Transforming Government: People, Process and Policy

Jordan's e-Government at the crossroads

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Abstract

Purpose – The purpose of this paper is to assess the maturity level of the Jordanian electronic Government (e-Government) program from the citizen's perspective. This assessment aims to help in determining whether the Jordanian e-Government strategy, set back in 2002, has achieved its main objectives which are delivering services to people across society, irrespective of location, economic status, education or ICT ability; improving the ICT readiness and infrastructure; and developing new service delivery channels and increase the involvement of citizens through the use of ICTs. Jordan started a national e-Government initiative aiming to streamline government procedures and provide government information and services to the public online. This paper reveals the levels of citizens' awareness, acceptance, usage and willingness to use the e-Government services in Jordan. It investigates issues such as Jordan's e-Government maturity level, citizen's preferences when dealing with e-Government, citizen's attitude toward using various e-services, citizen's concerns and the required services.

Design/methodology/approach – To achieve the research purposes, which needed a high rate of respondents to generalize the findings, we opted for quantitative research through questionnaires as an appropriate instrument base to address the citizens' awareness and usage of e-Government services. In total, 7,238 distributed surveys were conducted across Jordan. The average of the responses rate in the three regions was 58.6 per cent.

Findings – The citizen's interest in e-Government services is declining, as the citizens' level of awareness of e-Government and its services is still modest after more than ten years of the start of the e-Government program in Jordan. Citizens' attitude toward using e-Government services is changing and determined by various factors and issues reported in the paper.

Research limitations/implications – The selected governorates might not be the best governorates to represent the three regions of Jordan, the data took almost 15 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 generalizable.

Originality/value – The findings present a number of key factors that hinder Jordan's e-Government development. These findings can be useful for researchers and practitioners, as they provide rich insights on e-Government development. The findings can be also useful to other developing countries, as they can help them in understanding citizen related challenges when designing, planning and implementing their e-Government initiatives.

Keywords Acceptance, Awareness, e-Government, e-services, Maturity, Jordan, Developing countries

Paper type Research paper

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1. Introduction

Electronic government (e-Government) is argued to be vital in developing the public sectors around the globe, as it assures more accountability and transparency (Chatfield and Alhujran, 2009). E-Government has also put a pressure on governments, as it raised the citizen's expectations of government's ability and responsibility to offer new, effective, efficient and contemporary services over the Internet. E-Government can be defined as the use of any type of information and communication technologies (ICTs) to improve services and operations provided to different parties such as citizens, businesses and other government agencies (Grant and Chau, 2005; Gronlund and Horan, 2005; Adeshara *et al.*, 2004; Arif, 2008; Alsaghier *et al.*, 2009). A number of countries, in both developed and developing nations, have started e-Government programs that aim to provide public services online, improve government procedures and, most importantly, provide improved services for citizens. Jordan is a developing country that has started a number of ICT development initiatives in 2000. The National ICT Strategy of Jordan (2007-2011) has set a number of objectives to develop the Jordanian ICT infrastructure. One of which was to increase the Internet penetration to 50 per cent by 2011. To achieve this objective, the Government of Jordan had set a high priority goal to increase the demand for Internet usage by developing the e-Government sector. The main drivers are to provide more attractive Internet-based services and increase the number of relevant government-to-citizen (G2C) services delivered electronically (Int@j, 2011). Jordan managed to increase the Internet usage and penetration from 20 per cent in 2007 to 29 per cent in 2009 (TRC, 2009).

Since then, Jordan has proved a substantial growth in the development of e-Government services in the country (UNPAN, 2010), but this growth was also coupled with a noticeable lack of development of Jordanian G2C e-services provision (UNPAN, 2010; UNPAN, 2012). It is still vague whether citizens are aware of such services or even willing to make use of them (Al-Jaghoub *et al.*, 2010). Our argument in this paper is that the success and acceptance of e-Government initiatives are subject to citizens' acceptance, willingness and intention to use these newly offered services, an area of research which does not seem to have received adequate attention so far, at least for e-Government in Jordan.

Most of the theoretical research (Irani *et al.*, 2008; Chadwick and May, 2003; Hsieh *et al.*, 2013; Ebrahim and Irani, 2005; Krishnan *et al.*, 2013; Shareef *et al.*, 2011; Dwivedi *et al.*, 2011) discussed e-Government in developed countries, however, e-Government in developing countries, in general, and Arab countries, in particular, has not received equal attention (Chatfield and Alhujran, 2009). There has been some work related to case studies in some developing and Arab countries (Reddick *et al.*, 2012, Al-Shafi and Weerakkody, 2007, 2010; Al-Ghaith *et al.*, 2010; Weerakkody *et al.*, 2009; Almatarneh, 2011; Nassuora and Al-Mushasha, 2012; Dada, 2006; Al-Busaidy and Weerakkody, 2009; Alghamdi *et al.*, 2012; Weerakkody *et al.*, 2013). For e-Government in Jordan, in particular, some research has been published. For example, in terms of the G2C gateways (Web sites), AL-Soud and Nakata (2010) have evaluated the Jordanian e-Government Websites and concluded that the Jordanian e-Government Websites do have 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 determined that this is most likely due to a lack of consideration for the citizens' expectations and needs. 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; and whether there are other factors that have a direct effect on e-Government acceptance in Jordan.

This lack of development will most likely make the Jordanian e-Government program encounter a number of challenges while achieving its crucial objectives, especially that Jordan's e-Government aims to improve government performance and efficiency; deliver high-quality services to consumers, businesses and organizations; ensure public sector transparency and accountability; enhance Jordan's competitiveness; reduce costs and increase ease of interaction with government; develop skills within the public sector; boost e-commerce activities; improve information security; and promote the development of Jordan's ICT sector (Ciborra and Navarra, 2005; Mofleh *et al.*, 2008; Al-Jaghoub *et al.*, 2009). Nonetheless, it can be argued that Jordan's e-Government still has a good chance to achieve its objectives due to Jordan's young and educated population (Al Nagi and Hamdan, 2009).

