Assessing Jordan's e-Government Maturity Level:
Citizen's Perspective on Awareness, Acceptability and Usage of e-Government Services

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ABSTRACT

Similar to other developing countries, Jordan started a national e-government initiative aiming to streamline government procedures and make information and government services available to business and citizens online. This paper presents the results of a study that assessed factors which could influence the awareness level, acceptance and use of e-government services in Jordan. It investigated issues such as: accessibility of e-government, citizen's attitude toward various privacy and security, the required services and costs. A survey has been distributed in one of the largest governorates of Jordan. The results of this preliminary study suggest that awareness of e-government has not reached the required level. These findings are hoped to be useful for researchers, practitioners and policy makers.

Keywords: Acceptability, Awareness, E-Government, Jordan, Maturity

INTRODUCTION

Electronic government (e-government) is often seen as the transformation of government services using Information and Communication Technologies (ICTs) in developed and developing countries (Borras, 2004). This transformation referred to as: e-government, e-gov., digital government, online government, or transformational government (Gupta et al., 2008; Guangwei Hu et al., 2009). E-Government, which is the term used in this paper, can be described as the use of any type of information and communication technologies to improve services and operations provided to different parties such as: citizens, businesses,

and other government agencies (Grant & Chau, 2005; Gronlund & Horan, 2005; Adeshara et al., 2004; Arif, 2008; Alsaghier et al., 2009).E-government has been classified, according to the interaction channels, into four main categories: government-to-citizen (G2C), government-to-business (G2B), government-to-government (G2G), and finally government-to-employees (G2E) (MoICT, 2006).

A number of studies have focused on many issues related to e-government such as: e-government strategies (Beynon-Davies, 2004; Williams & Beynon-Davies, 2004); e-government program challenges (Barc & Cordella, 2004); e-government technical issues (Cottam et al., 2004); e-government usability websites (Mosse & Whitley, 2004); e-government adoption (Ciborra & Navarra, 2005; Elsheikh et al., 2008; Dwivedi & Williams., 2008; Mofleh et al., 2008b). The nature of e-government adoption decision depends on the degree of the engagement of several parties including: citizens, businesses, and other government agencies. Therefore, the applications of e-government are categorized according to users' needs and the capacity of ICT. The different users and beneficiaries of e-government shape the characteristic of e-government applications. They can determine the level of maturity of e-government websites and applications. This is important since e-government adoption behaviour can differ based on the service maturity levels as Shareef et al. (2011) have shown in their e-government Adoption Model (GAM).

A previous research has evaluated the Jordanian e-government websites and concluded that the Jordanian e-government websites are subject to a lack of consistency in terms of standards and features due to the absence of different features that could improve interaction with the user, the paper claimed that this is most likely due to a lack of consideration for the citizens' expectations and needs (AL-Soud & Nakata, 2010). Nonetheless, Al Shibly and Tadros (2010) have examined factors which have an impact on e-government acceptance by Jordanian employees. They found that system quality, information quality, and perceived ease of use, all have significant effect on e-government acceptance in Jordan. However, when assessing the maturity level of the Jordanian e-government services, it is important to determine whether these factors are valid when it comes to Jordanian citizens and other e-government users.

Even though there seems to be a substantial growth in the development of e-government services in Jordan (UNPAN, 2010) it is unclear whether citizens will make use of such services. Doubtlessly, the success and acceptance of e-government initiatives are subject to citizens' acceptance, willingness and intention to use these newly offered services.

The remainder of the paper is structured as follows: the second section briefly provides a background of the e-government initiative in Jordan; the third section identifies the research problem and opportunity; the fourth section describes the research approach; the fourth section explains the research phases; the sixth section presents the theoretical background for this research; the seventh section presents the results and analysis; the eighth section discusses the research and its results; followed by the conclusion and future work.

E-GOVERNMENT INITIATIVE IN JORDAN

The dramatic development of the Internet brought with it a significant push towards e-government in most of the countries around the world; Jordan was no exception. As part of modernisation and reformation of government organisations and processes, Jordan introduced new regulations, rules and legislations that liberate some services from government control in order to regulate the privatisation and to encourage foreign investments. These new rules and legislation have been set as foundation blocks to the derivation of Jordanian e-government vision and strategy through the adoption of new information and communication technologies (ICT) and in its attempt to follow some of the best practices. These practices of the leading

countries in implementing the e-government have been followed carefully by the Jordanian government, in conjunction with the commitments and support expressed by King Abdullah II and the Jordanian government via the newly created Ministry of ICT (MoICT, 2006).

