Understanding Factors Influencing Citizens' Adoption of e-Government Services in the Developing World: Jordan as a Case Study

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Abstract: Developing countries have established promising e-Government initiatives with the objective of enhancing the accessibility of government services and information for their citizens. However, governments tend to design and launch online services based on their understanding of what citizens need, surprisingly, without actually measuring what increases citizens' willingness to adopt web-enabled services. Governments must first understand variables that influence citizens' adoption of e-Government in order to take them into account when delivering services online. The lack of systematic demand-side studies leaves governments with almost no information on how exactly to channel their efforts and financial resources in this area. The main objective of this paper is to examine the variables "needs" that influence citizens' adoption of e-Government services in Jordan. A sample of 660 people representing the Jordanian e-Society responded to an online survey to identify important variables that governments must consider when delivering services online.

Keywords: Internet, Innovation, e-Government, Adoption, Citizen Trust, Developing Countries.

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1. INTRODUCTION

The last decade witnessed a revolution in Information and Communication Technologies (ICT). This revolution has not only changed the daily life of people but also the characteristics of the interaction between governments and citizens. Such changes, in turn, are quickly being transformed into new forms of government, namely, e-Government [1]. By the early/mid 1990's the USA, Australia, some European Union (EU) countries together with other countries who were applying New Public Management (NPM), have been early adopters of e-Government programmes [2,3,4] By the year 2000, most of countries around the world including some developing counties followed the steps of the world most developed economies and deployed their national e-Government projects [5,6,7]. e-Government has become a global phenomenon, similar to many other innovations terms that have arisen during the nascent periods of the Internet age [8]. The United Nations (UN) Report 'Benchmarking E-Government: A Global Perspective' [9] which summarised the global e-Government presence during 2001, concluded that out of 190 UN member states, 88.9% of their national governments use the Internet in some capacity to deliver information and services for citizens and businesses. More recently the UNPAN [10] assessed more than 50,000 characteristics of e-Government websites of the 191 UN member states in order to assess the development of their e-Government projects. e-Government as a term has been widely defined as a tool to achieve better services to citizens, The UN and the American Society for Public Administration [9] defined e-Government as "utilizing the Internet and the World-Wide-Web for delivering government information and services to citizens", e-Government also was defined as "governments' efforts to provide citizens with the information and services they need, using a range of information and communication technologies [11]". Other researchers indicated that "e-Government is a way for governments to use the most innovative information and communication technologies, particularly web based Internet applications, to provide citizens and businesses with more convenient access to government information and services and to provide opportunities to participate in democratic situations and processes [12]". Other researchers stated that "e-Government employs technology, particularly the Internet, to enhance the access to and delivery of government information and services to citizens, businesses, government employees, and other agencies [13]". Therefore citizens hold a key position in e-Government deployment and development [14]. In addition of e-Government having a major goal of servicing people, e-Government itself has been built on New Public Management (NPM) practices which one of its main pillars has been the building of good relationships with citizens through what is known as Customer Relationship Management (CRM) [15,16] CRM is described as being at the heart of NPM [17]. Therefore it is not surprising to find in the e-Government literature new managerial concepts, such as Citizen Relationship Management (CzRM), citing the need to primarily focus on citizen satisfaction [18]. It is also

important to highlight that e-Government projects when firstly launched in the developed world also came as response to growing citizens demand for online public services [19,20,21]. This has led to most of e-Government project adopters declaring a citizen-centric strategy. The president of the USA in the year 2001 has said that e-Government will "shift power from a handful of leaders in Washington to individual citizens [22]". The reality of this statement may be confirmed by the actual rate and types of services accessed by the population in the USA, and the propensity of central government to meet that demand.

2. BACKGROUND LITERATURE

2.1 UNDERSTANDING THE PROBLEM

The wide spread implantation of e-Government around the world has recently attracted the attention of academic researchers. Understanding e-Government development and exploring variables that affect e-Government development have become an important research topic [23]. Researchers following e-Government development indicated that "e-Government has become an evolving and important research area in the Information Systems (IS) field [24]". The idea of governments around the world declaring themselves as suppliers of services adopting a citizen-centred strategy in order to achieve social and economic development goals has recently caught the attention of numerous e-Government researchers. Many of those researchers suggest that governments, in general, assume that people demand e-Government services. In addition, governments tend to supply people with what governments think is important while neglecting people's actual needs. This however is creating a mismatch between the demand and the supply of e-Government [25,26,27,28]. Unsurprisingly, Accenture [90] in their international e-Government study concluded that governments are making service investment decisions without a clear view of the outcomes they affect. Other researchers refer to a recent survey within the EU indicating the scale of this problem [29]. When comparing the percentage of individuals who used the internet in the EU within the 3 months prior to conducting the survey by the actual use of the internet by surveyed individuals for obtaining information from public authorities' websites. Interesting findings indicate that of the EU countries there is a big gap between the potential and actual usage of online governmental information. Some countries have less than 10% of the population accessing e-Government. The scale of this gap is expected to be much larger within developing countries since the supply-side involves variables including what is available, the quality, and usability of the services [30]. These variables are usually to a very low standards in most developing countries [9,10,23] Add to this problem that most governments and services are lacking the ability to address citizens' true needs and requirements [31]. Research also suggests that governments who pay attention to the demand side of e-Government have succeeded in achieving enormous benefits leading to effective e-Government outputs. Canada for example in the year 2005 was categorized for the fourth year in a row as the most e-Government-enabled country [32]. The most likely reason for this is that Canada's regular surveys of citizens and businesses attitudes and needs appear to be the most extensive [28].