The "demand side" of e-Government, which refers to the citizen's demand for e-Government services, does not seem to have received much attention (Reddick *et al.*, 2012). Such demand, we argue, is a main driver for the success of the e-Government initiative. Without citizens' awareness, acceptability and usage of these services, such an initiative may not achieve its objectives. Having noticed the lack of research in this area for Jordan, we have opted to use a survey to evaluate the Jordanian citizens' awareness and acceptability of e-Government services in different regions, and to use the results of this evaluation to predict where the Jordanian e-Government initiative stands. Therefore, our research questions are:

RQ1. What percentage of the Jordanian population is aware of e-Government services?.

RQ2. What are peoples' attitudes toward using e-Government services?.

RQ3. What are the main factors and issues that affect the peoples' attitudes toward using e-Government services?.

To answer these questions, a survey was distributed to the three regions of Jordan.

The paper is structured as follows. Following the Introduction, Section 2 briefly provides a background of the e-Government initiative in Jordan; Section 3 provides, as a theoretical foundation, an overview and comparison of Jordan's performance in the United Nations (UN) e-Government Surveys in the past ten years; Section 4 explains the research methodology, approach and research phases; Section 5 presents the research key findings; and Section 6 presents a discussion for the findings; followed by the research conclusions, recommendations and future work.

2. E-Government initiative in Jordan

Jordan is one of the developing countries in the Middle East; it is a small country with a limited number of natural resources, with the population size estimated to 6,387,616 million (DOS, 2012/2013). 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 km^2, of which 99 per cent is land and only 1 per cent is water). As shown in Table I, Jordan is divided administratively into three main regions:

(1) *North region*: It includes four governorates (Irbid, Ajloun, Mafraq and Jerash), and has a population of 1,737,200 which represents 27.8 per cent of Jordan's total population.

(2) *Middle region*: It includes four governorates (Amman, Zarqa, Balqa and Madaba), and has a population of 3,925,600 which represents 62.8 per cent of Jordan's total population.

(3) *South region*: It includes four governorates (Karak, Tafilah, Ma'an and Aqaba), and has a population of 586,200 which represents 9.4 per cent of Jordan's total population.

The rapid development of ICTs and the Internet brought with it a significant push toward e-Government in most of the countries around the world; Jordan was no exception. Therefore, and as part of modernizing and reforming government organizations and processes, Jordan has introduced new rules, regulations and legislations which liberated some services from the government control to regulate the privatization and to encourage foreign investments and to follow some of the best practices around the globe. These new rules and legislation have been set as foundation blocks to the derivation of the Jordanian e-Government strategy and vision by adopting new ICT's (Nkwe, 2012; Al-Soud, 2013; Almarabeh and AbuAli, 2010).

In 2000, his majesty King Abdullah II (the king of Jordan) has lunched Jordan's e-Government initiative to drive the Jordanian society transformation into a knowledge society based on a competitive, dynamic economy sphere. However, in terms of

Region	Governorate	Total	% of total
Middle	Amman	2,419,600	38.7
	Balqa	418,600	6.7
	Zarqa	931,100	14.9
	Madaba	156,300	2.5
	Total	3,925,600	62.8
North	Irbid	1,112,300	17.8
	Mafraq	293,700	4.7
	Jarash	187,500	3.0
	Ajlun	143,700	2.3
	Total	1,737,200	27.8
South	Karak	243,700	3.9
	Tafiela	87,500	1.4
	Ma'an	118,800	1.9
	Aqaba	136,200	2.2
	Total	586,200	9.4
Jordan's population		6,249,000	100 per cent

Table I.
Estimated population by region

Source: DOS (2012)

telecommunication infrastructure, Jordan is still developing and the diffusion rate of technology has increased over the past seven years; however, it is still lower than the required level when compared globally, and this is mainly due to socioeconomic factors (Al-Jaghoub *et al.*, 2010).

3. UN assessment of Jordan's e-Government development and readiness

The United Nations e-Government surveys have always been an important indicator of how the member states are performing in their e-Government initiatives. Recent reports have analyzed how governments of the world are employing their e-Government programs and policies to support effectiveness, efficiency, and inclusiveness as the parameters of sustainable development efforts worldwide (UNPAN, 2012). Therefore, we have used the UN e-Government surveys to evaluate Jordan's performance in developing its e-Government program. When considering the United Nations e-Government Readiness reports, it should always be kept in mind that the e-Government Readiness Index is a composite of three components: Web measure, telecommunication and the human capital. When using these three components to assess for overall e-Government readiness, it was noticed that many of the developing countries that have invested in e-Government development have tended to lose out in the set of world comparative rankings due to lack of support from human capital and telecommunication infrastructure components (UNPAN, 2004, 2005). It is not surprising that the majority of the top 20 positions in the rankings belong to high income countries due to their ability to invest in developing their e-Government initiatives.

According to UNPAN (2012) the telecommunication infrastructure and human capital components (which have two-thirds of the total weight of the e-Government development index) have contributed in achieving higher rankings in the survey for developed countries, as these components require long-term investment. However, this is clearly not the case for the developing countries, although some of them have the financial ability to develop advanced e-Government initiatives due to lack of human capital and/or telecommunication infrastructure. For example, in 2012 Jordan has been ranked 14 out of 17 of the Western Asia countries for the overall e-Government readiness index (in which, Jordan was ranked 6th out of 17 for Human Capital and 13th out of 17 for telecommunication infrastructure and Web services). This proves the lack of telecommunication infrastructure and Web service delivery in Jordan.

