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Barriers to the use of Electronic Government as Perceived by Citizens at the Municipal Level in México

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Abstract -*The benefits of e-government services depend on the number of citizens who take advantage of them. The purpose of this quantitative, correlational research study was to determine barriers to e-government use as perceived by citizens at the municipal level in Mexico. The technology acceptance model (TAM), the diffusion of innovations (DOI) theory, and models of web trust formed the theoretical framework of the study. Several hypotheses tested the relation of demographic variables, TAM, DOI, and web trust constructs to the intention of using e-government services of 149 taxpayers of the city of Chihuahua, Mexico, who did not to use the e-government services for payment provided by the government of their municipality. The findings of this study show that trust in the Internet, trust in government, perceptions of convenience, perceptions of compatibility, access to the Internet, perceptions of ease of use, and perceptions of relative advantages are related to the intention to use e-government services. Conversely, awareness of the existence of e-government services, income level, family structure, age, literacy level, computer literacy level, gender, and possession of bankcards are not individually related to the intention to use e-government services of those persons who made face-to-face payments at the treasury office.*

Keywords- *E-government; Adoption; TAM; DOI; Citizen-centered E-government.*

1. INTRODUCTION

In the public sector, the use of information and communication technologies (ICT) allows public agencies to exploit innovative ways of interacting with citizens. The term electronic government (e-government) is used to describe the "use of information technology to support government operations, engage citizens, and provide government services" [37]. E-government implementation promotes major innovations in the way in which ICT are used in government and in the way government activities are organized [34];[9]. Digitalization of information and communication allows the institutions of the state flexibility in the location of data, decision making, services, and processes [33]; [17] and challenges the traditional approaches to management and even the role of government [30]; [14]. The efficiency derived from the use of ICT is an important incentive for leaders of the public sector to embark on electronic government projects.

The use of the Internet to transact with government has a significantly positive impact on trust and external political efficacy [11]; [40]; [4] and enables transparency and accountability while allowing citizens to interact and participate with their government. It improves the political process by creating an informed public opinion. However, the implementation of ICT in developing countries presents different challenges than those found in developed countries [29]; [1];[36]. Poor ICT infrastructure, poor Internet access, resistance from the citizens to adopting e-government, and low levels of computer literacy are some of the challenges found in developing countries when implementing e-government applications [2]; [8]. Even well-designed projects with sufficient funds, good management, and efficient execution can fail if the number of citizens willing to use e-government services does not reach a critical mass.

2. CONTEXT

Governments around the world are investing substantial resources in the implementation of e-government applications [32];[38]. Most e-government projects focus on the potential provided by Internet technologies to work as a catalyst in redefining the administrative functions and processes that government agencies execute while performing their mandates. Internet technologies also provide an opportunity to integrate processes and information of diverse agencies in order to make information exchange more efficient and effective.

The initial e-government applications implemented reflected the traditional views of ICT in government, focusing on improvement in speed and reduction in cost of the services delivered.

As e-government matures, government executives are starting to understand that the new Internet technologies allow for a new dimension to the traditional design of government information systems. New Internet

technologies allow citizen interaction, which opens up new possibilities and potential for creating new services and improve existing ones.

The growth in the number of citizens that use the Internet in many aspects of their lives requires that governments react and offer next-generation e-government services that provide value to their constituencies and go beyond the interaction offered by traditional communication channels [27]. The use of ICT by governments to interact with their constituency is creating a new form of democracy, but governments must be careful to open all available communication channels in order to avoid leaving vulnerable groups behind.

Equitable access is especially important in developing countries where vulnerable groups are often at a disadvantage. Because e-government involves complex assemblages of material, human, digital, organizational, business, and social relationships [5];[15], participation of vulnerable groups is often neglected. E-government leaders must address the fundamental problem of inequality of Internet access and use when designing e-government strategies [28]; [42]; [13]; [10]; [16]. Internet access is not only a matter of providing communications infrastructure and personal computers; once people have the infrastructure to go online, they need the awareness, skills, and online content to motivate their access [19]; [3]; [15]. This means they have overcome the digital divides of access and obtained the competencies to use ICT in a productive way [18], such as being able to use the e-government services.

