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2009

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CHALLENGES TO INCREASE GOVERNMENT E-SERVICES TAKE-UP IN LEBANON

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Abstract

Governments around the world are introducing the virtual channel of public service delivery system (UNDESA 2008). This channel allows for integrated public e-services that are available 24/7. However, citizens who do not have access to ICTs, who do not have the ability to use ICTs, and/or who do not accept to use government e-services cannot benefit from these advantages. Therefore, introducing e-services will create three types of divide: access, e-skills, and acceptance divides. This e-service divide will lead to an inferior quality public service translated in a low e-services' Take-Up. In Lebanon for example, the government is heavily investing in public online services. However, only 26.28 per cent of the Lebanese population has Internet access, 11.45 per cent have PC at home, and only 30.53 per cent have a mobile telephone (OMSAR 2008). It means that e-government will lead to a system where only privileged segments of the population may have access to the government e-services. Therefore the e-government implementation will create a public online service divide constituted of three types of inequalities: (1) inequality in the access to e-services between citizens, (2) inequality in the ability to use e-services among those who have access, and (3) inequality in e-services acceptance among those who have the access and the ability to use ICTs and e-services. Reducing this e-services divide can enhance the value of services to the citizens and that can dramatically increase e-services Take-Up.

Keywords: E-government, Public E-Services, E-Services Divide, Access Divide, E-Skills Divide, Acceptance Divide

1   INTRODUCTION

Governments continue investing in Information and Communication Technologies (ICTs), and e-services have become governments' priority (UNDESA 2008). However, one of the main reasons of difficulties that developing countries face, when implementing e-government, is the low Take-Up. E-services Take-Up has been defined by the 2008 UNDESA report as the relative number of citizens accessing online services. Understanding the reasons of such low Take-Up will give government the opportunity to develop more effective e-government policies which can increase e-services' acceptance and use by citizens.

The implementation of e-government in developing countries can lead to a system where privileged segments or the elite of the population can have access to e-services more easily (Ciborra 2005). Inequalities can continue and even increase. In fact, this implementation will create three types of inequalities: (1) inequality in access to ICTs and e-services (Dewan & Riggins 2005, Van Dijk 2005), (2) inequality in the ability to use ICTs and e-services among those who have access (Dewan & Riggins 2005), and (3) inequality between those who will accept to use e-services and those who will not. These inequalities will create a public e-services divide. Therefore, the aim of this paper is to explore this divide that results from the implementation of the online public services in Lebanon. Indeed, Lebanese citizens who do not have access to ICTs, Internet and e-services, who do not have the ability to use ICTs, Internet and e-services, and/or who do not accept to use government e-services cannot benefit from the public e-services[19] advantages. This is a disturbing fact, because Lebanon cannot afford to

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[19] In this paper, we will use the terms government services, public service and administration services colloquially and interchangeably although we are aware of the nuances.

wastefully spend large amounts of money for such an investment, especially if it will lead to a system where only privileged segments of the population may have access to these e-services.

This e-services divide can be problematic because it would lead to a low Take-Up, as the e-services would not be equally used by all citizens. The e-government project would probably fail if all citizens do not utilize this technology in order to use public services (Dada 2006).

Consequently, the two main questions of this paper are: **what is an e-services divide? What are the reasons of this divide?**

In order to increase the public e-services value, governments need to understand the reasons of the e-services divide. Exploring the reasons of the e-services divide can be conducted at two distinct levels of analysis, i.e. the country or macro-level and the individual or micro-level (Stump et al. 2008).

- At the country level, pertinent questions include how countries differ in their usage of public e-services as a function of their socio-economic and demographic factors or traits (wealth, education levels, gender, and country freedom of speech). Consequently, we need to explore the public e-services divide at the country level. According to Helbig et al. (2009) the e-services divide results mainly from the Digital Divide. So, relying on secondary data obtained from several reputable sources, we examine the Digital divide on a macro level. To do saw, we compared the Lebanese data to those of the twenty one Arabic countries which have the same culture (Hofstede 1980).

- At the individual level, we need to understand the inhibitors and enablers of public e-services. Therefore, in order to understand the reasons of the e-services divide that are related to personal choices we carried out interviews with open-ended questions related to the Lebanese government's e-services acceptance intention.

In the next section, after defining e-government (2) and public e-services (3.1), we illustrate the relation between the public e-servuction system and inequalities (3.2). Then, after presenting the Lebanese public administration (4), we describe methods and results of the two major research questions (5 & 6). Then, in the conclusion (7), we examine challenges in increasing the value of e-government electronic services in Lebanon by reducing the e-services divide and increasing their Take-Up.

2   E-GOVERNMENT OR CONNECTING THE POLITICAL, THE ADMINISTRATIVE AND THE PRIVATE SPHERE

Electronic government or e-government is a relatively new subject of academic research that emerged in the late 1990s with the Internet boom. Recently there has been a growth in the volume of research output on this topic (Heeks & Bailur 2007, p. 243). But until today, there is still no standard definition of the e-government concept.

According to Brown & Brudney (2001), e-government encompasses all government roles and activities shaped by ICTs. It is a continuous optimization of service delivery, constituency participation, and governance by transforming internal and external relationships through technology, the Internet and new media (The Gartner Group In Curtin 2007). Therefore, e-government can be thought as the association of e-services, e-administration, e-procurement, e-participation, and e-governance. E-services "connect the backend processes (back-office) that generate information and services with the end users, such as citizens (G2C), businesses (G2B), ONG and civil organization (G2NGO)" (Curtin 2007, p. 7). E-administration has "an inner focus and deals with the internal structure of government" (Curtin 2007, p. 7), such as government employee (G2GE). It also includes relations with other government (G2G). E-procurement centralizes government procurement in a one-stop shop (G2S). "E-participation focuses primarily on the external relationships of the government with civil society and public sphere (G2SC). It encompasses citizen input on decision making and policy development, direct access to government officials, electronic voting, citizen and social networking, and other tools of citizen empowerment" (Curtin 2007). E-governance refers to the whole system involved in managing the society (Gronlund & Horan 2004). E-governance connects the government with its political, social and administrative

environment (Riley 2004). Figure 1 illustrates the e-government by using spheres interrelated. It also represents the association of e-services, e-administration, e-procurement, e-participation, and e-governance.

