

**A STUDY OF INSTITUTIONAL, CONTEXTUAL
AND SOCIOECONOMIC FACTORS AFFECTING COUNTY E-GOVERNMENT**

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A Dissertation submitted to the

Graduate School-Newark

Rutgers, The State University of New Jersey

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Graduate Program in Public Administration

written under the direction of

Professor Marc Holzer

and approved by

Newark, New Jersey

October, 2009

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ABSTRACT OF THE DISSERTATION

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Governments at all levels in the United States are rapidly transforming to Internet to provide public services and public administrators are increasingly implementing various strategies to enable this transformation. Scholars and academicians have researched the growth of this phenomenon in recent decades, including the factors associated with the adoption of e-government at the state and municipals levels. E-Government literature however provides little information related specifically to counties' adoption of e-government in the United States. Research on county e-government has tended to focus primarily on socioeconomic factors. Although some researchers have studied the effect of institutional and contextual factors on county e-government in particular states, none have studied their influence on counties across the United States.

Based on a survey of county administrators who are primarily responsible for e-government services, this research attempts to capture the role played by institutional, contextual and socioeconomic factors on e-government adoption at the county level all

over the United States. The institutional variables consist of size and structure of the county government, budget resources, technical capacity, stakeholder support, contracting and presence of an IT champion. The contextual variables consist of the measure of the county's professional networking, external collaboration, regional pressure and business demand in the county. Additionally, certain socio-economic variables are considered, such as population, education and income level of the county residents.

These factors are tested based on an evaluation of county websites using a conceptual framework consisting of three e-government dimensions: e-information, e-transaction and e-participation. These dimensions are operationalized based on the Rutgers E-Governance Index and validated by an expert review process. Literature also suggests an evolutionary approach to e-government growth - in terms of stages ranging from webpage development to full service integration and the involvement of all sections of society. Accordingly, the research also tests the stages of development of e-government among counties by assessing their status in each dimension and determining if the proposed dimensions follow a staged pattern.

I dedicate my dissertation to my beloved grandparents – to my grandmother,
who had a hand in raising me and my late grandfathers,
whose love will always be a special memory.

ACKNOWLEDGEMENTS

It is my pleasure to convey my gratitude to all those who made this possible. I owe my deepest gratitude to my advisor, Professor Marc Holzer, for the opportunity to work in this interesting area and for his support and motivation that helped make this dissertation possible. I am thankful for his guidance and direction throughout the dissertation process and I appreciate his willingness to discuss any thoughts or ideas that I have had during my graduate study.

I would like to sincerely acknowledge my committee members, Professor Gregg Van Ryzin, Professor Hindy Schachter and Professor Tony Carrizales, for their time and effort in guiding me throughout the process. Their suggestions and insights have enriched my dissertation, and helped me develop new perspectives in my area of research. In addition, I am greatly thankful to Professor Jim Melitski for his help and advice during the dissertation. I would also like to thank the entire SPAA faculty, who has always been helpful during my time in the graduate program.

Special thank you to Melissa, Madelene, Gail and Michelle for their invaluable help and continued support that had made this process easier. I am indebted to my many friends and colleagues for their encouragement and motivation all along, and for being there during the countless hours spent in the fourth floor lab. Thank you all! I will carry fond memories from here for the rest of my life.

I am especially grateful to Pratish, Aju, Sai and Sunjoo for helping me maintain my calm during this phase of my life. Above all, I am completely beholden to my family – my mom, dad and sister, who were my greatest sources of inspiration. I owe everything to the confidence that they had in me since I embarked on this journey.

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Chapter 1

INTRODUCTION

The rapid transitioning to the Internet by governments looking to enhance quality of service and significantly reduce costs is resulting in more effective and efficient public service delivery (Dawes et al., 1999). This phenomenon, broadly referred to as e-government, began in the early 1990s and was slowly adopted by governments and public agencies at federal, state, city, and county levels. “E-government, the application of ICT within public administration to optimise its internal and external functions, provides government and business with a set of tools that can potentially transform the way in which interactions take place, services are delivered,.... and citizens participate in governance” (UNDESA, 2003, p.1). According to Norris et al. (2001), e-government is “the delivery of services and information, electronically, to businesses and residents, 24 hours a day, seven days a week” (p. 5). This transformation is characterized with continuous optimization of service delivery, constituency participation, and governance by transforming internal and external relationships through technology (Gartner Group, 2000). Truly, it has the potential not only to transform the relationship of government interactions with both individuals and businesses but also to impact the efficiency of internal processes (Siew & Leng, 2003).

E-Government literature however provides little information related specifically to local county government’s adoption of websites in the United States. This research attempts to capture the role played by institutional, contextual and socio-economic factors

on e-government adoption at the county level all over the United States. Additionally, the research also determines if counties follow an evolutionary approach to e-government growth – one that views such growth in terms of stages ranging from webpage development to full service integration and the involvement of all sections of society.

Literature Review

Whereas the phenomenon of linking technology and government was initially dominated by radio, cable television, and telephone conferencing (Arterton, 1987, 1988; Becker, 1993; Christopher, 1987; McLean, 1989), it is now the turn of the information and communication technology (ICT). Unlike television and radio, computers allow citizens to demand and obtain desired information online. At the same time, experts in the field are increasingly acknowledging that for governments to meet their own service delivery goals and achieve good governance in today's networked world, they need Internet-based services and other technological service delivery applications (Cloete, 2003). Indeed, one study of the ways in which Americans contact their government found that the Internet is an increasingly popular tool for online users to communicate with their public officials (Pew Internet and American Life Project, as cited in Horrigan, 2004).

Carter and Belanger (2005) identified three main benefits of e-government: increased government accountability to citizens; greater public access to information; and a more efficient, cost-effective government. According to Garson (2004), e-government in the United States promises four major developments: First, there will be a major transformation of the way the government conducts business. Second, new, improved and transformed governmental processes will cut transaction costs, resulting in substantial government savings. Third, in the future, long-term loss of social capital in the U.S. will

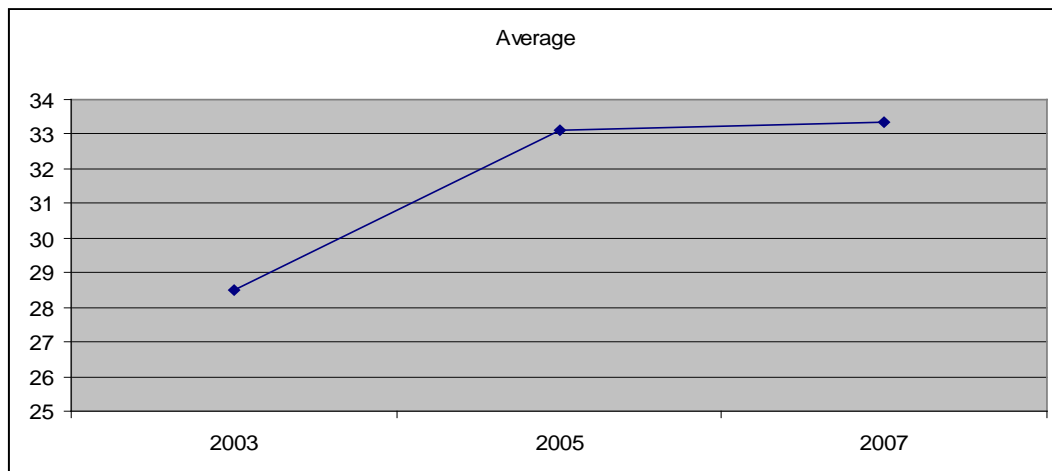
be reversed through increased electronic networking. Fourth, these changes will enhance the freedoms of the general public. Some scholars have also researched the impact of e-government adoption on internal organizational structures and processes and on organizational outputs and outcomes. For example, Ho (2002) argued that the Internet facilitates a transformation from the traditional bureaucratic paradigm—highlighted by standardization, departmentalization, and operational cost-efficiency—to an e-government paradigm that emphasizes coordinated network building, external collaboration, and customer services.

The Internet is also a convenient mechanism through which government can conduct citizen-participation exercises with the potential to decentralize decision-making. Indeed, many scholars and practitioners of e-government have expressed confidence in its potential for e-democracy and citizen participation online. Most particularly, the Internet raises the possibility for large scale e-democracy and enhances the degree and quality of public participation in government. ICTs also help citizen groups conduct research online, interlink with online communities, and host their own websites to post opinions (Bridges.org, 2002b).

E-Government also facilitates effective public reporting by the government to ensure an informed citizenry. According to Lee, public reporting is “.....the management activity intended to cover systematically and regularly information about government operations, in order to promote an informed citizenry in a democracy and accountability to public opinion” (Lee, 2004, p.7). And he further states that, “public reporting is characterized by being effectively communicative to citizens.” To achieve this purpose of effectively communicating to citizens, governments can utilize their websites to publish

results of the performance measurement systems. Recently, an international survey of municipal websites was conducted in 2007 through a collaboration between the E-Governance Institute at Rutgers-Newark, USA and the Global e-Policy e-Government Institute at Sungkyunkwan University in Seoul, South Korea. The joint study ranked municipalities worldwide based on their scores in five e-governance categories of security and privacy, usability, content, services and citizen participation and the results of that study were compared with similar studies in 2005 and 2003, to assess municipal e-governance performance on a longitudinal trend. Based on the findings, the number of municipalities that published performance reports online had doubled globally from 10% in 2005 to 20% in 2007 (Holzer & Kim, 2008). Also, the comparison of the 2003 and 2005 findings with those from 2007 reveals that the overall average score for municipalities surveyed increased from 28.49 in 2003 to 33.11 in 2005 and to 33.37 in 2007, an overall increase of 4.88 (see Figure 1.1). This finding is indicative that municipalities are increasingly using technology to increase effectiveness and efficiency.

[Figure 1.1] Average E-Governance Score 2003 - 2007



Based on the same survey, 50% of cities selected in Africa established official city websites, which represented a significant increase from 29% of the cities in 2005. In

Asia, the percentage of cities that established websites increased from 78% in 2005 to 89% in 2007. While 70% of the cities in North America have official city websites, every city selected in Europe, South America and Oceania had its own official website.

[Table 1.1] Global Municipalities with Official Websites by Continent 2007

	Oceania	Europe	South America	Asia	Average	North America	Africa
2007	100%	100%	100%	89%	86%	70%	53%
2005	100%	100%	100%	78%	81%	80%	29%

Certain municipalities have been particularly active in utilizing their website to promote citizen participation online. One example is the Cyber Policy Forum that provides the citizens of Seoul with well-organized and systematic opportunities to submit their ideas and suggestions on proposed policies via policy forums in which citizens can freely suggest policy ideas and agendas to public servants (Holzer & Kim, 2005).

A significant global consequence of the growing use of computers is the digital divide among nations, both developed and developing. This digital divide is not just a concept that applies to people; it can also be applied on a larger scale domestically and internationally. In simple terms, it refers to the “gap between those people who have access to digital technologies and information on the internet, and those who do not” (Singh, 2002, 7). This refers to the “gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to the use of the internet for a wide variety of activities” (OECD, 2001). In Keniston’s (2004) book *Experience in India: Bridging the Digital Divide*, he classifies this divide into four main categories. The first is a “massive digital divide based on income, related to education and urban residence, and correlated with economic, political and cultural

power” (13). The second category is a linguistic divide, implying the advantage of English-speaking nations such as the United States, UK, Canada, New Zealand, and Australia, as well as other nations with large English-speaking populations, including India, South Africa, Singapore, and Hong Kong. The author refers to this as the “Anglo-Saxon linguistic and cultural hegemony” (16). The third divide is related to the digital gap between those Northern nations that are information-rich and their information-poor counterparts in the Southern region. The fourth divide refers to the creation of a new class of professional elite, made up of computer engineers who have reaped huge benefits from the IT revolution (17).

Thus, although the move towards e-government may result in certain divides or gaps between nations and people with regard to access to computers, recent trends have shown that such divides are being narrowed down with the digital ‘have-nots’ catching up with the upper segment. Based on the Rutgers E-Governance Survey 2007, the gap between OECD and non-OECD member countries decreased since the 2005 evaluation. The difference in 2003 between the average scores of OECD and non-OECD member countries was 12.08, which increased to 17.85 in the 2005 evaluation. Based on the 2007 evaluations, the gap has begun to decrease, although slightly to 17.54.

The concept of real access to ICT, made up of twelve interrelated factors, was soon proposed by a development-based non-profit organization – Bridges (Bridges.org, 2002a). These factors are:

- **Physical access:** Is technology available and accessible to people and organizations?