Jordan is one of the developing countries in the Middle East (see Figure 1); it is a small country with a limited number of natural resources, with the population size estimated to (6,387,616) million (DOS, 2013). Jordan is governed by a constitutional monarchy headed by HM King Abdullah II. Jordan is striving for its social and economic survival due to its location in an unstable region, with a total area of (89,342) sq. km (of which 99% is land and 1% is water).

In terms of telecommunication infrastructure, Jordan is still developing and the diffusion rate of technology has increased over the last seven years; however, it is still lower than the required level when compared globally and this is mainly due to socio-economic factors. The following two tables show the penetration rate of Internet subscribers (Table 1) and users (Table 2) in Jordan between 2005 and 2009. Subscribers refer to those who have subscribed to an Internet connection and they pay for this service (e.g. Internet cafes, schools and universities), whereas users are those who use the service without having an Internet subscription (e.g. customers of Internet cafes, students in schools and universities).

The National ICT Strategy of Jordan (2007-2011) has set a number of objectives to develop the Jordanian ICT infrastructure. One of the main objectives was to increase the Internet usage penetration to 50% by 2011. To achieve this objective, the government of Jordan have set a high priority goal which was to increase

Figure 1. Jordan's location in the Middle East

Table 1. Internet subscribers and penetration rate in Jordan (Adopted from: TRC, 2009)

Year	2005	2006	2007	2008	2009
Number of Subscribers (000)	197	206	228	229	245
Penetration rate	3.6%	3.7%	4%	4%	4.1%

the demand for Internet usage by developing the e-government sector through providing more attractive internet-based services and increasing the number of relevant G2C services delivered electronically (Int@j, 2011). As shown in Table 2, Jordan managed to increase the Internet usage and penetration from (20%) in 2007 to (29%) in 2009; however, since 2009 the observer of Jordan's e-government development can determine that there was a noticeable lack of development of Jordanian G2C e-services provision (UNPAN, 2010; UNPAN 2012).

This is problematic since the Jordanian e-government program aims to deliver high-quality services to consumers, businesses and organizations; improve government performance and efficiency; enhance Jordan's competitiveness; ensure public sector transparency and accountability; reduce costs and increase ease of interaction with government; promote development of Jordan's ICT sector; develop skills within the public sector; boost e-commerce activities; and improve information security (Ciborra & Navarra, 2005; Mofleh et al., 2008; Al-Jaghoub et al., 2009). Nonetheless, Jordan's e-government still has a good chance to achieve its objectives due to Jordan's young and educated population. The age structure of Jordan is a supportive factor in terms of influencing the adoption of e-government (Al Nagi & Hamdan, 2009).

THE PROBLEM AND THE RESEARCH OPPORTUNITY

Most of the literature (such as: Al-Nagi & Hamdan, 2009; Al-Omari & Al-Omari, 2006; AL-Soud & Nakata, 2010; Elsheikh et al., 2008; Mofleh & Wanous, 2008) attempts to explore issues related to e-government in Jordan by means of either (a) classify the main factors that influence citizen adoption of e-government in Jordan, or (b) identify the main challenges of implementing e-government services in Jordan. Most studies concentrated on the adoption process of e-government with high emphasis on the risks of implementing e-government projects.

In contrast, we found that only rarely that e-government maturity level in Jordan has been studied from citizen's perspective on awareness, acceptability and usage of e-government in Jordan. The most recent empirical study in this category was conducted three years ago by Al-Jaghoub et al. (2010). The main problem is that there is inadequate knowledge in the area to help improve the process of implementing e-government services in Jordanian ministries and departments.

In Figure 2, we show two main and important gaps within the government-to-citizens (G2C) e-service provision process. These common gaps occur when governments provide a set of services to citizens who have service needs; however, governments are not fully aware of

Table 2. Internet users and penetration rate in Jordan (Adopted from: TRC, 2009)

Year	2005	2006	2007	2008	2009
Number of Subscribers (000)	720	770	1163	1500	1742
Penetration rate	13.2%	13.7%	20%	26%	29%

citizens' service needs, at the same time citizens are not fully aware of the available services that can help in addressing their needs. In Jordan, these two gaps shape the main challenge in the G2C e-service provision (AL-Soud, 2012). This shapes a motivation for researchers and decision maker perceptions of e-government implementation process in their ministries and agencies. Therefore, the objective of this study is twofold: firstly, to explore the issues related to the awareness and acceptability of e-government services in Jordanian regions. Secondly, to identify the e-government level of maturity and then to attempt to integrate e-government maturity level with the citizen's awareness and acceptability level and what lessons could be learned to improve e-government maturity level. For this reason we have decided to research into the practitioners' and citizen's perceptions of the e-government process and awareness and acceptability level. To do that, we believe, the following questions need to be answered by citizens and practitioners who are most involved with the e–Government processes.

