	1.4545
	Equal variances not assumed			.713	101.546	.478	.3844	.5394	-.6855	1.4543

Reliability against gender: no significant difference noticed. Changing the gender does not affect the **reliability** perception regarding the respondents.

Sig.= 0.732,

Sig.>=0.1

Independent Samples Test

Reliability against using of computers at home

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	**Equal variances assumed**	.031	.861	-.361	108	.719	-.3967	1.0987	-2.5745	1.7812
	Equal variances not assumed			-.324	6.654	.756	-.3967	1.2237	-3.3210	2.5276

Reliability and availability of computer:

a-at home: no significant difference noticed. Changing in the availability of computers at home does not affect the **reliability** perception regarding the respondents.

Sig.=0.861,

Sig. >= 0.1

Independent Samples Test

Reliability against Work

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	**Equal variances assumed**	1.344	.249	.244	108	.808	.1311	.5369	-.9332	1.1954
	Equal variances not assumed			.245	107.694	.807	.1311	.5345	-.9283	1.1905

b-at work: no significant difference noticed. Availability of computers at work does not affect the **reliability** perception regarding the respondents.

Sig.= 0.249,

Sig.>=0.1

Independent Samples Test

Reliability against Friend

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	4.184	.043	2.428	108	.017	1.2722	.5240	.2334	2.3109
Equal variances not assumed			2.385	94.057	.019	1.2722	.5335	.2130	2.3314

c- at friend or relative: there is a significant deference has been noticed. The research had a confidence percentage more than 95% that availability of computers at friend or relative could affect the **reliability** perception for the respondents.

Sig.= 0.043,

0.01<=Sig.<0.05

Independent Samples Test

Reliability against Public facility

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	**Equal variances assumed**	2.920	.090	-.381	108	.704	-.2292	.6022	-1.4228	.9645
	Equal variances not assumed			-.437	70.861	.663	-.2292	.5243	-1.2747	.8164

d- at public facility: there is a significant deference has been noticed. The research had a confidence percentage more than 90% that availability of computers at public facility could affect the **reliability** perception for the respondents.

Sig.=0.090,

0.05<=Sig.<0.1

Independent Samples Test

Reliability against using computers at university

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	Equal variances assumed	2.920	.090	-.381	108	.704	-.2292	.6022	-1.4228	.9645
	Equal variances not assumed			-.437	70.861	.663	-.2292	.5243	-1.2747	.8164

e- at college or university: no significant difference noticed. Availability of computers at university does not affect the **reliability** perception regarding the respondents.

Sig.=0.337,

Sig.>=0.1

Independent Samples Test

Reliability against finding information

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	Equal variances assumed	3.824	.053	.610	108	.543	1.2222	2.0052	-2.7523	5.1968
	Equal variances not assumed			4.500	107.000	.000	1.2222	.2716	.6837	1.7607

Independent Samples Test

Reliability against buying something

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	Equal variances assumed	.454	.502	-.042	108	.967	-2.2909E-02	.5500	-1.1131	1.0672
	Equal variances not assumed			-.041	87.801	.967	-2.2909E-02	.5535	-1.1229	1.0770

Independent Samples Test

Reliability against Entertainment

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	Equal variances assumed	.091	.763	.030	108	.976	1.763E-02	.5909	-1.1536	1.1888
	Equal variances not assumed			.030	56.676	.977	1.763E-02	.5960	-1.1761	1.2113

Independent Samples Test

Reliability against Banking

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	**Equal variances assumed**	.779	.379	-.198	108	.843	-.1112	.5609	-1.2230	1.0006
	Equal variances not assumed			-.210	92.560	.834	-.1112	.5285	-1.1607	.9383

Independent Samples Test

Reliability against contacting persons

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	Equal variances assumed	1.243	.267	.099	108	.921	9.681E-02	.9791	-1.8439	2.0375
	Equal variances not assumed			.132	11.079	.897	9.681E-02	.7336	-1.5165	1.7102

Reliability against Looking for a job

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	Equal variances assumed	.282	.597	1.667	108	.099	.9090	.5454	-.1721	1.9901
	Equal variances not assumed			1.630	80.876	.107	.9090	.5575	-.2003	2.0183

Reliability and Purposes of using the internet:

There is a significant deference has been noticed. The research had a confidence percentage more than 90% that using internet for finding information could affect the **reliability** perception for the respondents.

Sig.=0.053,

0.05<=Sig.<0.1

No significant difference noticed. using the internet for buying something(0.50),entertainment(sig=0.763),internet banking(0.379) and contacting persons(sig=0.267)looking for a job(sig=0.597) does not affect the **reliability** perception regarding the respondents.

Independent Samples Test

Reliability against Personal data

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
reliability	Equal variances assumed	.064	.801	.285	108	.776	.1528	.5366	-.9109	1.2164
	Equal variances not assumed			.285	107.994	.776	.1528	.5362	-.9100	1.2156

Reliability and submitting personal data through the internet websites:

No significant difference noticed. Submitting personal data through the internet websites does not affect the **reliability** perception regarding the respondents.

Sig.=0.801,

Sig.>=0.1

Flexibility

Flexibility against Gender

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	**Equal variances assumed**	.621	.432	1.838	108	.069	1.0833	.5894	-8.5031E-02	2.2517
	Equal variances not assumed			1.873	106.705	.064	1.0833	.5784	-6.3296E-02	2.2300

Flexibility against gender: no significant difference noticed. Changing the gender does not affect the **flexibility** perception regarding the respondents.