In Mexico, as in many countries, vulnerable groups such as people with disabilities, older people, illiterate people, indigenous people, and people of lower socioeconomic status are the people who require most attention from government organizations. Paradoxically, those citizens who are more likely to be users of government services, and who should be the main beneficiaries of e-government services, are the least likely to use them because of their low capacity and ability to use online technologies [25]; [15]. As e-government services become more sophisticated and prevalent, an undesired situation might arise in which vulnerable groups will become less likely to use those services while wealthy citizens receive better services, and thus, social inequality grows. The provision of more electronic services by the government favors those citizens that have access to a computer and the Internet and are skilled in the use of these sophisticated tools competently [16]. In developing countries, e-government needs to focus on including and privileging vulnerable groups and playing an active role in promoting equality among citizen

3. DESIGN OF THE STUDY-MATERIAL AND METHODS

The purpose of this study was to determine barriers to e-government use perceived by citizens at the municipal level in Mexico. The aim was to determine if any relationship exists between the use of e- government services by citizens in Mexico and 15 independent variables.

Carter & Belanger [6] developed an instrument that includes constructs from Davis' [12]technology acceptance model (TAM), Rogers' diffusion of innovations theory (DOI) [35][35]and web trust models to measure the factors that relate to citizens' use of e-government services. In this study, use was made of the instrument developed by Carter & Belanger along with demographic variables to determine the barriers citizens perceive to the use of e-government.

The population under study consisted of taxpayers of the northern city of Chihuahua, Mexico, who do not use the e-government services for payment provided by the government of the municipality. The scope of this study was limited to the payment of services and taxes as opposed to many other e-government services provided by the municipality. The focus of attention was on interactions such as tax payment that have high levels of citizen involvement as opposed to other citizen interactions with the government like filing a complaint or giving an opinion, because the payment has economic and legal implications that require a higher level of commitment from the citizens' perspective. Even when both types of interactions are important for governments, only the former was the subject of this study.

The sample of the study consisted of 149 citizens who had made a payment in the treasury office of the municipal government. Those citizens were selected because they did not use the e-government services that the municipality offers for payment. The survey instrument measured items on a 1-7 rating on a Likert-type scale. A pilot test was used to train interviewers, refine the translation of the questionnaire from English into Spanish, and to ensure that the translated constructs were clear and maintained their validity as evaluated in the English version of the instrument. Alpha level for this study was set at $p = .05$. However, due to the exploratory nature of this study, findings significant at the $p = .10$ level were noted in order to suggest avenues for future research.

The following hypotheses tested the effects of the independent variables on the intention to use e-government services:

$H_0$1: Citizens' lack of awareness of e-government services provided by their municipal government is not related to the use of e-government services.

$H_0$2: Citizens' trust in the Internet is not related to the use of e-government services.

$H_0$3: Citizens' trust in government is not related to the use of e-government services.

$H_0$4: Citizens' perceptions of usefulness are not related to the use of e-government services.

$H_0$5: Citizens' income level is not related to the use of e-government services.

$H_0$6: Citizens' family structure is not related to the use of e-government services.
$H_0$7: Citizens' age is not related to the use of e-government services.
$H_0$8: Citizens' literacy level is not related to the use of e-government services.
$H_0$9: Citizens' computer literacy level is not related to the use of e-government services.
$H_0$10: Citizens' perceptions of compatibility are not related to the use of e-government services.
$H_0$11: Citizens' access to the Internet is not related to the use of e-government services.
$H_0$12: Citizens' gender is not related to the use of e-government services.
$H_0$13: Citizens who have a bankcard are not prone to use e-government services.
$H_0$14: Citizens' perceived ease of use is not related to the use of e-government services.
$H_0$15: Citizens' perceived relative advantage is not related to the use of e-government services.