Dwivedi et al. (2009) asserted that one of the most pressing challenges in e-government is aggregating the demands of e-government services and finding ways to increase overall use by citizens. We think that one of the most important objectives of e-government is to develop quality government services. Therefore, this paper focuses mainly on the 'government to citizen' (G to C) aspects of e-government.
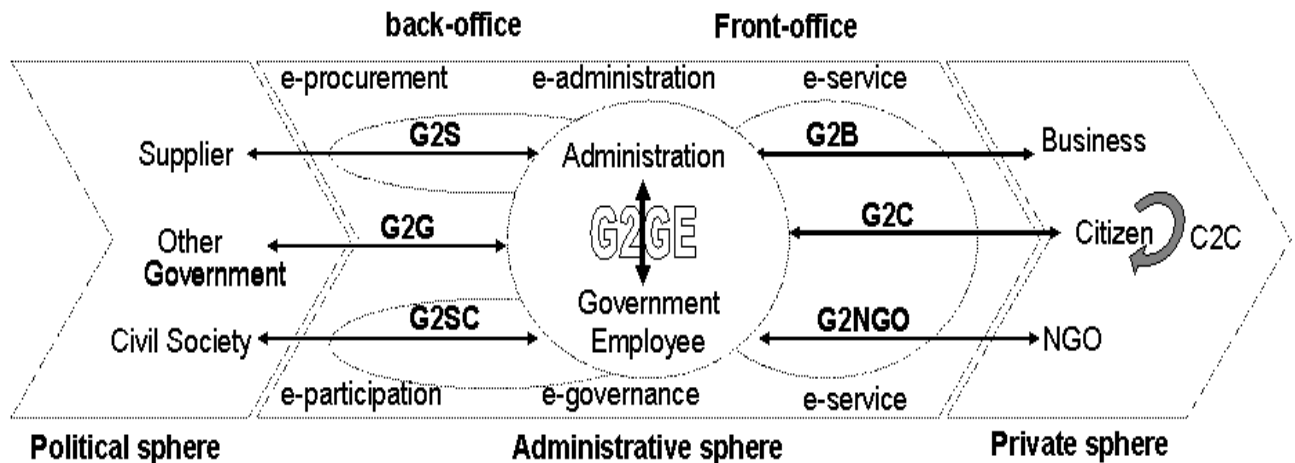

Figure 1. E-government represented as the association of e-services, e-administration, e-procurement, e-participation, and e-governance

3   E-GOVERNMENT AND PUBLIC ONLINE SERVICES

3.1   Services, e-services, public services, and public e-services definitions

Over the last few decades, with the Internet and ICTs diffusion and with the beginning of the e-governments implementation, e-services have become an important topic in e-government academic research. Government's e-services or government's online services are all kinds of services offered by the government over the Internet.

Researchers defined services as solutions co-created throughout an interaction between the service provider, the customer and the other customers (Eiglier & Langeard 1987). It is clear that the value of a service is the outcome of a co-creation between suppliers and customers (Janseen et al. 2009, p. 16). Therefore, online services or e-services can be defined as solutions co-created throughout interactions between the service provider, the customer and the other customers and delivered electronically.

Usually, governments deliver two types of public services: public services for citizens, and public services for business. In this paper we will concentrate our effort on the basic public services for citizens like: income taxes (declaration, notification of assessment), social security contributions, medical costs (reimbursement or direct settlement) and health related services, personal documents (passport and driver's licence), car registration (new, used and imported cars), application for building permission, declaration to the police (e.g. in case of theft), certificates (birth, marriage): request and delivery, enrolment in higher education, announcement of moving (change of address), and student grants. These services have to meet the citizens' needs while protecting the public interest.

In most countries, the services offered in respect to e-government have evolved from websites offering basic government information (the National Portal) to more value added transactional-level services

that offer convenience, efficiency, and transparency (Dwivedi et al. 2009). According to Goldkuhl & Persson (2006a, 2006b), online public services can be conceived as "electronic services which can be accessed via the Internet, and which are offered to citizens, companies, professional organizations, interest groups and other official bodies by organizations in the public sector."

3.2   Servuction, e-servuction, and inequalities

Governments around the world are introducing the virtual channel of public service delivery system (UNDESA 2008). Channels of service delivery are "the ways of communication through which a service is delivered to the citizen" (Sousa & Voss 2006, p. 357). It is the mean by which a citizen requests a public service and receives the resultant output from a service (Quinn et al. 1987). The channel of service delivery is constituted of two parts: the first is visible to the citizen and known as the front-office, and the second is invisible or hidden and constitute the back-office. The principal components of this service delivery system are: the back-office employee and the invisible organization and systems, the front-office personnel contact and the inanimate environment (the physical support), as well as the citizens (Eiglier & Langeard 1987).

The process of service creation is known as 'servuction' (Eiglier & Langeard 1987). According to Davies et al (1999), the servuction system model provides a framework that is generalizable across service sectors and that recognizes explicitly the inseparability of services production and consumption and the customer role in the service co-production. In the servuction system model, front-office components' that are visible to the citizens comprise contact personnel, the inanimate environment, and other citizens. Therefore, the interactions that a citizen may engage include those with contact persons, with the inanimate environment, and with other Citizens.

In the e-servuction system model, the electronic connections are both the means of communications and the means of production and distribution of the services (Straub et al. 2004). Indeed, the online services or self services are produced by citizens in interacting with technological interfaces without a face to face government employee involvement (Bitner et al. 2000, Dabholkar 2000). The front-office is constituted of a 24/7 (24 hours a day, and 7 days a week) convenient user interface with ease of use, in a language the user understands and which is tailored to citizens individual needs. The role of the associated virtual back office, comprised exclusively of information systems, is mostly the processing of information. The virtual front-office, consisting of a virtual user interface, is highly integrated with the back-office information systems, interacting with them in an automated fashion (Sousa & Voss 2006, p. 359). The virtual back-office is linked to a physical back-office constituted of a citizen support provided by human agent

The e-servuction system increases the role of the citizen in the value co-creation and in the e-services co-production (Sampson & Froehle 2006, Spohrer el al. 2007). Indeed, the government performs certain activities, like providing downloadable forms, allowing online submission of forms and payment by credit card, all in secured link, but the citizens must also perform activities that transform their own states like searching for the right site address, for information about e-services offerings, etc, else the benefit or value of the service will not be fully attained. A citizen, for example, with little experience or computer knowledge will receive a lower quality services that leads to inferior value services. That is a problem in developing countries because a large part of their citizens does not have access, does not have the ability, and/or does not have the willingness to use ICTs and Internet. Evidently, these citizens cannot use government e-services and even if they will try to use it, they will get a lower quality services. The citizen non-participation may also threaten the service quality received by other citizens or by the 'unacquainted influencer' (e.g. McGrath & Otnes 1995). This is known as the citizen to citizen interaction impact. Therefore in the next section, we will illustrate this problem in the Lebanese context.