- What percentage of the Jordanian population is aware of e-government services?
- What are peoples' attitudes toward the e-government services and the costs of using it?
- What maturity level has e-government in Jordan reached so far?
- How can Jordanian government improve their maturity level using citizen's perceptions of the e-government process and awareness and acceptability level?

Figure 2. Gaps in the G2C e-service provision
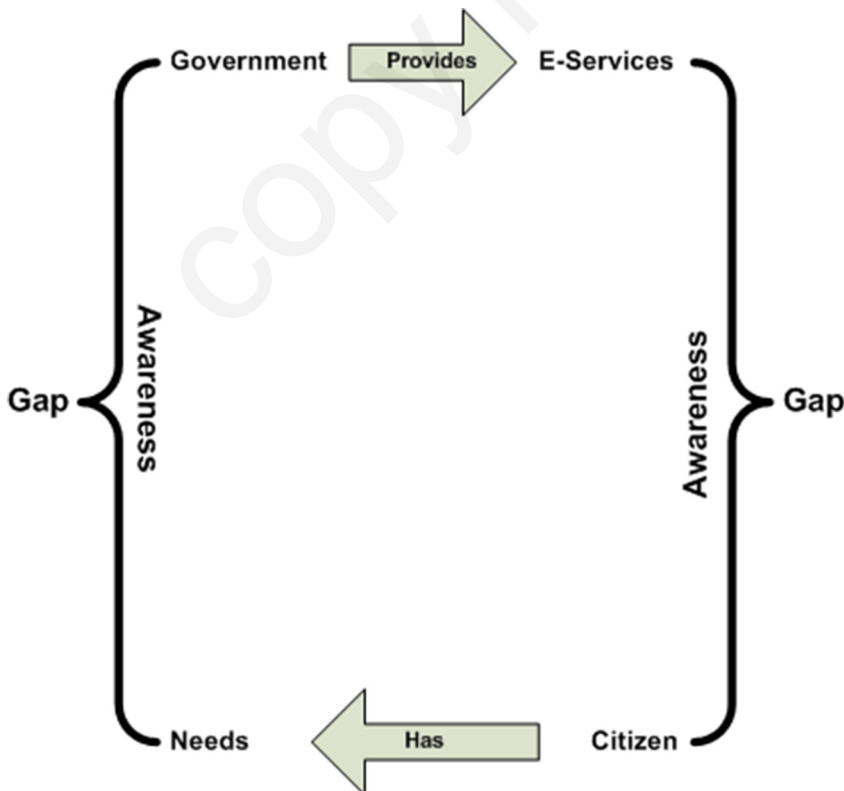
The research, presented over this paper aims to answer these vital research questions within the context of Jordan.

RESEARCH APPROACH

This research aims to, and will, form a series of four research papers; the first research paper, represented by this research paper, only addresses the shaded area in Figure 3; the second research paper will address the north region; the third research paper will address the south region; the fourth and the final paper will present the integration of the three regions in addition to phase 3 and phase 4 of the research.

As mentioned earlier, this paper represents the first step of a research project that aims to assess the maturity level of the Jordanian e-government program from the citizen's perspective, which will help in determining whether the Jordanian e-government strategy - set back in 2002 - has achieved its e-government initiative which is delivering services to people across society, irrespective of location, economic status, education or ICT ability (MoICT, 2006), as well as improving service delivery and increase the involvement of citizens through the use of ICT (Al-Jaghoub et al., 2010). As shown in Figure 3, this paper addresses the middle region of the second phase (Quantitative part) which had two main purposes: firstly, to review and document current literature of the main issues related to implementing e-government in Jordan. Secondly, to evaluate e-government maturity level from Jordanian citizen's perspective.

To achieve the purposes of phase two, which needed a high rate of respondents in order to generalize the findings, as suggested by the argument of Tashakkori and Teddlie (2003); Teddlie and Tashakkori (2009), we opted for quantitative research through questionnaires as an appropriate instrument base to address the citizens' awareness and usage of e-government services (Choudrie & Dwivedi, 2005). No doubt, other research approaches would be beneficial and we anticipated other researchers might follow up on that. The following section describes the process of questionnaire design, deployment, and analysis used and summarizes the participant characteristics. Figure 3 represents the sequential structure of the research phases.

Therefore, this paper provides a preliminary study in Zarqa state which is part of the middle region; the aim of this preliminary study is based on two stages of enquiry: the first as an exploratory study to evaluate the Jordanian citizens' awareness and acceptability of e-government services in the middle region; the second to use the results of the exploratory stage to predict where the Jordanian e-government project stands as well as to improve the effectiveness of the Jordanian e-government practice, government agencies need to move towards a higher level of e-government maturity model.