4. RESULTS

Table 1 displays the frequency counts for selected variables. Of the citizens interviewed, 60% reported that they were aware that the municipal government had a web site where they could pay their taxes. Monthly income levels ranged from between 0 and 3,000 pesos up to 24,000 pesos or more with a median of 4,500 pesos. The most common structures for the respondents' households were a married couple with children (59.1%), a female-headed household with children (16.1%), and a nonfamily, single-person household (10.7%). The age of the respondents ranged from between18 and 30 years up to 61 or more years with a median of 45.5 years. The education levels ranged from less than 6 years to graduate degrees with a median of 12 years.

Table 1: Frequency Counts for Selected Variables (N=149)

Variable and category	N	%
Awareness of government web site for paying taxes		
Yes	89	59.7
No	60	40.3
Monthly income level (thousands of Mexican pesos) [a]		
From 0 to 3,000	30	20.1
From 3,001 to 6,000	52	34.9
From 6,001 to 12,000	39	26.2
From 12,001 to 24,000	20	13.4
24,000 or more	8	5.4
Structure of household		
Married couple	14	9.4
Married couple with children	88	59.1
Female-headed household with children	24	16.1
Male-headed household with children	4	2.7
Male-headed household without children	1	0.7
Nonfamily household, single person	16	10.7
Nonfamily household, two or more persons	2	1.3
Age [b]		
18 to 30 years	16	10.7
31 to 40 years	31	20.8
41 to 50 years	51	34.2
51 to 60 years	42	28.2
61 or more years	9	6.0
Level of Education [c]		
Less than 6 years	4	2.7
Elementary (6 years)	10	6.7
Secondary (9 years)	21	14.1
Preparatory (12 years)	52	34.9
College (16 or more years)	58	38.9
Graduate degree	4	2.7

Computer experience [d]		
Never used computers	29	19.5
Less than 3 years	13	8.7
More than 3 years	19	12.8
More than 5 years	45	30.2
More than 10 years	43	28.9
Access to the Internet		
No	54	36.2
Yes	95	63.8
Gender		
Male	76	51.0
Female	73	49.0
Have bankcard		
Yes	78	52.3
No	71	47.7

[a]Median: 4,500 pesos.
[b] Median: 45.5 years.
[c] Median: 12 years
[d] Median: More than 5 years

Computer literacy ranged from "never used computes" to "more than 10 years" with a median of "more than 5 years", and 64% reported having access to the Internet. The gender of the respondents was evenly divided between men (51.0%) and women (49.0%). Slightly more than half (52.35) had at least one bankcard.

Table 2 displays the psychometric characteristics for the eight summated scale scores. Cronbach alpha reliability coefficients ranged in size from r=.76 to r=.98 with a median coefficient of r=.86. This suggested that all scales had acceptable levels of internal reliability.

Table 2: Psychometric Characteristics for Summated Scale Scores (N=149)

Score	Number of items	*M*	SD	Low	High	Alpha
Total score	31	6.01	0.97	2.16	7.00	.94
Use intentions	5	5.63	1.42	1.00	7.00	.78
Perceived usefulness	5	6.35	1.01	2.2	7.00	.87
Perceived ease of use	5	6.18	1.30	1.00	7.00	.87
Perceived relative advantage	5	6.33	0.90	2.20	7.00	.76
Perceived compatibility	4	5.85	1.35	1.00	7.00	.79
Trust of the Internet	3	5.45	1.92	1.00	7.00	.98
Trust in municipal government	4	6.02	1.24	1.5	7.00	.84

Note: ratings based on seven-point metric: 1=Extremely unlikely to 7=Extremely likely.

Table 3 displays the Pearson product-moment correlations for selected variables and the intention to use e-government services. Hypotheses were tested using Pearson's correlation coefficient with the exception of hypothesis 6 which was tested using a one-way ANOVA test. The inferential analyses are two-tailed, with p level of .05. The nine demographic variables under study were assessed categorically.