2.2 PREVIOUS RESEARCH

Considering the general lack of research on citizens' e-Government demand, still attempts have been made to examine the level of demand on e-Government service and attempt to identify variables that increase this demand has been performed in some studies within the developed world. Researchers proposed a model comprising variables encouraging citizens to adopt e-Government and utilize it (Citizen Needs) [33]. Their assumptions have been based on a combination of Technology Acceptance Module [34], and Diffusion of Innovations [35]. findings indicated that Perceived Ease of Use, Compatibility, and Perceived Trustworthiness are effective variables that positively influence the implementation of e-Government in the USA [33]. More recently other researcher studied the intention of students in the USA to adopt e-Voting which is a very advanced transaction type service of e-Government. They found that Perceived Usefulness, Compatibility and, Trust are influential factors in determining weather to adopt e-Voting or not [36]. Other studies compared e-Government adoption between countries in different continents, one was dedicated to compare citizens adoption of government online services between the UK and Singapore furthermore trying to understand factors increasing their demand on e-Government [37]. It was concluded that Singapore have adopted successful initiatives responding to peoples' needs leading to fundamental differences between the two countries mapped repeatedly at similar stages of evolution. E-Government usage in the UK by contrast appears to be non ambivalent to Singapore with usage rates actually falling in some areas [38]. Other studies around the world attempted to identify citizens' needs to consume e-Government services without actually measuring its effect on the demand level including China [31], UK [39] and the EU [30]. In addition to governments not realizing factors that would increase people Thom as s demand for government, evidence from e-Government research has proved that in a number of societies most users do not require high level integrative services [40], preferring basic informative government services. Other studies suggest that citizens would prefer an improvement in existing public sector services rather than having services delivered online [41]. This is creating a mismatch between the supply and demand of e-Government [25,26,27,28].

3. RESEARCH GOAL

The Ministry of Information and Communications Technologies (MoICT) in Jordan (previously known as the Ministry of Post and Communication) started an e-Government program towards achieving the e-Government vision by the year 2005 [42,43]. The vision was that e-Government would be a contributor to Jordan's economic and social development by providing access to e-Government services and information for everyone in the Kingdom irrespective of location, economic status, IT ability, or education. e-Government would represent a major shift in the role of government towards the "client-focused" delivery of services, rather than the government as a collector of information solely for its own purposes. This research paper will examine the Jordanian citizen's demand on e-Government services in addition to identifying factors that will increase the people's demand on e-Government services. The measurement of people's demand levels on e-Government services in addition to testing variables that would increase it in a developing country such as Jordan will provide an insight to unexplored area within e-Government research since most if not all similar studies are conducted in the developed world. This will open the opportunity for future comparison on variables influencing citizen adopting on e-Government between the developed and developing world.

4. RESEARCH MODEL

The research model for this study will examine people's demand on different levels on e-Government services in addition to testing different variables that might affect citizens' demand on e-Government. This model is illustrated in Figure 1.

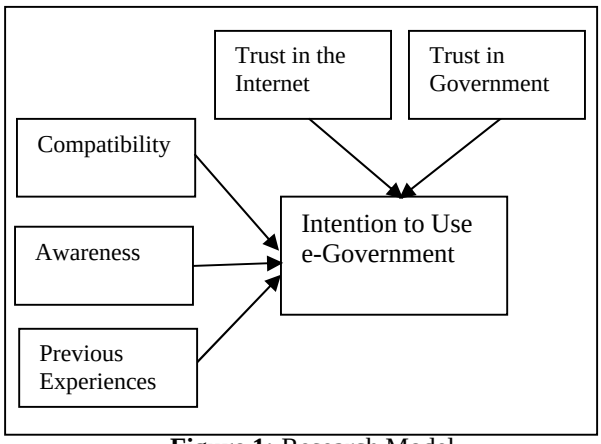

Figure 1: Research Model

The model has been constructed based on similar models reviewing the adoption of e-Government mostly tested in the developed world, in addition to different e-Government literature related to the area from , table 1 summarises e-Government literature that highlighted the importance of chosen variables on people's adoption of e-Government .

Table 1: Proposed Variables Affecting Citizens Demand

Variable	Description	Reference
Trust of the Internet	Trust level that people have in the Internet and its applications.	[44,45,33,36,39, 31,46]
Trust in Gov.	Trust levels that people have in their public sector agencies.	[44,47,48,49,50,39,31, 33,36,46]
Compatibility	Innovation being compatible with existing values, beliefs, experiences of adopters.	[51,52,53,54,55,56,44, 33, 36]
Awareness	People's knowledge of e-Government project, and the availability of electronic services.	[57,58,8, 59, 39]
Previous experience	People who experienced e-Government services satisfaction and their perceptions.	[37,60,28, 61,46]

4.1 DEPENDENT VARIABLE

The dependent variable Intention to Use (IU) e-Government will determine the demand on different levels of e-Government service. Demand levels are divided into four major categories. These are informative, interactive (e.g. e-mail inquiry), integrative (e.g. provide personal info), and advanced integrative (e.g. pay online).

4.2 INDEPENDENT VARIABLES

Independent variables are the variables that are expected to affect people's levels of demand on e-Government services, these are:

A) TRUST IN GOVERNMENT AND THE TRUST IN INTERNET: Trust has been revealed as an important variable determining people's demand on e-Government in a number of e-Government studies. In some studies three modes of trust production [61] that will determine people's trust when interacting with Government. These are [62]:

- Characteristic based trust; produced through expectations associated with personal characteristics such as race, age, or gender.
- Process-based trust; garnered through expectations of reciprocity in which the giver essentially obligates the receiver to return goods or services of equivalent "intrinsic or economic value [63]".
- Institution-based trust;: either directly through the adoption of professional standards or codes of ethics or indirectly through the observance or administration of laws and regulations.