As mentioned earlier, Jordan as a UN member has been assessed on its e-Government readiness and development since 2003, Figure 1 shows Jordan's performance in this assessment, the horizontal axes shows between parentheses Jordan's ranking in each year of assessment, while the bars show the three indices of the UN e-Government development surveys. Each year shows Jordan's performance in the Web measure index (represented by the blue bar on the left), the telecommunication index (represented by the red bar on the middle) and the human capital index (represented by the green bar on the right).

According to UN e-Government survey (2010), the online services index (previously called Web measure) attempts to capture a country's performance in a single "internationally comparable" value by applying a four-level maturity model of online service, as shown in Figure 2. This model assumes that countries typically start with an emerging online presence with a simple Web site, progress to an enhanced level with a use of multimedia content and two-way interaction, then advance to a transactional level

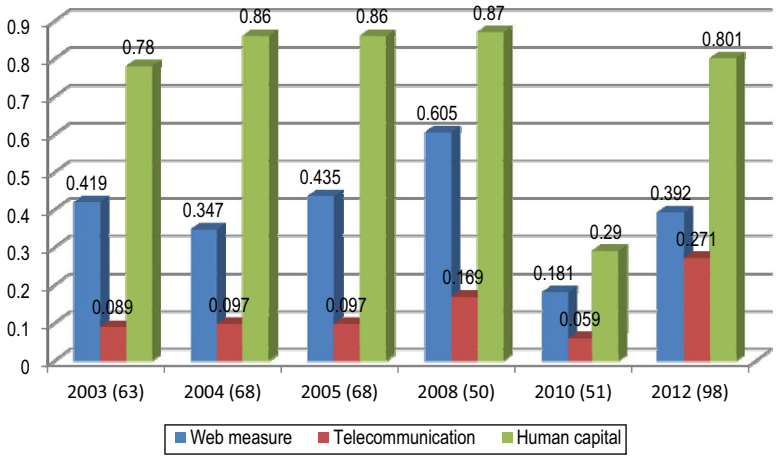

Figure 1.
Jordan's progress in the three indices of UN e-government development surveys 2003-2012

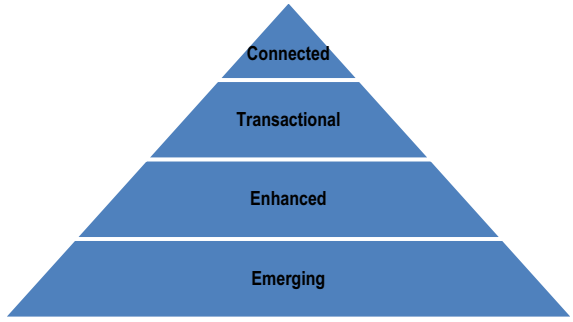

Figure 2.
Four-level maturity model of online service development

Source: UNPAN (2010)

with many services available online and governments' requesting citizen participation on matters of public policy, and, finally, to a connected Web of integrated functions and services (UNPAN, 2010).

The UN e-Government Web measure assessment consists of four levels matching the four stages of e-Government development:

(1) emerging presence (I), in which government Web sites provide information that is limited and basic;

(2) enhanced presence (II), in which government Web sites provide one-way or simple two-way communication between government and citizen, such as downloadable publications and forms for government services;

(3) transactional presence (III), in which government Web sites provide more sophisticated two-way G2C interaction; and

(4) connected presence (IV), in which government Web sites provide the most sophisticated services as by this level government has moved to a citizen-centric approach, where governments become more proactive in providing information

and services to citizens and e-services are targeted to citizens through life cycle events (UNPAN, 2012).

These four stages where represented in five stages in the UN e-Government readiness reports of 2003, 2004, 2005 and 2008. These five stages (emerging I, enhanced II, interactive III, transactional IV and networked/connected V) represent in an ascending way the level of maturity or sophistication of e-Government presence online.

Jordan's e-Government transactional services are inadequate, and there are many reasons behind this shortage of online transactional services in Jordan and many developing countries; mainly:

- lack of development of national financial systems;
- absence of e-payment systems;
- absence of adequate regulatory and legal systems to control electronic payments by credit card, debit card, or some other e-payment method;
- lack of high level of security to allow e-transactions and e-payments; and
- having other priorities such as investing in telecommunication infrastructure (UNPAN, 2012).

Consequently, Jordan provided substantial services in Stages I and II, but few in Stages III and IV. This has been reflected in Jordan's e-service delivery utilization, according to UNPAN reports utilization is defined as "services provided as a percentage of the maximum services in a category". In 2004, Jordan was in the low-range of utilization (0-33 per cent). In 2005, Jordan increased the availability of the emerging, enhanced and interactive services which raises the utilization ratio to mid-range (34-66 per cent). In 2008, Jordan maintained the same ratio by increasing the availability of the enhanced, interactive, transactional and few networked services. In 2012, Jordan was the last country in the mid-range utilization (34-66 per cent) with a slight difference from the first country assessed in the low-range utilization (0-33 per cent). This does not necessarily indicate that Jordan is not improving in e-services provision, but it does indicate that Jordan's improvement is not enough (UNPAN, 2003, 2004, 2005, 2008, 2010, 2012).

In the 2008 report, it has been noticed that Jordan's performance has improved significantly since the 2005 survey, as it took a remarkable jump of 18 positions in the global ranking from being ranked 68th in 2005 to 50th in 2008. Jordan has attained a good growth in e-Government services since the 2005 survey and by being above the 2008 world average (0.4514). In terms of the e-participation index, Jordan had the greatest move upwards all over the world from being ranked 90th in 2005 to 15th in the 2008 survey. The Government of Jordan has invested in enhancing the national e-Government portal (www.jordan.gov.jo) which included features that increase citizen participation by having a formal online consultation section, where the government receives suggestions, questions and feedback from its citizens on government services and polices. In addition, the King of Jordan (the head of state) has dedicated a personal Web site (www.kingabdullah.jo) to which citizens can send their views, suggestions and post opinions. These were the main reasons behind this dramatic leap upwards (UNPAN, 2008).