RESEARCH PHASES

- **Phase one** reviews and document current literature of the main issues related to implementing e-government in Jordan. The main issues identified in the literature were used to develop a questionnaire that aims to gather information about:

  ○ Respondents profile;
  ○ Usage of computer and Internet (Deursen et al., 2006; Kunstelj et al., 2007)
  ○ Awareness and usage of e-government services (Gil-Garcia & Pardo, 2005; Affisco & Soliman, 2006)
  ○ Acceptability and trust of using e-government services (Carter & Belanger, 2005) as well as
  ○ Other information related to e-government services.

Before the formal questionnaire was distributed to the Jordanian citizens, two pilot iterations were conducted. The first iteration involved five colleagues and twenty students. Based on their feedback, certain items in the questionnaire were modified, along with minor layout changes

Figure 3. Research phases
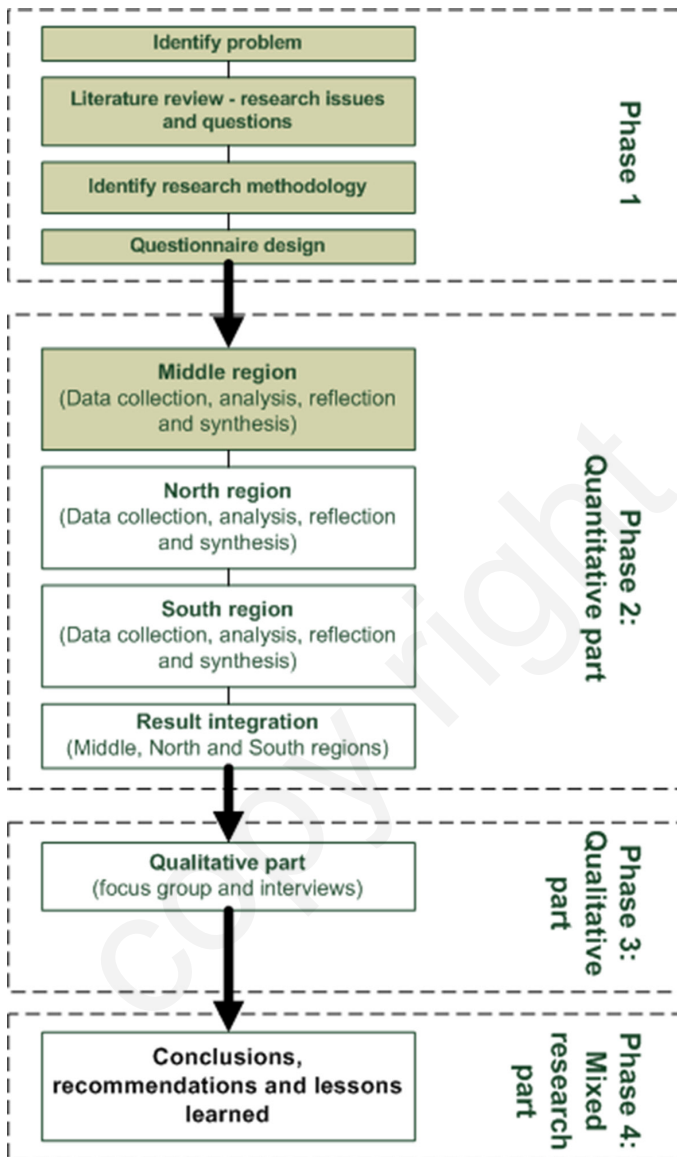
which were made in order to improve clarity and readability. The second iteration involved professionals from ICT sector. There were only minor changes at this iteration, giving us the confidence to issue the questionnaire.

• **Phase two** as shown in Figure 3 includes four parts named (*Middle region, North region, South region and Result integration*). We have selected one governorate in each region of Jordan, the selection criteria was based on the population size (the mean in the region).

Middle region stage: the questionnaire developed in phase one was distributed to

the middle region in the selected governorate which is Zarqa. The largest region in Jordan is the middle region and its population is about (3,840,200), the targeted sample of the region is about (2,265,718) (15 to 64 years old) which is (63%) of the targeted population of Jordan, as shown in Table 3. The questionnaire was distributed by hand to (3,676) participants in Zarqa.

- **North Region Stage:** Questionnaire will be distributed to the north region in the selected governorate which is Mafraq. North region population is about (1,699,400) (see Table 3) and the targeted sample of the region is about (1,002,646) which is (28%) of the targeted population of Jordan.
- **South Region Stage:** Questionnaire will be distributed to the south region which is the smallest in terms of population; the questionnaire will be distributed in Aqaba. South region population is about (573,400) (see Table 3) and the targeted sample of the region is about (338,306) which is (9%) of the targeted population of Jordan.