Sig.= 0.432,

Sig.>=0.1

Flexibility against using computers at home

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	Equal variances assumed	1.063	.305	-.906	108	.367	-1.0971	1.2115	-3.4985	1.3044
	Equal variances not assumed			-1.124	7.406	.296	-1.0971	.9760	-3.3796	1.1855

Flexibility and availability of computer:

a-at home: no significant difference noticed. Changing in the availability of computers at home does not affect the **flexibility** perception regarding the respondents.

Sig.=0.305,

Sig. >= 0.1

Flexibility against using computer at work

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	Equal variances assumed	.380	.539	-1.577	108	.118	-.9265	.5874	-2.0908	.2378
	Equal variances not assumed			-1.584	107.790	.116	-.9265	.5849	-2.0858	.2328

at work: no significant difference noticed. Availability of computers at work does not affect the **flexibility** perception regarding the respondents.

Sig.= 0.539,

Sig.>=0.1

Flexibility against using computers at friend

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	**Equal variances assumed**	1.380	.243	1.577	108	.118	.9282	.5886	-.2384	2.0948
	Equal variances not assumed			1.571	103.862	.119	.9282	.5908	-.2435	2.0999

at friend or relative: no significant difference noticed. Availability of computers at friend or relative does not affect the **flexibility** perception regarding the respondents.

Sig.= 0.243,

Sig.>=0.1

Flexibility against using computer at public facility

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	**Equal variances assumed**	.187	.666	1.730	108	.086	1.1375	.6575	-.1658	2.4408
	Equal variances not assumed			1.716	51.311	.092	1.1375	.6630	-.1932	2.4682

at public facility: no significant difference noticed. Availability of computers at public facility does not affect the **flexibility** perception regarding the respondents.

Sig.= 0.666,

Sig.>=0.1

Flexibility against using computers at university

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	**Equal variances assumed**	.033	.855	-.361	108	.719	-.3435	.9516	-2.2299	1.5428
	Equal variances not assumed			-.330	13.229	.747	-.3435	1.0422	-2.5911	1.9040

At college or university: no significant difference noticed. Using computers at university does not affect the **flexibility** perception regarding the respondents.

Sig.=0.855,

Sig.>=0.1

Flexibility against availability of internet at home

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	**Equal variances assumed**	.002	.969	.446	108	.656	.5098	1.1421	-1.7540	2.7736
	Equal variances not assumed			.408	7.920	.694	.5098	1.2481	-2.3734	3.3930

Flexibility and availability of internet access at home: no significant difference noticed. Availability of internet access at home does not affect the **flexibility** perception regarding the respondents.

Sig.=0.969,

Sig.>=.1

Flexibility against finding information

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	**Equal variances assumed**	3.748	.055	-.013	108	.990	-2.7778E-02	2.2218	-4.4319	4.3763
	Equal variances not assumed			-.006	1.007	.996	-2.7778E-02	5.0086	-62.6450	62.5895

Flexibility against buying something

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.315	.576	1.084	108	.281	.6557	.6051	-.5437	1.8551
Equal variances not assumed			1.107	95.915	.271	.6557	.5923	-.5201	1.8314

Flexibility against Entertainment

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.399	.529	.820	108	.414	.5345	.6516	-.7571	1.8260
Equal variances not assumed			.828	58.872	.411	.5345	.6458	-.7578	1.8267

Flexibility against Internet banking

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	**Equal variances assumed**	.517	.473	-.124	108	.902	-7.6923E-02	.6205	-1.3069	1.1530
	Equal variances not assumed			-.128	85.467	.899	-7.6923E-02	.6021	-1.2740	1.1201

Flexibility against contacting persons

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	**Equal variances assumed**	.088	.767	.983	108	.328	1.0594	1.0783	-1.0779	3.1967
	Equal variances not assumed			1.053	9.759	.318	1.0594	1.0064	-1.1906	3.3094

Flexibility against Looking for job

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
flexibility	**Equal variances assumed**	4.319	.040	-1.196	108	.234	-.7262	.6070	-1.9294	.4770
	Equal variances not assumed			-1.123	70.128	.265	-.7262	.6468	-2.0162	.5639

Flexibility and Purposes of using the internet:

There is a significant deference has been noticed. The research had a confidence percentage more than 90% that using internet for finding information could affect the **flexibility** perception for the respondents.

Sig.=0.055,

0.05<=Sig.<0.1

There is a significant deference has been noticed. The research had a confidence percentage more than 95% that using internet for finding a job could affect the **flexibility** perception for the respondents.

Sig.=.04,

0.01<=Sig.<0.05

No significant difference noticed. Using the internet for buying something (0.576), entertainment (sig=0.529), internet banking (0.473) and contacting persons (sig=0.767) does not affect the **flexibility** perception regarding the respondents.

Customization

Customization against Gender

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	.706	.403	3.653	108	.000	2.4180	.6619	1.1060	3.7301
	Equal variances not assumed			3.731	107.081	.000	2.4180	.6481	1.1332	3.7028

Customization against gender: no significant difference noticed. Changing the gender does not affect the **customization** perception regarding the respondents.

Sig.= 0.403,

Sig.>=0.1

Customization against using computers at home

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.175	.677	-.437	108	.663	-.6227	1.4242	-3.4457	2.2002
Equal variances not assumed			-.370	6.570	.723	-.6227	1.6832	-4.6564	3.4109

At home: no significant difference noticed. Changing in the availability of computers at home does not affect the **customization** perception regarding the respondents.

Sig.=0.677,

Sig. >= 0.1

Customization against using computers at friend

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	.785	.378	.782	108	.436	.5440	.6958	-.8352	1.9232
	Equal variances not assumed			.773	99.343	.441	.5440	.7035	-.8518	1.9399

At friend or relative: no significant difference noticed. Availability of computers at friend or relative does not affect the **customization** perception regarding the respondents.