In the 2010 report, Jordan was one of the countries that dropped to lower position in the e-Government development ranking. The report shows that Jordan has scored an

overall index of 0.5278 out of 1.0, of which, 0.1813 for online service component, 0.0596 for telecommunication infrastructure component and 0.2869 for human capital component; this indicates that both online service and telecommunication infrastructure components have resulted in dropping the overall index value rather than human capital.

Jordan's e-Government has improved since 2010, to some extent, and its decline in the UN e-Government ranking is not an indication that there are no improvements (UNPAN, 2003, 2004, 2005, 2008, 2010 and 2012). However, these improvements were not enough for Jordan to compete with other countries, especially in Western Asia region, which achieved better scores due to their steady development in the telecommunication infrastructure and Web services components. Jordan's human capital component was always a supportive element and has contributed in having better ranking among the world in general and sub-regional countries in particular. However, since the beginning of UN e-Government surveys, in 2003 Jordan's e-Government development and readiness was always above the world average and the sub regional average (Western Asia) until 2012, when Jordan was assessed to be below Western Asia average as shown in Figure 3. The Western Asia regional group contains 17 countries (Jordan, United Arab Emirates, Bahrain, Saudi Arabia, Cyprus, Qatar, Kuwait, Oman, Georgia, Turkey, Lebanon, Armenia, Azerbaijan, Syrian Arab Republic, Iraq, Yemen and Israel).

4. Research methodology and approach

This paper represents the second phase of a research project which 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 objective of 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) (Figure 5). A paper was published with the results of the first phase which used Zarqa as a pilot study (AL-Yaseen *et al.*, 2013) in which the research problem has been identified and a thorough literature review has been provided to form a base for the research project.

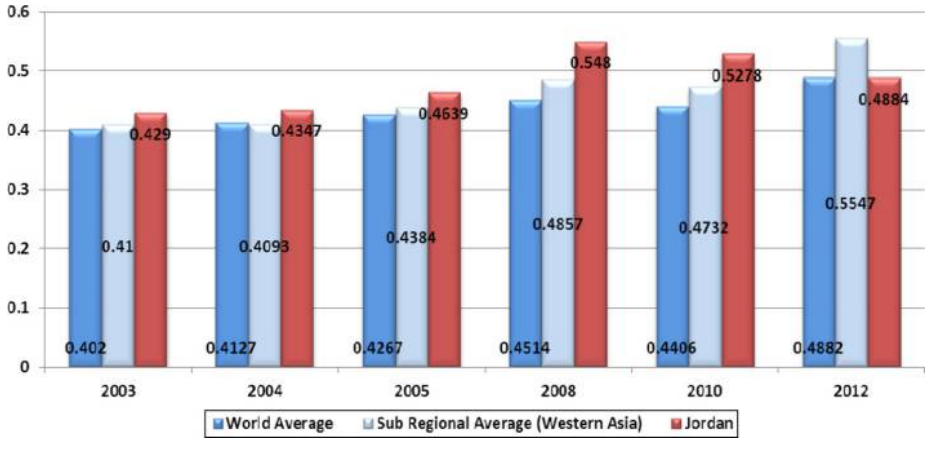

Figure 3.
Jordan's e-government development index compared to the world and sub-regional averages based on the UN e-government development surveys 2003-2012

For the results to be generalized, high response rate is needed, as suggested by the arguments of Tashakkori and Teddlie (2003) and Teddlie and Tashakkori (2009). Therefore, we opted for quantitative research through questionnaires as an appropriate instrument to address the citizens' awareness and usage of e-Government services (Choudrie and Dwivedi, 2005; Norris and Reddick, 2013; Bertot *et al.*, 2013; Baldwin *et al.*, 2012; Carter *et al.*, 2011). The following section describes the process of questionnaire design, distribution and analysis used and summarizes the respondent characteristics. Figure 5 represents the sequential structure of the research phases.

In addition to the data collected and the findings from Phase I in the pilot study of Zarqa, this paper provides results of a questionnaire that has been distributed to the two remaining regions of Jordan (North and south). The researchers selected one governorate from each region to represent its region. The governorate with a medium population size compared to other governorates in that region was chosen (Table II). Figure 4 uses Jordan's map to show the selected governorates in each region during both phases and the number of surveys that has been distributed during both phases.

Before the formal questionnaire was distributed to the Jordanian citizens, two pilot iterations were conducted. The first iteration involved five colleagues and 20 students. Based on their feedback, certain items in the questionnaire were modified, along with minor layout changes which were made to improve clarity and readability. The second iteration involved professionals from the ICT sector. There were only minor changes at this iteration, giving us the confidence to issue the questionnaire.

According to DOS (2012/2013), when the survey distribution started in 2012, Jordan's population was about 6,113,000. The age structure was 0-14 years 35.3 per cent; 15-64 years 59.9 per cent; and 65 years and over 4.8 per cent. This makes the targeted population of this research the 59.9 per cent aged 15-64 years, which is about 3,606,670 divided into the three regions of Jordan (Table II). The total number of distributed surveys across Jordan was 7,238 surveys. The average response rate in the three regions was 58.6 per cent.