It was concluded that in the virtual world characteristic-based trust is difficult to establish as personal characteristics are more hidden, leaving institution-based and process-based trust as primary areas of interest. Their argument leads to the conclusion that trust in e-Government is divided into two main categories [61]:

1- Trust in the government (Institution-based Trust) is the trust level that people have in their public sector agencies and government.

2- Trust in the Internet (Process-based Trust) is the trust level that people have in the Internet and its applications.

A number of researchers support this argument by stating that successful diffusion and acceptance of an e-Government service is contingent upon citizen trust in both the government and the technology that supports the service [33]. Evidence produced by a USA based survey demonstrated that trust in government and the Internet will increases demand on e-Government [33]. Other researchers examined the adoption of e-Voting (Type of e-Government services) in the USA, where trust in government and trust in the Internet also have been found to be significant variables influencing the adoption of e-Voting [36]. Studies have also been concerned with the importance of trust in government in affecting demand levels on e-Government [64,65,66]. Similar to e-Government services research demonstrated the positive effect of trust in the Internet on increasing the level of demand on Electronic Commerce (EC) activities [67,45,47,50]. In developing countries, people in general have low trust in their governments. This is because of the gap between public expectation and perceived governmental performance, economic performance, the role of mass media, political scandal, changes in social capital and culture, and perceived policy failures [68]. Also most of the people in developing countries are not involved in EC application. This is believed to have an impact on people trusting the Internet which is affecting their demand on e-Government. Researchers found that only one-third of the people who have used EC and one-fifth of the people who do not use EC believe that the government can keep private information shared through the e-Government safe and confidential [60]. Non-Internet users generally have less confidence in online information and in the institutions running the Internet. They are also more anxious about the possible risks. Distant from the technology, they are most uncertain of its value. The risks experienced in using the Internet are more often less than the risks imagined by non-users, who also often underestimate the benefits of the Internet [69]. Trust in the Internet and government are expected to be some of the Jordanian people's concerns that need to be addressed in order for them to adopt e-Government.

B) COMPATIBILITY: is the degree to which an innovation is seen to be compatible with values, experiences, beliefs, and needs of adopters [35]. The OECD [70] in their published review "Engaging Citizens Online for Better Policy-Making" clearly highlight the cultural aspects within countries as a barrier to people's implementation of e-Government. Researchers indicate that citizens who are e-savvy and use the Internet regularly to communicate and complete transactions are keen to interact with other people, organizations, businesses, and government using the Internet [33]. This is because when people adopt the Internet they will have higher compatibility levels with its applications. Previous research investigating variables affecting citizens' intentions to use online applications concluded that compatibility is a significant variable, having a positive effect on e-Government and EC adoption [56,48,36,33] Compatibility is one of the most important variables to be measured since it will reflect the cultural acceptance of e-Government in the e-Society. Cultural barriers for citizens are yet to be explored in developing countries.

C) AWARENESS: This is a variable associated with people's knowledge about e-Government and the availability of electronic services online. Recent research conducted in Lebanon, which is a Middle East country with a similar profile to Jordan, indicted that awareness of the existence of e-Government services is positively related to the usage of e-Government services [58]. Other studies found that awareness is a variable that will increase the demand on e-Government services between Small and Medium Enterprise's (SME's) within the UK [59]. It was concluded that the UK government is not putting enough effort into promoting e-Government services which has let to low demand on e-Services. In support with this some research findings indicate that the lack of awareness in the UK is a problem affecting the progress of e-Government since people and businesses don't know that the services already exist [8].

D) PREVIOUS EXPERIENCE: Previous experience with e-Government is a variable associated with people who have been previously engaged with e-Government. It will measure their satisfaction with e-Government services. The Jordanian e-Government project started in the year 2001. It is expected that large number of Internet users have interacted with e-Government and this has affected their demand. In a recent e-Government study the question "Are citizens having a positive experience when they use e-Government?" was included as an important variable to encourage people to move from the street level to the server's level [28]. Nevertheless, the same study encourages governments to add value to services provided online; concluding that a higher level of perceived relative advantage increases citizens' intentions to use state e-Government services. Findings from a USA based research emphasises on the importance of citizens having a good experience with e-Government services since citizens' experience will not only affect the user but the whole society [60]. It is

agreed on that citizen experiences and satisfaction with e-Government is positively associated with demand on e-Government services [61]. Businesses as well are affected by previous experience with e-Government; a survey conducted in the UK to measure business acceptance of e-Government services indicated that business in general thinks that e-Government services are not effective because of the huge amount of quantity and the poor quality of information provided on government websites. They concluded that this has led to a substantial decrease in the demand for e-Government services [59].

4.3 HYPOTHESIS

In summary, model and hypotheses testing was conducted with one dependent variable IU and five independent variables: trust in the Internet, trust in government, compatibility, awareness, and previous experience. The basic hypotheses for this research are shown in Table 2.