Sig.= 0.378,

Sig.>=0.1

Customization against using computer at public facility

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	.348	.556	1.459	108	.147	1.1292	.7737	-.4044	2.6628
	Equal variances not assumed			1.403	48.405	.167	1.1292	.8050	-.4891	2.7474

At public facility: no significant difference noticed. Availability of computers at public facility does not affect the **customization** perception regarding the respondents.

Sig.= 0.556,

Sig.>=0.1

Customization against using computers at university

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	.083	.773	2.215	108	.029	2.4184	1.0916	.2546	4.5821
	Equal variances not assumed			2.113	13.500	.054	2.4184	1.1446	-4.5136E-02	4.8819

At college or university: no significant difference noticed. Availability of computers at public facility does not affect the **customization** perception regarding the respondents.

Sig.=0.773,

Sig.>=0.1

Customization against finding information

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	.005	.945	.331	108	.741	.8611	2.6030	-4.2985	6.0207
	Equal variances not assumed			.285	1.027	.822	.8611	3.0204	-35.1749	36.8971

Customization against buying something

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.000	.993	1.717	108	.089	1.2083	.7036	-.1863	2.6028
Equal variances not assumed			1.723	90.691	.088	1.2083	.7012	-.1847	2.6012

Customization against Entertainment

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	3.241	.075	.118	108	.906	9.054E-02	.7661	-1.4279	1.6090
	Equal variances not assumed			.132	74.678	.895	9.054E-02	.6865	-1.2771	1.4582

Customization against Internet banking

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	2.588	.111	2.954	108	.004	2.0668	.6997	.6800	3.4537
	Equal variances not assumed			3.160	94.438	.002	2.0668	.6540	.7684	3.3653

Customization against contacting persons

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	.006	.937	1.701	108	.092	2.1309	1.2528	-.3524	4.6143
	Equal variances not assumed			1.678	9.435	.126	2.1309	1.2699	-.7218	4.9836

Customization against Looking for job

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	1.656	.201	1.660	108	.100	1.1744	.7072	-.2275	2.5762
	Equal variances not assumed			1.596	76.170	.115	1.1744	.7357	-.2909	2.6397

Customization and Purposes of using the internet:

There is a significant deference has been noticed. The research had a confidence percentage more than 90% that using internet for entertainment could affect the **customization** perception for the respondents.

Sig.=.075,

0.05<=Sig.<0.1

No significant difference noticed. Using the internet for finding information (sig=.945) buying something (0.993), internet banking (0.111) and contacting persons (sig=0.937) looking for a job (sig=0.201) does not affect the **customization** perception regarding the respondents.

Customization against Personal details

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
customization	**Equal variances assumed**	.004	.948	1.443	108	.152	.9947	.6894	-.3718	2.3613
	Equal variances not assumed			1.442	107.659	.152	.9947	.6897	-.3724	2.3618

Customization and submitting personal data through the internet websites:

No significant difference noticed. Submitting personal data through the internet websites does not affect the **customization** perception regarding the respondents.

Sig.=0.948,

Sig.>=0.1

Efficiency

Efficiency against Gender

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	.004	.947	.404	108	.687	.2339	.5793	-.9144	1.3821
	Equal variances not assumed			.403	100.766	.688	.2339	.5799	-.9166	1.3844

Efficiency against gender: no significant difference noticed. Changing the gender does not affect the **efficiency** perception regarding the respondents.

Sig.= 0.947,

Sig.>=0.1

Efficiency against using computers at home

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	1.179	.280	-2.070	108	.041	-2.3911	1.1551	-4.6807	-.1015
	Equal variances not assumed			-2.805	7.743	.024	-2.3911	.8525	-4.3685	-.4138

Efficiency and availability of computer:

At home: no significant difference noticed. Changing in the availability of computers at home does not affect the **efficiency** perception regarding the respondents.

Sig.=0.280,

Sig. >= 0.1

Efficiency against using computer at work

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	3.010	.086	3.676	108	.000	1.9940	.5424	.9188	3.0693
	Equal variances not assumed			3.695	107.492	.000	1.9940	.5396	.9243	3.0638

At work: there is a significant deference has been noticed. The research had a confidence percentage more than 90% that using computers at work could affect the **efficiency** perception for the respondents.

Sig.=.086,

0.05<=Sig.<0.1

Efficiency against using computers at friend

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	1.386	.242	.857	108	.393	.4925	.5746	-.6464	1.6314
	Equal variances not assumed			.847	98.460	.399	.4925	.5816	-.6617	1.6467

At friend or relative: no significant difference noticed. Changing in the availability of computers at friend or relative does not affect the **efficiency** perception regarding the respondents.

Sig.=0.242,

Sig. >= 0.1

Efficiency against using computer at public facility

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	.249	.619	-.966	108	.336	-.6208	.6428	-1.8949	.6533
	Equal variances not assumed			-.991	54.942	.326	-.6208	.6262	-1.8757	.6341

At public facility: no significant difference noticed. Changing in the availability of computers at public facility does not affect the **efficiency** perception regarding the respondents.

Sig.=0.619,

Sig. >= 0.1

Efficiency against using computers at university

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	.110	.740	.364	108	.717	.3350	.9216	-1.4918	2.1619
	Equal variances not assumed			.322	13.060	.752	.3350	1.0398	-1.9103	2.5803

At college or university: no significant difference noticed. Availability of computers at public facility does not affect the **efficiency** perception regarding the respondents.

