Examining the Barriers to e-Government Adoption

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Abstract: e-Government initially began as process where government entities developed websites and began populating these sites with information. After mastering this information dissemination aspect, government units moved toward processing online transactions. Subsequent to mastering transaction processing, governments moved across a continuum and engaged citizens online in a participatory framework; that is, offering Internet applications that connect citizens with public administrators, decision-makers, and perhaps elected officials. While the subsequent progression and potential benefits of e-Government applications are without limits, there are a number of barriers that impede the implementation of such applications. Using survey data collected by the International City/County Management Association (ICMA), this paper examines the factors that most impede the adoption of e-Government applications. Central research questions include: what are the differences between municipalities that have comprehensive e-Government platforms and those that do not, and to what extent do certain barriers explain these differences? Multiple regression results indicate that e-Government adoption is a function of financial, technical, and human resources. Holding all other factors constant, municipalities with higher operating budgets, more full-time IT staff, and technical resources are more likely to implement a comprehensive e-Government platform. Political support is a key and fairly robust determinant of municipal e-Government adoption as well.

Keywords: e-Government adoption, municipalities, barriers, service delivery, information dissemination, citizen participation

1. Introduction

e-Government initially began as an intra-governmental communication tool. Soon thereafter, government organizations developed websites and began populating these sites with information. After mastering information dissemination, government units moved toward processing online transactions -- which mirrors the private sector's focus on electronic commerce. Subsequent to mastering transaction processing, agencies moved to engage citizens online in participatory frameworks; that is, providing Internet applications that connect citizens and decision-makers (Calista and Melitski 2007; Holzer at al. 2004; Moon 2002). While the subsequent progression and potential benefits of e-Government applications are without limits, there are several potential barriers that impede the implementation of such applications (Carrizales 2008). This paper, therefore, examines the factors that most impede the adoption of Internet-based applications. Central research questions include: what are the differences between municipalities that have comprehensive e-Government platforms and those that do not, and to what extent do certain factors explain these differences? The Internet as a service delivery and participatory medium has taken hold. Governments throughout the world are relying on the Internet to provide services, make information more accessible, and afford citizens an alternative means of connecting with government officials (Holzer and Kim 2003; 2005). However, the further growth of e-Government is predicated on practitioners having a better understanding of the factors that create a disincentive for governments to implement innovative e-Government applications.

2. Components of e-Government

2.1 e-Service delivery

According to Moon (2002), e-Government was initially envisioned as a means of enhancing intra-governmental communications via an intranet system. Cloete (2003) argues that effective government is a function of accepting and applying technological innovations, and as such, the notion of e-Government expanded to include web-based information dissemination and service delivery applications. Some of the most fundamental developments included posting policy or regulatory information online. Soon thereafter, government forms were made available for download from municipal websites, and citizens were able to request municipal information via e-mail or electronic request forms. More recent examples of e-Government progression include more interactive service delivery. Residents or proprietors can now apply for permits or licenses online. Municipal taxes, utilities, and fines can be paid online. In many instances, citizens can now report violations or submit service delivery complaints via government websites. In short, individuals are able to fulfill day-to-day needs via the Internet (D'Agostino et al. forthcoming; Carrizales et al. 2006).

More advanced developments in e-Government services have received significant attention from municipal governments, such as allowing residents to make service requests online as part of non-emergency 311