- **Result Integration Stage:** In this stage, results from the three regions will be combined and integrated; further a comparison will be conducted between the results.
- **Phase Three (Qualitative Part):** Will be part of our future work, will provide focus groups and interviews with the decision makers in the field of e-government at the Ministry of Information and Communication Technology (MoICT) in Jordan including: director of E-government program, managers of operational projects, and e-government officials (Web designers and developers, content officers, etc.). The results and the conclusions from the interviews will be integrated and synthesized with the result of the survey in phase four (Mixed research part).

Table 3. Targeted population and number of surveys in each region in Jordan

Phase 2	Region	Governorate	Population	Targeted Population 15-64 years old	No. of surveys (governorate/ region)	Selected governorate
Part 1	Middle	Amman	2,367,000		9,553	**Zarqa**
		Zarqa	910,800		3,676	
		Balqa'	409,500		1,653	
		Ma'daba	152,900		617	
			3,840,200	2,265,718	15,499	
Part 2	North	Irbid	1,088,100		8,528	**Mafraq**
		Mafraq	287,300		2,252	
		Jerash	183,400		1,437	
		Ajloun	140,600		1,102	
			1,699,400	1,002,646	13,319	
Part 3	South	Karak	238,400		2,345	**Aqaba**
		Aqaba	133,200		1,310	
		Ma'an	116,200		1,143	
		Tafela	85,600		842	
			573,400	**338,306**	**5,641**	
Total			**6,113,000**	**3,606,670**	**34,458**	

Jordan's population as in 2012, when the survey distribution has started, was about (6,113,000), the age structure is (0-14 years 35.3%; 15-64 years 59.9%; and 65 years and over 4.8%, which make the target population 15-64 years 59.9%) for this research is about (3,606,670) divided into three regions as Jordan fell into three main geographical regions (see Table 3).Since the middle region is the biggest region in Jordan. Two main sources of data and information were identified: first, general information on e-government services (Government Online, 2012). Second, data from a survey: we administered a survey instrument to a sample of populations in Zarqa.

THEORETICAL FRAMEWORK OF E-GOVERNMENT IMPLEMENTATION

E-government systems typically go through different stages of development, during the process of implementation, until it reaches its highest potential where there will be a fully integrated e-government system that enables users to obtain information and services from one single point that is available online. Similar to any project, an e-government project is a unique, complex, and one time effort, with specified limitations (time, budget, resources and performance) designed to meet governmental and agencies goals or stakeholders (Citizens, Businesses, Employees, and Agencies) needs (Al-Yaseen et al., 2008). Many studies have examined e-government implementation (e.g. Deloitte Research, 2000; Layne & Lee, 2001; Howard, 2001; McDonach, 2002; Moon, 2002; West, 2004; Ebrahim & Irani, 2005; NAO, 2002). Within the literature, there are many models developed for e-government implementation, these models have classified the stages of e-government into (3, 4, 5, or 6) stages.

Levels of e-government development stages as shown in Figure 4 are similar to the development path of the e-government program in Jordan, as presented in the e-government strategy of Jordan (MoICT, 2006); therefore, the "Levels of e-Government application model" (NAO, 2002) will be used in this research.

DATA ANALYSIS AND PRELIMINARY FINDINGS

Assessing the maturity level of e-government program is a complex task in terms of identifying the criteria or factors on which the assessment will be carried out. In this research paper, we aimed to abstract the assessment using a general but comprehensive questionnaire that combines queries about the citizen's awareness of e-government services in Jordan, their acceptance of these services and finally their usage of these services. The survey was distributed to a sample of (3,676) citizens from different parts of Zarqa. Out of the (3,676) questionnaires distributed, (2,279) were completed and accepted; giving a response rate of (62%). This rate was considered to be above expectation given that the generally accepted average responses to non-incentive based questionnaires are around (23%). We analyzed the data from the responses of the questionnaire using a combination of the parametric statistical methods, Descriptive Analysis and Factor Analysis (Pett, et al., 2003). Citizens were asked to select from the list the closest choice of many variables. Each of these variables were measured using a five point Likert scales (1 = not important and 5 = very important). For technically interested readers we report that a factor analysis technique was employed in order to identify possible categories.