Sig.=0.740,

Sig.>=0.1

Efficiency against finding information

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	.010	.921	1.491	108	.139	3.1759	2.1300	-1.0461	7.3980
	Equal variances not assumed			1.262	1.026	.422	3.1759	2.5164	-26.9138	33.2656

Efficiency against buying something

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	.451	.503	1.070	108	.287	.6269	.5861	-.5349	1.7886
	Equal variances not assumed			1.046	82.986	.299	.6269	.5994	-.5653	1.8191

Efficiency against Entertainment

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	.226	.635	.333	108	.740	.2107	.6327	-1.0434	1.4648
	Equal variances not assumed			.336	58.760	.738	.2107	.6276	-1.0452	1.4667

Efficiency against Internet banking

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	.018	.895	1.123	108	.264	.6710	.5975	-.5134	1.8554
	Equal variances not assumed			1.160	86.070	.249	.6710	.5783	-.4787	1.8207

Efficiency against contacting persons

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	.023	.881	-.050	108	.960	-5.2805E-02	1.0489	-2.1320	2.0263
	Equal variances not assumed			-.046	9.167	.965	-5.2805E-02	1.1569	-2.6626	2.5569

Efficiency against Looking for job

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	8.170	.005	2.478	108	.015	1.4265	.5756	.2855	2.5675
	Equal variances not assumed			2.322	69.729	.023	1.4265	.6144	.2010	2.6520

No significant difference noticed. Using the internet for finding information (sig=.921), buying something (0.50), entertainment (sig=0.635), internet banking (0.895) and contacting persons (sig=0.881) does not affect the **efficiency** perception regarding the respondents.

Efficiency and Purposes of using the internet:

There is a significant deference has been noticed. The research had a confidence percentage more than 99% that using internet for finding a job could affect the **efficiency** perception for the respondents.

Sig.=.005,

Sig.<0.01

Efficiency against Personal details

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
efficiency	**Equal variances assumed**	.909	.343	2.172	108	.032	1.2229	.5629	.1071	2.3387
	Equal variances not assumed			2.170	107.005	.032	1.2229	.5635	.1057	2.3401

Efficiency and submitting personal data through the internet websites:

No significant difference noticed. Submitting personal data through the internet websites does not affect the **efficiency** perception regarding the respondents.

Sig.=0.343,

Sig.>=0.1

Appendix 4: Correlation between certain dependent variables using the Pearson Correlation

The correlation between certain dependent variable using the Pearson Correlation

Correlation between buying through the internet and entering personal data through the internet

		buying	personal data
buying	Pearson Correlation	1.000	.704
	Sig. (2-tailed)	.	.000
	N	110	110
personal data	Pearson Correlation	.704	1.000
	Sig. (2-tailed)	.000	.
	N	110	110

Correlation between entering personal data through the internet and internet banking

		personal data	banking
personal data	Pearson Correlation	1.000	.679
	Sig. (2-tailed)	.	.000
	N	110	110
banking	Pearson Correlation	.679	1.000
	Sig. (2-tailed)	.000	.
	N	110	110

Correlation between using the internet and availability of internet at home

		internet	internet home
internet	Pearson Correlation	1.000	.206
	Sig. (2-tailed)	.	.031
	N	110	110
internet home	Pearson Correlation	.206	1.000
	Sig. (2-tailed)	.031	.
	N	110	110

Correlation between the perception of learning how to use the e-government portal and perception of to how extent it is user friendly portal

		learning	user-friendly
learning	Pearson Correlation	1.000	.318
	Sig. (2-tailed)	.	.001
	N	110	110
user-friendly	Pearson Correlation	.318	1.000
	Sig. (2-tailed)	.001	.
	N	110	110

Correlation between the citizen`s opinion of the registration process and perception of to how extent it is user friendly portal

		easier registration	user-friendly
easier registration	Pearson Correlation	1.000	.597
	Sig. (2-tailed)	.	.000
	N	110	110
user-friendly	Pearson Correlation	.597	1.000
	Sig. (2-tailed)	.000	.
	N	110	110

Correlation between citizen`s perception regarding portal layout and portal structure

		layout accurate	organized
layout accurate	Pearson Correlation	1.000	.697
	Sig. (2-tailed)	.	.000
	N	110	110
organized	Pearson Correlation	.697	1.000
	Sig. (2-tailed)	.000	.
	N	110	110

Appendix 5: Spearman's Correlation analysis used to show the relationship between e-government readiness and ease of doing business

1- There is a strong correlation between the ability to buy something through the internet and the ability to put the personal data on the internet, this relationship is positive and logic because the person who is going to use the net for buying is capable of sending his credit card number or any of his personal data.

Correlation 0.704>0.5 (strong correlation)

In addition, this correlation is significant (<0.05)

2- the same thing, there is a strong correlation between the ability to do banking processes through the internet and the ability to put the personal data on the internet, this relationship is positive and logic because the person who is going to use the net for banking is capable of sending his credit card number or any of his personal data.

Correlation 0.679>0.5 (strong correlation)

In addition, this correlation is significant (<0.05)

3-Here is a result which will looks different, there is a week correlation between the availability of internet at home and using of the internet in general (correlation 0.206), and this is for a reason which is the availability of the internet at work or at a friend.

4-there is a weak correlation between the perception of the ease of learning using the e-government portal and the perception of how much is this portal is user friendly (correlation 0.318<0.5).

5- there is a strong correlation between the perception of the ease of registration using the e-government portal and the perception of how much is this portal is user friendly (correlation 0.597>0.5),this relation is positive and significant (sig < 0.05)

6- There is a strong correlation between the perception of the accuracy layout of e-government portal and the perception of how much is this portal is organized (correlation 0.697>0.5),this relation is positive and significant (sig < 0.05), it means that respondents who believe that the portal is user friendly also believe that it is easy to learn.

Appendix 6: E-Government Readiness Report and Ease of Doing Business Report - assumptions

UN Global E-Government Readiness Report 2005

Introduction

Many researchers relay on this report while doing their studies. Aichholzer (2006), Berntzen (2007), Mwangi (2006), Henman & Marston (2008) and Fuchs & Horak (2008) are an example for such studies.