Table 2: Research Hypotheses

Hyp. #	***Hypothesis***	***Construct***
Hp1	Most of the e-Society would prefer low levels of e-Government services.	Intention to Use (IU)
Hp2	People with high trust in the Internet will have more intention to implement e-Government	Trust in the Internet
Hp3	People with high trust in the Government will have more intention to implement e-Government.	Trust in Government
Hp4	People with higher compatibility with e-Government will have more intention to implement it.	Compatibility
Hp5	People with previous positive experience with e-Government will have more intention to implement it.	Previous Experience
HP 6	People with more awareness of e-Government will have higher intention to use it	Awareness

5. RESEARCH METHODOLGY

5.1. SAMPLE

A random sample of 660 Jordanian participants completed the online survey. The reason why internet users have been chosen to be surveyed is that previous research on the cause of usage or non-usage of e-Government has been analyzed primarily in terms of access and availability [60]. The emphasis on access has caused discussions about the lack of e-Government usage to focus primarily on the ‘‘digital divide’’ rather than social or behavioral reasons (people’s needs) that might drive people to choose not to access and use e-Government information [60]. Some experts argue that universal physical access should not be provided unless the indicates that the usage of e-Government has not grown in the past two years and in some cases has fallen in the UK [72]. Therefore, this research does not investigate people who are electronically incapable of accessing services, so that the research is not be limited by being focused on the access domain.

SAMPLE DEMOGRAPHICS: 85% of respondents were aged between 18-35 years old, 72% are males, 84% have university education, and 88% were located in the capital Amman. The demographics presenting the Jordan’s Internet users are compatible with previous e-Government studies [71,73,40,74,20,60,61,75,28] who studied the characteristics of internet and e-Government users and found that age, education, income, location, and gender were major elements in determining if a person is an internet user.

INTERNET EXPERIENCE: In general, most of the participants are described to be highly connected and skilled internet users. 86% of respondents have more than 3 years experience in using the internet, 86% are accessing the Web on daily basis and 94% have internet connection either at home or work or both. Respondents internet capability points out that people who were able to complete a task of an online questionnaire which in its structure is somehow similar to an e-Government service must have a very high capability level to interact online.

5.2 INSTRUMENT DEVELOPMENT

In order to achieve the maximum level of efficiency in designing the online survey, most of the variables have been based on similar constructed questionnaires used in previous studies including [76,47,48,33,36]. All items used to measure the six variables (Intention to use, Compatibility, Previous experience, Awareness, Trust in state government, Trust in the internet) are rated on a scale of 1 to 5.

5.3 INSTRUMENT VALIDATION

The reliability of the survey items was calculated using Cronbach’s alpha [77]. Table 3 presents the results of the reliability analysis, demonstrating acceptable reliabilities (above 0.70) for all scales.

Table 3: Reliability Analysis

Construct	**# of Items**	**Reliability**
Trust in the Internet	3	.958
Trust in Government	4	.910
Compatibility	3	.807
Previous Exp.	3	.898
Awareness	4	.940

Factor analysis using principle components with Promax rotation was used to evaluate construct validity. As

shown in Table 4, all items loaded properly on their expected factors.

Table 4: Factor Analysis

Items	Factor Loadings				
	Trust Gov.	Per. Exp.	Trust Internet	Awa.	Com.
TGov2	.891				
TGov4	.942				
TGov1	.859				
TGov3	.940				
PExp_1		.896			
PExp_2		.920			
PExp_4		.781			
PExp_3		.825			
Tint_1			.924		
Tint_2			.862		
Tint_3			.811		
AW3				.747	
AW1				.722	
AW2				.990	
Comp1					.815
Comp3					.955
Comp2					.694

The basic characteristics of the variables used to test research model and hypotheses are presented in Table 5.

Table 5: Variables Results Summary

Variable	# Items	Mean	Stand. Dev.
IU	4	3.19	1.567
Trust in the Internet	3	2.6	1.23
Trust in Government	4	2.78	1.31
Compatibility	3	2.73	1.35
Previous Exp.	3	3.51	1.24
Awareness	4	3.83	1.43

6. TESTING HYPOTHESIS

6.1. GENERAL IU e-GOVERNMENT

IU results shown in table 6 indicate that the majority of people would use government websites for informative online services. However, as the level of government services increased, the intention of participants to use them decreased, with a majority of people not willing to access advanced services online. Participants had also been asked whether they preferred the use of online government services to face-to-face interaction with government. The results indicated that 61% of participated preferred face-to-face information gathering and 85% preferred face-to-face payments. These results reflect the low demand of the Jordanian e-society for e-Government services, with most of those questioned still preferring traditional face to face government services. These findings are compatible with similar e-Government research which has been conducted on societies in the developed world [40, 41, 61]. The results support the first hypothesis see table 6.

Table 6: Intention to Use Frequency Results

Would you use Government website to	Yes, Possibly yes	Not sure	No, Possibly No
Gather information (Informative)	66 %	7%	27%
Send an e-mail for a query (Interactive)	48%	12%	40%
Submit personal information if needed (Transactional)	32%	13%	55%
Pay services charges online (Integrative)?	29%	7 %	64%

6.2 TESTING INDEPENDENT VARIABLES

In order to test the effect that independent variables have on people's IU e-Government, collected data has been analyzed using multiple linear regression analysis to determine the relationship between IU (dependent variable) and citizen perceptions of state e-Government initiatives (independent variables). Regression analysis is seen as the most appropriate analytical technique for this purpose [78]. This analytical method has been previously used successfully for the same purpose in similar e-Government studies[50,48,49,33,36]. Multi-co-linearity was not a concern with this data set as confirmed by the main effect regression models with Variance Inflation Factors (VIF) ranged from 1.775 to 3.088. Outlier influential observations were identified and eliminated with leverage, studentized residuals, and Cook's D-statistic. Assumptions of multivariate normal distribution, independence of errors, and equality of variance were then tested. There were no violations of these assumptions. The model explains 69.9 percent of the variance in citizen adoption of e-Government; adjusted R Square is 0.699, F=204.062, p<.0001. Three of the five adoption Variables - Trust in Government, Trust in the Internet and Compatibility were found to be significant in predicting citizen IU e-Government services. Table 7 presents the results of the individual hypotheses being tested.