Table 3: Pearson Product-Moment Correlations for Selected Variables and Use of e-Government Services Scale (N=149)

Variable	Use services	
Trust in the Internet scale	.48	****
Trust in municipal government scale	.46	****
Perceived usefulness scale	.77	****
Income level	-.02	
Age	.10	
Education	-.10	

Computer literacy	.02	
Perceived compatibility scale	.61	****
Internet access [b]	-.23	***
Gender [c]	.07	
Possession of bankcard [a]	-.01	****
Perceived use of scale	.40	
Perceived relative advantage scale	.63	****
Total scale	.82	****

[a] Coding: 1= Yes, 2=No
[b] Coding: 1=No, 2=Yes
[c] Coding: 1=Male, 2=Female.
p < .05. ** p < .01. *** p < .005. **** p < .001.

$H_0$6 predicted that citizens' family structure is not related to the use of e-government services. This hypothesis was tested using a one-way ANOVA test (see Table 4). The F test was not statistically significant (F= 0.14, p = .94) which provided support for retaining $H_0$6.

Table 4: Comparison of Use of e-Government Services Scale Based on Family Structure: One-Way ANOVA Test (N=149)

Category	N	M	SD
Married couple	15	5.63	1.20
Married couple with children	92	5.68	1.45
Female-headed household with children	24	5.48	1.51
Nonfamily household, one or more persons	18	5.56	1.42

Note. F (3, 145) = 0.14, p = .94

Table 5 displays the results of the backward elimination regression model predicting the use of e-government services based on the eight demographic variables. The final four-variable model was statistically significant (p 0 .001) and accounted for 16.3% of the variance in the dependent variable. Inspection of the beta weights found the use of e-government services to be related to (a) awareness of the services (β = -.17, *p* = .03); (b) not having Internet access (β= -.58, *p*= .001); (c) having a bankcard (β= -.17, *p*= .09); and (d) greater computer literacy (β= .31, *p*= .007).

Table 5: Prediction of Use of E-Government Services Scale Based on Selected Variables. Backward Elimination Regression (N=149)

Variable	*B*	*SE*	β	p
Intercept	8.78	0.87		.001
Awareness of e-government services [a]	-0.49	0.22	-.17	.03
Internet access [b]	-1.69	0.34	-.58	.001
Possession of bankcard [a]	-0.47	0.28	-.17	.09
Computer literacy	0.29	0.11	.31	.007

Note. Final Model: F (4, 144) = 6.99, p= .001. R^2= 0 .163. Candidate Variables = 8.
[a] Coding: 1= Yes, 2=No.
[b] Coding 1=No, 2= Yes.

Table 6 displays the inter-correlations for the eight summated scale scores. All but one correlation ((*r* =.14, *p* =.08) was significant at *p* <.001 level. The sizes of the correlations ranged from *r* =.14 to *r* =.85 with a median coefficient of *r* =.62.

Table 6: Inter-correlations among the Summated Scale Scores (N=149)

Scale	1	2	3	4	5	6	7	8
1. Total score	1.00							
2. Intentions of Use	.82	1.00						
3. Perceived usefulness	.85	.77	1.00					
4. Perceived ease of use	.68	.40	.51	1.00				
5. Perceived relative	.83	.63	.76	.46	1.00			

advantage								
6. Perceived compatibility	.82	.61	.63	.74	.57	1.00		
7. Trust of the Internet	.65	.48	.43	.14	.50	.34	1.00	
8. Trust of municipal government	.73	.46	.52	.30	.63	.48	.66	1.00

Note. All but 1 of the 28 correlations (r = .14, p =.08) were significant at p < .001 level.

5. DISCUSSION

Among the sample population, 36% of the participants reported that they did not have Internet access, and 40% were not aware of the existence of e-government services provided by the municipality. Eight of the null hypotheses were retained, and seven were rejected (see Table 7).