- **Appropriate technology:** Is the available technology appropriate to local needs and conditions? What exactly is the appropriate technology, as determined by the need and application?
- **Affordability:** Can a wide variety of people/nations take advantage of this technology?
- **Capacity and training:** Do people have the training and skills necessary for effective implementation and application of the technology? Do they understand its potential uses?
- **Relevant content:** Is locally relevant content available in a country's native language?
- **Integration into daily routines:** Is technology use a burden to peoples' lives or can it be integrated into daily routines effectively?
- **Socio-cultural factors:** Are people limited in their use of technology based on gender, race, or other socio-cultural factors?
- **Trust in technology:** Do people have confidence in technology and understand the implications of the technology they use, for instance in terms of privacy, security or cyber-crimes?
- **Legal and regulatory framework:** Do laws and regulations limit technology use? Are changes needed to create an environment that best utilizes the intentions and benefits of a given technology?
- **Sustainability and the local economic environment:** Is there a local economic environment favorable to technology use? Is technology part of local economic development? What is needed to integrate it?

- **Macro-economic environment:** Is technology use limited by the macro-economic environment in the country or region, in terms of deregulation, investment, labor issues?
- **Public support and political will:** Is there political will in government to do what is needed to enable the integration of technology throughout society?

E-Government is truly an intersection of multidisciplinary areas like organizational theory, social science, informatics, computer science, public administration, business administration, economics, political science, law, and government (Lofstedt, 2005). Hence, knowledge and understanding of the factors related to more extensive use of e-government would help administrators make maximum use of technology in government in the most appropriate manner. Accordingly, the factors associated with the adoption of e-government, both in the U.S. and globally, have been the subject of various studies by scholars and practitioners. For instance, using economic growth (Hacche, 1979) and regional development (Dawkins, 2003) theories as a framework, Siau and Long (2006) showed income level, development status, and region to be three key factors that differentiate e-government development at the national level. In general, demand for e-government is dependent on the growth in the number of Internet users in the society: “The extent to which e-governance develops ... is a function of the collective national and social capital supplying IT services and of informal social and human capital creating a demand for e-governance” (Rose, 2005, p. 1).

State and Local E-Government

In the U.S., as part of recent development, many state governments, encouraged by the success of their federal counterparts, have begun using e-government technology in a variety of ways. By the spring of 1997, all 50 states, as well as almost half of

American cities with a population over 100,000, had developed official websites (Stowers, 1999). States' websites were found to differ significantly from municipal websites not only in content, services, and design but also in the sectors included, whether agriculture, revenues, elections, banking and insurance, environmental issues, or health services. According to early research conducted by Walker (1969), the most important factors influencing the adoption of e-government technology at state level are wealth, urbanization, and population size. Organizations that are more complex are more dependent on levels of professionalization and its members' involvement in professional networks. However, more recently, Reddick (2004), in an analysis that focused on financial management, identified information technology (IT) management capacity and social services IT capacity as significant factors. Alternatively, McNeal et al. (2003) found states' e-government to be strongly associated with political affiliation, legislative professionalism, and state professional networks but unrelated to state revenue per capita, income per capita, and education. McNeal et al.'s findings also suggested that urban residents tend to have better access to public services than rural residents (who therefore use traditional offline government) because they are concentrated in dense areas rather than being sparsely distributed.

Based on recent scholarly attention to the paucity of research on local e-government practices, several studies have made efforts in this direction (Norris & Moon, 2005). For example, Moon's (2002) pioneering study on municipal e-government concluded that cities with larger populations and council-manager forms of government tend to exhibit higher levels of e-government technology adoption. However, the study also found that most cities were still in the initial stages of e-government growth.

Edmiston (2003) conducted a similar analysis of U.S. city and county e-government using data from surveys conducted in 2000 by the National Association of Counties (NACO) and the ICMA. Edmiston found that most chief information officers believe that the e-government sites already in place have not only helped improve service delivery but have expanded access to government officials. Hence, citizens can now learn more about their representatives through a website and can even contact government officials through e-mail. One of the most pressing issues discussed by Edmiston is the digital divide discussed in the previous section. That is, although e-government has resulted in expanded access, certain groups remain underserved.

In a later study on this same issue, Moon and Norris (2005) identified orientation toward managerial innovativeness and city size as the most important determinants of e-government adoption. Based on a 2005 study of local level e-government in New Jersey, Carrizales (2008) found that municipalities' e-government status was largely influenced by the perception of their respective CAO (Chief Administrative Officer). Moreover, municipalities with advanced e-government practices, tend to have an IT department and also allocate a greater percentage of their overall budget to IT functions.

In addition, even though county governments have been catching up technologically, such studies continue to focus on federal, state, and municipal governments, meaning that the extant literature provides little information related specifically to local county government's adoption of e-government. Rather, most studies of local government have either considered cities and counties together or have specifically studied municipal e-government, even though there are 3,099 counties in the U.S providing an increasing range of services. An understanding of the status of e-

government at county level and the factors that influence its adoption is therefore essential. Such understanding is also important due to the complexities arising out of the fragmented decision-making structures at county level.

U.S. Counties E-Government

American county governments were always the ‘forgotten governments’ within the local government family, having been referred in the past as the ‘dark continent of American politics’ or the ‘plague of American politics’ (Menzel et al., 1992). Recently, however they have been rediscovered from both a practical and academic perspective. Traditionally, these governments were seen as administrative arms of the state, providing state-level services like health and hospitals, roads and highways, welfare, police, corrections, and tax collection. More recently, however, counties have begun to provide municipal-level services such as fire protection, utilities, libraries, planning and zoning, and protective inspections, as well as regional-level services like sanitation, sewage and solid waste disposal, parks and recreation, mass transit and parking, housing and urban development, and airports (Benton, 2005). Nowadays, counties are playing an increasing role in regional economic development activities and strive to reduce interjurisdictional competition (Benton, 2005). Counties are also reaching out to their regional counterparts in an effort to build collaborative networks that facilitate the sharing of resources and experience (Benton and Daly, 1996). Moreover the increasing role being played by NACO has facilitated more inter-governmental partnerships in solving public problems (Berman and Greene, 1993). Hence, it is only appropriate that scholars and academicians begin to match this growing range of services by paying more attention to county governments in their research, especially with regards to e-government.

According to the findings of NACO's 2000 survey, 40% of the counties studied were in the process of implementing Internet solutions, 30% were in discussion about the need for implementation, but a startling 18% were only thinking about it. About half of all counties responded that their employees did not have email, and only a third of the agencies had any e-mail access (NACO, 2000). Nonetheless, half the counties stated that their primary goal for IT use was to make county records more accessible to the public and enable more online interactions with their constituents. Such an emphasis again underscores the importance of understanding which factors influence e-government at the county level.

Factors Influencing County E-Government

Research on county e-government has tended to focus primarily on socio-economic variables and has neglected organizational, institutional, and contextual variables that have a major potential to influence their adoption. Wilkinson and Cappel (2005), whose examination of county websites in Michigan focused on the effects of income and population on e-government use, determined that both economic prosperity and population were important influential factors. In general, highly populated and wealthier counties employed e-government more effectively than others. Based on his research on counties, Huang (2007) found that website development is positively correlated with population size, population growth, racial diversity, income, employment opportunities, and education levels. Yet there is widespread agreement in the extensive research on internal factors at state and municipal levels that institutional and contextual factors are major determinants of e-government adoption (Brundey & Selden, 1995; Norris & Kraemer, 1996; Moon, 2002; Holden, Norris, & Fletcher, 2003; Moon &

Norris, 2005; Carrizales, 2008; Tolbert et al, 2008). Although some researchers have studied these factors in county e-government in particular states (Ho & Ni, 2004), none have determined the institutional and contextual factors influencing county e-government across the United States.

The size of the organization is an important factor in adopting e-government i.e. larger organizations, because they include a greater number of professionals from diverse fields and tend to be more complex, tend to be more complex, which in turn results in technical innovation (Moon & Norris, 2005). Governments with greater support from stakeholders in the organization will have higher levels of e-government than counties with lesser political support, particularly because organizations with tight fiscal budgets can still be innovative if the leadership (e.g., elected officials, top executive officers) is committed to pursuing innovative solutions as an organizational goal (Ho & Ni, 2004). The e-government phenomenon is also dependent on the type and structure of government, organizational resources, and organizational professionalism (Brudney & Selden, 1995).

According to Tolbert et al. (2008), institutional capacity is a major influential factor in digital government innovation at the state level. States that possess substantial institutional infrastructure and capacity, such as information technology departments and legislative committees will have higher levels of e-government use than states with lesser institutional capacity. Among city governments, an orientation toward reform tends to result in a management form of government that is more receptive to innovative adoption of technology. Likewise, municipalities with council-manager forms of government tend to exhibit higher levels of e-government technology adoption than those with mayor-

council forms of governments (Moon, 2002). Previous research has also suggested that the presence of IT champions within the organization, i.e. individuals with high levels of motivations towards e-government tends to bring out innovative changes in organizations (Hannah, 1995).

Apart from the institutional factors, certain contextual factors also have a tendency to influence the speed and direction of the implementation of any IT project. Neighboring governments tend to influence each other to adopt new technologies owing to similar political and socioeconomic backgrounds, (Berry, 1994). When a program is implemented by a neighboring state, it is immediately considered as a legitimate state responsibility. Public demand along with the support from legislators would push the government at all levels to adopt the same program. National-level interactions through conferences and publications also play a part in innovation adoption as colleagues share experiences of success and failure with local technology applications and recognition of best practices (Ho & Ni, 2004). Based on McNeal et al.'s (2003) finding, membership in state professional networks tends to be strongly related to state innovation in e-government. Also, governments that are more inclined towards collaboration and shared-services with other governments and nonprofits, could also tend to adopt more innovative e-government strategies.

These findings together imply that the primary research questions in e-government research should focus on the institutional and contextual determinants of governmental adoption and use of IT. The significance of this research is three-fold: 1) this research attempts to capture the role played by such institutional and contextual variables on county e-government all over the United States; 2) this research tests the

stages of development of e-government among counties; and 3) the research focuses exclusively on websites as representative of the status of e-government. Additionally, certain socio-economic factors are also applied such as population, education level and income level. These factors are tested across a conceptual framework of e-government consisting of the dimensions of e-information, e-transaction and e-participation. These dimensions are identified based on the literature on evolutionary growth model of e-government, which is discussed below followed by the significance of website evaluation.

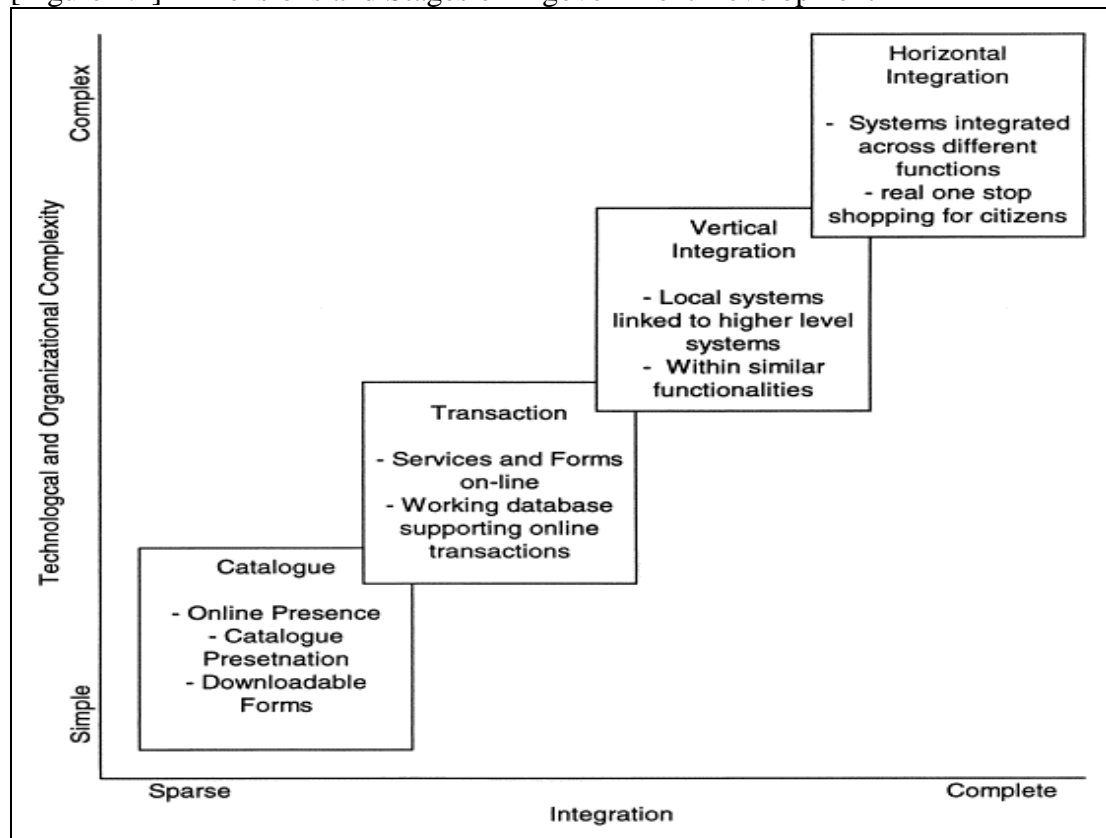
Chapter 2

MODELS OF E-GOVERNMENT GROWTH: AN EVOLUTIONARY APPROACH

Recent literature on e-government growth has begun to take an evolutionary approach to the longitudinal study of e-government, one that views such growth in terms of stages ranging from webpage development to full service integration and the involvement of all sections of society (Schelin, 2003). This theory of e-government growth stages has also been strengthened by the emergence of the *one-stop government* concept, where all public agencies would be interconnected, and the citizen could access services from any public agency at a single location. Such service—which promises to transform the relationships between governments, citizens, and the private sector and produce tremendous cost savings and increased transparency and efficiency (Tambouris, 2001)—would soon be demanded by citizens and could be achieved through a stage-wise progression.