The sample for this study was randomly selected in the northern and southern regions to be representative of Jordan's population. The survey was distributed by hand

Region	Governorate	Targeted population (15-64 years old)	Selected governorate	No. of surveys distributed	Respondents rate (%)
Middle	Amman	641,979	Zarqa	3,676	62
	Zarqa	169,507			
	Balqa'	108,206			
	Ma'daba	82,954			
North	Irbid	1,396,530	Mafraq	2,252	54
	Mafraq	537,372			
	Jerash	241,605			
	Ajloun	90,211			
South	Karak	140,656	Aqaba	1,310	60
	Aqaba	78,588			
	Ma'an	68,558			
	Tafela	50,504			
Total		3,606,670		7,238	Average 59

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

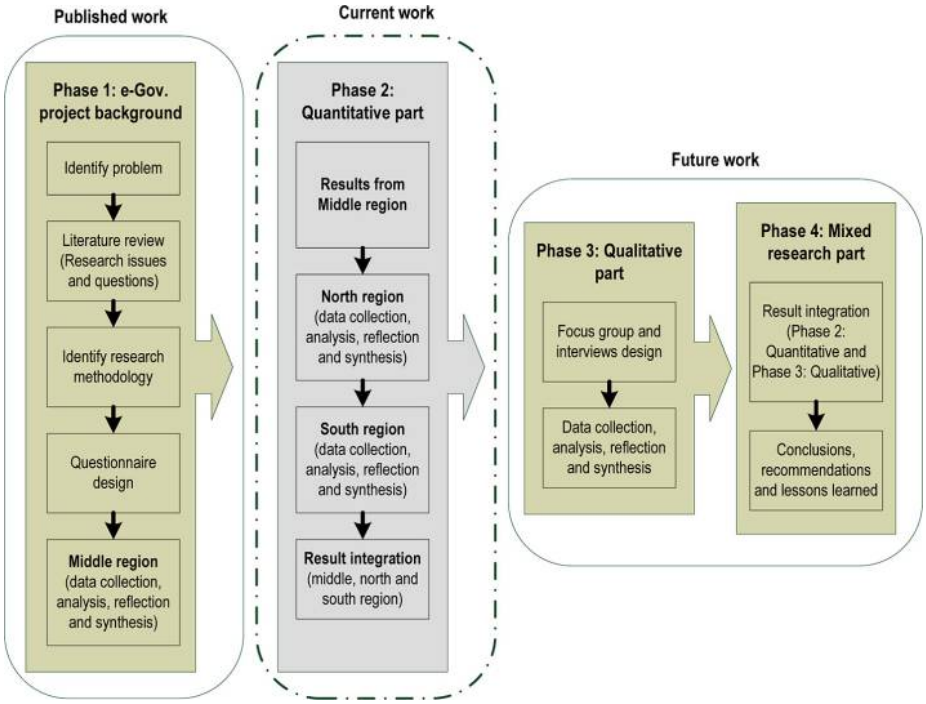

Figure 4.
Jordan's map of selected governorates in each region and the number of surveys that has been distributed

to all respondents to ensure high validity and response rate. The survey was distributed and collected in Zarqa, the selected governorate of the middle region between March and July 2012; the survey was distributed and collected in Mafraq, the selected governorate of the north region between October and January 2013; the survey was distributed and collected in Aqaba, the selected governorate of the south region between February and March 2013.

As shown in Figure 5, the second phase aims to collect data from the two remaining regions of Jordan before integrating the findings for all three regions. The objective behind the study's data collection is twofold: the first is to be used as an exploratory study to evaluate the Jordanian citizens' awareness and acceptability of e-Government services in different regions; the second is to use the results of the exploratory stage to predict where the Jordanian e-Government initiative stands.

Data from the questionnaire were analyzed 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 5-point Likert scales (1 = not important and 5 = very important). For technically interested readers, we report that a factor analysis technique was used to identify possible categories. The factor analysis was performed in three steps (following Berthold and Hand, 2003; Pett *et al.*, 2003):

(1) a matrix of correlation coefficients for all possible pairings of the variables was generated;

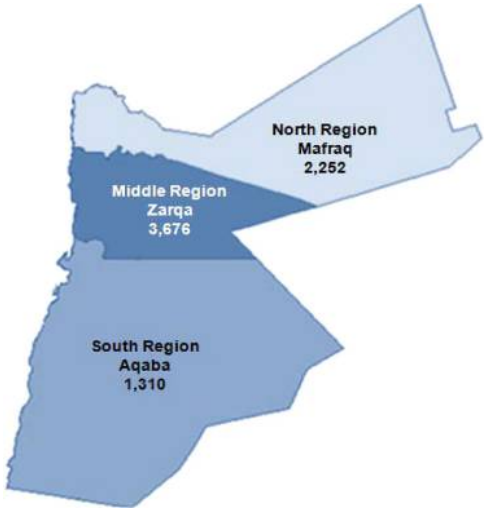

Figure 5.
The sequential structure of the research phases

(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 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.

5. Key findings

In Mafraq (north region), the survey was distributed to a sample of 2,252 citizens from different areas. Out of the 2,252 questionnaires distributed, 1,216 were completed and accepted; giving a response rate of 54 per cent. In Zarqa (middle region), the survey was distributed to a sample of 3,676 citizens from different areas. Out of the 3,676 questionnaires distributed, 2,279 were completed and accepted; giving a response rate of 62 per cent. In Aqaba (south region), the survey was distributed to a sample of 1,310 citizens from different areas. Out of the 1,310 questionnaires distributed, 799 were completed and accepted, giving a response rate of 60 per cent. These rates were considered to be above expectation given that the generally accepted average responses to non-incentive based questionnaires is around 20 per cent (Al-Yaseen *et al.*, 2008).

5.1 Respondents' profile

As mentioned earlier, the questionnaire was paper-based and was distributed by hand to citizens in the three governorates with an average response rate of 58.6 per cent. The respondents employment status included: employed, unemployed and retired; the respondents occupations were students, house wives, government employees,

merchants, farmers, school teachers, workers, etc., Table III summarizes the respondents' profile in terms of age, gender and employment.