Table 7: Hypothesis Testing

Hyp.	Variable	Coeff.	t-value	Sig.	Support
Hp2	Trust Internet	0.177	4.17	0	YES
Hp3	Trust Gov.	0.326	6..55	0	YES
Hp3	Compatibility	0.364	8..32	0	YES
Hp4	Previous Exp.	0.05	0.044	0.255	NO
Hp5	Awareness	0.12	3.19	0.002	NO

7. DISCUSSION

The current research shows that Internet users in Jordan have a modest demand (39%) at the informative level of e-Government. The level of demand dramatically decreases as the services level of e-Government increases. The level of demand on e-Government is expected to be much lower among people who are not internet users and who account for more than 80% of the Jordanian population [79,80]. The Jordanian government on the other hand is concentrating on achieving high level of online services believing that e-Government success can be achieved by enabling a complicated service online [43]. The Jordanian government may have to concentrate on achieving high quality low level informative services before moving to more advanced levels. This will give the government the time to focus on simple e-Government services that are more responsive to their needs and at the same time establish a positive online relationship with citizens, while at the same time working on increasing the number of internet users in Jordan before paving the way to more advanced levels of e-Government services. The analysis of the collected data indicated that trust in the Internet is a variable which has a positive relation with the IU e-Government. Lots of cyber laws are still missing in Jordan with important online transaction laws still pending regulation [81,82,83].

A recent comprehensive research studied trust in the Internet, what they refer to as cyber trust, within British society, using a qualitative quantitative survey that had more than 2000 participants [69]. It has been found that people who do not use the Internet generally have much lower levels of cyber trust than people who use it, concluding that digitally divided people have lower trust. This is because Internet users know how to collate and interpret online information which could enhance their ability to authenticate the value of products, services and information, thereby protecting themselves against cyber fraud and crime. However, others with less internet expertise, tend to remain offline, fail to experience the Internet and are more likely to distrust the technology. Therefore trust in the Internet is expected to be even less among the majority of the non-Internet users in Jordan. To overcome low trust in the Internet in Jordanian society, government must take steps to ensure that legislation is available for both electronic commerce (EC) and e-Government activities. However, government can start with legislating EC laws then think about more complicated legislations that will enable e-Government activities. Also in the advanced stages of e-Government, Jordan could establish a Payment Gateway which would be a secure webpage so that all online transaction payments to government could be conducted through it. Trust in the government also has been found a variable which has a positive relation with the IU of e-Government. Therefore government must try to increase trust among their internet users so that they will use e-Government services. The Korean and Japanese experiences with e-Government show that the implementation factor among citizens for e-Government is not of a technical nature but is related to trust in their governments. Citizens of Korea and Japan do not trust the government to separate itself from other interests, particularly the military departments of the government and this significantly affect the adoption of e-Government in those countries [84]. Reports Without Borders in their annual report which reviewed freedom of speech on the Internet around the world listed a number of developing countries around the globe as enemies of freedom of speech because of the arrests and prosecution of members of the public for expressing their political views on personal website, Internet chartrooms and discussion forum [85], such practices might effect people's general trust in e-Government exposing their concern of government using ICT to monitor their activities in what is referred to in e-Government literature as the 'Big Brother' State [86,87]. To boost perceptions of trust in government, agencies must convey to citizens that state government employees have both the desire (benevolence) and ability (competence) to provide citizen-centred information and services designed to meet their needs. Agencies can reassure citizens of the reliability of e-Services by including easily visible privacy statements on their sites and by increasing government website legitimacy when designing their websites [33]. Government transparency is associated with the level of trust on it [88,89], to achieve more transparency in more advanced stages of e-Government. Government can launch and distribute documents to citizens on the role of e-Government services which contain pictures of employees who provide the services. This documentation could be provided both online and offline [33]. The higher level of compatibility will increases the level of the IU e-Government services. Compatibility applies when something fits within someone's life style and the way likes to do things. Therefore compatibility is strongly associated with the person's ability and adaptability to use and access the internet. The Jordanian government must think of new methods that would increase the Jordanian population ownership of computers and adaptability with ICT by introducing it to different aspects of life including education, public sector working environment and commercial activities.

8. LIMITATIONS AND FUTURE RESEARCH

The main limitation of this research has been that studied variables influencing the demand level of e-Government have been based on previous research and researchers' understanding of e-Government. Therefore there might be a chance of some variables influencing the adoption of e-Government which are not included in the hypothesis. Future research could investigate different segments of the Jordanian society's needs from e-Government using

qualitative methods such as focus groups and interviews. The research would identify in which circumstances each segment would adopt e-Government services, what level of services is required, what cultural, behavioural and economic factors are more decisive in adopting e-Government services. One interesting area for future research would be the study of best methods and approaches to empower non Internet users in Jordan. Costs, time, acceptance would be evaluated and the same research would identify which segments can be more effectively empowered.