Nonetheless, according to Layne and Lee's (2001) pioneering article on e-government models, those implementing e-government projects must keep in mind that e-government is an evolutionary process. Therefore, to guide administrators in understanding and implementing e-government projects, these authors developed a four-stage model of cataloging, transaction, vertical integration, and horizontal integration based on their observations of e-government adoption in the U.S.

[Figure 2.1] Dimensions and Stages of E-government Development

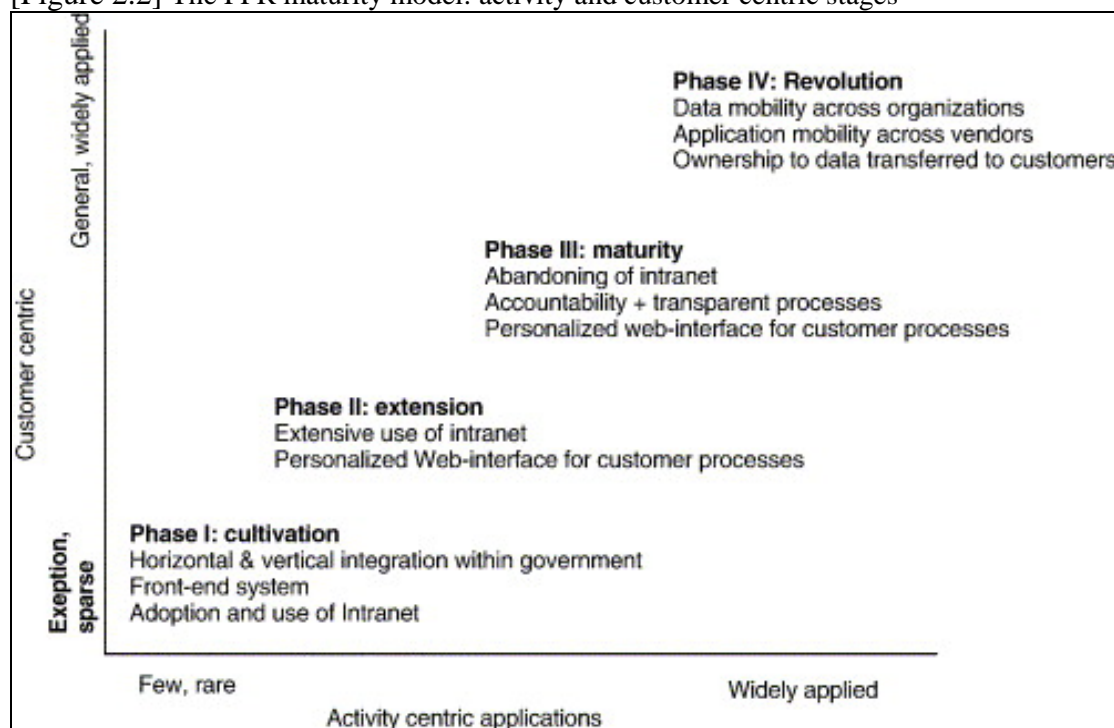


Layne, K. and Lee, J. (2001). Developing full functional e-government: A four stage model. *Government Information Quarterly*. 18:122-136.

In the first stage, cataloging, governments focus their efforts on establishing websites with minimum features and mostly non-transactional information. However, citizen demands gradually lead to these websites providing more information, including downloadable government forms and documents. Subsequently, in the second stage, citizens begin conducting transactional services with the government on the website instead of commuting to the government office, thereby saving time and money. In the third stage, the website becomes integrated vertically with the city, state, and federal levels; after which, in the fourth stage, it integrates horizontally with other Websites at a similar level. This finally lead to a state of one-stop government in which all public agencies are interconnected and the citizen can access services from any public agency at

a single location. As an extension of the Layne and Lee model, Anderson and Henrikson (2006) proposed the public sector process rebuilding model (PPR) model that also involves citizens, businesses, and other government agencies in e-government growth.

[Figure 2.2] The PPR maturity model: activity and customer centric stages



Andersen, K. V., and Henriksen, H. Z. (2006). E-government maturity models: Extension of the Layne and Lee model, *Government Information Quarterly*, (23), pp. 236-248.

Contemporaneously with Layne and Lee (2001), Hiller and Belanger (2001) presented a four-stage model of e-government growth that includes information, two-way communication, transaction, and integration. According to these authors, e-government begins with the basic step of disseminating information that is reliable, updated, and accessible on the official Website. Hence, prior to the transaction stage comes the two-way communication stage that involves end-user communication with the government through email exchanges and requests. Such communication then transforms into complete transactions with “Web-based self-services completely replacing public servants” (p. 15). Finally, all government services are integrated onto a single portal

through which citizens can access any service from any level of government, which will be followed by the stage of participation (Hiller & Belanger, 2001).

Another model proposed by Wescott (2001) consists of six different stages—setting up an email system and internal network, enabling interorganizational and public access to information, allowing two-way communication, allowing exchange of values, digital democracy, and joined-up government. Because, according to Westcott, the initial focus in any e-government initiative is internal administrative functions like payroll, accounts, and finance; e-mails should be used to increase online communication, coordination, and integration. The system would then be reorganized to facilitate the workflow and improve transparency by posting information onto a website. Posting email addresses and telephone numbers and encouraging forums and bulletin boards would then enable two-way communication between the citizens and administrators, and the website could be made transaction friendly by making services available 24/7. Finally, it would integrate various government websites both vertically and horizontally to provide complete satisfactory public services through a single site without users having to know which government agency to contact. In some cases, the site could achieve this same function by using smart cards.

[Figure 2.3] Hiller and Belanger's Stages of E-Government Growth

	Stages of e-government				
	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Type of government	Information	Two-way communication	Transaction	Integration	Political participation
Government with Individual-Services	Description of medical benefits	Request & receive individual benefit information	Pay taxes online	All services and entitlements	N/A
Government with Individual-Political Process	Dates of elections	Receive election forms	Receive election funds & disbursement	Register to vote -- federal, state & local (file)	Voting online
Government with Business-Citizen	Regulations online	SEC filings	Pay taxes online Apply for and receive program funds Agricultural allotments	All regulatory information on one site	Filing comments online
Government with Business – Marketplace	Posting RFPs	Request clarifications or specs	Online vouchers & payments	Marketplace for vendors	N/A
Government with Employees	Pay dates and holiday information	Requests for employment benefit statements	Electronic paychecks	One stop shop for info on job, retirement, vacation, etc.	N/A
Government with Government	Agency filing requirements	Requests from local governments	Electronic funds transfers		N/A

Hiller, J., and Bélanger, H. (2001). *Privacy Strategies for Electronic Government. E-Government Series*. Arlington, VA: PricewaterhouseCoopers Endowment for the Business of Government.

Although both e-government and e-politics are part of e-democracy, the former, as a channel through which citizens can learn about their administrators, is more efficiency oriented; whereas the latter, which makes the decision-making process more transparent, is more effectiveness oriented (Watson & Mundy, 2001). Hence, to achieve

electronic democracy based on the principles of skill development, theory of innovation, and one-to-one marketing, Watson and Mundy proposed a three-stage, dual-pronged model of initiation, infusion, and the customization through which efficiency and effectiveness are satisfied. In this model, e-democracy is initiated through a single website that provides legislators and administrators' contact information, as well as online payment options. Such provision increases the efficiency for both the government and citizens through time and travel savings; it also assumes that an informed citizenry will lead to effective governance. This site is then rapidly adopted until all government sites are providing online payment options, which in turn leads to increased efficiency. At this stage, effectiveness is achieved by progressing beyond simple transparency and involving citizens in the political decision-making process. In the final customization stage, citizen and government reach a one-to-one relationship. Nevertheless, this model of e-democracy places more emphasis on citizens' interest and involvement in learning to use the available skills than on government's pushing for citizen participation.

Based on his study of municipal e-government adoption, Moon (2002) produced a five-stage model focused on degree of technical sophistication and interaction with users and made up of simple information dissemination (one-way communication), two-way communication (request and response), service and financial transactions, integration (horizontal and vertical integration), and political participation. Here, the process begins with the posting of extensive information onto the website, followed by a phase of two-way communication through email systems and data-transfer technologies. The third stage is characterized by the implementation of financial transactions together with such services as license renewal and loan applications using live database links. Subsequently,

the site integrates various government services vertically (intergovernmental integration) and horizontally (intra-governmental integration) to produce increased efficiency, user friendliness, and effectiveness. This latter task, however, is quite challenging since apart from time and resources, it needs commitment and understanding at all levels of government. Finally, the introduction of online voting, online public forums, and online opinion surveys encourages online political participation. A later model by Rao, Mets, and Monge (2003) focuses instead on identifying the nature of the service provided through e-commerce in small and medium-sized enterprises (SMEs). Made up of four phases—presence, portals, transaction integration, and enterprises integration—their model identified the organizational characteristics that facilitate the development of these stages and the external characteristics that act as barriers. An earlier study by Baum and Maio (2000) developed a four phase model consisting of web presence, interactions, transactions and transformation. Based on their research, the third and fourth stages were comparatively more complex and involved more financial investments. And as the levels of cost and complexity increased, so do the risks and loopholes in relation to new techniques and technologies associated with the higher stages. Janssen and van Veenstra (2005) offered a model that specifically addressed the technological aspects of e-government unlike the existing models which according to the authors, place more emphasis on online services to citizens and business. Instead the models of e-government growth need to focus more on architecture's maturity process.

As the basis for its e-government e-readiness survey of member nations, the United Nations (UN, 2005) developed a five-stage model of e-government evolution comprising the following progressively sophisticated levels of service: emerging

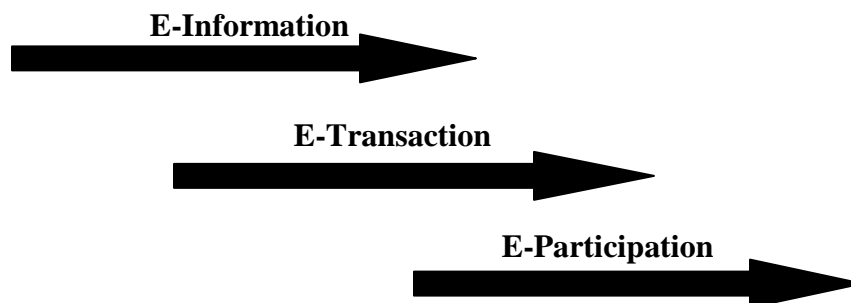
presence, enhanced presence, interactive presence, transactional presence, and networked presence. This model begins with a simple webpage or an official website that may or may not be linked to various departments and different levels of government but is mostly content oriented. This initial presence is then enhanced with information on public policies, newsletters, annual reports, and even downloadable databases. The site also provides appropriate search tools, sitemaps, and government forms to help citizen users familiarize themselves with the online services, which are, however, still unidirectional. Gradually, the website becomes more interactive, offering downloadable forms, applications, and contact details for public officials through email, fax, or telephone. As transactions increase, the website becomes bidirectional, allowing citizen users to pay taxes, renew licenses, apply for ID cards or birth certificates, and even bid for contracts online. The final stage is a networked presence highlighted by the integration of G2G (government to government), G2C (government to citizen), and G2B (government to business) interactions. At this point, the website is enhanced with features that facilitate civic engagement like online bulletin boards, citizen blogs, and policy forums to encourage participatory decision making.