As shown in Table III, the majority of the respondents in the three regions were 29- 47 years of age, and there were more male than female respondents in general. In the three governorates, the respondent's percentage of the private sector employment on public sector was close. For example, in Mafraq, 69.7 per cent of the respondents work in the private sector, whereas 6.9 per cent work in the public sector and 23.4 per cent are unemployed. In Zarqa, 68.8 per cent of the respondents are currently working in the private sector, whereas only 11.2 per cent are working for the public sector and 12.5 per cent are unemployed. In Aqaba, 43.1 per cent of the respondents are currently working in the private sector, whereas only 27 per cent are working for the public sector and 22.4 per cent are unemployed.

5.2 Computer and Internet usage

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 to be able to consume e-Government services? Therefore, the questionnaire has considered the usage of computer and the Internet among respondents. Table IV demonstrates the computer usage in the three main regions of Jordan.

A large majority (85 per cent) of the sample currently uses computers (36.6 per cent are frequent users and 48.4 per cent are moderate users) and most of the computer users also use the Internet, as shown in Table V. Most of the people in this sample report using computers at home, at work or at the university. Of the Jordanian people (the following percentages are averages of the three governorates) who use computers: 96.3 per cent use it at home; 58.4 per cent use it at University; 25.7 per cent use it at work; and 32.3 per

Region	Age (years)	Employed M	%	*F*	%	Unemployed M	%	*F*	%	Retired M	%	*F*	%	Total
North (Mafraq)	< 24	228	18.8	0	0	114	9.4	14	1.2	0	0	0	0	356
	24-34	427	35.1	114	9.4	57	4.7	57	4.7	0	0	0	0	655
	35-44	133	10.9	0	0	0	0	0	0	0	0	0	0	133
	45-55	0	0	0	0	0	0	43	3.4	0	0	0	0	43
	> 55	29	2.4	0	0	0	0	0	0	0	0	0	0	29
	Total	817		114		171		114		0		0		1216
Middle (Zarqa)	< 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
South (Aqaba)	< 24	39	4.9	1	0.1	39	4.9	80	10	0	0	0	0	159
	24-34	82	10.3	179	22.4	1	0.1	20	2.5	0	0	0	0	282
	35-44	102	12.8	80	10	0	0	39	4.9	0	0	0	0	221
	45-55	77	9.6	0	0	0	0	0	0	20	2.5	1	0.1	98
	> 55	0	0	0	0	0	0	0	0	20	2.5	19	2.4	39
	Total	300		260		40		139		40		20		799

Table III.
Respondents' profile

cent use it at a public place. Home is main place 68.1 per cent for connecting to the Internet, 42.5 per cent of Internet users use it at work; 39.8 per cent of Internet user's use it at university; and 36.2 per cent connect to the Internet at a public place. The most frequent Internet use was: browsing the Internet (100 per cent), entertainment (84.1 per cent); sending and receiving e-mails (57.8 per cent); getting information (39.4 per cent); shopping over the Internet (12.6 per cent) and for paying bills online (1.7 per cent). As noted, most computer users are also Internet users, Table V shows the percentage of Internet use in each governorate.

Reasons for not using the Internet were varied. The main reason was associated with "Internet charge too high". Table VI shows a list of other reasons for not using the Internet in each governorate.

Table VI shows percentages of each reason in addition to other reasons which included (don't trust the Internet, another person use it on my behalf, don't need the Internet, and don't know how to use it).

5.3 Awareness and usage of e-Government services

Because awareness and usage of e-Government services is a critical factor that affects the success of e-Government initiative, we examined the level of awareness and usage of e-Government services in Jordan through the three selected governorates that represent the three regions of Jordan. Table VII illustrates these findings.

Region	Frequent use No. of citizens	%	Moderate use No. of citizens	%	Do not use No. of citizens	%
North (Mafraq)	363	29.8	580	47.7	273	22.5
Middle (Zarqa)	684	30.0	1,083	47.5	512	22.5
South (Aqaba)	400	50.0	399	50.0	0	0
Average		36.6		48.4		15.0

Table IV. Computer usage in Jordan

Usage of the Internet	Mafraq No. of citizens	%	Zarqa No. of citizens	%	Aqaba No. of citizens	%	Average
Use the Internet	821	67.5	1,439	63.1	773	96.7	75.7
Do not use the Internet	395	32.5	840	36.9	26	3.3	24.3

Table V. Percentage of Internet use in each governorate

Reasons for not using the Internet	Mafraq (%)	Zarqa (%)	Aqaba (%)	Average (%)
Not enough time	18.2	17.9	12.3	16.1
Phone bill too high	12.7	15.1	11.6	13.1
Internet charge too high	25.7	22.3	19.8	22.6
For security reasons	22.5	17.4	21	20.3
Concerned about kids	4.7	2.6	3.9	3.7
Don't use computers	2.4	0	0	0.8
Other reasons	13.8	24.7	31.4	23.3

Table VI. Reasons for not using the internet

It was found that as increases in the percentage of citizens' work for public sector occurred, there was more awareness of and usage of the e-Government services. Moreover, 68.8 per cent of the Jordanian citizens have never used the e-Government services, whereas only 31.2 per cent of them have used it before. The motives for using the e-Government services were varied, as shown in Table VIII.

As shown in Table VIII, respondents in the three regions mainly access the e-Government Web sites to get informational e-services on required regulations, procedures, documentations and forms.