systems. In the municipality of Hampton, Virginia, residents can request a trash pickup or that a pothole be filled by completing an electronic service request form that is forwarded to Hampton's 311 call center (see Figure 1). Residents are guaranteed a reply within one business day, and they are able to track the status of their requests online as well. Hampton's Internet applications further allow an individual to search the 311 call center's frequently asked questions (FAQs). That is, if one were to type "trash collection" into the FAQ question description box, that individual would be given a list of 25 FAQs sorted by relevancy. This type of emphasis on e-service delivery can be attributed, in part, to citizens transferring their expectations of commercial websites to government websites (Schwester et al. forthcoming).
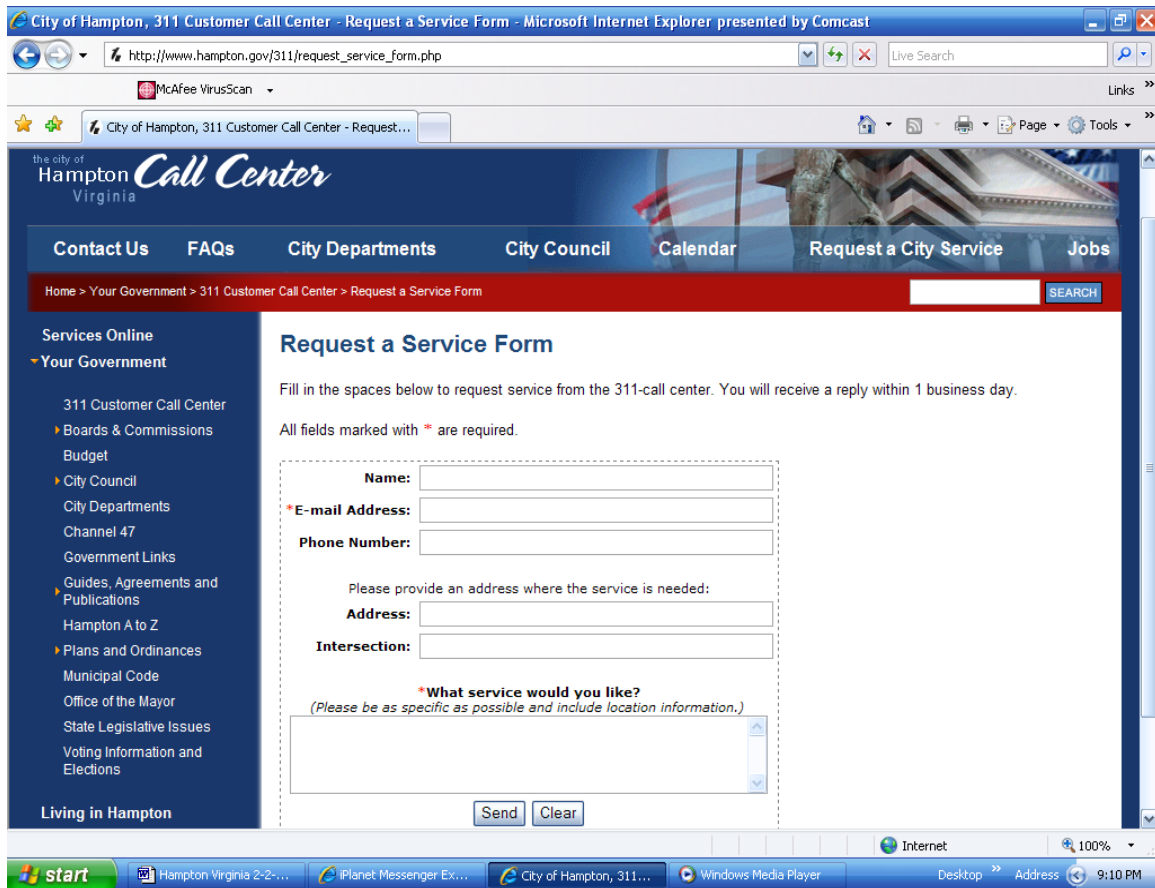

Figure 1: Electronic service request form, Hampton (Virginia) 311 Call Center

2.2 Digital democracy

A second component of e-Government deals with changing the way governments interact with citizens (Korac-Kakabadse and Korac-Kakabadse 1999). The emphasis is on fostering transparency, communication, and participation (Pascual 2003). The use of technology in this regard can be traced to the 1960s. Scholars, activists, and politicians were envisioning technological utopias whereby the communicative distance between citizens and government officials is effectively reduced (Nugent 2001; Bryan, Tsagarousianou and Tambini 1998). This component of e-Government is sometimes referred to as digital democracy. Public realm theorists such as Habermas (1989) emphasize the importance of social mechanisms that allow private individuals to pass judgment on public acts. Habermas provides a historical description of European social institutions throughout the 17th and 18th centuries, namely the English coffee houses, German literary societies, and the salons of France. These institutions brought together generic intellectuals and created forums for debate regarding the state of society. According to Habermas (1984), the ideal public arena fosters inclusive and voluntary citizen participation within the context of influencing how government power is wielded. The notion of digital democracy has been championed by some as a means of realizing Habermas' conceptions of the ideal pubic sphere.