Chapter 3

CONCEPTUAL FRAMEWORK OF E-GOVERNMENT DIMENSIONS

Overall, e-government is set to transform government-citizen interaction and service delivery, and also impact the democratic process. Therefore, understanding such distinct dimensions will require researchers to develop innovative methodologies that recognize the various factors influencing this rapidly diffusing phenomenon (Stowers, 1999). To do so, the research synthesizes the various existing models of e-government to develop a conceptual framework of three distinct dimensions across which e-government impacts the provision of public services. These dimensions are -

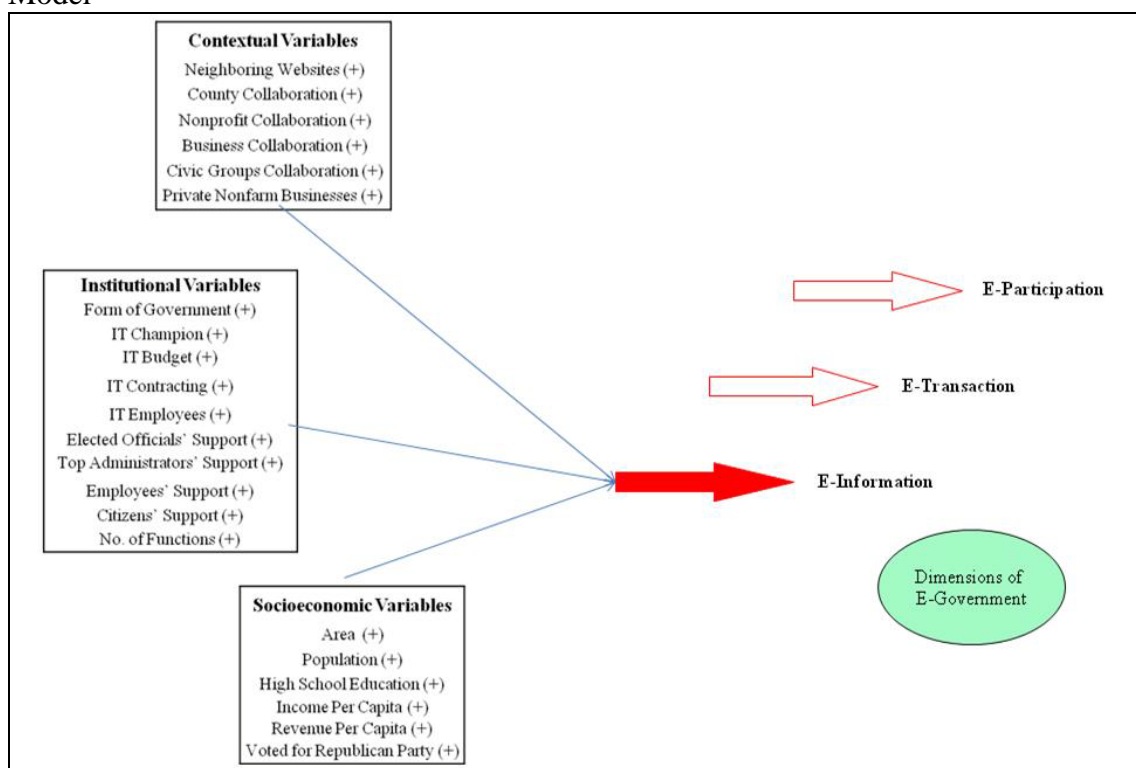
- 1) E-Information: *Effective communication* ----- *informed citizenry*
- 2) E-Transaction: *Efficient, effective transactions* ----- *integrated citizenry*
- 3) E-Participation: *Democracy* ----- *participatory citizenry*



[Figure 3.1] Dimensions of E-Government (*based on the Models of E-Government Growth*)

E-Information is that dimension of e-government which provides substantive online information on public programs, public offices, public officials, government structures, performance reports etc, through effective communication channels. This dimension involves both the one-way posting of information on the website and the two-way online interaction between government and the citizens, where the goal of e-government is to provide relevant and sufficient information, thus leading to an informed citizenry.

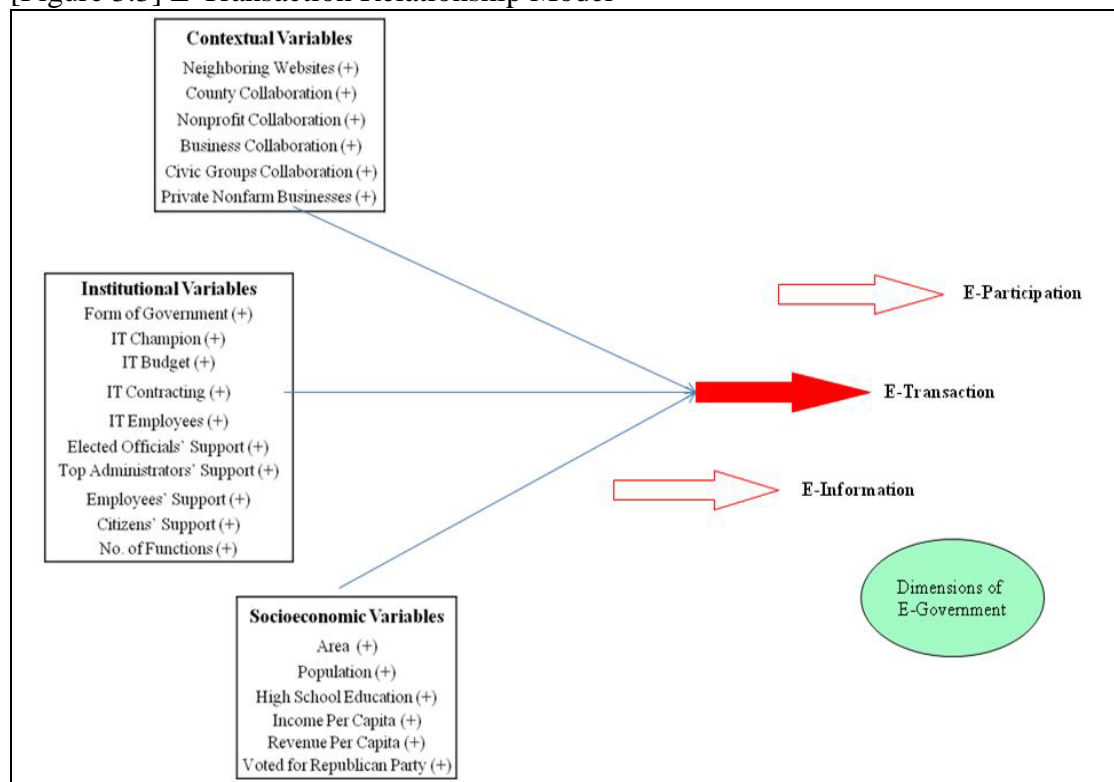
[Figure 3.2] E-Information Relationship Model



E-Transaction is that dimension of e-government which provides secure online transactional services especially financial transactions, thus leading to substantial savings in time and money on behalf of the citizen users. The goal of e-government with regard to this dimension is to attain efficient and effective transactions and this dimension also

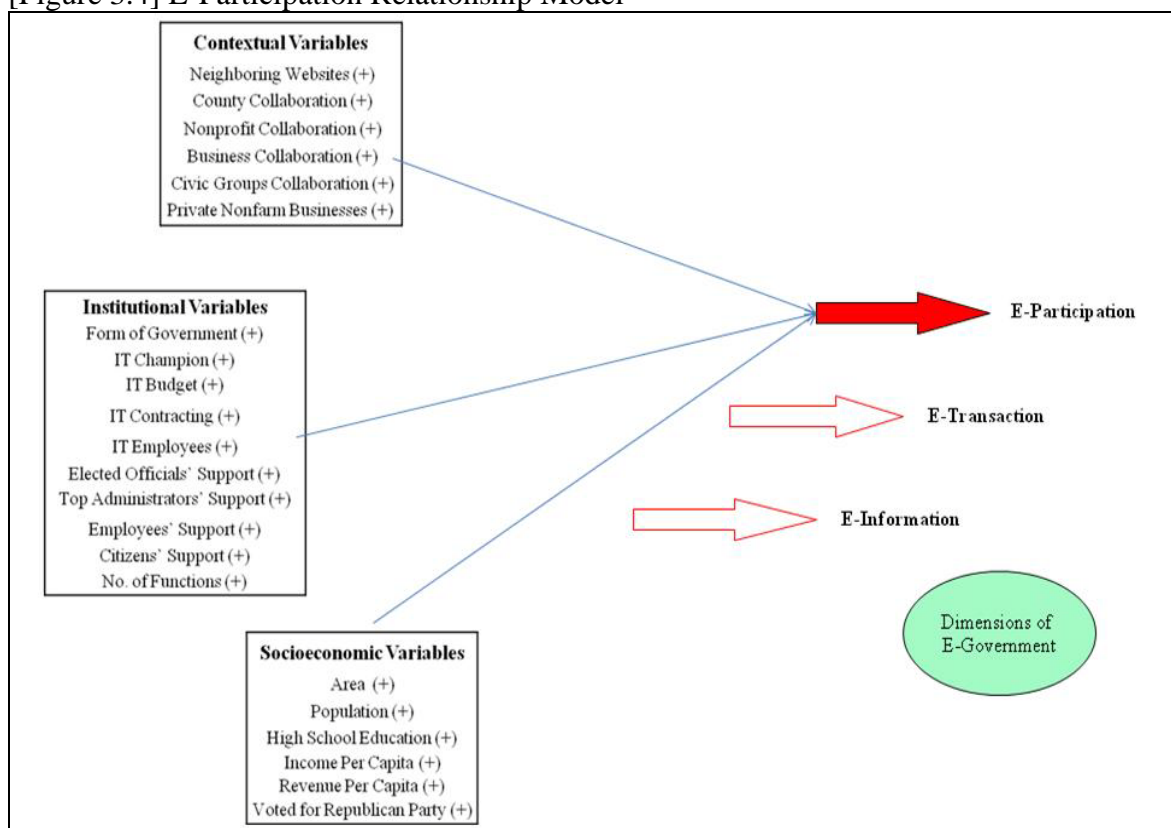
entails the integration of websites of various other government offices into a single site from which citizens can access any service from any level of government.

[Figure 3.3] E-Transaction Relationship Model



E-Participation is that dimension of e-government which encourages participatory decision-making online, through features such as online bulletin boards, citizen blogs, e-petitions, online surveys and policy forums. This dimension involves both civic engagement and political participation, with the goal of e-government being to promote democracy and citizen participation.

[Figure 3.4] E-Participation Relationship Model



Significance of Website Analysis

The status of e-government, especially at the local level, has traditionally been measured by surveying the administrators and technical staff behind the website.

However, a better measure of the status of e-government would be to assess the official website content and services. Moreover, research on e-government has long ignored the potential of websites to reach out to citizen users, associating them more often with the mere provision of information, advertising, or attracting users to respective government agencies (Benjamin & Whitley, 2004). In fact, although many governments across the world have built websites, e-government is more than simply constructing a virtual gateway. Rather, it involves technologies that effectively provide government services (Wang et al., 2005).

According to Pardo (2000), e-government initiatives through a website vary depending on the primary focus of the respective governments, but they more commonly provide the following: (a) 24/7 access to government information and public meetings, (b) mechanisms that enable citizens to comply with state and federal rules on such formalities as drivers licenses or business licenses, (c) access to special benefits like welfare funds or pensions, (d) a network across various government agencies to enable collaborative approaches to serving citizens, and (e) various channels for digital democracy and citizen participation initiatives. Thus, it is essential that the fundamentals of government service delivery are not altered simply by the introduction of a website as the new window of government (Pardo, 2000). Rather, e-government initiatives must clearly extend beyond the textual listing of information to a more intentions-based design so that citizens can use websites more effectively (Howard, 2001).

Obviously, the first step toward e-government for a typical government agency is to create a website that provides services online. However, to realize the full benefit of e-government, an agency must be networked through a central website to other agencies, thereby enabling citizens to perform multiple tasks on a single site. To illustrate this point, Gant and Gant's (2002) significant study of the role of websites in electronic service delivery emphasized that such sites have the potential to integrate services and provide a higher quality of service to citizens. Governments should therefore "determine the best way to transform a basic website into a high-functioning Web portal" (p. 1). Admittedly, when websites initially began to appear, they were "little more than dressed up search engines" (Gant & Gant, 2002, p. 2); since then, however, they have improved rapidly and incorporated multiple functions. As a result, today websites are a priority for

governments investing in the digital delivery of services. Essentially, such sites are the new face of government, and administrators must take steps to ensure that the transformation to e-government maintains, if not enhances, the relationship between government and citizens.

Thus, reiterating the significance of this study: 1) the research attempts to capture the role played by institutional and contextual variables on county e-government across the United States; 2) this research tests the stages of development of e-government among counties; and 3) the research focuses exclusively on websites as representative of the status of e-government. Additionally, the effects of certain socio-economic factors are studied such as population, education level and income level. These factors will be tested across the conceptual framework model of e-government consisting of the dimensions of e-information, e-transaction and e-participation.