Table 7: Hypothesis Testing Summary

Hypothesis	Statistic	*p*	Result
$H_0$1: Citizens' lack of awareness of e-government services provided by their municipal government is not related to the use of e-government services.	r = -.14	.09	Retained
$H_0$2: Citizens' trust in the Internet is not related to the use of e-government services.	r = .48	.001	Rejected
$H_0$3: Citizens' trust in government is not related to the use of e-government services.	r = .46	.001	Rejected
$H_0$4: Citizens' perceptions of usefulness are not related to the use of e-government services	r = .77	.001	Rejected
$H_0$5: Citizens' income level is not related to the use of e-government services.	r = -.02	.80	Retained
$H_0$6: Citizens' family structure is not related to the use of e-government services.	r = .14	.94	Retained
$H_0$7: Citizens' age is not related to the use of e-government services.	r = .10	.21	Retained
$H_0$8: Citizens' literacy level is not related to the use of e-government services.	r = .10	.21	Retained
$H_0$9: Citizens' computer literacy level is not related to the use of e-government services.	r = .02	.83	Retained
$H_0$10: Citizens' perceptions of compatibility are not related to the use of e-government services.	r = .61	.001	Rejected
$H_0$11: Citizens' access to the Internet is not related to the use of e-government services.	r = -.23	.005	Rejected
$H_0$12: Citizens' gender is not related to the use of e-government services.	r = .07	.41	Retained
$H_0$13: Citizens who have a bankcard are not necessarily apt to use e-government services.	r = -.01	.88	Retained
$H_0$14: Citizens' perceived ease of use is not related to the use of e-government services.	r = .40	.001	Rejected
$H_0$15: Citizens' perceived relative advantage is not related to the use of e-government services	r = .63	.001	Rejected

According to these findings, awareness of the existence of e-government services, income level, family structure, age, literacy level, computer literacy level, gender, and possession of bankcards are not individually related to the intention to use e-government services of those persons who made face-to-face payments at the treasury office. In this study, the only demographic variable that was found to be related to the intention to use e-government services was citizens' access to the Internet (r = -.23, p = .005). Further analysis of the demographic variables using backward elimination regression allowed for the identification of a four-variable model predicting the use of e-government services. The variables included in this model are (a) awareness of the services, (b) Internet

access, (c) having a bankcard, and (d) computer literacy. The final four-variable model was statistically significant (p = .001) and accounted for 16.3% of the variance in the dependent variable. As was expected, no relationship exists between gender and the intention to use e-government services in Mexico. Surprisingly, income level, literacy level, family structure, and age were not found to be related to taxpayers' intention to use e-government services. The literature review provided insight into the importance of the digital divide and other technological difficulties associated with information and communication technologies (ICT) as barriers to the use of e-government services [7].

In this study, trust in the Internet, trust in government, perceptions of usefulness, perceptions of compatibility, access to Internet, perceptions of ease of use, and perceptions of relative advantages were found to be related to the citizens' intention to use e-government services.

Warkentin [41] argued that "to adopt e-government processes, citizens must have the intention to 'engage in e-government,' which encompasses the intention to receive information, to provide information, and to request e-government services" (p. 159). Davis [12] concluded that "usefulness was significantly more strongly linked to usage than was ease of use" (p. 333); in other words, users are willing to deal with difficulties in using a system that is useful to them, rather than using an easy-to-use system that does not provide value. In the e-government context, this means that citizens find e-government services attractive and are willing to use them even if they find some difficulty in doing so.