This report presents an assessment of the countries according to their state of e-government readiness and the extent of e-participation worldwide. The **UN Global E-government Survey 2005,** like its predecessors, ranks the 191 Member States of the UN according to a quantitative composite index of e-readiness based on website assessment, telecommunication infrastructure and human resource endowment.

The basic message in this Report is that there are huge disparities in the access and use of information technologies, and that these disparities are not likely to be removed in the near future unless a concerted action is taken at the national, regional and the international levels.

The UN global E-Government Readiness Index 2005 presents the state of e-government readiness of the Member States. It is a composite measurement of the capacity and willingness of countries to use e-government for ICT-led development.

Along with an assessment of the website development patterns in a country, the e-government readiness index incorporates the access characteristics, such as the infrastructure and educational levels, to reflect how a country is using information technologies to promote access and inclusion of its people. The measurement of e-government is an assessment of a state's use of internet and the World Wide Web (WWW) for provision of information, products and services; plus the level of telecommunication and human capital infrastructure development in a country.

E-government Readiness Index is a composite index comprising the Web measure index, the Telecommunication Infrastructure index and the Human Capital index. E-government is defined as the use of ITC and its application by the government for the provision of information and public services to the people. The aim of e-government therefore is to provide efficient government management of information to the citizen;

better service delivery to citizens; and empowerment of the people through access to information and participation in public policy decision making.

The Web Measure index

Like in the past this year also the Web Measure Index 2005 is based upon a five stage model, which is ascending in nature, and builds upon the previous level of sophistication, of a state's online presence. The model defines five stages of e-government readiness according to scale of progressively sophisticated citizen services. As countries progress, they are ranked higher in the Model according to a numerical classification corresponding to the five stages.

To eliminate any discretionary rating introduced by a value judgment, by design, the E-government Index does not attempt to assess the services qualitatively. In this endeavour it is different from many other surveys, which combine access to, and delivery of, services/products and quality in one indicator. The purely quantitative nature of the web measure assessment assures minimizing of the bias inherent in combining qualitative assessments with quantitative measures. Furthermore, the Survey adheres to the same set of core features and services assessed in the past. This allows for consistency in benchmarking and measurement of states' e-government progress over time.

As in the past, all of the 191 Member States of the United Nations were assessed in 2005. The Web Measure Survey assessments are based on a questionnaire, which allows for only a binary value to the indicator based on the presence/absence of specific electronic facilities/services available. The primary site was the National Portal or the official homepage of the government. Where no official portal was available additional government sites were assessed. While not detracting from the importance of local e-government initiatives, the Survey limits itself to central government website assessments alone in order to provide a consistent platform for comparative analysis across the countries. For the countries with decentralized structures of national governments such as in education and health, and which had little or nothing online on the central government ministerial/departmental site, numerical scores were adjusted accordingly so as not to penalize them.

The Survey assesses the same number of functionally same/similar sites in each country to ensure consistency. In keeping with its conceptual framework of human development

these were the Ministries/Department of Health, Education, Social Welfare, Labor and Finance which are representative of the services citizens require most from the government. Each ministerial site was assessed on the same set of questions.

In total, more than 50,000 online features and services for 179 countries online across six economic and social sectors were measured. Twelve countries were not online.

The assessment of online services was carried out during July-August 2005. It should be noted that since websites are being continually updated a few countries were under construction or not available during that time. Whereas the sites were checked several times during that period, fresh websites and/or added features on a website may have come online in the months that followed. Since the Survey presents rankings on a comparative basis reflecting long gestation telecommunication and human capital infrastructure developments, this does not detract from the comprehensiveness of the Survey and is unlikely to impact greatly on the results. It should be noted that each year a number of e-government readiness surveys are undertaken by the regional or international organizations, the private sector and /or the academia in which the same country may be rated differently. There are several reasons for this. Assessments of the readiness of a country may vary depending on the definition of e-government, the selection of the products and services measured and the statistical methodology employed. The source and the clientele are often reflected in the choice of input indicators and the features and services of the government measured. Furthermore, the definition of e-government may vary from survey to survey. A few define e-government, and measure it, by assessing G2C and some G2B services. Others may focus on sophisticated issues of privacy and/or e-procurement. A few may delve into assessing government provision of state and local level services. Almost all allow a qualitative assessment in their numerical scores. As such, a country's rating may not be strictly comparable across all surveys. Comparing ranking across this kaleidoscope of survey methodology would be like comparing apples with oranges.

The UN Global E-government Survey 2005 assesses Member States from the perspective of human development and the delivery of basic services to the citizen such as education, health, employment, finance and social welfare alone. E-government services such as e-procurement, which may be provided as part of a country's e-government initiative and measured elsewhere, are not the focus here.

Each year the Survey captures the year-on-year changes in the e-government readiness of countries as evidenced by their website assessments. The resulting e-government readiness rankings are a measure of the progress of a country relative to all other countries of the world. It should be noted that both, the e-government index and the web measure index are broad relative indices. As such, they should be read as indicative of the diffusion of e-government in the countries.

The UN Global E-government Survey does not suggest that 'higher' rankings are necessarily a 'better' outcome or even a desirable one. Caution should be exercised in interpreting too finely the change in rankings of a country within a few positions of similarly ranked countries whether high up or lower down. As was stated in the previous Survey, each country should decide upon the level and extent of its e-government initiatives in keeping with its own development priorities and its indigenous level of development.

Furthermore, the Survey results should be read within the development context and resource endowments of a country. Whereas the indices and rankings measure progress on the e-government programs of countries and reflect the context of a country's political, economic, technological, cultural development ranks should not signify a race to e-government proliferation.