Chapter 4

RESEARCH HYPOTHESIS

The following hypotheses are developed based on each independent variable's influence across the three dimensions of (a) e-information, (b) e-transaction and (c) e-participation.

Institutional Variables

Hypothesis 1a-c: *A county with a council-administrator form of government will have more sophisticated e-government practices than a county without a council-administrator form of government.*

Hypothesis 2a-c: *A county with greater stakeholder support will have more sophisticated e-government practices than a county with lesser stakeholder support.*

Hypothesis 3a-c: *A county with higher technical capacity will have more sophisticated e-government practices than a county with lower technical capacity.*

Hypothesis 4a-c: *A county with higher budget capacity will have more sophisticated e-government practices than a county with lower budget capacity.*

Hypothesis 5a-c: *A county which provides greater number of services will have more sophisticated e-government practices than a county which provides lesser number of services.*

Hypothesis 6a-c: *A county with the presence of an IT champion will have more sophisticated e-government practices than a county without an IT Champion.*

Hypothesis 7a-c: *A county with a greater tendency towards IT contracting will have more sophisticated e-government practices than a county with a lower tendency towards IT contracting.*

Contextual Variables

Hypothesis 8a-c: *A county which is subjected to greater pressure from neighboring counties' e-government diffusion will have more sophisticated e-government practices than a county with lesser pressure from neighboring counties' e-government diffusion.*

Hypothesis 9a-c: *A county that involves in greater external collaboration will tend to have more sophisticated e-government practices than a county that involve in lesser external collaboration.*

Hypothesis 10a-c: *A county with greater number of business units will tend to have more sophisticated e-government practices than a county with lesser number of business units.*

Socio-economic Variables

Hypothesis 11a-c: *A county with a larger population will have more sophisticated e-government practices than a county with a smaller population.*

Hypothesis 12a-c: *A county whose residents have higher levels of education will have more sophisticated e-government practices than a county whose residents have lower levels of education.*

Hypothesis 13a-c: *A county whose residents have higher levels of income will have more sophisticated e-government practices than a county whose residents have lower levels of income.*

Hypothesis 14a-c: *A county with a larger area will have more sophisticated e-government practices than a county with a smaller population.*

Institutional Variables

Structure of County Government

Governments that are orientated toward a management form of administration are more receptive to innovative adoption of technology. Likewise, municipalities with council-manager forms of government tend to exhibit higher levels of e-government than those with mayor-council forms of governments (Moon, 2002). This is likely due to municipalities' e-government status being largely influenced directly by the perception of the Chief Administrative Officer (Carrizales, 2008). Hence, this research assumes that counties with council-administrator form of government will be more receptive of adopting e-government technology than those counties that do not have a council-administrator form of government.

Hypothesis 1a-c: *A county with a council-administrator form of government will have more sophisticated e-government practices than a county without a council-administrator form of government.*

Stakeholder Support

The analysis also assumes that counties with greater political support will have better e-government practices than counties with lesser political support, particularly because organizations with tight fiscal budgets can still be innovative if the leadership (e.g., elected officials, top executive officers) is committed to pursuing innovative solutions as an organizational goal. This positive observation that elected officials can affect innovative changes in a bureaucracy, perhaps even ahead of constituency demand, paints them as institutional catalysts capable of ensuring that government organizations continue evolving with social and technological changes and keep pace with changing

public demands (Ho & Ni, 2004). Additionally, the support of the top management and non-IT staff members are also crucial for the successful implementation of e-government features at the local government.

Hypothesis 2a-c: *A county with greater stakeholder support will have more sophisticated e-government practices than a county with lesser stakeholder support.*

Technical Capacity

Based on a 2005 study of local level e-government in New Jersey, Carrizales (2008) found that municipalities with advanced forms of e-government tend to have an IT department and also allocate a greater percentage of their overall budget to IT functions. Not only did Norris and Kraemer (1996) identify the association between the existence of a central IT department and local government adoption of leading-edge information technologies, but Teo and Tan (1998) showed that the presence of a separate IT department positively influences e-government growth through the centralization of resources. Thus this study assumes that counties with greater technical capacity will exhibit higher levels of e-government, and this capacity is measured by the presence of an IT department and the number of employees in the department.

Hypothesis 3a-c: *A county with higher technical capacity will have more sophisticated e-government practices than a county with lower technical capacity.*

Budget Capacity

Apart from technical capacity, the implementation of e-government requires significant financial resources on behalf of the county governments and the availability of such resources is represented by the amount of the overall county budget. For traditional bureaucratic organizations, the county budget is almost the only source of revenue and

therefore, it is closely related to their capabilities to develop programs and projects, including website development and maintenance.

Hypothesis 4a-c: *A county with higher budget capacity will have more sophisticated e-government practices than a county with lower budget capacity.*

Organizational Size

An important factor in adopting e-government is organization size, i.e., larger organizations, tend to be more complex, which in turn results in technical innovation (Moon & Norris, 2005). For the purpose of this research, size is measured by the number of departments, specifically by the number of functions provided by the county government. Hence, this study assumes that, counties that provide greater degree of functions will tend to adopt innovative e-government technologies to integrate these functions across various departments.

Hypothesis 5a-c: *A county which provides greater number of functions will have more sophisticated e-government practices than a county which provides lesser number of functions.*

Presence of IT Champion

Previous research has suggested that certain individuals with high levels of motivation have the capacity to bring out innovative changes in organizations (Hannah, 1995). Such organizational entrepreneurs or innovation champions tend to have years of experience and formal education, actively participate in professional organization networks, and often take the initiative in demonstrating leadership among their peers (Rogers, 1995). Overall, these IT champions are managers who actively promote their personal vision for information technology use, pushing the project over or around

approval and implementation hurdles and often risking their reputations to ensure the innovation's success.

Hypothesis 6a-c: *A county with the presence of an IT champion will have more sophisticated e-government practices than a county without an IT Champion.*

Contracting to the Private Sector

Recently, many government organizations have begun contracting their functions and services to private contractors, especially the development and maintenance of websites, website hosting, training, and project management across all levels of government. Normally, such contracting enables governmental organizations to access the expertise and skills of professionals outside the public sector free of financial obstacles (Chen & Perry, 2002). Moreover, when implementation is contracted to outside firms, governments are freed from having to bear large overhead or start-up costs. In addition, when technology uncertainty is high, e-government contracting can transfer some of the risk of system development to private vendors.

Hypothesis 7a-c: *A county with a greater tendency towards IT contracting will have more sophisticated e-government practices than a county with a lesser tendency towards IT contracting.*

Contextual Variables

Regional Pressure

Peer influence, which may arise from both regional and national levels, is an important factor that influences the adoption of innovation and technology. Owing to similar political and socioeconomic backgrounds; neighboring counties tend to influence each other to adopt new strategies. In addition, frequent mobility and information

exchanges lead to regional comparison and competition, a phenomenon that also extends to the adoption of e-government services and technologies (Berry, 1994).

Hypothesis 8a-c: *A county which is subjected to greater pressure from neighboring counties' e-government diffusion will have more sophisticated e-government practices than a county with lesser pressure from neighboring counties' e-government diffusion.*

External Collaboration

The transformation to e-government among municipalities promises a paradigm shift in the focus of governance towards greater external collaboration and networking with citizens, nonprofits, advocacy groups as well as businesses (Ho, 2002). E-Government holds promise to facilitate broader and timelier access to information and services for citizens through efficient, effective channels and thus transforming the relationship between the government and the citizens (Gore, 1993). Accordingly, county governments that emphasize on greater external collaborations with the public will tend to view e-government as an important tool in strengthening such relationships.

Hypothesis 9a-c: *A county that involves in greater external collaboration will tend to have more sophisticated e-government practices than a county that involve in lesser external collaboration.*

Business Demand

Based on the study conducted by Reddick (2004) using the 2002 ICMA survey data to examine e-government as a two-stage model of cataloging and transaction, most cities are in the first stage from the G2C (Government to Citizen) perspective, but from the G2B (Government to Business), and G2G (Government to Government) perspectives, most cities had advanced to the second stage. Thus the research assumes that counties

initially tend to be more responsive to the demand from business units, such as online permits, online registrations etc.

Hypothesis 10a-c: *A county with greater number of business units will tend to have more sophisticated e-government practices than a county with lesser number of business units.*

Socio-economic Variables

The socio-economic condition of the residents positively impacts the adoption of innovation at the local government level. Those on the higher section of the socio-economic scale tend to obtain information at such a rapid rate that the gap in knowledge tends to increase rather than decrease (Tichenor et al., 1970). The education and income level of the county residents generally tends to set a level of expectation for the county government in developing their website. For this research, two socio-economic variables will be assumed to positively impact the adoption of e-government: income and education. Additionally the population of the county will be considered based on previous e-government literature, which suggests a positive relationship between population and e-government capacity at the local level (Moon, 2002). States with larger populations have higher resources that can be utilized in the implementation of technology in the delivery of public services. Larger populations involve complex, diverse issues that would be already accounted for in the initial stages of e-government implementation. Therefore during the later stages, it is unlikely that the implementation will face unexpected obstacles. These hypotheses will be tested using data on counties from the U.S. Census Bureau.

Hypothesis 11a-c: *A county with a larger population will have more sophisticated e-government practices than a county with a smaller population.*

Hypothesis 12a-c: *A county whose residents have higher levels of education will have more sophisticated e-government practices than a county whose residents have lower levels of education.*

Hypothesis 13a-c: *A county whose residents have higher levels of income will have more sophisticated e-government practices than a county whose residents have lower levels of income.*

Hypothesis 14a-c: *A county with a larger area will have more sophisticated e-government practices than a county with a smaller population.*

Chapter 5

RESEARCH METHODOLOGY

Research Questions

- 1) How can we best conceptualize and measure the key dimensions of e-government?
- 2) Can the e-government dimensions be used to describe the stages of e-government development?
- 3) What are the key institutional, contextual and socio-economic determinants of the dimensions of e-government?

Dependent Variables

An evaluation of the county websites based on a framework of three distinct dimensions of e-government: (a) e-information, (b) e-transaction, and (c) e-participation.

E-Information is that dimension of e-government which provides relevant and sufficient information through effective communication, thus leading to an informed citizenry.

E-Transaction is that dimension of e-government which enables efficient and effective transactions, owing to an integrated citizenry.

E-Participation is that dimension of e-government which promotes electronic democracy, thus leading to a participatory citizenry.

Independent Variables

The research utilizes three blocks of independent variables: (a) institutional, (b) contextual, and (c) socio-economic variables. The institutional variables consist of size and structure of the county government, budget resources, technical capacity, stakeholder

support, contracting and presence of an IT champion in the county government. The contextual variables consist of a measure of the county government's professional networking, external collaboration, regional pressure and business demand in the county. Socio-economic variables include population, education and income level of the county residents.

Data Collection (Dependent Variables)

Data for the dependent variable were collected by examining the websites of the selected counties, using an e-government index based on the following dimensions: e-information, e-transaction, and e-participation. The index will consist of features adopted from the Rutgers E-Governance Index, the most comprehensive index in e-governance research today with 98 measures classified into privacy, usability, content, services and citizen participation (Holzer & Kim, 2005). The initial draft of the instrument was validated by an expert review panel consisting of faculty and research associates specializing in e-government. This ensures that the questions in the index accurately capture all the essentials aspects of each e-government dimension. Further, the index measures are coded on a scale of 0, 1 or 3 where 0 indicates the absence of each feature, and a score of 1 or 3 indicates the presence of each feature in basic or more sophisticated form respectively.

Data Collection (Independent Variables)

The data for the independent variables were obtained through a web survey (see Appendix A) of administrators who are primarily responsible for e-government services in the selected county governments (those with websites), such as chief information officer (CIO), IT department head or IT manager. As the research involves a large

number of possible respondents, the web survey method provides an advantage of savings in cost and time, compared to the mail survey which involves significant printing and mailing resources (Cobanoglu, Weare, and Morecc, 2001). Also web survey enables the possibility of multiple contacts with respondents (pre-contacts, reminders) that have been proved to result in stronger response rates (Dillman, 2000).

The survey will focus on institutional and contextual variables and were be conducted during March-April 2008. Additional data on the socio-economic variables will be collected from the U.S. Census Bureau. The names of the CIOs and IT managers will be obtained from National Association of Counties (NACO) and their email addresses will be collected using online search engines. Further, the survey instrument will be pre-tested with county officials familiar with IT functions.