4   E-GOVERNMENT IN LEBANON

4.1   The country of the cedars

Lebanon is a liberal republic in Western Asia, bordered by Syria and Israel. The country of the cedars has a population just above four million and a land surface about 10400 square kilometers. The Lebanese government is comprised of three main branches: the Presidency of the Republic, the Presidency of the Parliament, and the Presidency of the Council of Ministers. To these three main branches is added seven core agencies which are: the Civil Service Board, the Central Inspection, the Court of Accounts, the Central Disciplinary board, the Constitutional Assembly, the Office of Minister of State for Administrative Reform (OMSAR), and the Religious Judiciary. Together the three main braches with the seven core agencies constitute the central government bodies. Around of these ten central government bodies, there are twenty one Ministries and fifty Autonomous Agencies. These Ministries and Autonomous Agencies which are under the tutelage of the Ministries form the services branch of the Lebanese government and constitute the key interfaces with the citizen. Lebanon is divided into six governorates (muhafazah) that are divided into 25 districts, and then subdivided into 780 municipalities. These offices constitute the interface with the local citizens but they do not play a political role and they do not provide public services to citizens. They are only in charge of few marginal activities, mostly linked to infrastructure re-building and the restoration of the electric grid and water supply system. The central administration manages the main utilities like: the transportation sector which includes the seaports and airports, electricity and telecommunications, and the aqueduct. The EdL (Electricité du Liban), the SdE (Société des Eaux or Water Company), the other minor aqueducts, the airport and seaports, and the fixed-line telephone network are still publicly owned. The central administration is responsible for delivering a wide range of public services, including: general security, personal documents (driver's licence, Identification cards (ID), passport, certificates of birth or marriage), car registration, fire services, tourism, environmental, school education, higher education, building regulation and permission, police declaration, social housing, change of address, social security, income taxes (declaration and notification of assessment), highways and public transport, medical and health related services.

4.2   The Lebanese political system

Lebanon has one of the most complex political systems in the world (Choucair 2006). It offers a model of confessional coexistence between Christians (Maronite, Greek Orthodox, Greek Catholic, Armenian Orthodox, Armenian Catholic, and Protestant) and Muslims (Sunni, Shiite, Druze, Alawite, etc.). According to Choucair 2006, a careful balance in all aspects of political life must be maintained among the 18 recognized religious communities. Therefore, the seats in the parliament, in the government, and in the civil administration are allocated equally between Christians and Muslims. The country has a unique political system whereby the Christian president, the Sunnite prime minister, and the Shiite speaker of parliament all rule with almost equal power, though in different capacities. Thus, as a result of this confessional oligarchy, Lebanon lives a perpetual political and administrative paralysis. In reality, rigid allocations among religious factions for the purpose of power sharing crystallize divisions and set battle lines which created serious problems for maintaining peace. As a result, systemic instability has haunted the cedars country since its creation (Picard 2001).

4.3   The Lebanese public administration: a typical developing country administration

Despite the complex Lebanese political system, Lebanon has a typical public administration. Like the majority of the developing countries, corruption is one of the most keenly felt problems by citizens. Indeed, according to UN reports, corruption is widespread and part of everyday life in most developing countries (UN Global compact 2008). Citizens of the developing countries have learned to live with it, even considering it, fatalistically.

In Lebanon, public administration is seen as the place where politically dominant classes and rich people took care of their interests, thus seriously undermining institutional credibility (Dagher 2002). According to the Centre for Administrative Innovation in the Euro Mediterranean Region (CAIMED 2008), the Lebanese administration and public sector are seen mainly as self-referential mechanisms. Their culture is not citizen-oriented and places little emphasis on responsibility (Harfouche 2008).

According to UN Global compact reports, it is the environment in which public servants and private actors operate that causes corruption. Indeed, public administration in developing countries is often bureaucratic and inefficient and a large number of complex, restrictive regulations coupled with inadequate controls help corruption to get around (Sullivan 2003). Despite the real reforms efforts made by these governments, there has been little concrete progress to date (UN Global Compact 2008). In Lebanon, the existing institutions could not introduce needed reforms for fear that these changes would alter the status quo and the balance of interests among the confessional communities.

According to OMSAR 2002 and 2008 reports, Lebanese citizens do not trust the public administration. They consider their interactions with public administration as poor quality and they report that public services are often of low value (Messara 1998, p.6). In this context, the Lebanese government formed in 1995 the Office of Minister of State for Administrative Reform (OMSAR) with the aim of designing and implementing a modern administration (OMSAR 2001). And then, in 1997, the government created a Ministerial Information and Communication Technology Committee with the aim to develop and implement a nationwide ICT Policy (OMSAR 2001). So, the first ICT national policy and strategy was developed in 1998. And then, four years after, the first e-government strategy of Lebanon was developed by OMSAR in 2002; followed in 2003 by two studies (e-Strategy and e-Readiness) with recommendations to achieve the project.

4.4   E-government and e-services divide in Lebanon

Today, Lebanese government is introducing the virtual channel of service delivery. This new virtual channel of service delivery system permits the Lebanese government to propose personalized e-services available 24/7. Citizens who do not have access to ICTs, who do not have the ability to use ICTs, and/or who do not accept to use government e-services cannot benefit from these advantages. It means that e-government will lead to a system where only privileged segments of the population may have access to the government e-services. Indeed, only 26.28 per cent of the Lebanese population has Internet access and only 11.45 per cent have PC at home (UNDESA 2008). Therefore the e-government implementation in Lebanon will create a public online service divide. This e-services divide is the gap and inequality between those who use public online services and those who continue using face to face traditional public services. It differs from the digital divide in the sense that the e-services divide includes motivational reasons like the citizen's willingness or unwillingness to take advantage of powerful e-services functionalities.

Some factors affecting the e-services divide may be beyond the control of the individual like the access and the skills divide. Others factors are related to personal choice, such as one has aversion to technology and so chooses, for one reasons or another, not to make use of such technologies. Therefore, the e-services divide may result from a lack of access to computers, to Internet, and to e-services. It can also results from an inadequate technical knowledge. E-service divide can be the consequences of more personal reasons such as a lack of interest in technology or a non acceptance of online public services. Some research demonstrates the impact of the socio-economic (income) and demographic variables (age, gender, and education level) on the access to technology (NTIA 1995, 1998, 1999, 2000, 2002, 2004, UNPAN 2005). We think that these variables are linked to the e-services divide via the Digital Divide (DD).

Exploring the e-services divide and understanding the reasons of this divide can be conducted at the country and at the individual level (Stump et al; 2008).

(1) At the country level, we can explore the inequalities that results primary from the Digital Divide. Therefore, in a first step, secondary data will be used to examine the digital divide between Lebanon and other Arabic countries that have the same culture (Hofstede 1980). Thus, in the first part of this study, pertinent questions include how countries differ in Internet use as a function of their wealth, education levels, gender, and country freedom of speech. Therefore, data collected from several reputable sources were used to explore the extent of economic and demographic variables that affect Internet use by Lebanese. To do saw, we compared the Lebanese data to those of the twenty one Arabic countries.

(2) At the individual level, we need to understand the reasons of acceptance or non-acceptance of e-services. So, in the second step of this research, we examine the factors that influence the e-services acceptance by citizens. Therefore, in order to capture the influence of these perceived variables, we carried out a survey in Lebanon related to the government's e-services acceptance intention. Our aim was to understand the reasons of the e-services divide at the individual level.

5   NATIONAL LEVEL E-SERVICES DIVIDE IN LEBANON

Literature provides evidence that country level Internet and ICTs adoption are influenced by: demographic, socioeconomic, and political factors (Stump et al 2008). Socioeconomic and demographic studies show that the countries wealth or GDP per capita, the gender disparity in adult literacy and education level of the population can explain the digital divide. Research shows also that a lack of freedom related to government's prohibition can reduce Internet penetration rate (Beilock & Dimitrova 2003, Robison & Crenshaw 2001).