In the context of a democratic system, citizens have a measure of influence over the policies impacting their lives. The relationship between government and citizens is foremost within a democratic system. With digital democracy, emphasis is placed on the processes and structures that define the relationships between government and citizens and between elected officials and appointees. According to Hacker and van Dijk

(2000, 1), digital democracy refers to "a collection of attempts to practice democracy without the limits of time, space and other physical conditions, using ICTs [information and communications technologies] or computer-mediated communication instead as an addition, not a replacement for, traditional 'analogue' political practices." Nugent (2001, 223) refers to digital democracy as "processes carried out online -- communicating with fellow citizens and elected representatives about politics." Digital democracy may be defined as all practices to improve democratic values using the Internet. O'Looney (2002) compares the interaction between citizens and government within the context of traditional and digital democracy. He notes that while communications are filtered through representatives and the media in a traditional democracy, direct communications among citizens, public managers, and elected officials are now possible in a digital democracy. Communications with citizens involve a one-message-fits-all approach in a traditional democracy. Within a digital democracy, official communications may be personalized based on an individual's interests and needs, and citizens can potentially track and influence decision-making at every step in the policy making process, ranging from agenda setting to a final vote.

According to Kakabadse et al. (2003), digital applications may alter the dynamic of representative democracy, affording citizens a direct means of influencing the public policy-making process. Some early examples of such applications include information disclosure pertinent to government decision-making, as well as some potential for two-way communication (Docter and Dutton 1998; O'Sullivan 1995). Newsletters posted on municipal websites represent information dissemination, while providing feedback and comments to elected official is another. More advanced applications include online discussion boards and online policy forums (Holzer et al. 2004). Proponents of these types of applications argue the end result will be greater government transparency and openness. Increased government openness can then lead to increased accountability and reduced government corruption. Seoul, South Korea's Online Procedures Enhancement for Civil Application (OPEN) system exemplifies a successful practice of transparency and decreased corruption in government via the use of the Internet (Holzer and Kim 2003). Online discussion boards are another example of an opportunistic use of technology. Online discussion boards provide for political discussions without requiring participants to share space and time. The subsequent result is an increase in access to political debate (Malina 1999). The potential for online participation by citizens in decisions and policy-making is growing through initiatives such as "Regulations.gov" (Skrzycki 2003). Through Regulations.gov, citizens can view descriptions of proposed and final Federal regulations and read the full text of the regulations for 75 agencies. In addition, citizens can submit their comments to the Federal agency responsible for the rulemaking action through the Regulations.gov website.

The Government Information Agency (GIA) in Korea is a department of the central government that is considered a best practice. GIA websites are portal sites for disseminating information from all departments in the central government, and for discussing major policy issues among citizens. The Agency collects information on government policies from all departments in the central government and updates the site several times a day, giving citizens an opportunity to keep abreast of day-to-day developments. Via the GIA's websites, citizens are able to ask public officials for specific information. When citizens request information on specific government policies, public officials then collect the information and post the results within a week (Holzer et al. 2004)

Hoogeveen Digital City is considered one of the more advanced community networks in terms of engaging citizens in digital-based politically oriented discussions. Hoogeveen experimented with three specific Internet-based discussions: (1) the digital consultation hour, (2) digital debate, and (3) digital discussion platform. The digital consultation hour is a bimonthly discussion of community issues. It is a synchronous, real-time exchange between Hoogeveen elected officials and citizens, and it is facilitated through a question and answer format. The digital debate was a real-time event used during the 2002 municipal elections wherein citizens were able to deliberate policy issues and pose questions to candidates and party representatives. Finally, the digital discussion platform is an online public space that allows citizens registered within the network to discuss predetermined community issues (Jankowski and van Os 2002).

In the context of digital democracy, there are two viewpoints regarding the use of the Internet to transform the relationship between government and citizens. First, there are the technological optimists who believe the Internet is easier, faster, and offers qualitatively better ways of existing, working, communicating, and participating in public life. McConaghy (1996) argues that publicizing information used in the development of government policies would allow citizens to be more fully involved in the democratic process. Further, in terms of representativeness, the Internet can alert policy makers as to the needs and preferences of the citizenry regarding potential policies, and they make citizen participation more possible by overcoming the problems of large, dispersed populations.

The alternative view is less optimistic, and is centered on the premise that bringing about change in institutions and behavior patterns is a sluggish and problematic process. Unless carefully moderated, digital-based forums can become chaotic. Unmediated forums can potentially become abusive and disjointed. Politicians and other community leaders with whom citizens wish to interact may be reluctant to participate in digital forums for fear of being "flame." (Conte 1995). Then, there is the problem of dealing with the overload of undifferentiated and uncategorized information. In spite of the increasing amounts of information now available, its wide distribution, and the speed with which it is transferred, there is little if any evidence to suggest that the quality of decision-making has improved or that decisions are more democratic given the integration of Internet-based applications.