9. CONCLUSION

With most developing countries around the world deploying e-Government projects with the hope to achieve advanced levels of e-Government services within short time periods [23], governments may have to reconsider their objectives and try to first achieve high value informative levels of e-Government services creating an effective interaction channel with citizens and establishing good relationships through it before moving to more advanced levels of online services. With regard to citizens' needs although they seem obvious to most e-Government experts, most governments fail to satisfy citizens' needs rather concentrating on technicalities (computer and internet access for their citizens). As a result discussions on the general lack of e-Government usage have primarily focused on the ''digital divide'' rather than social or behavioral reasons (peoples' needs) that might cause people not to access and use e-Government [60]. This study has identified Compatibility with e-Government, Trust in Internet and Trust in Government as significant variables that will increase citizens' demand on e-Government services. Governments must integrate citizens' needs to e-Government strategy and the process of service development in order to achieve maximum benefits from their e-Government promises. Developing countries implementing e-Government should also consider methods and invest in projects that would boost EC, and e-Business activities and develop their e-Society before trying to achieve advanced levels of e-Government. This will give them the chance to empower their citizens and prepare them for advanced e-Government services.

REFERENCES

[1] Akman, B., A. Yazici, A. Mishra, , and A. Arifoglu. e-Government: A global view and an empirical evaluation of some attributes of citizens. Government Information Quarterly. v. 22, p.239–257, 2005"

[2] Teicher, J., O. Hughes, and N. Dow, . e- Government: a new route to public sector quality : Managing Service Quality. v.12, n.6, p.384-393, 2002"

[3] Leitner, C. e-Government in Europe: The State of Affairs, European Institute of Public Administration, Maastricht, the Netherlands. 2003"

[4] Saxena, K.B.C. Towards excellence in e-Governance, International Journal of Public Sector Management. v.18, n.6, p.498-513, 2005"

[5] Weber, L.M., A. Loumakis, and J. Bergmen,. Who participates and why?, Social Science Computer Review. v.21, n.1 ,p.26-42, 2003"

[6] Basu, S. e-Government and Developing Countries: An Overview, International Review of Law Computers and Technology. v.18, n.1, p.109–132, 2004"

[7]. Stoltzfus, K. Motivations for Implementing e-Government: An Investigation of the Global Phenomenon, (ACM DL) Electronic Edition. p.333-338, 2004"

[8] Jaeger, T. The endless wire: e-Government as global phenomenon, Government Information Quarterly. v.20, p.323-31, 2004"

[9] UN/ASPA. Benchmarking e-Government: A Global Perspective. United Nations Division of Public Economics and Public Administration and the American Society for Public Administration. New York, 2002"

[10] UNPAN. UN Global e-Government Readiness Report 2005: From e-Government to inclusion, United Nations Department of Economic and Social Affairs Division for Public Administration and Development Management. New York, 2005"

[11] Burn, J. and G. Robins. Moving towards e-Government: a case study of organizational change processes. Logistics Information Management, 16:25-35, 2003"

[12] Fang, Z. e-Government in digital era: concept, practice and development. International Journal of the Computer, the Internet and Information. v.20, p.193-213, 2002"

[13] Hernon, P., H.C. Reylea, R.E. Dugan, and J.F. Cheverie. United States government information: Policies and sources, Westport, CT: Libraries Unlimited. p.388, 2002"

[14] Carsten, S.B. The Paradigm of e- Commercein e-Government and e-Democracy, In: Huang, Wayne; Siau, Keng and Wei, Kwok Kee (eds): Electronic Government Strategies and Implementation. Idea Group Publishing, Hershey, p.1-15, 2005"

[15] Scavo C. World wide web site design and use in public management .Public information technology: policy and management issues, Idea Group Publishing Hershey. p.299-330, 2003"

[16] Seneviratne, S.J. Informational technology and organisational change in the public sector. In Information technology and computer applications in public administration.(eds) Garson, G. D. Idea Group Publishing, Hershey, PA. 1999"

[17] Damodaran, L., J. Nicholls, A. Henney, Land, F. and B. Farbey. The Contribution of Sociotechnical Systems Thinking to the Effective Adoption of e-Government and the Enhancement of Democracy, Electronic Journal of e- Government. v.3, n.1, p.1-12, 2005"