Chapter 6

COUNTY ADOPTION OF OFFICIAL WEBSITES

The first step in this study of county websites across the United States was to identify the counties with official websites by accessing the corresponding links on the NACO website. The absence of an official website from counties without links on the NACO website was then confirmed through a query to the Google search engine. Out of 3,102 counties identified, 2,376 have official websites, representing an adoption rate of 76.5 % (see Table 6.1).

[Table 6.1] Percentage of Counties with Official Websites by Region

	Average	Midwest	Northeast	South	West
Average	76.7%	75.1%	77.9%	75.0%	84.2%

The states with the highest percentage of county website adoption (100%) are Arizona, California, Delaware, Florida, New Hampshire, and New Jersey. In a majority of these states, more than 50% of the counties have websites. However, the states of Connecticut, Rhode Island, and Vermont have no websites. Regionally, the counties in the West ranked highest with an average website adoption rate of 84.2%. The Northeast, with a rate of 77.9%, ranked second, followed closely by the Midwest and the South with scores of 75.1% and 75.0%, respectively. Table 6.2 and Figure 6.1 show the percentages of counties in each state that have official websites.

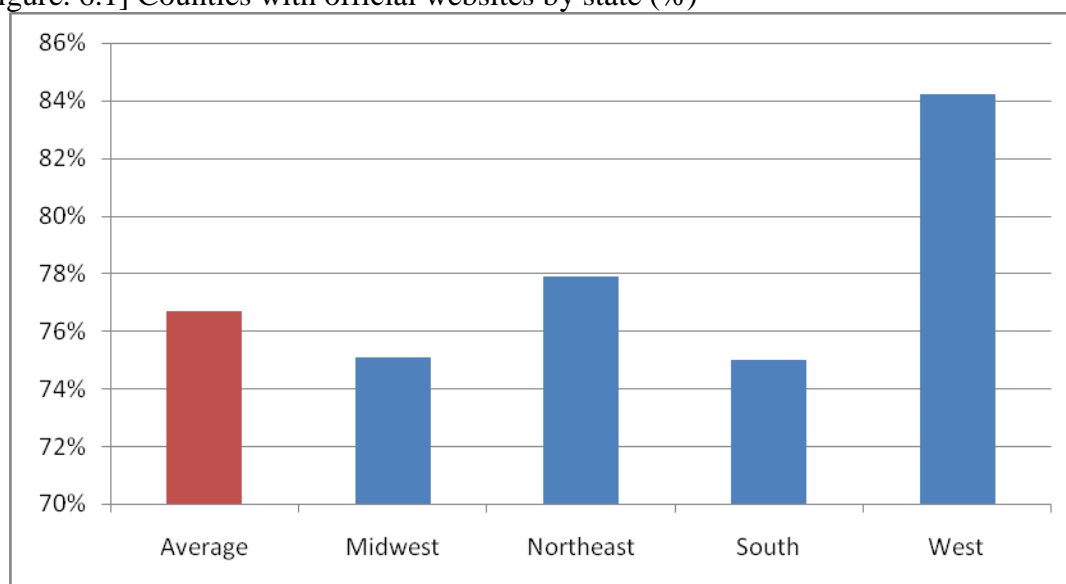
[Table 6.2] U.S. Counties with Official Websites by State

State	No. of counties	Counties with websites	Counties with websites (%)
Alabama	67	32	47.8
Alaska	27	16	59.2
Arizona	15	15	100.0
Arkansas	75	30	40.0
California	58	58	100.0
Colorado	64	58	90.6
Connecticut	8	0	0.0
Delaware	3	3	100.0
Florida	67	67	100.0
Georgia	159	130	81.8
Hawaii	5	4	80.0
Idaho	44	36	81.8
Illinois	102	81	79.4
Indiana	92	70	76.1
Iowa	99	73	73.7
Kansas	105	82	78.1
Kentucky	120	98	81.7
Louisiana	64	42	65.6
Maine	16	12	75.0
Maryland	24	21	87.5
Massachusetts	14	7	50.0
Michigan	83	73	88.0
Minnesota	87	74	85.1
Mississippi	82	52	63.4
Missouri	115	51	44.3
Montana	56	33	58.9
Nebraska	93	74	79.6
Nevada	17	16	94.1
New Hampshire	10	10	100.0
New Jersey	21	21	100.0
New Mexico	33	25	75.8
New York	62	58	93.5
North Carolina	100	97	97.0
North Dakota	53	32	60.4
Ohio	88	80	90.9
Oklahoma	77	23	29.9
Oregon	36	31	86.1
Pennsylvania	67	61	91.0
Rhode Island	5	0	0.0

(continued)

State	No. of counties	Counties with websites	Counties with websites (%)
South Carolina	46	42	91.3
South Dakota	66	34	51.5
Tennessee	95	58	61.1
Texas	254	231	90.9
Utah	29	28	96.6
Vermont	14	0	0.0
Virginia	95	90	94.7
Washington	39	38	97.4
West Virginia	55	21	38.2
Wisconsin	72	68	94.4
Wyoming	23	20	87.0
Total	3102	2376	76.5

[Figure. 6.1] Counties with official websites by state (%)



Socioeconomic Determinants of Official County Websites

The socioeconomic factors that distinguish counties with official websites from those without were extrapolated by comparing the means of the two groups using independent *t*-tests. The results indicate marked demographic differences between the two. The counties with official websites tend to have larger populations than those that do not (114,685 versus 33,002 in 2006; 113,400 versus 33,230 in 2005; 107,195 versus

32,837 in 2000; 94,013 versus 31,121 in 1990). They also had higher population growth from 2000 to 2006 (6.99%) and from 2005 to 2006 (1.13%). Counties without websites, however, recorded comparatively lower population growth from 2000 to 2006 (0.5%) and negative population growth from 2005 to 2006 (-0.68%). Both groups of counties also differ significantly in terms of population density (274 versus 64 per sq. mile).

Counties in which a higher percentage of the population have a bachelor's degree have a higher probability of developing websites than those having a lower percentage of the population with a bachelor's degree (17.26% versus 13.71% in 2000). However, with regard to high school education, counties with websites have a slightly higher percentage of high school graduates than counties without websites (78.14% versus 74.89% in 2000). Likewise, the counties with official websites have a comparatively higher percentage of households with income above \$75,000 than those without websites (15.02% versus 10.64% in 1999). As regards the percentage of the population who speak languages other than English, counties with websites have a higher percentage than those without websites (9.23% versus 6.28% in 2000).

	Counties with websites (<i>n</i> = 2376)		Counties without websites (<i>n</i> = 725)	
	Mean	Std. deviation	Mean	Std. deviation
Area 2000	1184.22	2769.84	1349	6187.51
Population 2006	114685	348657.26	33002	100519.73
Population 2005	113400	346021.19	33230	101248.95
Population 2000	107195	329418.33	32837	99767.50
Population 1990	94013	296877.19	31121	95364.19
Population density Per square mile	273.67	1934.04	63.61	184.99
No. of households	40061	117041.83	12643	38260.89

	Counties with websites (<i>n</i> = 2376)		Counties without websites (<i>n</i> = 725)	
	Mean	Std. deviation	Mean	Std. deviation
Age 2000	35.64	5.50	34.97	5.26
Total education 2000	69315.56	209347.79	21656.35	66867.06
High school (%)	78.14	8.68	74.89	8.58
Bachelors (%) 2000	17.26	7.99	13.71	5.64
Foreign-born (%) 2000	3.92	5.23	1.93	2.76
Languages other than English (%) 2000	9.23	11.62	6.28	9.03

The economic conditions in the counties also contributed to the levels of county website adoption. Those with websites had more private nonfarm businesses (2,825 versus 797 in 2004), as well as a lower unemployment rate (4.9% versus 5.21% in 2006). However, the counties with websites had a higher growth in unemployment from 2000 to 2006 (14.5% versus 13.2%). Nonetheless, overall, the counties with websites had stronger economic variables for almost all values than those without websites, although the outcomes were not always statistically significant. In terms of percentage change over time, some counties without websites had slightly larger rates than those with them.

With regard to federal government expenditure, counties with official websites received more federal funding than those without websites (\$734.74 versus \$247.12 million in 2004; \$563.63 versus \$190.02 million in 2000). Although the counties with websites had higher expenditures, the increase in federal government funding over 2000 through 2004 was only slightly that for those without websites (28.73% versus 26.28%). In addition, the federal expenditure per capita in 2004 was higher for those counties without websites (\$6,658.15 versus \$7,771.14 in 2004). In terms of government earnings (federal, state, and local), the counties with official websites had higher earnings than

those without (\$482.49 versus \$131.54 million in 2005; \$367.99 versus \$101.82 million in 2000). Although counties without websites had higher government earnings as a percentage of the total (22.72% versus 25.23% in 2005) and those counties with websites had a higher percentage of change in earnings from 2000 to 2005 (30.82% versus 29.13%), these two variables were not significant in differentiating counties based on the presence of websites.

Finally, in counties with official websites, there was a higher level of employment in government (federal, state, and local) compared to those without websites (8,799 versus 2,659 in 2005; 8,435 versus 2,629 in 2000). Likewise, although counties without websites had higher government employment as a percentage of the total employment (16.13% versus 17.28% in 2005), and those with websites had a higher percentage of change in government employment from 2000 to 2005 (3.43% versus 1.35%), these two variables were not significant in differentiating counties based on the presence of websites. Table 6.4 describes the relationships between the economic variables.

	Counties with websites (<i>n</i> = 2376)		Counties without websites (<i>n</i> = 725)	
	Mean	Std. deviation	Mean	Std. deviation
Households with income above \$75,000 (1999)	15.02	7.73	10.64	5.26
Persons in poverty (%) 2004	13.26	4.86	15.37	5.68
Persons in poverty (%) 2000	12.69	5.31	15.32	6.02
Unemployed 2006	2679	8017.36	811	2426.69
Unemployed 2000	2193	7736.41	609	1499.79
Unemployment rate (%) 2006	4.90	1.70	5.21	1.88
Unemployment rate (%) 2000	4.28	1.63	4.60	1.83
Private nonfarm businesses	2825.17	8828.67	797.17	2759.39

	Counties with websites (<i>n</i> = 2376)		Counties without websites (<i>n</i> = 725)	
	Mean	Std. deviation	Mean	Std. deviation
Federal gov. expenditure 2004 (mil. dol.)	734.74	2571.12	247.12	852.95
Federal gov. expenditure, percent change 2000–2004 (%)	28.73	22.52	26.28	22.96
Federal gov. expenditure per capita 2004 (dol.)	6658.15	3984.34	7771.14	3500.47
Direct payment to individuals, percent of total 2004	61.20	14.93	57.77	14.97
Federal gov. expenditure 2000 (mil. dol.)	563.63	1965.95	190.02	623.61
Fed., state, local gov. earnings 2005 (mil. dol.)	482.49	1534.71	131.54	446.68
Fed., state, local gov. earnings 2005 Percent of Total (%)	22.72	11.30	25.23	14.35
Fed., state, local gov. earnings percent change 2000 – 2005	30.82	14.01	29.13	16.02
Fed., state, local gov. earnings 2000 (mil. dol.)	367.99	1172.75	101.82	349.83
Fed., state, local gov. employment 2005	8798.50	24495.06	2658.72	7472.90
Fed., state, local gov. employment 2005 percent of total (%)	16.13	6.78	17.28	7.96
Fed., state, local gov. employment percent change 2000 – 2005	3.43	9.68	1.35	14.36
Fed., state, local gov. employment 2000	8435.01	23782.07	2629.17	7486.29

Chapter 7

COUNTY E-GOVERNMENT SURVEY 2009

For the purpose of this research, a new survey, the County E-Government Study 2009, was constructed specifically for administration to county Chief Information Officers (CIOs) and IT managers between March and May 2009. The names of these officials were obtained from NACO (2008), which, with a membership of over 2,000 counties representing over 80% of the national population, maintains a comprehensive database and periodically gathers and disseminates information on both counties and county officials. In cases where there was no county CIO or IT manager, the survey was directed to the official responsible for e-government services in the county.

Survey Design and Analysis

The survey was administered via the Internet, which has the advantage of both cost and time savings over regular mail surveys involving significant printing and mailing resources (Cobanoglu, Weare, and Morecc, 2001). The survey was divided into two main sections: the first consisting of questions on institutional variables and the second comprising questions on contextual variables. The survey also included two questions assessing county managers' success and satisfaction with the implementation of e-government services. The questionnaire was kept short and straightforward to minimize the work required of respondents and produce the greatest response rate (Robbins 1999).