Citizens' perception of the difficulty of using e-government services compared to the value they would receive with the use of these services is one of the main barriers to e-government uptake [24];[39]. Heeks [21] proposed using the concept of public value coined by Moore [31][31] to measure the success of e-government projects. Public value is defined as "the value created by government through services, laws, regulations and other actions" [26]. Kelly *et al.* [26] said that "for something to be of value it is not enough for citizens to say that it is desirable. It is only of value if citizens—either individually or collectively—are willing to give something up in return for it" (p. 4). Perceptions of usefulness, perceptions of relative advantage, and perceptions of compatibility, were found to be related to the use of e-government services and can be seen as perceived public value outcomes of e-government services. Conversely, perceptions of ease of use, trust in the Internet, trust in the municipal government, and access to the Internet can be seen as costs citizens are willing to pay in return for the public value provided by e-government services. In other words, citizens are willing to make the effort to use e-government services even if they have to make an effort to access the Internet, perceive difficulties in the use of e-government services, have some lack of trust in the Internet, and lack trust in the government in exchange for the usefulness, relative advantage, and compatibility they expect. Thus, government officials must strive to improve the accessibility and usability of e-government services and increase citizens' trust in the Internet and in their government agency [22].

6. CONCLUSIONS

Several authors have asserted that despite the potential of online government services, not enough citizens are willing to use e-government services [20]; [23]; [41]. However, the findings of this study show that citizens find e-government services attractive and are willing to use them, and trust in the Internet, trust in government. Perceptions of usefulness, perceptions of compatibility, access to Internet, perceptions of ease of use, and perceptions of relative advantage affect their use.

In Mexico, socioeconomic factors are still a problem for e-government uptake. In this study, 40% of the citizens answered that they were not aware of the existence of e-government services, 36% said that they do not have access to the Internet, 47% did not have a bankcard, and 19% had never used a computer. This uncovers areas of opportunity for the government to increase citizen uptake. Government leaders must focus on expanding the reach of e-government services towards vulnerable groups; otherwise, the advantages of e-government will benefit only the more affluent groups of society, increasing social inequality, and will become another factor that widens the digital divide.

Another important finding is that trust is an important component for e-government uptake. Government leaders must focus on increasing citizens' trust in the government's capacity to handle online transactions that involve money and personal data by assuring citizens that their interests are properly addressed. E-government services are not complete without a strategy to provide quick resolution to support inquiries and conflicts. To convey a trustworthy image, e-government web sites should be professionally designed with an appealing appearance, be reliable, and have high levels of availability and security. Government leaders should implement the use of security mechanisms and security audits and make the use of these security mechanisms evident to the citizen through the e-government web site. To increase trust, government leaders should make public the personal data handling regulations and policies that are in effect in their agencies and implement audit processes that ensure the implementation of those regulations and policies and the transparent management of e-government transactions.

7. REFERENCES

[1] Al Awadhi S., & Morris, A. (2009). Factors influencing the adoption of e government services. Journal of Software, 4(6), 584. Consulted October 2015 at

http://academypublisher.com/jsw/vol04/no06/jsw0406584590.pdf

[2] Al Hujran, O., Aloudat, A., & Altarawneh, I. (2013). Factors Infuencing CitizenAdoption of E-Government in Developing Countries: The Case of Jordan. International Journal of Technology and Human Interaction, 9(2), 1-19, April-June 2013. Consulted October 2015 at http://www.academia.edu/4615733/Factors_Influencing_Citizen_Adoption_of_E-Government_in_Developing_Countries_The_Case_of_Jordan

[3] Alshehri, M., Drew, S., Alhussain, T., & AlGhamdi, R. (2012). The Impact of Trust on E-Government Services Acceptance: A Study of Users' Perceptions by Applying UTAUT Model. International Journal of Technology Diffusion, 3(2), 50-61. Consulted October 2015 at http://arxiv.org/ftp/arxiv/papers/1304/1304.3157.pdf

[4] Alshehri, M., Drew, S., & AlGhamdi, R (2012) Analysis of Citizens' Acceptance for E-government Services: Applying the UTAUT Model in International Conference Internet Applications and Research. Lisbon, Portugal: IADIS. 95-105 . Consulted October 2015 at http://www98.griffith.edu.au/dspace/handle/10072/53464?show=full

[5] Alshehri, M. & Drew, S. (2010). Challenges of e-government services adoption in Saudi Arabia from an e-ready citizen perspective. World Academy of Science, Engineering and Technology, 66, 1053 – 1059.