Telecommunications Infrastructure index

The telecommunication infrastructure index 2005 is a composite weighted average index of six primary indices based on basic infrastructural indicators, which define a country's ITC infrastructure capacity. These are: PC's/1000 persons; Internet users/1000 persons; Telephone Lines/1000 persons; Online population; Mobile phones/1000 persons; and TV's/1000 persons. Data for the UN Member States was taken primarily from the UN International Telecommunication Union (ITU) and the UN Statistics Division, supplemented by the World Bank. Constructing six separate indices for the indicators standardized the data across countries. See Technical Notes for details on constructing the indices.

Human Capital index

The data for the human capital index 2005 relies on the UNDP 'education index' which is a composite of the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio with two third weight given to adult literacy and one third to gross enrolment ratio. See Technical Notes for details.

Ease of Doing Business Report

Introduction

Lots of researchers used the 10 research articles that serve as background papers for Doing Business. They have generated 676 academic papers. The largest number of academic papers are generated by the Starting a Business background paper (238 papers), followed by Enforcing a Contract (128), Employing Workers (112), Getting Credit (58), Protecting Investors (31), and Trading across Borders (7).

Svensson (2005), Botero et. al. (2004), Porta et. al. (2002), Djankov and Murrell (2002), Pfister et. al. (2006), Weitzel and Berns (2006), Acemoglu et. al. (2006), CHOI AND THUM (2005) AND Henisz (2003). Previous studies are just a sample from the total 676 articles

Doing Business 2007 is the fourth in a series of annual reports investigating the regulations that enhance business activity and those that constrain it. Doing Business presents quantitative indicators on business regulations and the protection of property rights that can be compared across 175 economies from Afghanistan to Zimbabwe and over time.

Regulations affecting 10 areas of everyday business are measured: starting a business, dealing with licenses, employing workers, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and closing a business. The indicators are used to analyze economic outcomes and identify what reforms have worked, where and why.

The methodology has limitations. Other areas important to business such as a country's proximity to large markets, quality of infrastructure services (other than services related to trading across borders), the security of property from theft and looting, the transparency of government procurement, macroeconomic conditions or the underlying strength of institutions are not studied directly by Doing Business. To make the data

comparable across countries, the indicators refer to a specific type of business generally a limited liability company operating in the largest business city.

Clarifying considerations regarding four business topics will be showed in the next section. The four topics are Starting Business, Dealing with Licenses, Registering Property, and Trading Across Borders

Starting a business topic

Doing Business records all procedures that are officially required for an entrepreneur to start up and formally operate an industrial or commercial business. These include obtaining all necessary licenses and permits and completing any required notifications, verifications or inscriptions for the company and employees with relevant authorities.

After a study of laws, regulations and publicly available information on business entry, a detailed list of procedures is developed, along with the time and cost of complying with each procedure under normal circumstances and the paid-in minimum capital requirements. Subsequently, local incorporation lawyers and government officials complete and verify the data.

Information is also collected on the sequence in which procedures are to be completed and whether procedures may be carried out simultaneously. It is assumed that any required information is readily available and that all agencies involved in the start-up process function without corruption. If answers by local experts differ, inquiries continue until the data are reconciled.

To make the data comparable across countries, several assumptions about the business and the procedures are used.

Assumptions about the business

The business:

- Is a limited liability company. If there is more than one type of limited liability company in the country, the limited liability form most popular among domestic firms is chosen. Information on the most popular form is obtained from incorporation lawyers or the statistical office.
- Operates in the country's most populous city.

- Is 100% domestically owned and has 5 owners, none of whom is a legal entity.
- Has start-up capital of 10 times income per capita at the end of 2006, paid in cash.
- Performs general industrial or commercial activities, such as the production or sale of products or services to the public. The business does not perform foreign trade activities and does not handle products subject to a special tax regime, for example, liquor or tobacco. It is not using heavily polluting production processes.
- Leases the commercial plant and offices and is not a proprietor of real estate.
- Does not qualify for investment incentives or any special benefits.
- Has at least 10 and up to 50 employees 1 month after the commencement of operations, all of them nationals.
- Has a turnover of at least 100 times income per capita.
- Has a company deed 10 pages long.

Procedures: A procedure is defined as any interaction of the company founder with external parties (for example, government agencies, lawyers, auditors or notaries). Interactions between company founders or company officers and employees are not counted as procedures. Procedures that must be completed in the same building but in different offices are counted as separate procedures. If founders have to visit the same office several times for different sequential procedures, each is counted separately. The founders are assumed to complete all procedures themselves, without middlemen, facilitators, accountants or lawyers, unless the use of such a third party is mandated by law. If the services of professionals are required, procedures conducted by such professionals on behalf of the company are counted separately.

Both pre- and post incorporation procedures that are officially required for an entrepreneur to formally operate a business are recorded.

Procedures required for official correspondence or transactions with public agencies are also included. For example, if a company seal or stamp is required on official documents, such as tax declarations, obtaining the seal or stamp is counted. Similarly, if a company must open a bank account before registering for sales tax or value added tax,

this transaction is included as a procedure. Shortcuts are counted only if they fulfil 4 criteria: they are legal, they are available to the general public, they are used by the majority of companies, and avoiding them causes substantial delays.

Only procedures required of all businesses are covered. Industry-specific procedures are excluded. For example, procedures to comply with environmental regulations are included only when they apply to all businesses conducting general commercial or industrial activities. Procedures that the company undergoes to connect to electricity, water, gas and waste disposal services are not included.