5.1   GDP per capita and countries wealth

The GDP per capita is largely used by scholars to measure country's wealth. According to Hofstede (2001), the GDP per capita is an important factor in adopting ICTs. Dewan et al. (2005) in studying the country-level digital divide across successive generation of ICT (mainframes, personal computers, and Internet) found that the most significant factor that affects the ICTs adoption is the GDP per capita (Dewan et al. 2005, p. 411). Jha-Raghbendra & Majumdar (1999) argued that greater GDP per capita signifies greater affordability for more members of a country's population. In the Arab world, low-income countries' like Comoros, Mauritania, Djibouti, Soudan, Iraq, Yemen, and Somalia have less then 3 per cent of Internet penetration, while high-income countries like United Arab Emirates, Kuwait, Bahrain, and Qatar have more then 30 per cent. In all of the Arab countries an Internet connection costs between 25 and 50 US$ per month. The equipments and software are also expensive. This fact keeps ICTs and Internet out of the hands of the population of the low-income countries. Therefore, we suppose that the disparity in GDP per capita (expressed in U.S. dollar equivalents) between Arabic nations can explain the digital divide.

5.2   Civil liberty and Country freedom of expression

Several international organizations are conducting yearly studies to determine different aspect related to democracy, civil liberties and country freedom of expression. One of them is the Economist Intelligence Unit (EIU) that calculates and publishes annual democracy index. This index is based on the evaluation of 60 indicators rated on a 0 to 10 scale and grouped in 5 categories. This index shows the disparity between the 21 Arabic nations.

Internet media also suffers from the same disparity. In some countries like Saudi Arabia, Bahrain, Syria, Iraq, Tunisia, Egypt, and Jordan, all Internet traffic passes through government-controlled gateways. So government of these countries can monitor e-mail communication and can also ban access to certain sites. Saudi Arabia and Tunisia granted a monopoly over Internet service to one state run company in order to best exercise control over this media. In other countries like UAE, Lebanon, Algeria, and Morocco little control effort has been made by governments allowing free Internet access.

Research shows that government's prohibition and monitoring can turn Internet potential users away (Beilock & Dimitrova 2003, Robison & Crenshaw 2001). Therefore we suppose that the country freedom of speech is an important factor that influences the Internet adoption rate.

5.3 The gender disparity in adult literacy

Using e-services and Internet needs education to employ the ICTs (UNPAN 2005). Indeed, the use of Internet in the Arab World needs knowledge of minimum one language, i.e. mostly Arabic or English. That shows the importance of literacy in today's society. Literacy was defined by Bodie & Dutta (2008) as the individual's ability to read and to write. Having a low level of literacy can be an obstacle in a field dominated by the writing. 29.70 per cent of Arabs are illiterate. In some countries like Morocco, Yemen, Iraq, Mauritania and Somalia, illiteracy reaches 48 to 62% of the population. These people with lower levels of functional literacy are less likely to use computer, Internet, and e-services. However, the number of Arab people who cannot fully enjoy the Internet because of their level of education is declining. Indeed, the illiteracy rate has dropped from 32% in 2006 to 29.7% in 2008.

But the biggest problem facing the Arab World today is mainly due to the conditions of Arab women (Karake Shalhoub 2004). Indeed, 38 per cent of Arab women are illiterate. Of the 101 million Arabic illiterates, 65 million are women. In some countries such as Libya, Saudi Arabia, Syria, Oman, and Tunisia, the discrepancy between male literacy rate and female literacy rates is very significant. In these countries, the role of women was traditionally at home taking car of children. Therefore, in many Arabic countries a significant per cent of women remain outside the information society network with a real risk of being marginalized.

5.4 The Digital Divide across the Arab world

Using data at the national level can be used to compare Lebanon with the Arabic countries. Therefore, we calculated the Internet diffusion rate by weighting the number of users per country by the population of that country (James 2008, p.2). Then, we characterized the divided between these countries by using GDP per capita (Stump et al. 2008, Dewan et al. 2005, p. 411), rate of adult literacy (Carvin 2000), gender (Jackson et al. 2008), and country freedom of speech (Beilock & Dimitrova 2003, Robison & Crenshaw 2001). The variables are presented in the Annex 2. Tables 1 and 2 present the model summary.

In order to analyse these secondary data, we used multiple regression analysis which is the appropriate statistical technique especially when the dependent variable and the independent variables are metric. Our model explains 78% of the variable "Internet adoption rate". Results show that the most significant factor that affects the Internet adoption in the Arab World is the 'female literacy rate' (0,779), then the GDP per capita (0,454), and lastly 'country freedom of speech' (0,206). We present the results in this formula:

Internet adoption rate = 0,054 + 0,41 freedom of speech + 3,12E-006 GDP per capita + 0,006 female literacy rate - 0,005 literacy rate of men

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,883(a)	,780	,725	,07726

a Predictors: (Constant), rate of male literacy, country freedom of speech, GDP per capita, rate of female literacy

Table 1   Final Regression

ANOVA(b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	,339	4	,085	14,187	,000(a)
	Residual	,096	16	,006		
	Total	,434	20			

a Predictors: (Constant), rate of male literacy, country freedom of speech, GDP per capita, rate of female literacy

b Dependent Variable: Internet diffusion rate.

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	,054	,138		,390	,702
	country freedom of speech	,041	,023	,206	1,735	,102
	GDP per capita	$3,12^{E}$-006	,000	,464	2,715	,015
	rate of female literacy	,006	,003	,779	2,314	,034
	Rate of male literacy	-,005	,003	-,425	-1,502	,153

a Dependent Variable: Internet diffusion rate

Table 2   Reliability Analysis

6   THE E-SERVICES DIVIDE AT THE INDIVIDUAL LEVEL

Factors that affect the e-services divide at the individual level are related to personal choices, such as when a citizen chooses, for one reason or another, not to make use of government e-services. In this case, the acceptance or non-acceptance of e-services is a voluntary choice. One of the most useful theories in the ICT voluntary adoption context is the one that extend the theory of planned behavior (TPB, e.g. Ajzen 1991) to develop the model of adoption of technology in households (MATH, e.g. Venkatesh & Brown 2001, Brown & Venkatesh 2005). According to MATH, ICT acceptance intention (IA) is a weighted function of attitudinal belief (utilitarian, hedonic, and social outcomes), normative belief, and the control beliefs structure.

We used MATH model to explain the reasons of acceptance or non-acceptance of e-services by Lebanese. In our model, government's e-services acceptance process involves careful weighting and evaluation of (1) utilitarian[20] (or functional), hedonic[21] (emotion driven benefits like sensory pleasures, daydreams…), social[22] outcomes of e-services acceptance, (2) normative belief, (3) and control belief. These relationships are typically formulated using an expectancy-value model (Fishbein 1968) which attaches a weight to each outcome. Evaluation of the utilitarian consequences is based primarily on

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[20] Prior research has emphasized the importance of the utilitarian outcomes which are defined as the extent to which using an ICT enhances the effectiveness of an individual activities. These attributes are very strong predictors of IT acceptance (Venkatesh & Brown 2001).