[6] Carter, L. & Belanger, F. (2005). The utilization of e-government services: Citizen trust, innovation, and acceptance factors. Information Systems Journal, 15(1), 5-25.

[7] Chadwick, A. & May, C. (2003). Interaction between states and citizens in the age of the Internet: E-government in the United States, Britain, and the European Union. Governance, An International Journal of Policy, Administration and Institutions, 16(2), 271-300.

[8] Chen, Y., Chen, H., Huang, W., & Ching, R. (2006). E-government strategies in developed and developing countries: An implementation framework and case study. Journal of Global Information Management, 14(1), 23-24.

[9] Ciborra, C. & Navarra, D.D. (2005). Good governance, development theory, and aid policy: Risks and challenges of e-government in Jordan, Information Technology for Development, 11(2), 141-159.

[10] Cohen, S. & Eimicke, W. (2003). The future of e-government: A project of potential trends and issues, in Proceedings of 36th Hawaii International Conference on System Sciences, IEEE Computer Society, Honolulu, HI.

[11] Cordella, A., & Tempini, N. (2015). E-government and organizational change: Reappraising the role of ICT and bureaucracy in public service delivery. Government Information Quarterly, 32(3), 279-286.

[12] Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319.

[13] Davison, R.M., Wagner, C. & Ma, L.C.K. (2005). From government to e-government: A transition model. Information Technology & People, 18(3), 280.

[14] Druke, H., Ed. (2005). Local electronic government: A comparative study. Routledge Taylor & Francis Group, London.

[15] Dugdale, A., Daly, A., Papandrea, F., & Maley, M. (2005). Accessing e-government: Challenges for citizens and organizations", International Review of Administrative Sciences, 71(1), 109- 118.

[16] Fountain, J. E. (2001). The virtual state: Transforming American government? National Civic Review, 90(3), 241.

[17] Fountain, J. E. (2005). Central issues in the political development of the virtual state, in Network society and the knowledge economy: Portugal in the global context, Lisbon, Portugal.

[18] García-Valcárcel, A., & Arras, A. (2011). Competencias en TIC y rendimiento académico en la universidad, diferencias por género. México: Pearson.

[19] Gigler, B.S & Bailur, S. (2014). Closing the Feedback Loop : Can Technology Bridge the Accountability Gap?. Washington, DC: World Bank. © World Bank. Consulted October 2015 at https://openknowledge.worldbank.org/handle/10986/18408 License: CC BY 3.0 IGO.

[20] Griffith, M. & Wilding, K. (2008). ICT Foresight: How ICT is Shaping the Future Design and Delivery of Public Services. UK : National Council for Voluntary Organisations. Consulted July 2008 at <http://www.icthub.org.uk/publications/ICT_Foresight.pdf>.

[21] Heeks, R. (2006). "Understanding and measuring egovernment: International benchmarking studies", in UNDESA workshop, e-participation and e-government: Understanding the present and creating the future. Budapest, Hungary.

[22] Hui, G. & Hayllar, M. R. (2010). Creating Public Value in E-Government: A Public-Private-Citizen Collaboration Framework in Web 2.0. Australian Journal of Public Administration, 69(SI), 120–131. doi: 10.1111/j.1467-8500.2009.00662.x. Consulted October 2015 at http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8500.2009.00662.x/pdf

[23] Hung, S-Y., Chang, C-M., & Yu, T-J. (2006). Determinants of user acceptance of the e-government services: The case of online tax filing and payment system. Government Information Quarterly, 23(1), 97-122.

[24] Lin,F., Fofanah, S. and Liang, D. (2011). Assessing citizen adoption of e-Government initiatives in Gambia: A validation of the technology acceptance model in information systems success, Government Information Quarterly, 8(2), 271-279.