[18] Larsen., B., and M. Milakovich. Citizen Relationship Management and e-Government, Electronic Government, Proceedings of 4th International Conference. LNCS,59, p.57-68, 2005"
[19] Ho, A. Reinventing Local Government and the e-Government Initiative, Public Administration Review. v.62, n.4, p.434-444, 2002"
[20] Edmiston, K.D. State and local e-Government Prospects and Challenges, American Review of Public Administration. v.33, n.1, p.20-45, 2003"
[21] Ho, A.T.K., and A.Y. Ni. Explaining the Progressiveness of e-Government: A Case Study of Iowa County Treasurers' Offices. American Review of Public Administration. v.34, n.2, p.164-180, 2004"
[22] Bush, G. A Blueprint for New Beginnings: IX Government Reform. Available from:http://www.whitehouse.gov/news/usbudget/blueprint/blueprint, 2001"
[23] Siau, K., and Y. Long. Using Social Development Lenses to Understand e-Government Development, Journal of Global Information Management. v.14, n.1, p.47-62, 2006"
[24] Chen, Y.N., H.M. Chen, W. Huang, and R.K.H. Ching. e-Government Strategies in Developed and Developing Countries: An Implementation Framework and Case Study, Journal of Global Information Management. v.14, n.1, p.23-46, 2006"
[25] Sealy, U.W. Empowering Development Through e-Governance: Creating Smart Communities In Small Island States, The International Information and Library Review. v.35, p.335-358, 2003"
[26] Reddick, C.G. A two-stage model for e-Government growth: Theories and empirical evidence for U.S. cities, Government Information Quarterly. v.21, p.51-64, 2004"
[27] Tung, L., and O. Rieck. Adoption of electronic government services among business organizations in Singapore, Journal of Strategic Information Systems. v.14, p.1-24, 2005"
[28] Reddick, C.G. Citizen interaction with e-Government: From the streets to servers?, Government Information Quarterly. v.22, p.38-57, 2005"
[29] Deursen, A., J. Dijk, and W. Ebbers. Why e-Government Usage Lags Behind: Explaining the Gap Between Potential and Actual Usage of Electronic Public Services in the Netherlands, Electronic Government 5th International Conference. Poland, Krakow, p. 281-292, 2006"
[30] Centeno, C., R. van Bavel, and J.C. Burgelman. A Prospective View of e-Government in the European Union, The Electronic Journal of e-Government. v.3, n.2, p.59-66, 2005"
[31] Wei, X., and J. Zhao. Citizens' requirement analysis in Chinese e-Government, Proceedings of the 7th international conference on Electronic commerce. ACM Press, New York. v.113, p.525 – 428, 2005"
[32] Accenture. e-Government Leadership: High Performance, Maximum Value. New York: Accenture, 2004"
[33] Carter, L., and F. Belanger. The utilization of e-Government services: citizen trust innovation and acceptance factors. Information Systems Journal. v.15, no.1, p.5-25, 2005"
[34] Davis, F. Perceived usefulness, perceived ease of use and user acceptance of information technology. MIS Quarterly. v.13, n.3. p.319-40, 1989"
[35] Rogers, E.M. Diffusion of Innovations, the Free Press, New York, NY, 1995"
[36] Schaupp, L.C., and L. Carter. e-Voting: from apathy to adoption, Journal of Enterprise Information Management. v.18, n.5, p.586-601, 2005"
[37] Lee-Kelley, L. and A. Kolsaker. e-Government: the "fit" between supply assumptions and usage drivers, Electronic Government, an International Journal. v.1, n.2, p.130-140, 2004"
[38] Chadwick, A., and C. May. Interaction between states and citizens in the age of the internet: 'e-Government' in the United Slates, Britain and the European Union, Governance: An International Journal of Policy, Administration and Institutions. v.16, n.2, p.271 -300, 2003"
[39] Choudrie J, V. Weerakoddy, and S. Jones. Realising e-Government in the UK: Rural and Urban challenges, The Journal of Enterprise Information Management. v.18, n.5, p.568-585, 2005"
[40] Thomas, J.C., and G., Streib. The new face of government: Citizen-initiated contacts in the era of e-Government, Journal of Public Administration Research and Theory. v.13, n.1 p.83–102, 2003"
[41] Kampen, J., K. Snijkers, and G., Bouckaert. Public priorities concerning the development of e-Government in Flanders, Social Science Computer Review. v.23, n.1, p.136–139, 2005"
[42] MoICT. Launching e-Government in Jordan a Proposed Approach: Final Report, Jordan, Amman, 2001"
[43] MoICT. e-Government Strategy, Jordan, Amman , 2006"
[44] Warkentin. M., D. Gefen., A. Pavlou, G.M. Paul Rose. Encouraging Citizen Adoption of e-Government by Building Trust, Electronic Markets. v.12, n.3, p.157–162, 2002"
[45] McKnight, H., C. Vand Kacmar. Developing and validating trust measures for ecommerce: an integrative typology, Information Systems Research. v.13, n.3, p.334–359, 2002"
[46] Horst, M., M. Kuttschreuter, and J.M. Gutteling. Perceived usefulness, personal experiences, risk perception and trust as determinants of adoption of e-Government services in The Netherlands. Computers in Human Behavior. v.23, n.4, p.1838-1852, 2006"