[21] Research describes hedonic outcomes as the pleasure derived from the ICT acceptance and usage.

[22] Social outcomes are defined as the public recognition that would be achieved as a result of the ICT acceptance and usage.

cognition. According to Bretschneider et al. (2003), potential users evaluate the usefulness of the e-services (PU, e.g. Compeau & Higgins 1995b; Davis 1989, 1993; Davis et al. 1989, 1992; Moore & Benbasat 1991, p.195; Rogers, 1995, p.15-16; Thompson et al. 1991; Venkatesh et al. 2003). The evaluation of hedonic consequences is determined primarily by feelings and affect. The potential users evaluate the affective outcomes of the e-services (PAO, e.g. Sun & Zhang 2006, Van der Heijden 2004). The evaluation of social outcomes is determined by the status gains and image, by result demonstrability, and by visibility (PSO, e.g. Davis 1989, 1993, Davis et al. 1989; Moore & Benbasat 1991, Rogers 1995). The evaluation of the normative consequences is determined by perceived social influences (PSI, e.g. Karahana et al. 1999, Thompson et al. 1991, Triandis 1971) which is constituted of secondary sources influences (mass media channels like: Media, News, News papers, TVs, etc.), direct influences from family, friends, workplace referents' influences (interpersonal channels, e.g. Venkatesh & Brown 2001), personal network exposure (PNE, e.g. Valente 1995, p. 70, Hsieh et al. 2008), and by government influences (PGI, Lynne et al. 1995, Keil et al. 2003, Hsieh et al. 2008). According to Hartwick & Barki (1994), the control evaluation is determined by the comparison of resources available (such as: money, time, and information) versus barriers inhibiting acceptance (such as: high cost, lack of support, lack of security, privacy respect, fear of government control, and difficulty of use). In the case of e-services, potential users evaluate the perceived security (SEC, e.g. Coyle 2001), the perceived privacy (PRI, e.g. Coyle 2001), the fear of government control (FGC), the perceived government support (PGS, Tan & Teo 2000), the computer self efficacy (CSE, Compeau, & Higgins 1995a, Lin 2003) and the e-services ease of use (PEU, Davis 1989, 1993; Davis et al. 1989; Rogers 1983, p.232; 1995, p.15-16; Moore & Benbasat 1991).

This model was empirically tested through two surveys designed to capture a cross-sectional snapshot and a dynamic longitudinal picture of the underlying phenomena. In order to accomplish this objective, data were collected from 188 randomly chosen Lebanese potential government's e-services users.

In the first stage, we used a qualitative method. Open-ended questions were asked about government e-services acceptance intention or about reasons of non acceptance intention. Therefore, after explaining the government online services, respondents were asked if they will accept to use government e-services and about influencing factors in their e-services intention acceptance or non acceptance decision. Regardless their answer, they were further investigated as to the reasons of their choice. Therefore, respondents who accepted government e-services were asked to identify the factors that led to the e-services acceptance. Similarly, respondent who did not accept to use it were asked to identify the factors that led to the non acceptance decision.

Open-ended responses were double coded based on a start list (Miles & Huberman 1994, p. 58) that included definitions from prior research for the variables. Responses that did not seem to fit to these definitions were held out. Then, they were further analyzed and additional constructs have been identified (e.g. fear of government control). The Annex 2 presents the final constructs and their definitions. The intercoder reliability was 81 per cent which is well above the minimum of 70 per cent identified by Miles & Huberman (1994).

Then, in the second stage, we used a quantitative method. Three months after the first stage, we contacted all stage 1 respondents for a follow-up survey to understand their changing views and follow-up behavior pattern. In order to measure the weight or the importance that the individual gives to each variable, we asked respondents to rate each factor on how important it is in his acceptance or non acceptance decision, using the scale ranging from 1 (Not Important) to 5 (Very Important).

To understand e-services acceptance and non acceptance intention decision, the data were partitioned into three categories based on citizens intentions expressed in stage one: (1) citizens who intended to accept e-services (intenders), (2) citizens who intended not to accept (non-intenders), and (3) those who were uncertain.

	Intenders (33)			Non-Intenders (146)			Uncertain (9)
	Frequency	Mean	Standard deviation	Frequency	Mean	Standard deviation	Frequency
Attitudinal Belief							
Perceived utilitarian of the e-services	32	4.2	0.3	54	3.2	0.8	9
Perceived affective outcome of the e-services	2	3.1	0.6	19	3.7	0.7	
Perceived social outcome of e-services	7	3.2	0.6	0	0	0	
Normative Belief							
Perceived social influences to use e-services	4	4.0	0.4	0	0	0	
Perceived government influences	19	3.5	0.5	0	0	0	
Control Belief							
Perceived security				97	4.0	0.8	
Perceived privacy				54	4.1	0.4	
Fear of government control				119	4.0	0.4	
Perceived ease of use E-services	14	3.2	0.8	28	3.6	0.7	
Computer self efficacy	20	4.1	0.4	53	4.2	0.2	7
Perceived government support	19	4.0	0.5	63	3.6	0.6	

Table 3   . Factors affecting acceptance and non acceptance intention of government e-services

6.1   Factors Affecting the Acceptance Intention

Results show that among 188 citizens, only 33 (17.55 %) intended to accept government e-services. Perceived usefulness (PU), perceived government support (PGS), computer self efficacy (CSE), and perceived government influences (PGI) are the key drivers of the e-services acceptance intention (AI). As expected, perceived usefulness (PU) was the most important, followed by computer self efficacy (CSE), perceived government influences (PGI) and support (PGS), both in terms of number of citizens reporting the factor to be determinant and in term of the importance of the factor on the scale.

6.2   Factors Affecting the NON Acceptance Intention

For the citizens who intended not to accept government e-services, barriers like fear of government control (FGC), lack of support (PGS), lack of security (SEC), lack of privacy (PRI), and lack of knowledge (CSE) were most significant. In this case, the fear of government control was the most important determinant, both in terms of frequencies and in term of importance.

Results also show that some factors (fear of government control, perceived privacy, and perceived security) may act to uniquely impede acceptance of government e-services. According to Cenfetelli (2004), these acceptance inhibitors are beliefs held by a citizen that acts solely to impede acceptance intention when present (and perceived) but has no effect when absent (or not perceived). These acceptance inhibitors are distinguished from acceptance enablers as being a perception for which there is no clear, positively valenced antipole that is psychologically meaningful.

7   RESULTS AND CONCLUSION

The implementation of e-government in Lebanon can lead to a system where privileged segments of the population may have access to the services more easily. Therefore, three types of inequalities will be created: (1) inequality in access to ICTs and e-services, (2) inequality in the ability to use ICT and e-services among those who have access, and (3) inequality between those who will accept to use e-services and those who will not. These inequalities reduce the e-services Take-Up. Understanding the reasons of these inequalities will give government the opportunity to develop more effective e-government policies which can increase e-services Take-Up.