Factor analysis was performed in three steps (following Berthold and Hand, 2003): (1) A matrix of correlation coefficients for all possible pairings of the variables was generated. (2) Factors were then extracted from the correlation matrix using principal factors analysis. And (3) the factors were rotated to maximize the relationships between the variables and some of the factors and minimize association with others using Varimax Kaiser Normalization, which maintained independence among the mathematical factors. The Eigenvalues

Figure 4. Levels of e-government application model (NAO, 2002)
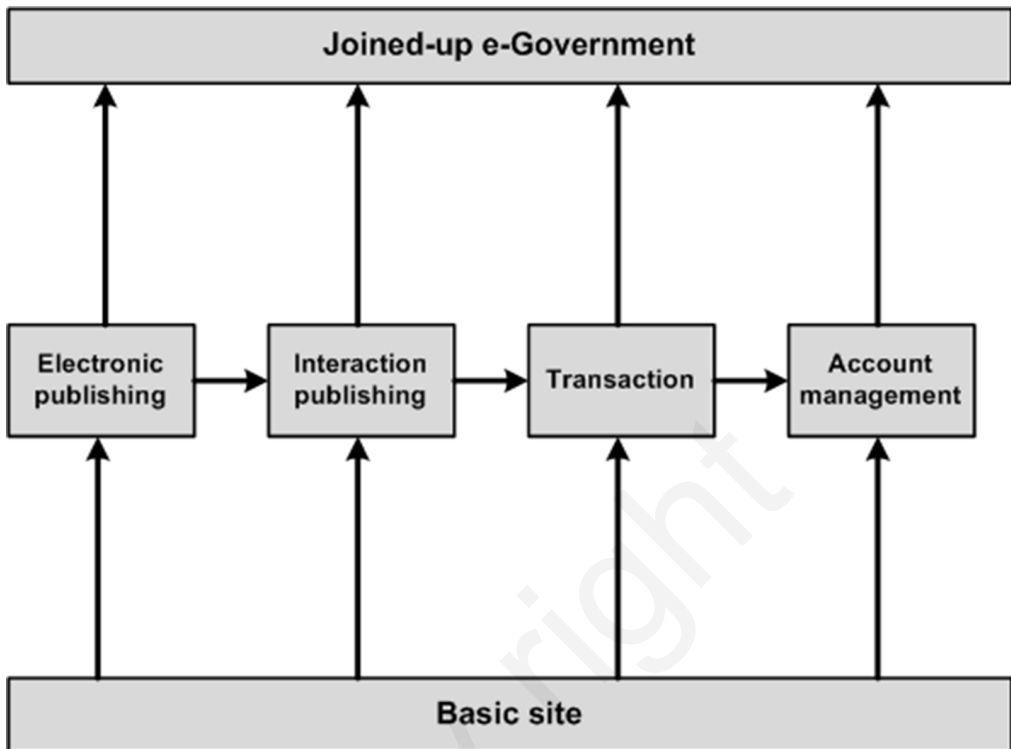
determined which factors remained in the analysis. Following Kaiser's criterion, factors with an Eigenvalue of less than 1 were excluded. A Screen plot provides a graphic image of the Eigenvalue for each component extracted.

Respondents' Profile

As mentioned earlier, the questionnaire was paper-based and was distributed by hand to (3,676) citizens in Zarqa with a respondents rate of (62%); the respondents included: employed, unemployed and retired; students, house wives and street vendors, the majority of the respondents were (35 to 44 years old), there were more male than female respondents, Table 4 summarizes the respondents' profile in terms of age, gender and employment.

Computer and Internet Usage

In the early years of e-government initiatives, the provision of e-government services (supply-side) has been the main, if not the only, focus of governments' policy makers, but over the past years this focus tend to move towards citizens (demand-side) and their usage of these services. A growing number of governments, mostly in developed countries, are making more efforts to increase the usage of their e-government services by recognizing the benefits of these services; this can be determined through the number and type of service users, and how frequent the use is (UNPAN, 2012). The question is whether Jordanian people use the computers and the Internet in the first place in order to be able to consume e-government services? The questionnaire has considered the usage of computer and the Internet amongst participants (see Figure 5).

Table 4. Respondents' profile

	Employed				Unemployed				Retired				Total
Age	M	%	F	%	M	%	F	%	M	%	F	%	
<24	228	10	0	0	114	5	57	2.5	0	0	0	0	399
24 – 34	456	20	114	5	57	2.5	57	2.5	0	0	0	0	684
35 – 44	683	30	57	2.5	0	0	0	0	0	0	0	0	740
45 - 55	228	10	57	2.5	0	0	0	0	57	2.5	57	2.5	399
> 55	0	0	0	0	0	0	0	0	57	2.5	0	0	57
Total	1595		228		171		114		114		57		2279

A large majority (100%) of the sample currently uses computers and most of the computer users also use the Internet. This rate is reasonable given the characteristics of the sample who have access to computers and the internet, and tend to rely on it for educational and other purposes.