Survey Pretest

The survey was pretested on a sample of county-level IT managers and doctoral students of the School of Public Affairs and Administration who were asked for their opinions on the survey questions. These pretest results resulted in the following changes in the survey instrument. The question on the IT department was refined to capture the total number of employees involved in all aspects of IT services, including “1) programming/systems development and implementation, 2) networking, and 3) operations.” The “do not know” option was also removed. The question on the IT budget was changed to include a more appropriate scale. Likewise, the word (variable) “administrator” in the question on administrator support was changed to “top administrator” to address the issue of plurality (i.e., a county may have more than one county administrator) and in recognition of the fact that, in many instances, if the top county administrator does not provide support, a budget for a new system may be denied.

Finally, based on the suggestion that many respondents might not complete the survey after reading personal questions, such items were removed. Additionally, based on the pretest respondents’ recommendation, a brief explanation was provided in the introductory survey letter of the term *e-government* to distinguish it from a very general survey that busy IT managers might not be inclined to complete.

Survey Responses

Questionnaires for the online survey were emailed through Survey Monkey to Information Technology to 2,368 counties across the United States that have official websites. More specifically, the surveys were sent to directors in all counties having such a website and to the county administrators most knowledgeable about e-government

services in those counties without websites. Among the potential respondents, 380 had no functioning email address, while an additional 237 counties opted out of the survey, leaving a sample of 1,751 counties whose representatives were asked to complete the survey online. Overall, 343 counties responded to the surveys, resulting in a response rate of 17.8 %. The final sample represented a cross section of counties that varied by region and population size (see Table 7.1).

[Table 7.1] State Breakdown of Responding Counties

States	Respondent	
	Count	Respondent %
Alabama	3	9.4
Alaska	1	8.3
Arizona	2	13.3
Arkansas	3	10.0
California	5	8.6
Colorado	13	22.4
Connecticut	n/a	n/a
Delaware	n/a	n/a
Florida	5	7.5
Georgia	22	16.9
Hawaii	1	25.0
Idaho	9	25.0
Illinois	9	11.1
Indiana	10	14.3
Iowa	10	13.7
Kansas	11	13.4
Kentucky	18	18.4
Louisiana	1	2.4
Maine	5	41.7
Maryland	5	23.8
Massachusetts	2	28.6
Michigan	8	11.0
Minnesota	9	12.2
Mississippi	3	5.8
Missouri	9	17.6

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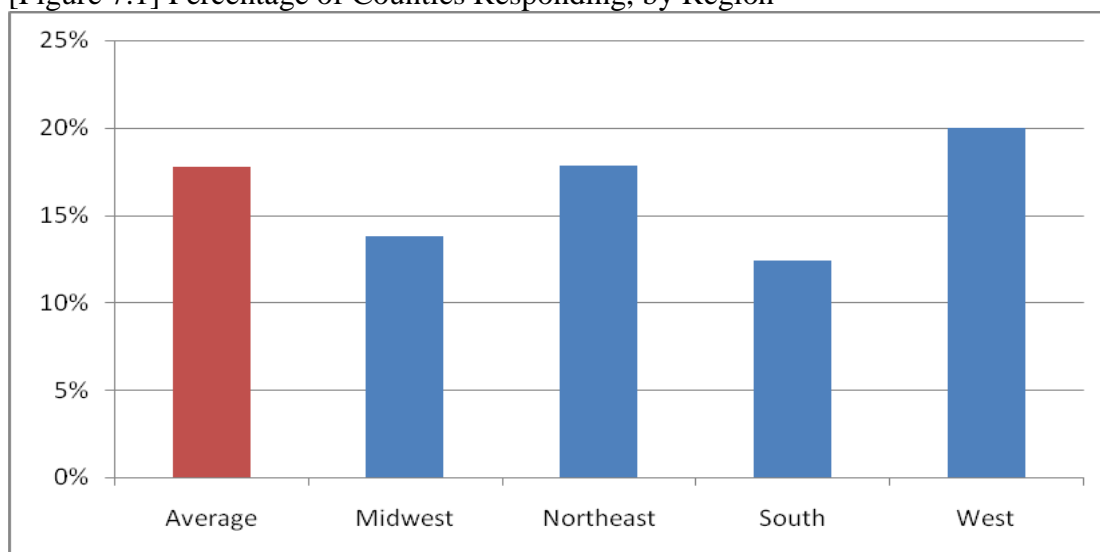
States	Respondent	
	Count	Respondent %
Montana	9	27.3
Nebraska	8	10.8
Nevada	1	6.3
New Hampshire	1	10.0
New Jersey	2	9.5
New Mexico	3	12.0
New York	8	13.8
North Carolina	20	20.6
North Dakota	8	25.0
Ohio	8	10.0
Oklahoma	3	13.0
Oregon	10	32.3
Pennsylvania	12	19.7
Rhode Island	n/a	n/a
South Carolina	5	11.9
South Dakota	10	29.4
Tennessee	9	15.5
Texas	21	9.1
Utah	6	21.4
Vermont	n/a	n/a
Virginia	7	7.8
Washington	9	23.7
West Virginia	4	19.0
Wisconsin	9	13.2
Wyoming	6	30.0

Geographically, the most responses, about 20%, came from counties in the West, followed by a 17.8% response rate from the Northeast, and 13.8% and 12.4% from the Midwest and South, respectively.

[Table 7.2] Percentage of Counties Responding, by Region

	Average	Midwest	Northeast	South	West
Average	17.8 %	13.8 %	17.8 %	12.4 %	20 %

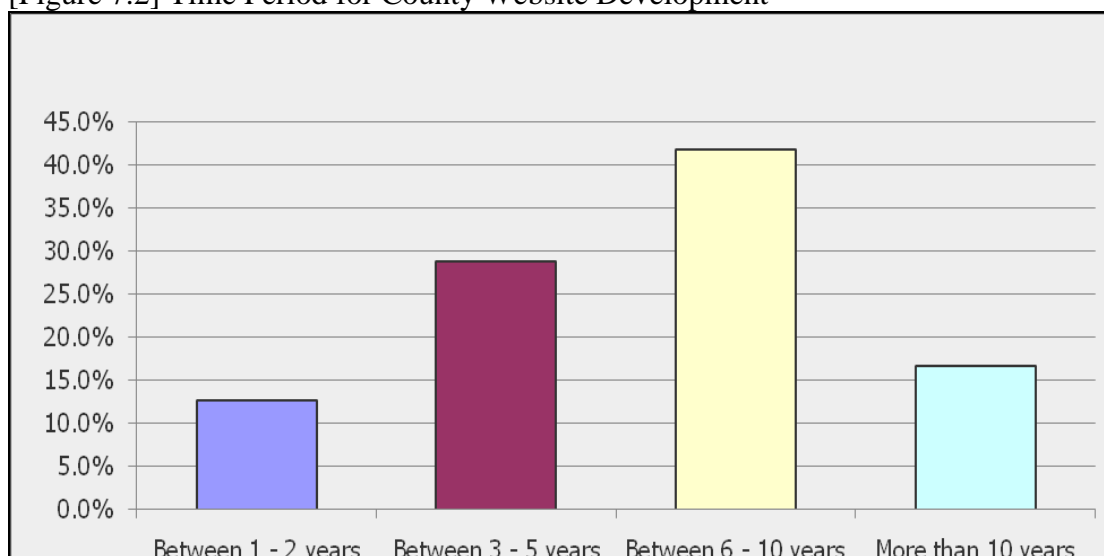
[Figure 7.1] Percentage of Counties Responding, by Region



County E-Government Survey Results

The survey began with a question on the number of years that counties had had official websites. Most responding counties reported developing websites in the last decade, while about a sixth had done so over a decade back. In total, about 12.7% of those responding stated that they have had a website between 1 and 2 years, while about 28.8% indicated that their government has had a website between 3 and 5 years. Overall, 41.8% of the counties responding have had a website for a period of 6 to 10 years, the most popular time period (1999–2004) for counties surveyed to develop a website. Fifty-five responding counties (16.7%) indicated their website had been online for more than 10 years.

[Figure 7.2] Time Period for County Website Development

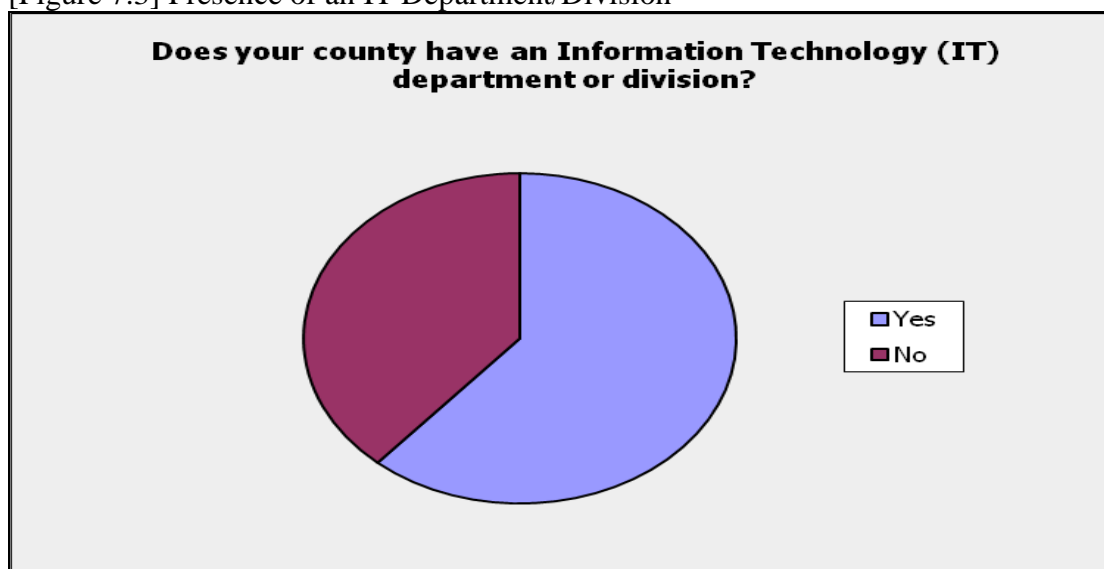


Not only are these results unsurprising, they are highly representative of the time period in which having an online website has been necessary for increasing targeted traffic, potential clients, and conversions. That is, this time period (6–10 years ago) coincides with the huge popularity of the Internet, which is in turn indicative of how important it has become for counties interested in expanding their visibility among residents to establish an online presence.

Information Technology (IT) Departments

According to survey responses, 61.4% of the counties in the sample have an official information technology (IT) department, while 38.6% (over one third) reported surprisingly that they do not. This latter is highly surprising given that IT departments are usually responsible for processing, protecting transmitting, and storing information and retrieving it as needed.

[Figure 7.3] Presence of an IT Department/Division

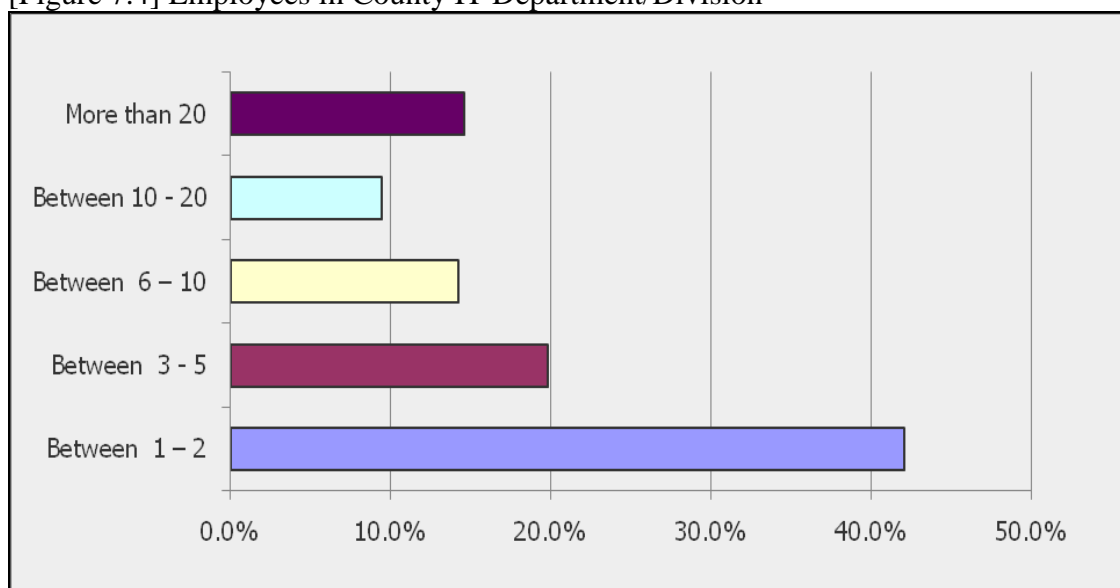


In terms of technology, an IT department is likely to contain database management systems and cryptography, as well as computers and servers. Most therefore have at the least one IT manager and several system administrators and report to a chief information officer (CIO). Given the widespread malicious activity occurring online, it is quite unsettling that nearly 40% of online counties do not employ the services of an IT department. It also somewhat implies that these counties may not realize the importance of protecting and preserving county information.