In order to understand the reasons of these divides, we attempted in this paper, to combine demographics and national factors with individual and psychological factors that are related to the citizens' subjective perception.

The results of our first study show that, at the country level, the most significant factor that affects the Internet acceptance in Lebanon and in the Arab World is the 'female literacy rate' (0,779). Therefore, to reduce the access divide, we recommend the Lebanese Government to increase the rate of literacy among women and to provide more Internet access to educated women. We recommend also transforming the municipalities' offices to online one-stop-shop service centres where online service kiosks can be installed. These kiosks can serve as an online access points for those who do not have access to the Internet or are not ICT literate.

A key finding in our second study was the relationship between perceived usefulness (PU) and e-government acceptance and non acceptance intention. First, the importance of perceived usefulness of government e-services was supported by our open-ended questions. In fact, choosing to accept e-services is rooted in the perceived usefulness of these e-services. Therefore, we suggest targeting citizens who consider that they may benefit from the online services (businessmen and travellers). Consequently, perceived usefulness may serve as motivation to encourage these citizens to start using online government services.

The open-questions' answers also revealed that non accepters believe that online services do not offer anything relevant for them: "No need or no reason for me to use government e-services". This study also identifies sceptics concerned about fear of government control, perceived security and perceived privacy of government online services.

We also identified a relation between the computer self efficacy and the acceptance and non acceptance intention. According to Dimitrova & Chen (2006), self-efficacy refers to the potential adopter's confidence in his or her own ability to utilize the government e-service. The results show that lower confidence is likely to lead to a non acceptance decision. The lack of confidence in one's ability to use government e-services will negatively affect the one's intention to accept government online service.

To reduce the acceptance divide we ²recommend the Lebanese Government to increase privacy and security of their e-services. The Lebanese Government must publicly promise to not use the personnel data gathered through e-services in order to control the citizens' income or activities. Lebanese Government's communication can incorporate the usefulness, the ease of use of the government e-services,

As with any scientific research, this study has limitations. First, it is important to recognize that the primary limitation of this study is the potential for response bias. A second limitation concerns the way the e-services were introduced. In other words, the way the open-ended questionnaire was stated might have focused the citizen's attention on some advantages or disadvantages of the government e-services.

In this paper, we performed the first step in exploring the e-services divides in Lebanon. More empirical tests are needed to valid this model and to extend it by adding key demographic characteristics that can

also explain the e-services divides. Success of the Lebanese e-government projects will depend on how Lebanese Government provides e-services access, create conditions for its usage, and entice all the citizens to accept using online public services. Understanding the reasons of the access, skills, and acceptance divides may give the opportunities to develop more effective e-government policies by creating conditions for e-services usage.

References

Ajzen, I. (1991) The Theory of Planned Behavior, Organizational Behavior and Human Decision Processes, 50, 179-211.

Beilock, R. and D. V. Dimitrova (2003) "An Exploratory Model of Inter-Country Internet Diffusion", Telecommunications Policy, 27(3-4), pp. 237-252.

Bitner, M., Brown, S and Meuter, M. (2000) Technology Infusion in Service Encounters, Journal of the Academy of Marketing Science, 28(1), 138-49.

Bodie G. & Jyoti Dutta M; (2008)Understanding Health Literacy for Strategic Health Marketing: eHealth Literacy, Health Disparities, and the Digital Divide, Health Marketing Quarterly, Vol. 25(1/2) 2008. Available online at http://hmq.haworthpress.com

Bretschneider, S., Gant, J., and Ahn, M. (2003) A general model of e-government adoption and diffusion, Paper presented at Public Management Research Conference, Georgetown Public Policy Institute,Washington, DC.

Brown, M. M. & Brudney, J.L. (2001) Achieving advanced electronic government services: An examination of obstacles and implications from an international perspective. Paper presented at the National Public Management Research Conference, Bloomington, IN.

Brown, S. and Venkatesh, V. (2005) Model of Adoption of Technology in Households: A Baseline Model Test and Extension Incorporating Household Life Cycle, MIS Quartely, Vol. 29, N 3, p.p. 339-446.

CAIMED (2008) Administrative Reform In The Mediterranean Region: Summary of Lebanon, Centre for Administrative Innovation in the Euro Mediterranean Region, 2008. www.camed.org

Cenfetelli R., (2004), Inhibitors and Enablers as Dual Factor Concepts in Technology Usage, Journal of the Association for Information Systems, Vol. 5 No.11-12, pp.472-492.

Chen, YH and Barnes, S (2007) Initial trust and online buyer behaviour. Ind. Manage. Data Syst, 107 (1), 21-36.

Carvin, A. (2000). More than just access: Fitting literacy and content into the digital divide equation. EDUCAUSE Review. http://www.educause.edu/pub/er/erm00/articles006/erm0063.pdf

Choucair J., (2006), Lebanon: Finding a Path from Deadlock to Democracy, Democracy and Rule of Law Project, Carnegie Papers Middle East Series

Ciborra, C. (2005) Interpreting e-Government and Development Efficiency, Transparency or Governance at a Distance? Information Technology & People, 18, (3), 260-279.

Compeau, D.R. and Higgins, C.A. (1995a) Computer Self-efficacy: Development of a Measure and Initial Test, MIS Quarterly, 19 (2), 189-212.

Compeau, D.R. and Higgins, C.A. (1995b) Application of Social Cognitive Theory to Training for Computer Skills. Information Systems Research, 6 (2), 118-143.

Coyle, F.P. (2001) Wireless Web: A Manager's Guide. Addison Wesley, NJ.

Curtin, G.G. (2007) E-Government, In Encyclopedia of Political Communications, Sage Publications.

Dabholkar, P. (2000) Technology in Service Delivery: Implications for Self-Service and Service Support, in T. Swartz and D. Iacobucci, Handbook of Services Marketing and Management, eds. Thousand Oaks, CA: Sage, 103-10.

Dada, D. (2006) The failure of e-Gvernment in Developing Countries: A Literature Review, EJISDC, 26, (7), 1-10.

Dagher, A. (2002) L'Administration Libanaise après 1990, Colloque Le Modèle de l'Etat développemental et les défis pour le Liban, 15-16 fév. 2002. Rotana-Gefinor, Beyrouth. Liban.

Davies B., Baron S., Harris K., (1999), Observable Oral Participation in the Servuction System: Toward a Content and Process Model, Journal of Business Research, 44, 47–53.

Davis, F.D. (1989) Perceived Usefulness, perceived ease of use and user acceptance of information technology, MIS Quarterly, 13 (3), 319-340.

Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989) User Acceptance of Computer technology: A Comparison of two Theoretical Models, Management Science, 35 (8), 982-1003.

Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1992) Extrinsic and Intrinsic Motivation to Use Computers in the Workplace.,Journal of Applied Social Psychology, 22, 1111-1132.