Skeptics further note the digital divide. This divide draws a distinction between those with Internet access and Internet-related skills and those without. It weakens the Internet as a mainstream and inclusive medium to the extent that it disproportionately impacts lower socio-economic individuals who have historically played a less significant role within the public policy process (Norris 2001). A parallel criticism is that Internet-based applications are skewed towards technical experts fluent in the jargon of public policy, which will alienate average citizens. While experts largely influence public policy dialogues, this may be more pronounced through Internet-based conduits. In addition, the Internet as a communications medium favors individuals with strong writing skills, and these individuals tend to have greater access to financial resources and education.

2.3 e-Government barriers

Without question, e-Government is a reality. Governments are using the Internet to deliver services, disseminate information, and facilitate a more open dialogue between citizens and government. Internet-based applications show great potential for democratic renewal, especially with regard to reconnecting citizens to government. The Internet ideally broadens participation in the policy process, and citizens and public agencies save time and paperwork through electronic service delivery. However, there are a number of barriers that potentially impede e-Government adoption. By barriers we mean any factor that creates a disincentive for governments to develop new or further develop existing e-Government applications -- i.e., supply side barriers (Enyon and Dutton 2007).

One potential supply side barrier is organizational or staff resistance, and the source of this resistance is the perception that technology replaces the need for people. In other words, if services can be provided via the Internet, the need for conventional office workers may decrease, thus resulting in fewer jobs. If individuals are fearful of being replaced by Internet applications, it is likely that these individuals will resist. Lack of support from politicians and high level bureaucrats is another possible barrier. Luke warm support from high level decision-makers often leads to "stop and go" e-Government progress and sustainability problems. The result is under-developed e-Government platforms. Similarly, a lack of public support may create a disincentive to pursue e-Government. Financial and human capital investments need to be made if e-Government is to flourish. This underscores a need to demonstrate tangible gains from e-Government -- i.e., return on investments (ROI). ROI associated with e-Government may include cost and time savings related to service delivery requests (Enyon and Dutton 2007). Technical know how and proper hardware and software are supply side barriers (West 2004). Security and privacy issues exist as well. Government must ensure that personal information is kept confidential and secure (Gilbert et al. 2004). The aforementioned factors are possible impediments to e-Government adoption, and the purpose of this research is to determine which of these factors most impede the adoption of e-service and digital democracy applications.

3. Method

The unit of analysis is U.S. municipalities with less than 100,000 in population. Smaller municipalities are the focus given that previous empirical work is somewhat skewed toward larger cities (Holzer and Kim 2003; Carrizales et al. 2006). The dependent variable is a composite measure consisting of 17 e-Government applications, 13 of which relate to service delivery and information dissemination applications and four relate to digital democracy (see Table 1). Each composite measure item was coded 1 or 0, whereby 1 indicates that the municipality has adopted this application as part of its website. The e-Government applications were weighted equally so as to avoid value-laden judgments regarding the importance of one application compared to another. These 17 coded items were added to form a composite e-Government score. A score of 0-8 indicates low e-Government adoption, while a score of 9-17 indicates high adoption. The composite measure reliability coefficient is .80, which indicates a high degree of reliability. One possible constraint of the composite measure is its exclusion of critical e-Government applications.

The independent variables include: municipal population, number of full-time employees within each municipality's IT department, municipal operating budget, lack of staff, lack of knowledge about e-gov applications, lack of support from elected officials, difficulties justifying return on e-Government investments, staff resistance to change, privacy issues, security issues, technology needs, and lack of community interest. Data were collected via mail survey in 2004 by the International City/County Management Association (ICMA), whereby 7,944 municipalities were sampled and 3,410 responses were obtained (42 percent response rate). The specific content of the survey was developed by ICMA and is available via their website (http://icma.org).