5.4 E-Government services and its usage

When the respondents in the three governorates were asked if they know what e-Government is in Jordan, 57.6 per cent answered "Yes"; while when we asked the same question in a different way within the survey, we found that more than 60 per cent of the respondents do not actually know about e-Government services or its Web sites. Moreover, the findings found that more than 86 per cent of the respondents never created an account on e-Government Web site. The shocking result that is more than 70 per cent of the respondents who used e-Government services claim that they never got any useful information when using e-Government Web sites as a source of information. This frustration must have reasons that need to be determined and understood; however, we need to understand why citizens evade using e-Government services in the first place. Consequently, respondents were asked for their reasons for not using e-Government services. The most mentioned reason was "I prefer to go personally to the government department to end my paperwork" and the least mentioned one was "Dealing through electronic government will waste my time". Table IX shows a list of reasons with the number of citizens mentioned in each one.

We believe that the culture factor has, to some extent, resulted in having the first reason as the most reason for not using e-Government services. However, citizens do

Table VII.
Results of awareness and usage of e-Government services

Region	Aware		Not aware		Have used it before		Never used	
	No. of citizens	%	No. of citizens	%	No. of citizens	%	No. of citizens	%
North (Mafraq)	609	50.1	607	49.9	224	18.5	992	81.5
Middle (Zarqa)	1,140	50.0	1,139	50.0	513	22.5	1,766	77.5
South (Aqaba)	520	65.1	279	34.9	420	52.6	379	47.4
Average		55.0		45.0		31.2		68.8

Table VIII.
Purposes of using e-Government services in Jordan

E-services	North (Mafraq)		Middle (Zarqa)		South (Aqaba)	
	No. of citizens	%	No. of citizens	%	No. of citizens	%
Finding information on required regulations, procedures, documentations and forms	394	32.4	741	32.5	401	50.1
Paying financial dues	62	5.1	114	5.0	198	25.0
Submitting an application	0	0	0	0	174	22.2
Tracking an application	91	7.5	168	7.0	186	22.7

E-services	North (Mafraq) No. of citizens	%	Middle (Zarqa) No. of citizens	%	South (Aqaba) No. of citizens	%	Average %
I prefer to go personally to the government department to end my paperwork	516	42.2	969	42.5	40	5	29.9
I have no trust in dealing with government departments through the Internet	61	5.0	109	4.8	100	12.5	7.3
I have no trust in the information published on through the Internet	62	5.1	119	5.3	40	5.0	5.1
I cannot afford buying a computer and subscribe in the Internet	182	15.0	342	15.0	39	4.9	11.6
I have no trust in paying money through the Internet	212	17.4	399	17.5	119	14.9	16.6
Dealing through electronic government will waste my time	0	0	0	0	0	0	0
I have no trust in data privacy when dealing with e-government	61	5.0	114	5.0	46	5.3	5.1
Young people is more capable than older people when dealing with e-government	0	0	0	0	14	2.1	1.0

Table IX.
Reasons for not using e-Government services in Jordan

prefer to perform some of the governmental services online. To find out what kind of e-Government services is most used by the people of Jordan, we asked a series of questions about peoples' most important governmental services available on the Internet. The most frequently used service was "Checking traffic tickets", while the least service was "Renewing the family document". Table X presents the percentage of usage for a number of e-Government services in Jordan.

Most of the e-services shown in Table X (above) are informational, whereas none of it is transactional; by transactional, we mean that a citizen can perform the whole service online (including payment). Therefore, it is important to find out whether citizens are interested in such sophisticated services and whether they are willing to use them when available and whether they think that they would benefit them. The following Table answers these questions in numbers (Table XI).

The table indicates that at least half of the people of Jordan are aware of the benefits they would gain from using the transactional e-Government services; however, the majority of them are not interested in using such services even if they are available and most shockingly that they are not willing to use it even if it saves them time and cost.

E-Government services	%
Checking traffic tickets	84.6
Information about the whether	56.4
Renew passport	34.2
Information about car tax (customs)	33.8
Renew ID card	32.6
Renew a driver's license	20.9
Paying bills	19.2
Apply for job	18.1
Renew health card	11.5
Pay taxes	9.8
Tax refund	8.3
Income tax settlement	7.7
Tax situation	7.6
Renew family document	3.6

Table X.
Percentage of the most required e-Government services in Jordan

If Jordan's e-Government is to provide more transactional e-Government services	North (Mafraq) No. of citizens	%	Middle (Zarqa) No. of citizens	%	South (Aqaba) No. of citizens	%
I would benefit from such services	636	52.3	1,196	52.5	399	49.9
I would use such services	365	32.1	684	30.0	339	42.4
I would complete my transactions in less time and cost	335	29.5	627	27.5	380	47.6

Table XI.
Willingness to use transactional e-Government services in Jordan

5.5 Factor analysis for the most used e-Government services in Jordan

The results presented in Table XII represent the factor analysis of e-Government services (collected from the three selected governorates). Using a factor analysis cut-off level of 0.5, four factors were considered the main reasons of using e-Government services in Jordan, which we described as: "personal information", "security and health information", "tax information" and "other information".

The first factor "personal information" is highly correlated with three variables, the second factor "document information" is highly correlated with five variables, the third factor "payments information" is highly correlated with five variables, while the last factor "other information" is highly correlated with one variable which is "information about the weather" which was also found to be the least evaluated e-Government service in practice. These factors describe the usage and the context within which, to some extent, 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 III of the research (as shown in Figure 5).

6. Discussion

Assessing the maturity level of e-Government initiative is a complex task in terms of identifying the criteria or factors according to which the assessment will be carried out. In this paper, we aimed to abstract the assessment using a general but comprehensive

E-Government services	Factors: Personal information	Document information	Payment information	Other information
Apply for job	0.784			
Information about checking traffic tickets	0.973			
Information about car tax	0.973			
Renew passport		0.894		
Renew ID card		0.865		
Renew a driver's license		0.776		
Renew health card		0.974		
Renew family document		0.933		
Pay taxes			0.928	
Tax refund			0.874	
Income tax settlement			0.842	
Tax situation			0.841	
Paying bills			0.973	
Information about the weather				0.869

Note: Only loadings greater than 0.50 are shown

Table XII. Factor analysis for the most used e-Government services in Jordan

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. Considering the respondent's profile, we argue that the respondent's age structure, to some extent, increases the accuracy of the results, as this category of age tends to have more interest in technology in general and in electronic applications (e.g. e-Government applications and services) in particular (Al Nagi and Hamdan, 2009). Furthermore, there was a high percentage (85 per cent) of computer usage among respondents. This percentage rate is reasonable given the characteristics of the sample that have access to computers and the Internet, and tend to rely on it for various purposes (e.g. communication, education, entertainment and other purposes).