Dewan, S., and Riggins, F.J. (2005) The digital divide: Current and future research directions, Journal of the Association of Information Systems, 6, (12), 298–337.

Dewan, S., Ganley, D., Kraemer, K. (2005), Across the Digital Divide: A Cross-Country Multi-Technology Analysis of the Determinants of IT Penetration, Journal of the Association for Information Systems, 6, (12), 409-432

Dimitrova, D.V. and Chen, Y.C. (2006) Profiling the Adopters of E-Government Information and Services: The Influence of Psychological Characteristics, Civic Mindedness, and Information Channels, Social Science Computer Review, 2006; 24 (2); 172-188.

Dwivedi Y.K., Weerakkody V., and Williams M. (2009) Guest editorial: From implementation to adoption: Challenges to successful E-Government diffusion, Government Information Quarterly, 26, 3–4.

Eiglier, P. and Langeard, E. (1987) Servuction - Le marketing des services, Stratégie et Management, Paris, Mc Graw-Hill

Fishbein, M (1968) An investigation of relationships between beliefs about an object and the attitude towards that object, Human Relationships, 16, 233-240.

Goldkuhl G., Persson A. (2006a) From e-ladder to e-diamond – re-conceptualising models for public eservices, in Proc of the 14th European Conference on Information Systems (ECIS'2006), Gothenburg, University, Sweden.

Goldkuhl G., Persson A. (2006b) Characteristics of Public E-services: Investigating the Ediamond Model, in Proc of the First International Pragmatic Web Conference (PragWeb06), 21-23 September 2006, Stuttgart, Germany

Gronlund, A. and Horan, T. (2004) Introducing e-Gov: History, definitions, and issues, Communications of Association of Information Systems, 15, 713-729.

Harfouche, A. (2008) Besoin de réforme des services publics et l'apport potentiel de l'utilisation des TIC : cas de l'administration libanaise, Proche Orient Etude en Management, (20), 120-142.

Hartwick, J. and Barki, H. (1994) Explaining the Role of User Participation in Information System Use. Management Science, 40 (4), 440-465.

Heeks R., and Bailur, S. (2007) Analyzing e-government research: Perspectives, theories, methods, and practice, Government Information Quarterly, 24, 243-265.

Helbig, N, Ramón Gil-García, J. and Ferro, E. (2009) Understanding the complexity of electronic government: Implications from the digital divide literature, Government Information Quarterly, 26, 89–97.

Hernandez, JMC and Mazzon, JA (2007) Adoption of internet banking: proposition and implementation of an integrated methodology approach, International J. Bank Mark, 25 (2): 72-88.

Hofstede G. (2001) "Adoption of Communication Technologies and National Culture", Systèmes d'Information et Management, (16 :3), 2001, pp. 55-74.

Hofstede, G. (1980) Culture's Consequences: International Differences in Work-Related Values, Sage, Beverly Hills, CA.

Hsieh, J.J., Po-An, Rai A., and Keil, M. (2008) Understanding Digital Inequality: Comparing Continued Use Behavior Models of The Socio-Economically Advantaged and Disadvantaged, MIS Quarterly, 32 (1), 97-126.

James, J. (2008) The Digital Divide Across All Citizens of the World: A New Concept, Soc Indic Res, 89, 275–282.

Jha, Raghbendra, and Sumit K. Majumdar. (1999) A matter of connections: OECD telecommunications sector productivity and the role of cellular technology diffusion. Information Economics and Policy, 11, 243-69.

Karahanna, E., Straub, D.W. and Chervany, N.L. (1999) Information Technology Adoption Across Time: A Cross-Sectional Comparison of Pre-Adoption and Post-Adoption Beliefs, MIS Quarterly, 23(2), 183-214.

Karake Shalhoub Z. (2004) Women and ICT: Challenges Facing UAE Women, 2004.

Keil, M., Meader, G. W. and Kvasny, L. (2003) Bridging the Digital Divide: The Story of the Free Internet Initiative in LaGrange, Georgia, in Proceedings of the 36th Annual Hawaii International Conference on System Sciences, Los Alamitos, CA: IEEE Computer Society Press, Vol. 5, 140.2

Layne K, Lee J (2001) Developing Fully Functional E-government: A four-stage model, Government information quarterly 18(2): 122-136.

Lin, C.A. (2003). An interactive communication technology adoption model. Communication Theory, 13, 345-365.

Jackson, L., Zhao, Y., Kolenis III, A., Fitzgerald, H., Harold, R., and Von Eye, A., (2008), Race, Gender, and Information Technology Use:The New Digital Divide, Cyberpsychology & Behavior, 11,(4), 437-442.

Lynne, G. D., Casey, C. F., Hodges, A., and Rahmani, M. (1995) Conservation Technology Adoption Decisions and the Theory of Planned Behavior, Journal of Economic Psychology, 16, (4), 581-598.

McGrath, M. A., and Otnes, C. (1995): Unacquainted Influencers: When Strangers Interact in the Retail Setting. Journal of Business Research, 32 (1995): 261–272.

Messarra A., (1998) Les rapports du citoyen avec l'administration. Circuit des formalités et information administrative, Fondation libanaise pour la paix civile permanente, Beyrouth 1998.

Miles, M., Huberman, A. M. (1984) Qualitative data analysis. Beverly Hills, CA: Sage Publications.

Moore, G.C. and Benbasat, I. (1991) Development of an instrument to measure the perceptions of adopting an information technology innovation, Information Systems Research, 2(3), 192-222.

OMSAR (2001) Stratégie pour la réforme et le développement de l'administration publique au Liban, Publication annuelle d'OMSAR, Beyrouth 2001.

OMSAR (2002) Startégie e-government pour le Liban, Publication annuelle d'OMSAR, Beyrouth 2002.

OMSAR (2008) E-Government Strategy 2008, OMSAR publications, Beirut, 2008.

Picard, E. (2001) Le système consociatif est-il réformable ?, Colloque The Lebanese System: a Critical Reassessment, AUB, 18 - 19 mai 2001.

Quinn, J. B., Baruch, J.J., and Paquette, P.C, (1987), Technology in Services. Scientific American, 257(6):24–32.

Riley, T.B. (2004) E-Governance vs. E-Government. Information for Development. http://www.i4donline.net/ issue/nov03/ egovernance.htm.

Robison, K. K. and E. M. Crenshaw (2001) "Post-Industrial Transformations and Cyber-Space: A Cross-National Analysis of Internet Development," Working Paper, The Ohio State University.

Rogers, E.M. (1995) Diffusion of Innovations. 4th Ed., Free Press, New York.

Sampson, S. E., Froehle, C. M. (2006) Foundation and implication of a proposed unified services theory. Production and Operations Management 15(2) 329-343.

Sousa, R. and Voss, C. (2006) Service Quality in Multichannel Services Employing Virtual Channels, Journal of Service Research, 8 (4); 356-371.

Spohrer, J., Maglio, P. P., Bailey, J., and Gruhl, D. (2007) Steps toward a science of service systems, IEEE Computer Journal. January 2007, 71-77.