Table 1: Municipal e-Government applications

1. Online payment of taxes
2. Online payment of utility bills
3. Online payment of fines/fees
4. Online completion and submission of permit applications
5. Online completion and submission of business license applications/renewals
6. Online requests for local government records
7. Online delivery of local governments records to the requestor
8. Online requests for services, such as pothole repair
9. Online voter registration
10. Online property registration, such as animal, bicycle registration
11. Forms that can be downloaded for manual completion (e.g., voter registration, building permits, etc.)
12. Employment information /applications
13. Ordinances/codes
14. Council agendas/minutes
15. Electronic newsletter sent to residents/businesses
16. Streaming video
17. Online communication with individual elected and appointed officials

4. Findings

4.1 Summary statistics

Summary statistics presented in Table 2 indicate that the mean e-Government score is 5.1 (SD = 3.0) out of a possible 17. This indicates that the level of e-Government adoption is low. The barrier to e-Government adoption identified most frequently was a lack of staff, as 55 percent of municipalities encountered this barrier. Nearly 33 percent cite difficulties justifying return of investments as a barrier to e-Government adoption. Thirty-six percent and 28 percent of municipalities cite security and privacy issues, respectively. Twenty-four percent of municipalities feel that residents have lukewarm feelings toward e-Government and thus the demand for more applications is somewhat modest. Residents may be resisting movement from a government structure where services are provided electronically rather than face-to-face. Finally, 21 percent of respondents feel that technology needs dictate how comprehensive a municipal e-Government platform will be. This ties into staff needs as well.

Table 2: Summary statistics for variables used in analysis

Variable	Mean	Std. Dev.
e-Government score	5.09	2.99
Population	18,417	19,829
IT full time employees	1.00	1.28
Budget	1,282,083	7,215,734
Lack of staff	.55	.50
Lack of knowledge	.15	.36
Lack of support elected officials	.12	.33
Difficulty justifying ROI	.33	.47
Staff resistance	.18	.38
Privacy issues	.28	.45
Security issues	.36	.48
Technology needs	.21	.40
Lack of community interest	.24	.43

N=1813

A comparison of high e-Government adopters (e-Government score 9-17) and low adopters (e-Government score 0-8) shows that the mean score for high adopters is 10.3, while mean score for low adopters is 4.4, thus indicating a significant gap between high and low adopters. High adopters are far more likely than low adopters to use the Internet for the completion of day-to-day transactions. For example, 37 percent of high adopters allow its residents to pay taxes online. This compares to only seven percent of low adopters. Forty-seven percent of high adopters allow for completion and submission of permits online. This compares to only seven percent of low adopters. Service requests further differentiate high and low adopters, as 83 percent of high adopters allow residents to request services online (e.g., request for trash pickup, pothole repair). Only 25 percent of low adopters have incorporated this service application as part of their websites. There appears to be a disparity from an information dissemination perspective, as 79 percent of high adopters allow residents to make online requests for government records. Of this 79 percent, 66 percent will delivery such records electronically. Only 23 percent of low adopters allow for electronic record requests, and only 15 percent will deliver via the Internet. In terms of applications that have a communicative focus between residents and public officials, 70 percent of high adopters and 26 percent of low adopters distribute electronic newsletters to residents and businesses. Further, 97 percent of high adopters and 69 percent of low allow for online communication with individual elected and appointed officials, and 100 percent and 82 percent of high and low adopters respectively disseminate municipal council agendas and minutes via the Internet. Forty percent of municipalities with an advanced e-Government platform provide streaming video feeds of council meetings, public hearings, and other public affairs. A mere seven percent of low adopters do the same. Table 3 provides a summary of high and low e- adopters.

Table 3: e-Government applications provided by high and low adopters

Mean (Std. Dev.)		
Application	High (n=213)	Low (n=1,600)
Online payment of taxes	.37 (.48)	.07 (.26)
Online payment of utility bills	.45 (.50)	.06 (.25)
Online payment of fines/fees	.36 (.48)	.05 (.21)
Online completion and submission of permit applications	.47 (.50)	.07 (.25)
Online completion and submission of business license applications/renewals	.36 (.48)	.03 (.17)
Online requests for local government records	.79 (.41)	.23 (.42)
Online delivery of local governments records to the requestor	.66 (.47)	.15 (.36)
Online requests for services, such as pothole repair	.83 (.38)	.26 (.44)
Online voter registration	.14 (.35)	.02 (.14)
Online property registration, such as animal, bicycle registration	.21 (.40)	.01 (.10)
Forms that can be downloaded for manual completion	.98 (.15)	.62 (.48)
Employment information/application	.98 (.15)	.65 (.48)
Ordinances/codes	.95 (.21)	.71 (.45)
Council agendas/minutes	1.0 (0)	.82 (.39)
Electronic newsletter sent to residents/businesses	.70 (.46)	.26 (.44)
Streaming video	.40 (.49)	.07 (.25)
Online communication with individual elected and appointed officials	.97 (.17)	.68 (.46)