In the early years of most of the 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 years, this focus tends to move toward citizens (demand side) and their usage of these services to achieve what is so-called citizen-centric approach. However, the findings have shown that the Internet cost in Jordan is the main barrier for using the Internet, especially in the north and the south regions due to socioeconomic reasons. Although, in this regard, Internet security has always been the key barrier for using the Internet in the developing countries (Tohidy, 2011; Alshehri *et al.*, 2012; UNPAN, 2012).

Public awareness and usage of e-Government services are key factors for its success. The questionnaire findings indicated that 55 per cent of the Jordanian citizens are aware of Jordan's e-Government, whereas 45 per cent of them have never heard of it. This indicates that there is a noticeable lack of e-Government awareness among the Jordanian citizens. In terms of usage, research findings have shown that the respondents of the three regions mainly access the e-Government Web sites to get information about government services (e.g. regulations, procedures, required documentations and forms).

This indicates that there is a growing interest in the usefulness of e-Government among the Jordanian citizens. However, a very disappointing and shocking result is more than 70 per cent of the respondents who used e-Government services claim that they never got any useful information when using e-Government Web sites as a source of information. This, in turn, will reduce the level of adoption and acceptance of e-Government services among the Jordanian citizens. Accordingly, we argue that after more than ten years of launching the e-Government initiative in Jordan, its main objectives have not yet been met. The findings have shown a lack of service delivery across society in some regions of Jordan. The ICT readiness and infrastructure is still modest and does not provide a strong basis for e-Government development. Finally and most importantly, the findings have shown that citizens do not consider the informational e-Government services as a useful and alternative service delivery channel. In terms of using transactional e-Government services, findings have shown that the majority of the respondents are not interested in using such services and not willing to use them knowing that it can save them time and cost. By all means, this is a shocking result as this, as an indication, would generate a serious challenge for the adoption and usage of such services in the future. The government of Jordan has to seriously consider this indication before moving up to the transactional stage in its e-Government development process.

The most required e-services, as shown in Table XII, based on factors analysis, indicate that such services are related to the needs of the people. For other Jordanians, the importance of services may be ranked in a different manner mainly based on their own needs. A very important issue that, as shown earlier in Tables VI and IX, nearly 20.3 per cent of the study sample in the three governorates agreed that they were worried about security of the Internet, mainly they were concerned about giving personal information over the Internet. Generally speaking, there is a lack of trust of using online transactions, especially when it comes to personal and important documents or payments. This may also be related to the culture in general within Jordan where the main use of Internet still seems to be for entertainment (84.1 per cent). For example, only 12.6 per cent of the sample did shopping online. Using e-Government services within a culture like Jordan is problematic and needs serious attention. Furthermore, this is compatible with the other empirical studies that revealed that the usage of e-services in Jordan is often associated with security and privacy assurances provided to users (Tohidy, 2011; Zhaoa, 2013; UNPAN, 2012).

7. Conclusions, recommendations and future work

The Jordanian e-Government project has been launched more than ten years ago, and based on the different sources of data and information, and after distributing 7,238 questionnaires in three Jordanian governorates, results have shown that there is a modest demand for e-Government services among Jordanian citizens. The paper has revealed that the high cost of Internet, security fears, lack of awareness, Internet is not a preferred way for dealing with government transactions and trust in the Internet are the key reasons for this unpretentious demand. Back to our research question in terms of usage of e-Government services, the majority of the research sample has stated that their usage of e-Government services is restricted to finding information on required regulations, procedures, documentations and forms. The research shows that issues like privacy and security concerns, affordability and acceptance appear to be the major

challenges for adopting e-Government services and, therefore, need attention in designing, developing and implementing new e-Government services. However, the challenge of the country's low ICT infrastructure needs to be kept in mind. 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 as exposed in the paper.

In terms of awareness of the Jordanian population of e-Government services, we concluded that the gap in the G2C e-services provision identified earlier 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 have high income, have access to the Internet and use it for various reasons) implies that they should at least know what e-Government 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.

In terms of the peoples' attitudes toward using e-Government services, the peoples' attitudes are changing and determined by various factors and issues reported in the paper. A striking result that is a large percentage of the Jordanian citizens are not interested in using e-Government services and are not willing to use them even if it offers more benefits than the traditional services. Therefore, the government of Jordan has to work on increasing the awareness of the benefits of its e-Government services. This is important because the e-Government awareness in Jordan has not reached the required level necessary to empower citizen's participation. Furthermore, Jordanian government should launch systematic and comprehensive e-Government initiatives and plans of citizens' encouragement and awareness of the provided e-Government services.

This research, like any other, has its own set of limitations, the selected governorates might not be the best governorates to represent the three regions of Jordan, the data took almost 15 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 generalizable. However, our findings may be useful, as they provide rich insights to policy-makers in Jordan and other developing countries for designing, planning and implementing their e-Government initiatives.

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. Future research should also be targeted toward a more comprehensive sample which includes people that represent different demographics to further analyze the actual situation and enable the decision-makers in the Jordanian Government to plan and implement new e-Government initiatives more successfully in the future. These findings are hoped to be useful for researchers, practitioners and policy-makers.

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