Stump, R., Gong, W., and Li, Z. (2008) Exploring the Digital Divide in Mobile-phone Adoption Levels across Countries: Do Population Socioeconomic Traits Operate in the Same Manner as Their Individual-level Demographic Counterparts?, Journal of Macromarketing, 28; 4, 397-412.

Sullivan J. (2003), Corruption, economic development, and governance: Private sector perspectives from developing countries, The UN Global Compac 2003, corruption and business, http://www.unglobalcompact.org/docs/issues_doc/7.7/case_stories/BAC_1C.pdf

Sun, H. & Zhang, P. (2006) The role of affect in IS research: A critical Survey and a research Model. In: P. Zhang and Galletta, Humain-Computer Interaction and Management Information Systems-Foundations, ME Sharpe, Inc., Armonk, NY.

Tan, M. & Teo, T. (2000) Factor influencing the adoption of Internet Banking, J.A.I.S., 1, 5, 173-191.

Thompson, R.L., Higgins, C.A. and Howell, J.M. (1991) Personal Computing: Toward a Conceptual Model of Utilization, MIS Quarterly, 15(1), 124-143.

Triandis, H.C. (1971) Attitude and Attitude Change, John Wiley Sons Inc., New York.

UN Global Compact (2008), United Nations Global Compact Annual Review 2008, UNITED NATIONS GLOBAL COMPACT, March 2009, http://www.unglobalcompact.org/docs/news_events/9.1_news_archives/2009_04_08/GC_2008AR_FINAL.pdf

UNDESA (2008) UN e-government surveys: from e-government to connected governance, Department of Economic and Social Affairs, Division for Public Administration and Development Management, Report: ST/ESA/PAD/SER.E/11, ISBN 978-92-1-123174-8.

UNPAN (2005), UN Global E-government Readiness Report 2005: From E-government to E-inclusion, Department of Economic and Social Affairs Division for Public Administration and Development Management, UNPAN/2005/14.

Valente, T. (1995) Network Models of the Diffusion of Innovations, New York: Hampton Press.

Van der Heijden, H. (2004), User Acceptance of Hedonic Information Systems, MISQ, 28(4), 695-704.

Van Dijk, J. A. G. M. (2006) Digital divide research, achievements and shortcomings. Poetics, 34, 21–235.

Venkatesh, V. and Brown, S. (2001) A Longitudinal Investigation of Personal Computers in Homes: Adoption Determinants and Emerging Challenges. MIS Quarterly, 25, 1, 71-102.

Venkatesh, V., Morri, M.G., Davis, G.B. and Davis, F.D. (2003) User Acceptance of Information Technology: Toward a Unified View, MIS Quarterly, 27, 3, 425-478.

NTIA (1995), Falling through the Net: A survey of the 'Have nots' in Rural and Urban America, Department of Commerce National Telecommunications and Information Administration, USA.

NTIA (1998), "Falling through the Net II: New Data on the Digital Divide." Department of Commerce National Telecommunications and Information Administration, USA.

NTIA (1999), "Falling through the Net: Defining the Digital Divide" Department of Commerce National Telecommunications and Information Administration, USA.

Annex 1 Arabic World Principal Data (Sources: CIA World Factbook 2008, UNDESA 2008)

Country	GDP per capita	Internet diffusion rate	rate of literacy		
			Female	Male	Total
United Arab Emirates	37000	0,50	81,70	76,10	77,90
Qatar	87600	0,43	88,60	89,10	89,00
Bahrain	33900	0,35	85,00	91,90	89,90
Kuwait	55900	0,35	81,70	85,10	83,50
Oman	19000	0,10	67,20	83,10	75,80
Saudi Arabia	19800	0,22	70,80	84,70	78,80
Libya	12400	0,04	72,00	92,40	82,60
Tunisia	7400	0,17	65,30	83,40	74,30
Algeria	6700	0,10	61,00	78,80	70,00
Lebanon	10300	0,24	82,20	93,10	87,40
Jordan	4700	0,18	86,30	95,90	91,30
Morocco	3700	0,21	39,40	64,10	51,70
Egypt	5000	0,11	46,90	68,30	57,70
Syria	4700	0,18	64,00	89,70	76,90
Iraq	3700	0,002	64,20	84,10	74,10
Mauritania	1800	0,01	31,90	51,80	41,70
Sudan	1900	0,04	50,50	71,80	61,10
Djibouti	2300	0,02	58,40	78,00	67,90
Yemen	2500	0,01	30,00	70,50	50,20
Comoros	1100	0,03	49,30	63,60	56,50
Somalia	600	0,01	25,80	49,70	37,80

Annex 2 Definitions of the Model's Constructs

Belief structure	Core construct	Definition	References
Attitudinal Belief	Perceived utilitarian or usefulness of the e-services	The degree to which a person believes that using e-services would be useful.	Davis (1989, 1993), Davis et al. (1989), Rogers (1995, p.15-16), Moore & Benbasat (1991, p.195), Compeau & Higgins (1995b), Davis et al.'s (1992), Thompson et al. (1991), Venkatesh et al. (2003).
	Perceived affective outcome of the e-services	The extent to which using e-services is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated.	Van der Heijden (2004), Sun & Zhang (2006).
	Perceived social outcome of e-services	The change in status that coincides with a purchase decision.	Davis (1989, 1993), Davis et al. (1989), Rogers (1995, p.15-16), Moore & Benbasat (1991, p.195).
Normative Belief	Perceived social influences to use e-services	The extent to which citizens member of a social network influence one another's behavior. We consider this normative Belief as the general social pressure on individual to use e-services.	Perceived social influences combine Secondary Sources Influences like Media, News, News papers, TVs, etc. (SSI), Direct Influences from Family and Friends (FFI), Workplace Referents' Influences (WRI, e.g. Venkatesh & Brown 2001), and Personal Network Exposure (PNE, e.g. Valente 1995, p. 70, Hsieh et al. 2008).
	Perceived government influences	The perceived expectation from the government institutions for individuals to accept e-services.	Lynne et al. (1995), Keil et al. (2003), Hsieh et al (2008).
Control Belief	Perceived security	The citizens' confidence over the security aspects of the e-services.	Adapted from Hernandez & Mazzon (2007), Chen & Barnes (2007).
	Perceived privacy	The guarantee that government will protect citizen's privacy and Information concerning the citizens will not be known to others.	Adapted from Hernandez & Mazzon (2007), Chen & Barnes (2007).
	Fear of government control	Worrying from the fact that the Government can use the personnel data gathered through e-services in order to control the citizens' income or activities.	New construct.
	E-services ease of use	The degree to which an individual believes that using government e-services would be free of effort.	Davis (1989, 1993), Davis et al. (1989), Rogers (1983, p.232; 1995, p.15-16), Moore & Benbasat (1991).
	Computer self efficacy	The individual's perceptions of his or her ability to use ICT in the accomplishment of a task.	Compeau, & Higgins (1995).
	Perceived government support	The help from the government in using e-services.	Tan & Teo (2000).