On average, high adopters have more full-time IT employee than low adopters (2.1 compared to .87). High adopters have more population (20,088 compared to 18,194) and far greater operating budgets ($4,426,264 compared to only $863,515). In terms of specifically identified barriers, 37 percent of high adopters indicated that a lack of staff is a barrier to e-Government. This compares to 57 percent of low adopters. Difficulties justifying returns on e-Government investments were cited almost equally among high and low adopting municipalities, 34 percent among high adopters and 33 percent among low. Security issues were cited as well, as 40 percent of high adopters and 36 percent of low adopters believe that Internet security concerns impede the advancement of e-Government. A lack of knowledge about e-Government applications, lack of support from elected officials, staff resistance to change, security issues, technology, and lack of community interest are cited as barriers, albeit less frequently. Table 4 provides summary statistics that compare high and low e-Government adopters, with emphasis on barriers to adoption.

Table 4: Comparison of high and low e-Government adopters: variables used for analysis

	Mean (Std. Dev.)	
Variable	High (n=213)	Low (n=1,600)
e-Government score	10.30 (1.52)	4.40 (2.40)
Population	20,088 (20,916)	18,194 (19,676)
Budget	4,426,264 (4.83 e+07)	863,515 (3,601,404)
IT full time employees	2.01 (1.69)	.87 (1.16)
Lack of staff	.21 (.41)	.57 (.49)
Lack of knowledge	.09 (.29)	.16 (.36)
Lack of support elected officials	.03 (.18)	.13 (.34)
Difficulty justifying ROI	.34 (.47)	.33 (.47)
Staff resistance	.21 (.41)	.17 (.38)
Privacy issues	.31 (.46)	.27 (.46)
Security issues	.40 (.49)	.36 (.48)
Technology needs	.14 (.34)	.22 (.41)
Lack of community interest	.16 (.37)	.26 (.44)

4.2 Inferential statistics

Multiple regression was used to determine which factors best predict e-Government adoption. The regression results seem to tell a somewhat different story than the summary statistics. According to regression model 1 (Table 5), the following independent variables are statistically significant predictors ($p<$ .05) of a municipality's e-Government score: municipal population, number of full-time IT department employees, municipal operating budget, lack of staff, lack of support among elected officials, difficulty justifying returns on e-gov investments, and technology needs. The number of full-time IT department employees is the most robust predictor of e-Government adoption. The positive coefficient suggests that the addition of one full-time IT employee would increase a municipality's e-Government score by .82 (t = 14.98). In more practical terms, the model suggests that an additional employee nearly predicts the adoption of one additional e-Government application. Similarly, the barrier lack of staff is negatively related to e-Government adoption. Consistent with previous research (Holden, Norris, and Fletcher 2003; Moon 2002; Norris and Demeter 1999), greater municipal population predicts a higher level of e-Government adoption, as does a municipality's operating budget.

Model 1 further indicates that a lack of support among elected officials is a robust determinant of e-Government adoption. In other words, if elected officials do not subscribe to e-service delivery, the dissemination of information via the Internet, or Internet applications that better connect residents and government officials, then that municipality is much less likely to have a comprehensive e-Government platform. It should be noted that the elected official coefficient is fairly robust (t = -4.77). There is a significant and positive relationship between difficulties justifying returns on e-gov investments and e-Government adoption. One might expect the sign of this coefficient to be negative rather than positive. Municipalities may be willing to invest in e-Government applications, the technical know how, and human capital so long as there will be tangible gains -- e.g., cost savings, improved service delivery, greater resident satisfaction with services and access to municipal information. These tangible gains are not likely to be immediate, and presumably this may dissuade elected officials and decision-makers from investing scarce resources in the hopes of future returns. Based on the results here, however, returns on investments are not driving e-Government adoption. Finally, technology needs predict e-Government adoption, as greater technology needs predict a lower e-Government score.