[47] Pavlou, P.A. Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model, International Journal of Electronic Commerce. v.7, n.3, p.69-103, 2003"
[48] Carter, L and F. Belanger. The influence of perceived characteristics of innovating on e- Government adoption, Electronic Journal of e-Government. v.2, n.1, p.11-20, 2004"
[49] Carter, L. and F. BelangerCitizen Adoption of Electronic Government Initiatives, Proceedings of the 37th Hawaii International Conference on System Sciences. 2004² "
[50] Van Slyke, C., F. Bélanger, and C.L. Comunale. Factors Influencing the Adoption of Web-Based Shopping: The Impact of Trust. The Data Base for Advances in Information Systems. v.35, n.2, p.32-49, 2004"
[51] Gatignon, H. and T.S. Robertson. A propositional inventory for new diffusion research, Journal of Consumer Research. v.11, n.4, p.849-867, 1985"
[52] Lancaster, G.A. and C.T. Taylor. The diffusion of innovations and their attributes: A critical review, The Quarterly Review of Marketing. v.11, n.4, p.13-19, 1986"
[53] Eastlick, M.A. Predictors of videotext adoption, Journal of Direct Marketing. v.7, n.3, p.66-74, 1993"
[54] Taylor, S. and P.A. Todd. Understanding information technology usage: A test of competing models, Information Systems Research. v.6, n.2, p.144-176, 1995"
[55] Nedovic-Budic, Z. and D. Godschalk. Human factors in adoption of geographic information systems: A local government case study, Public Administration Review. v.56, n.6, p.554-567, 1996"
[56] Van Slyke, C., C. Comunale, and F. Belanger. Gender differences in perceptions of Webbased shopping, Communications of the ACM. v.45, n.7, p.82-86, 2002"
[57] Reffat, R. Developing a successful e- Government, Proceedings of the Symposium on e- Government: Opportunities and Challenge. Muscat Municipality, Oman, IV1-IV13, 2003"
[58] Charbaji, A., and T. Mikdashi. A PaAnalytic Study of the Attitude toward e-Government in Lebanon, Corporate Governance. v.3, n.1, p.76-82, 2003"
[59] Adeshara, P., R. Juric, J. Kuljis, and R. Paul. A survey of acceptance of e-Government services in the UK, International Conference on Information Technology Interfaces. v.1, p.415– 420, 2004"
[60] Jaeger, T. and K.M. Thompson. Social information behavior and the democratic process: Information poverty, normative behavior, and electronic government in the United States, Library and Information Science Research. v.26, p.94–107, 2004"
[61] Welch, E.W., and C.C. Hinnant. Internet use, transparency and interactivity effects on trust in government, Proceedings of the 36th Annual Hawaii International Conference on System Sciences. 2003"
[62] Zucker, L.G. Production of trust: Institutional sources of economic structure, 1840– 1920, Research in Organizational Behavior. v.8, p.53–111, 1986"
[63] Thomas, C.W. Maintaining and restoring public trust in government agencies and their employees, Administration and Society. v.30, n.2, p.66–93, 1998"
[64] Bonham, M.G., J.W. Seifert, and S.J. Thorson. The transformational potential of e- Government: the role of political leadership, Paper presented at 4th Pan European International Relations Conference, 2003"
[65] Navarra, D.D., and T. Cornford. A policy making view of e-government innovations in public governance, Proceedings of the Ninth Americas Conference on Information Systems. Tampa, FL, 2003"
[66] Bhattacherjee, A. Individual trust in online firms: scale development and initial trust", Journal of Management Information Systems. v.19, n.1, p.21- 41, 2002"
[67] Lee, M.K.O., and E. Turban. A trust model for internet shopping, International Journal of Electronic Commerce. v.6, n.1, p.75-91, 2001"
[68] Peters, B.G. American public policy: Promise and performance. 5th ed. New York: Chatham House Publishers, 1999"
[69] Dutton, W.H., and A. Shepherd. Trust in the Internet as an Experience Technology, Information, Communication and Society. v.9, n.4, p.33-51, 2006"
[70] OECD. Engaging Citizens Online for better Policy-making. OECD Observer, OECD, Paris, 2003"
[71] Hofstetter, F.T. Internet Literacy, Fourth Edition, Irwin McGraw-Hill, 1998"
[72] The Economist. Britain: no thanks, we prefer shopping: e-Government, 4th January, 2003"
[73] Howard, P., L. Rainie, and S. Jones. Day and nights on the Internet: The impact of a diffusing technology. American Behavioral Scientist. v.45, n.3, p.383–404, 2001"
[74] Skok, W. and G. Ryder. An Evaluation of conventional wisdom of the factors underlying the Digital Divide: A Case Study of the Isle of Man, Strategic Change. v.13, p.423-428, 2004"
[75] Blackburn, C., J. Read, and N. Hughes. Carers and the digital divide: factors affecting Internet use among carers in the UK, Health and Social Care in the Community. v.13, n.3, p.201-210, 2005"
[76] Gefen, D. and D. Straub. The relative importance of perceived ease of use in IS adoption: a study of e-commerce adoption, Journal of the Association for Information Systems. v.1, p.1–28, 2000"
[77] Cronbach, L. Essentials of Psychology Testing, Harper and Row. New York, USA, 1970"
[78] Mendenhal, W. and T. Sincich. A Second Course in Business Statistics. Dellen/Macmillian, New York, 1993"
[79] Dutta, S., B. Lanvin, and F. Paua. The Global

Information Technology Report Towards an Equitable Information Society, The World Economic Forum, Oxford University Press. New York, Oxford, 2004"
[80] Dutta, S., A. Lopez-Claros, and I. Mia. The Global Information Technology Report Towards an Equitable Information Society, The World Economic Forum, Oxford University Press. New York . Oxford, 2006"
[81] REACH 3.0. Launching Jordan's software and IT industry. Jordan, Amman, 2002"
[82] REACH 4.0. Launching Jordan's software and IT industry. Jordan, Amman, 2004"
[83] Al-Omari, A., and H., Al-Omari. e-Government Readiness Assessment Model, Journal of Computer Science, v.2, n.11, p.841-845, 2006"
[84] Evans, D. and D.C. Yen. e-Government: An analysis for implementation: Framework for understanding cultural and social impact, Government Information Quarterly. v.22,n.3, p.354-373, 2005"
[85] Reporters Without Borders. Freedom of the Press Worldwide 2007 Annual Report. Paris, 2007"
[86] Silcock., R. What is e-Government?, Parliamentary Affairs. v.54, p.88-101, 2001"
[87] Jho., W. Challenges for e-Governance: protests from civil society on the protection of privacy in e-Government in Korea, International Review of Administrative Sciences. v.71, n.1, p.151-166, 2005"
[88] Welch, E.W., C.C. Hinnant, and J.M. Moon. Linking Citizen Satisfaction with e-Government and Trust in Government, Journal of Public Administration Research and Theory. v.15, n.3, p.371–391, 2005"
[89] Parent, M., C.A. Vandebeek, and A.C. Gemino. Building citizen trust through e-Government, Government Information Quarterly. v.22, p.720–736, 2005"
[90] Accenture. Leadership in Customer Service: New Expectations. New York: Accenture, 2005"