Time: Time is recorded in calendar days. The measure captures the median duration that incorporation lawyers indicate is necessary to complete a procedure with minimum follow-up with government agencies and no extra payments. It is assumed that the minimum time required for each procedure is 1 day. Although procedures may take place simultaneously, they cannot start on the same day (that is, simultaneous procedures start on consecutive days). A procedure is considered completed once the company has received the final document, such as the company registration certificate or tax number. If a procedure can be accelerated for an additional cost, the fastest procedure is chosen. It is assumed that the entrepreneur does not waste time and commits to completing each remaining procedure without delay. The time that the entrepreneur spends on gathering information is ignored. It is assumed that the entrepreneur is aware of all entry regulations and their sequence from the beginning but has had no prior contact with any of the officials.

Cost: Cost is recorded as a percentage of the country's income per capita. It includes all official fees and fees for legal or professional services if such services are required by law. Fees for purchasing and legalizing company books are included if these transactions are required by law. The company law, the commercial code and specific regulations and fee schedules are used as sources for calculating costs. In the absence of fee schedules, a government officer's estimate is taken as an official source. In the absence of a government officer's estimate, estimates of incorporation lawyers are used.

If several incorporation lawyers provide different estimates, the median reported value is applied. In all cases the cost excludes bribes.

Paid-in minimum capital: The paid-in minimum capital requirement reflects the amount that the entrepreneur needs to deposit in a bank or with a notary before registration and up to 3 months following incorporation and is recorded as a percentage

of the country's income per capita. The amount is typically specified in the commercial code or the company law. Many countries have a minimum capital requirement but allow businesses to pay only a part of it before registration, with the rest to be paid after the first year of operation. In Germany in June 2007 the minimum capital requirement for limited liability companies was €25,000, of which at least €12,500 was payable before registration. The paid-in minimum capital recorded for Germany is therefore €12,500 or 42.8% of income per capita. In Serbia the minimum capital requirement was €500, of which only half needed to be paid before registration. The paid-in minimum capital recorded for Serbia is therefore €250, or 8% of income per capita.

Dealing with Licenses

Doing Business records all procedures required for a business in the construction industry to build a standardized warehouse. These procedures include submitting all relevant project-specific documents (for example, building plans and site maps) to the authorities; obtaining all necessary clearances, licenses, permits and certificates; completing all required notifications; and receiving all necessary inspections. Doing Business also records procedures for obtaining all utility connections. Procedures necessary to register the property so that it can be used as collateral or transferred are also counted. The survey divides the process of building a warehouse into distinct procedures and calculates the time and cost of completing each procedure in practice under normal circumstances.

Information is collected from experts in construction licensing, including architects, construction lawyers, construction firms, utility service providers and public officials who deal with building regulations, including approvals and inspections. To make the data comparable across countries, several assumptions about the business, the warehouse project and the procedures are used.

Assumptions about the construction company

The business (Building Company):

- Is a limited liability company.
- Operates in the country's most populous city.

- Is 100% domestically and privately owned.
- Has 5 owners, none of whom is a legal entity.
- Is fully licensed and insured to carry out construction projects, such as building warehouses.
- Has 20 builders and other employees, all of them nationals with the technical expertise and professional experience necessary to obtain construction permits and approvals.
- Has at least 1 employee who is a licensed architect and registered with the local association of architects.
- Has paid all taxes and taken out all necessary insurance applicable to its general business activity (for example, accidental insurance for construction workers and third-person liability insurance).
- Owns the land on which the warehouse is built.

Procedures: A procedure is any interaction of the company's employees or managers with external parties, including government agencies, notaries, the land registry, the cadastre, utility companies, public and private inspectors and technical experts apart from in-house architects and engineers. Interactions between company employees, such as development of the warehouse plans and inspections conducted by employees, are not counted as procedures. Procedures that the company undergoes to connect to electricity, water, sewerage and phone services are included. All procedures that are legally or in practice required for building a warehouse are counted, even if they may be avoided in exceptional cases.

Time: Time is recorded in calendar days. The measure captures the median duration that local experts indicate is necessary to complete a procedure in practice. It is assumed that the minimum time required for each procedure is 1 day. If a procedure can be accelerated legally for an additional cost, the fastest procedure is chosen. It is assumed that BuildCo does not waste time and commits to completing each remaining procedure without delay. The time that BuildCo spends on gathering information is ignored. It is assumed that BuildCo is aware of all building requirements and their sequence from the beginning.

Cost: Cost is recorded as a percentage of the country's income per capita. Only official costs are recorded. All the fees associated with completing the procedures to legally build a warehouse are recorded, including those associated with obtaining land use approvals and preconstruction design clearances; receiving inspections before, during and after construction; getting utility connections; and registering the warehouse property. Nonrecurring taxes required for the completion of the warehouse project also are recorded. The building code, information from local experts and specific regulations and fee schedules are used as sources for costs. If several local partners provide different estimates, the median reported value is used.

Registering property

Doing Business records the full sequence of procedures necessary when a business purchases land and a building to transfer the property title from another business so that the buyer can use the property for expanding its business, as collateral in taking new loans or, if necessary, to sell to another business. Every procedure required by law or necessary in practice is included, whether it is the responsibility of the seller or the buyer or must be completed by a third party on their behalf. Local property lawyers, notaries and property registries provide information on procedures as well as the time and cost to complete each of them.

To make the data comparable across countries, several assumptions about the parties to the transaction, the property and the procedures are used.

Assumptions about the parties

The parties (buyer and seller):

- Are limited liability companies.
- Are located in the periurban area of the country's most populous city.
- Are 100% domestically and privately owned.
- Have 50 employees each, all of whom are nationals.
- Perform general commercial activities.