Importance of Place and Purpose of Using Internet

Most of the people in this sample report using computers at home, at work or at the university. Of the people who use computers: (100%) use it at home; (60.2%) use it at University; (14.7%) use it at work; while (31.8%) use it at a public place. As noted, most computer users are also Internet users. Home is main place (84.1%) for connecting to the Internet, (13.5%) of Internet

Figure 5. Results of computer usage
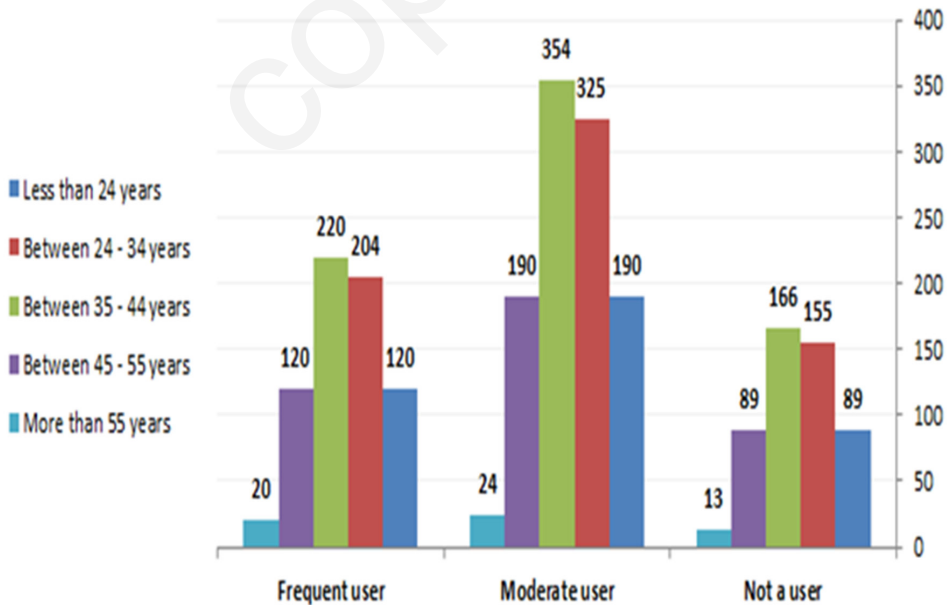
users at work; (40.8%) of Internet users at University; and (30.2%) connect to the Internet at a public place.

Attitudes Toward the Internet, Cost and other Factors

Reasons for not using the Internet were varied. The main reason was associated with 'Not enough time'; and the least important reason was 'Don't use computers', as shown in Table 5 below:

The most frequent Internet use was browsing the Internet (100%), entertainment (86.2%); sending and receiving emails (56.2%); getting information (36.4%); shopping over the Internet (16.7%) and for paying bills online (1.9%).

Using e-Government Services Over the Internet

When the participants were asked if they know what e-government is in Jordan, (74.1%) answered 'Yes'; while when we asked the same question in a different way within the survey, we found that more than (75%) of the participants do not actually know about e-government services or its Website. Moreover, the study found that more than (85%) of the participants never logged in to e-government Website or never got any information. In order to investigate how people might feel about using government services on the Internet, we asked a series of questions about peoples' most current use of different services by going to government departments, and then we asked if they would use these

services if they become available on the Internet. The respondents were also asked how much they are willing to pay for the convenience of using such services online. The most frequently used service included checking traffic tickets, while the least service was renewing the family document. As Table 6 indicates, many of the actual users of the services are very interested in having an Internet-based delivery system:

The results presented in Table 7 represent the factor analysis of e-government services. Using a factor analysis cut-off level of (0.5), four factors were considered the main reasons of using e-government services, which we described as: 'personal information', 'security and health information', 'tax information', and 'other information'.

These factors describe the usage and the context within which the development of G2C e-service provision in Jordan is set. The factors thus revealed will be used when collecting qualitative data later in phase three of the research (as shown in Figure 3).

DISCUSSION

The research findings confirm that the gaps identified in Figure 2, exists. Why does it exist? A striking result of the conducted survey is the low level of awareness of the e-government program within the sample. The fact that the majority of our sample consisted of young people, most of them has high income, has access to the Internet and uses it for various reasons, implies that they should at least know what e-government

Table 5. Reasons for not using the Internet

Reasons for not using the Internet	%
Not enough time	17.9
Phone bill too high	15.1
Internet charge too high	12.3
For security reasons	7.4
Concerned about kids	2.6
Don't use computers	0.0

Table 6. Most required e-government services

Reasons for not using the Internet	%
Not enough time	17.9
Phone bill too high	15.1
Internet charge too high	12.3
For security reasons	7.4
Concerned about kids	2.6
Don't use computers	0.0

is. Given that many other Jordanians will not have the same level of income, Internet access, and easiness of usage means that they will most likely have even lower awareness and usage levels of e-government services. According to the e-government officials of Jordan, this is expected and there are awareness plans in place to address this issue which includes conducting workshops, making visits to different agencies such as schools, universities, companies and media promotions. However, such plans face the challenge of the limited resources available which include budget, qualified personnel, and the culture. The most required services as shown in Table 7 based on factors analysis indicates that such services are related to the needs of the people. For other Jordanians, the importance of services may be ranked differently.