Note that lack of knowledge about e-Government applications was not a statistically significant predictor of a municipality's e-Government score. This is perhaps attributable to the widespread dissemination of e-Government best practices. This does underscore the importance of keeping abreast to technological innovations that may enhance existing application or foster the implementation of new applications. Of additional importance is recognizing the demands of residents -- in other words, knowing what applications are most important to people is key to establishing an e-Government platform that is utilized frequently. Furthermore, the fact that staff resistance was not a predictor of e-Government adoption is encouraging. All too often, change is met with resistance for fear of unknown consequences. From an administrative standpoint, e-Government could be viewed as a first step toward the automation of municipal services, thus reducing the need for people. The results here, however, suggest that e-Government may not be perceived as a means of replacing current workers. In fact, e-Government applications may enhance work

environments by freeing up staff to work on more critical aspects of municipal governance rather than attending to more routine requests.

In regression model 2 (Table 5), independent variables not significant in model 1 were removed. There results of model 2 mirror those in model 1.

Table 5: Barriers to e-Government adoption: OLS multiple regression results

Model 1		
e-Government score	Coefficient	*t*-value
Population	8.26 e-06	2.61 **
IT full time employees	.82	14.98 **
Budget	2.91e-08	3.11**
Lack of staff	-.48	-3.58 **
Lack of knowledge	-.29	-1.54
Lack of support elected officials	-.95	-4.77 **
Difficulty justifying ROI	.35	2.51 *
Staff resistance	.30	1.75
Privacy issues	.13	0.75
Security issues	.25	1.61
Technology needs	-.49	-3.02 **
Lack of community interest	-.03	-0.23
Constant	4.31	30.30
n=1813 R^2=.21		
Model 2		
e-Government score	Coefficient	*t*-value
Population	8.40e-06	2.65**
IT full-time employees	.847611	15.87 **
Budget	2.85e-08	3.05 **
Lack of staff	-.48	-3.61 **
Lack of support elected officials	-.92	-4.68 **
Difficulty justifying ROI	.40	2.97 **
Technology needs	-.45	-2.82 **
Constant	4.38	31.91
n=1813 R^2=.21		

5. Conclusion

Multiple regression results indicate that e-Government adoption is a function of financial, technical, and human resources. Holding all other factors constant, municipalities with higher operating budgets, more full-time IT staff, and technical hardware are more likely to have a comprehensive e-Government platform; that is, they have higher e-Government scores. There is an important caveat as it relates to human capital. Municipalities implementing new or significantly expanded e-Government platforms must realize the importance of making sustained human capital investments. In other words, municipal leaders that view e-Government related IT staff as part-time consultants -- individuals brought in primarily at the development and implementation phases or individuals who are tapped only periodically -- are not likely to have comprehensive and fully dynamic e-Government applications. Technology is ever changing, and thus keeping pace requires a commitment to maintaining full-time IT staff. This is consistent with Norris and Kraemer (1996) who maintain that the adoption of cutting edge information and communications technologies is a function of having a firmly established IT department.

Political support is a key determinant of municipal e-Government adoption as well. This underscores the importance of winning over the "powers that be." This is consistent with Carrizales' (2008) study of municipal managers. Specifically, Carrizales found that if a municipal manager held a positive view of e-Government, then that municipality was more likely to have an advanced e-Government platform. Winning over the powers that be could be done by stressing the benefits of e-Government. This may include cost and time savings due to reduced paperwork and the reduced need for face-to-face interactions, which over time may increase municipal performance. In other words, by giving people the option of filing permits, paying fines, or

making service requests via the Internet, administrative staff may be able to dedicate more energy to other endeavors.

Privacy and security issues and a lack of community interest were not statistically significant barriers to e-Government scores. This is perhaps attributable to the proliferation and widespread acceptance of e-commerce. Private goods and services are requested and purchased via the Internet and communications with service providers and customers are enhanced through online forums and instant messaging. Thus, the proliferation of such applications throughout the public sector represents a natural transition. Also, the fact that lack knowledge about e-Government was not a statistically significant barrier is encouraging. It signals that municipalities are likely aware of best practices and what types of applications exist. Although we must continue to disseminate information as it relates to new e-Government applications and feasibility studies that guide the implementation of such applications.

In total, while e-Government is happening, there is significant distance between high and low adopters -- and even many high adopters have room to enhance their e-Government platforms. It should be noted that some municipalities may knowingly choose to be low adopters. There are presumably socio-cultural factors that are not captured in this analysis that predict e-Government adoption. For instance, some communities may view e-Government as too technocratic and potentially isolating, thereby fostering greater detachment between government and its citizens. Communities embracing this viewpoint are seemingly less likely to have comprehensive e-Government platforms. A better understanding of the socio-cultural barriers that impede e-Government adoption is ultimately needed.

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