[25] Luna-Reyes, L.F. & Gil-Garcia J.R. (2013). Understanding the Co-Evolution of Institutions, Technology, and Organizations: The Enactment of the State Government Portal of Puebla in Proceedings of the 14th Annual International Conference on Digital Government Research (dg.o2013). Consulted October 2015 at http://www.ctg.albany.edu/publications/journals/dgo_2013_pueblaportal/dgo_2013_pueblaportal.pdf

[26] Kelly, G., Mulgan, G., & Muers, S. (2002). Creating public value: An analytical framework for public service reform, Strategy Unit, Cabinet Office. London.

[27] Margetts, H. (2005). Smartening up to risk in electronic government. Information Polity: The International Journal of Government & Democracy in the Information Age, 10(1/2), 81-94.

[28] Manoharan, A., & Holzer, M. (2012). Active Citizen Participation in E-Government: A Global Perspective, (pp. 1-649). Hershey, PA: IGI Global. doi:10.4018/978-1-4666-0116-1.

[29] Mahmood, Z. (2013). E-Government Implementation and Practice in Developing Countries (pp. 1-348). Hershey, PA: IGI Global. doi:10.4018/978-1-4666-4090-0

[30] Matavire, R., Chigona, W., Roode, D., Sewchurran, E., Davids, Z., Mukudu, A. & Boamah-Abu, C. (2010). Challenges of eGovernment Project Implementation in a South African Context. The Electronic Journal Information Systems.

[31] Moore, M. (1995). Creating public value: Strategic management in government, Harvard University Press, Cambridge, MA.

[32] OECD. (2008). Future of e-government agenda 2020. OECD Government studies. Consulted October 2015 at http://www.oecd.org/governance/eleaders/43340370.pdf

[33] Potnis, D. (2010). Measuring e-Governance as an innovation in the public sector. Government Information Quarterly, 27(1), 41-48, ISSN 0740-624X, Consulted October 2015 at http://dx.doi.org/10.1016/j.giq.2009.08.002. (http://www.sciencedirect.com/science/article/pii/S0740624X09001142)

[34] Raus, M., Liu, J. & Kipp, A. (2010). Evaluating IT innovations in a business-to-government context: A framework and its applications. Government Information Quarterly, 27(2), 122-133, ISSN 0740-624X, Consulted October 2015 at http://dx.doi.org/10.1016/j.giq.2009.04.007.(http://www.sciencedirect.com/science/article/pii/S0740624X09001336)

[35] Rogers, E. (2003). Diffusion of innovations, (5th. ed.), New York: Free Press.

[36] Sanford, C. & Bhattacherjee, A. (2007). IT implementation in a developing country municipality: A sociocognitive analysis. Journal of Global Information Management, 15(3); 20(23).

[37] Scholl, H. (2003). E-government: A special case of ICT-enabled business process change, in Proceedings of the 36th Hawaii International Conference on System Sciences, IEEE Computer Society, Honolulu, HI.

[38] Stoltzfus, K. (2005). Motivations for implementing e-government: An investigation of the global phenomenon, in Proceedings of 2005 National Conference on Digital government research, Digital Government Society of North America, Atlanta, GA.

[39] Szeremeta, J. & Kerby, R. (2005). E-government: Providing value to citizens, in Proceedings of the 6th Global Forum on Reinventing Government. Towards participatory and transparent governance, Seoul, Republic of Korea.

[40] Tolbert, C.J. & Mossberger, K. (2006). The effects of e-government on trust and confidence in government. Public Administration Review, 66(3), 354-369.

[41] Warkentin, M., Gefen, D., Pavlou, P.A., & Rose, G.M. (2002). Encouraging citizen adoption of e-government by building trust. Electronic Markets, 12(3), 157-162.

[42] Wauters, P. & Colclough, G. (2006). Online availability of public services: How is Europe progressing? in Web-based survey on electronic public services, Capgemini Belgium NV/SA, Digem, Belgium.