Assumptions about the property

The property:

- Has a value of 50 times income per capita. The sale price equals the value.
- Is fully owned by the seller.
- Has no mortgages attached and has been under the same ownership for the past 10 years.
- Is registered in the land registry or cadastre, or both, and is free of title disputes.
- Is located in a periurban commercial zone, and no rezoning is required.
- Consists of land and a building. The land area is 6,000 square feet (557.4 square meters). A 2-story warehouse of 10,000 square feet (929 square meters) is located on the land. The warehouse is 10 years old, is in good condition and complies with all safety standards, building codes and other legal requirements. The property of land and building will be transferred in its entirety.
- Will not be subject to renovations or additional building following the purchase.
- Has no trees, natural water sources, natural reserves or historical monuments of any kind.
- Will not be used for special purposes, and no special permits, such as for residential use, industrial plants, waste storage or certain types of agricultural activities, are required.
- Has no occupants (legal or illegal), and no other party holds a legal interest in it.

Procedures: A procedure is defined as any interaction of the buyer or the seller, their agents (if an agent is legally or in practice required) or the property with external parties, including government agencies, inspectors, notaries and lawyers. Interactions between company officers and employees are not considered. All procedures that are legally or in practice required for registering property are recorded, even if they may be avoided in exceptional cases. It is assumed that the buyer follows the fastest legal option available and used by the majority of property owners. Although the buyer may use lawyers or other professionals where necessary in the registration process, it is assumed that it does not employ an outside facilitator in the registration process unless legally or in practice required to do so.

Time: Time is recorded in calendar days. The measure captures the median duration that property lawyers, notaries or registry officials indicate is necessary to complete a procedure. It is assumed that the minimum time required for each procedure is 1 day. Although procedures may take place simultaneously, they cannot start on the same day. It is assumed that the buyer does not waste time and commits to completing each remaining procedure without delay. If a procedure can be accelerated for an additional cost, the fastest legal procedure available and used by the majority of property owners is chosen. If procedures can be undertaken simultaneously, it is assumed that they are. It is assumed that the parties involved are aware of all regulations and their sequence from the beginning. Time spent on gathering information is not considered.

Cost: Cost is recorded as a percentage of the property value, assumed to be equivalent to 50 times income per capita. Only official costs required by law are recorded, including fees, transfer taxes, stamp duties and any other payment to the property registry, notaries, public agencies or lawyers. Other taxes, such as capital gains tax or value added tax, are excluded from the cost measure. Both costs borne by the buyer and those borne by the seller are included. If cost estimates differ among sources, the median reported value is used.

Trading Across Borders topic

Doing Business compiles procedural requirements for exporting and importing a standardized cargo of goods by ocean transport. Every official procedure for exporting and importing the goods is recorded—from the contractual agreement between the 2 parties to the delivery of goods—along with the time and cost necessary for completion. All documents required for clearance of the goods across the border are also recorded. For exporting goods, procedures range from packing the goods at the factory to their departure from the port of exit. For importing goods, procedures range from the vessel's arrival at the port of entry to the cargo's delivery at the factory warehouse. Payment is made by letter of credit.

Local freight forwarders, shipping lines, customs brokers and port officials provide information on required documents and cost as well as the time to complete each procedure. To make the data comparable across countries, several assumptions about the business and the traded goods are used. Since 2007, assumptions were refined to adjust for particularities of land-locked countries and reduce variations related to

documentation involving private parties. In the case of land-locked countries any port related data is based on information provided by the relevant sea port country. Inland transport costs are based on number of kilometers. The time to obtain a letter of credit refers to a first time application and any documentation between the shipper and trader is excluded.

Assumptions about the business

The business:

- Has 60 or more employees.
- Is located in the country's most populous city.
- Is a private, limited liability company. It does not operate within an export processing zone or an industrial estate with special export or import privileges.
- Is domestically owned with no foreign ownership.
- Exports more than 10% of its sales.

Assumptions about the traded goods

The traded product travels in a dry-cargo, 20-foot, full container load. The product:

- Is not hazardous nor does it include military items.
- Does not require refrigeration or any other special environment.
- Does not require any special phytosanitary or environmental safety standards other than accepted international standards.

Documents: All documents required to export and import the goods are recorded. It is assumed that the contract has already been agreed upon and signed by both parties. Documents include bank documents, customs declaration and clearance documents, port filing documents, import licenses and other official documents exchanged between the concerned parties. Documents filed simultaneously are considered different documents but with the same time frame for completion.

Time: Time is recorded in calendar days. The time calculation for a procedure starts from the moment it is initiated and runs until it is completed. If a procedure can be accelerated for an additional cost, the fastest legal procedure is chosen. It is assumed that neither the exporter nor the importer wastes time and that each commits to completing each remaining procedure without delay. Procedures that can be completed in parallel are measured as simultaneous. The waiting time between procedures—for example, during unloading of the cargo—is included in the measure.

Cost: Cost measures the fees levied on a 20-foot container in U.S. dollars. All the fees associated with completing the procedures to export or import the goods are included. These include costs for documents, administrative fees for customs clearance and technical control, terminal handling charges and inland transport. The cost measure does not include tariffs or trade taxes. Only official costs are recorded.

Appendix 7: Excel calculations regarding the use of e-government services in obtaining a construction permit

		Ease of Doing Business		Dealing with Licenses			
Code	Economy	RANK	Percentile	Procedures (number)	Time (days)	Cost (% of income per capita)	Ease of dealing with licenses (percentile)
EGY	Egypt	165	0.71	30	263	1002%	0.86

		Ease of Doing Business		Dealing with Licenses			
Code	Economy	RANK	Percentile	Procedures (number)	Time (days)	Cost (% of income per capita)	Ease of dealing with licenses (percentile)
EGY	Egypt	158	0.70	24	176	1002%	0.72