Results indicated that people are willing to pay a fee to use some of the Internet-based

Table 7. Factor analysis of e-government services

e-Government services	Factors			
	Personal information	Security and health information	Tax information	Other information
Information about checking traffic tickets	0.973			
Information about the whether	0.869			
Renew passport	0.894			
Renew ID card	0.865			
renew a driver's license	0.776			
Paying bills	0.973			
Information about car tax	0.973			
Apply for job		0.784		
Renew health card		0.974		
Pay taxes			0.928	
Tax refund			0.874	
Income tax settlement			0.842	
Tax situation			0.841	
Renew family document				0.933
Note: Only loadings greater than 0.50 are shown				

services. With respect to how much people might pay for the convenience of such services (if it is available online), responses varied depending on the nature of the services provided by government. On average, people are willing to pay more to the first factor which we described as 'personal information', than they are for the other factors, which we described as 'security and health information', ''tax information', and 'other information', respectively. Payment for services may be linked to the person's income especially that even within the focus group discussion a number of participants expressed concerns about cost of using services and using the internet in general. Therefore, for other Jordanians with lower income levels this concern about cost is most likely applicable. A very important issue that, as shown earlier in Table 5, nearly (7.4%) of the study sample agreed that they were worried about security of the Internet, mainly they were concerned about giving information over the internet. Generally speaking, there is a lack of trust of using online transactions especially when it comes to important documents or payments. This may also be related to the culture in general within Jordan where the internet still seems to be used mainly for entertainment. For example, only (16%) of the sample did shopping online. Using e-government services within such a culture is still problematic and needs serious attention.

E-government project in Jordan launched ten years ago, and based on the different sources of data and information; there is a demand for e-government services amongst Jordanian citizens. However, the percentage of citizens using these services is still modest. Based on the questionnaire results, to some extent, the program still in the beginning of the second phase (Electronic Publishing) based on NAO model. In terms of telecommunication infrastructure, Jordan is still developing and the diffusion rate of technology has increased over the last seven years; however, it is still lower than the required level when compared globally and this is mainly due to socio-economic factors.

ICTs are useful instruments, capable of increasing government agencies' effectiveness, efficiency and transforming their services. In order to improve the effectiveness of the Jordanian e-government practice, government agencies need to move towards a higher level of e-government development, which will require more technical, personal and financial commitments. Jordanian government also needs to establish systematic and comprehensive e-government plans of citizens' encouragement and awareness of the e-government services web sites. Issues like privacy and security, costs, acceptance appear to be the major obstacles of adopting e-government services and need attention in the deployment of e-government. However, the challenge of using the country's limited resources needs to be kept in mind.

This research has been a preliminary attempt that aims to investigate the current level of maturity of e-government in Jordan and to understand some of the reasons behind the results that were apparent from the sample used for this paper. However, this research, like any other, has its own set of limitations, the selected governorate might not be the best governorate to represent the middle region, the data took almost 18 months to be collected and analyzed which may have resulted in some changes to the reality. Finally, developing countries are not a homogenous group and therefore the results of this paper may not be generalisable. However, our findings may be useful as they provide rich insights to other developing countries in planning and implementing their e-government initiatives.

CONCLUSION AND FUTURE WORK

This research paper has attempted to assess the current maturity level of the e-government program in Jordan through the citizen's perspective, by assessing their awareness, acceptance and usage of the e-government services. This paper representing the first in a series of three research papers, has adopted a quantitative approach in which the survey technique was used. After distributing (3,676) questionnaires in one

of the largest governorates of Jordan, the results have shown that the citizens' awareness of e-government has not reached the required level. Citizen's attitude toward using e-government services is changing and determined by various factors and issues. Future work will focus on combining quantitative and qualitative (mixed research approach) sources of information and analytical methods, which can build on the strength of each type of data collection and minimize the weaknesses of any single approach. A multi-method approach can increase both the reliability and validity of evaluated data. As a mixed research approach tend to be one of the most appropriate techniques when investigating a complex and emerging phenomena such as e-government (Creswell, 2003; Green and Preston, 2005; Sammons et al., 2005; Mofleh et al., 2008a; Shareef et al., 2009).Future research should also be targeted towards a more comprehensive sample which includes people that represent different demographics to further analyze the current situation and enable the decision makers in the Jordanian government to plan and implement the e-government more successfully in the future.

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