IT Department Employees

The survey also questioned respondents whose counties had an IT department how many employees worked in that division: 42% reported 1 to 2 employees; 19.8% between 3 and 5, 14.2% between 6 and 10, and 9.4% between 10 and 20. Finally, 14.6% respondents stated that their agency employed over 20 in the IT department. Hence, according to the survey results, over half the counties with an IT department employ between 1 and 5 people in those positions, while the next largest result is for counties that employ more than 20 individuals in IT positions.

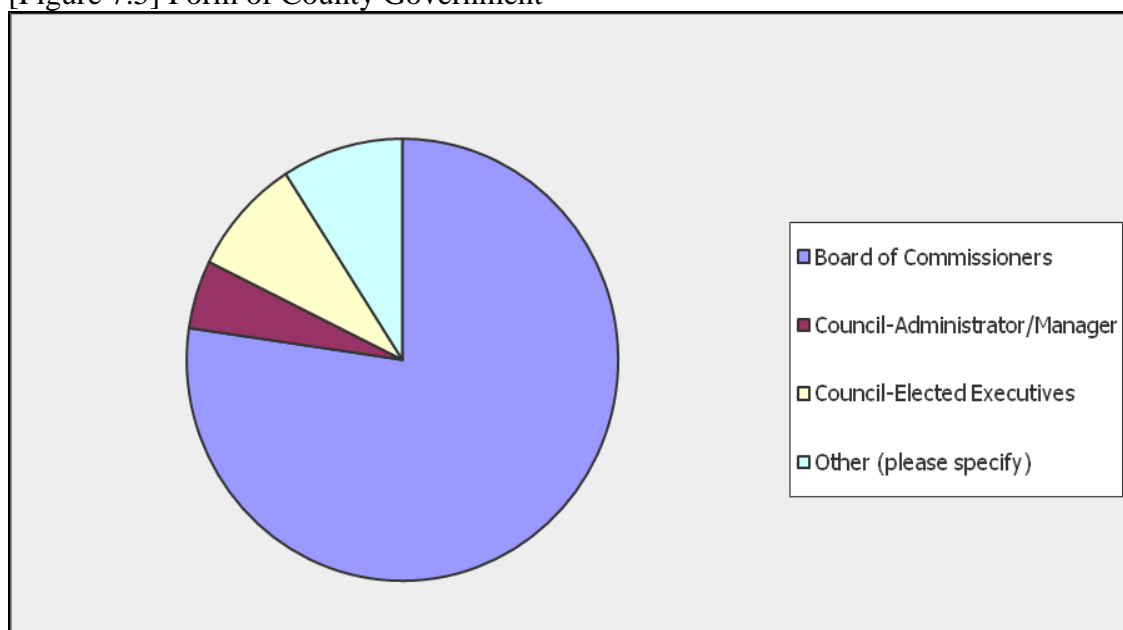
[Figure 7.4] Employees in County IT Department/Division



Form of County Government

Respondents also answered a question on the form of their county government, the results of which clearly show that most are governed by a Board of Commissioners, a full 77.3% of the 339 respondents. Of the remainder, 5% (17) reported governance by a council or an administrator or manager. Only 8.6% answered that their agency was governed by elected executives, while 9.1% reported other forms of government, such as Board of Supervisors (8), Commissioner's Court (2), Judge Executive (3), or Board of Legislators, County Executive, or County Magistrate (1 each).

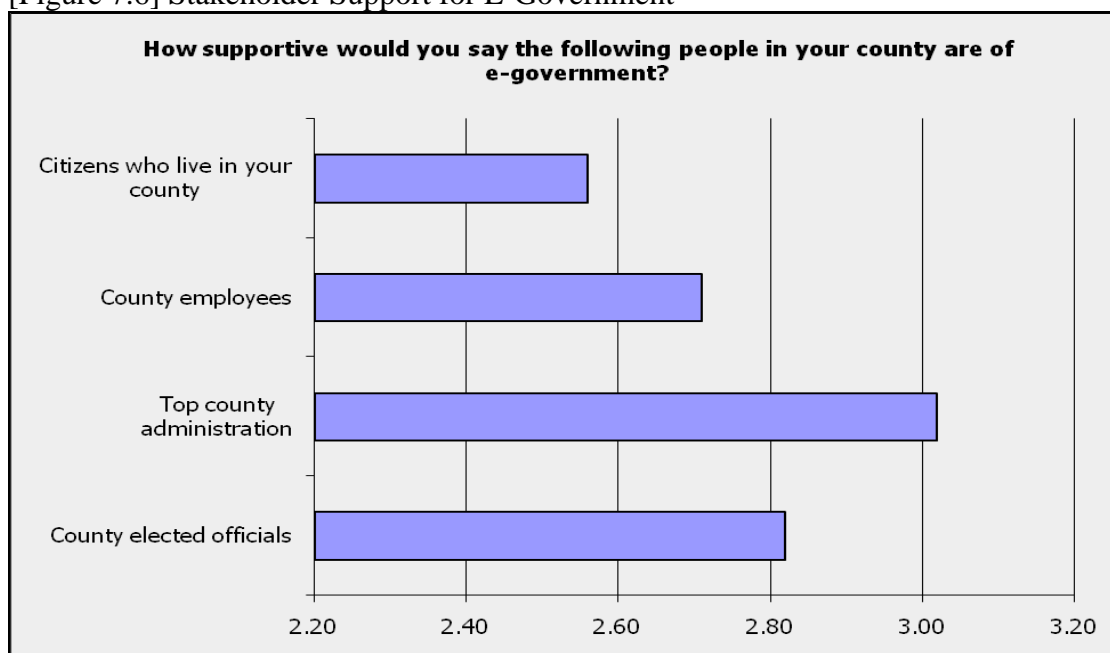
[Figure 7.5] Form of County Government



Stakeholder Support for E-Government

The county representatives were also asked about the support received for e-government from various stakeholders, including elected county officials, top county administration, county employees, and citizens of the county. This question gave the following options: not supportive, somewhat supportive, very supportive, and extremely supportive of county e-government. Overall, top county administration was the most supportive, with 31.8% being extremely supportive and 40.1% very supportive of e-government services. Among elected county officials, however, although a closely similar percentage (41.2%) was very supportive, only 21.7% were extremely supportive. A similar trend emerged for county government employees, who also had the highest percentage in the "not supportive" category, at 3.6%.

[Figure 7.6] Stakeholder Support for E-Government



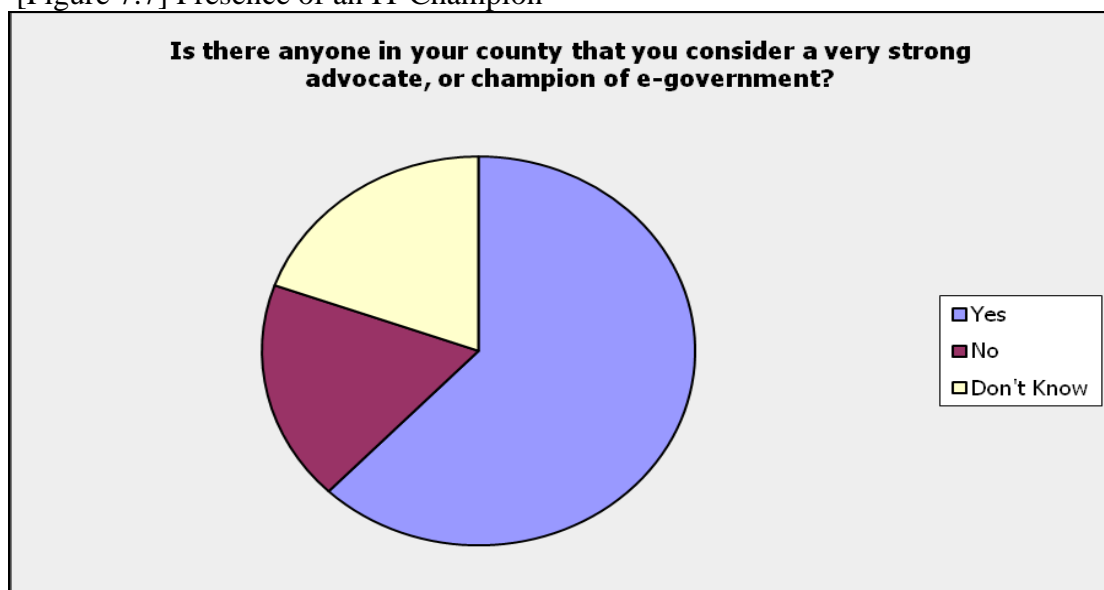
In terms of county residents, almost half of the counties responded that citizens were somewhat supportive of e-government services. Overall, top county administration earned the highest average rating for being supportive of e-government. These findings suggest that e-government receives the most support from the counties' top administration but the least support from citizens living in the area. However, this observation could be attributed to lack of awareness among citizens about the potential of e-government. As one respondent stated in an additional comment, "Citizens who use it think it is great, citizens who do not use it think it is a waste of money." Moreover, despite these results, counties still need more support from top county administration and elected officials. According to another respondent, "Some of the older employees and administrators sometimes resist e-government but are getting more comfortable with it."

Presence of an IT Champion

In many cases, the presence of an IT champion helps propagate e-government services at the county level. Hence the E-Government Survey questioned respondents

about anyone they would consider a very strong advocate or champion of e-government. About two-thirds of the county representatives, 62.1%, reported having an advocate of e-government in their organization, while only 18.3% responded negatively, saying no one in their county championed e-government. The remaining (19.5%) did not know if anyone in their county was a strong e-government supporter. Overall, these results indicate that approximately 38% of counties either do not have or are unaware of any advocates for e-government within their county, which limits their ability to transform relations with citizens, businesses, and other areas of government.

[Figure 7.7] Presence of an IT Champion

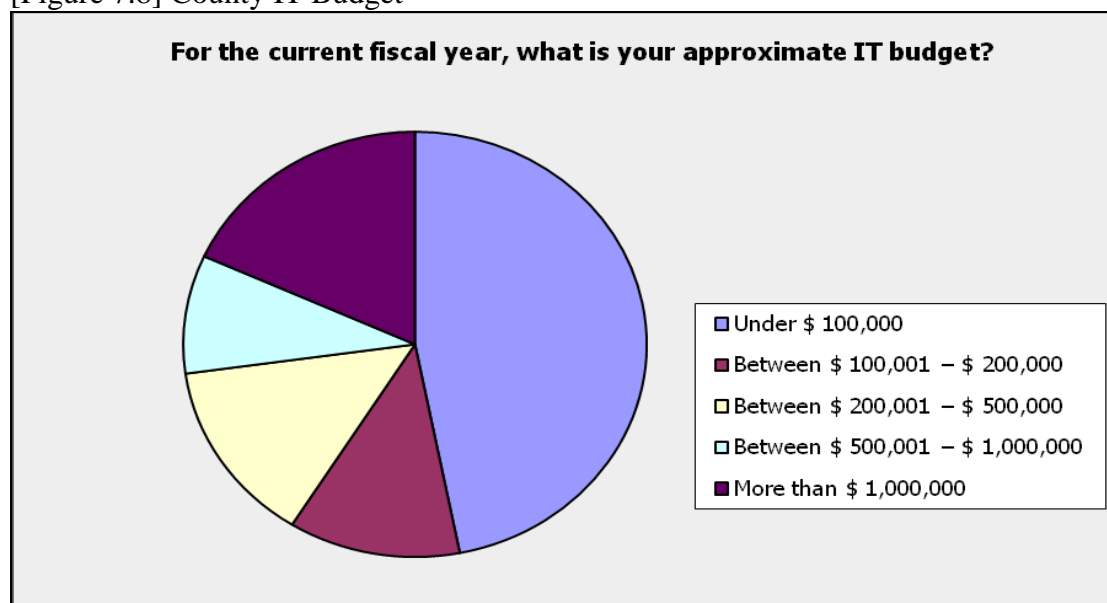


County IT Budget

Because budget is so important to implementing and maintaining e-government services, respondents were also asked about their total county budget and the total amount allocated to IT activities. Most particularly, respondents were questioned about approximate budget for the current fiscal year IT budgets. Of the 324 who responded to this question, 46.9% reported an approximate IT budget under \$100,000, 12% stated that the budget fell somewhere between \$100,001 and \$200,000, while 13.9% answered that

the IT budget for the current fiscal year was in the \$200,001 to \$500,000 range. Only 9% reported that the fiscal year IT budget ranged between \$500,001 and \$1,000,000, while over twice the number, 18.2%, believed that their county's current fiscal year IT budget was over \$1,000,000.

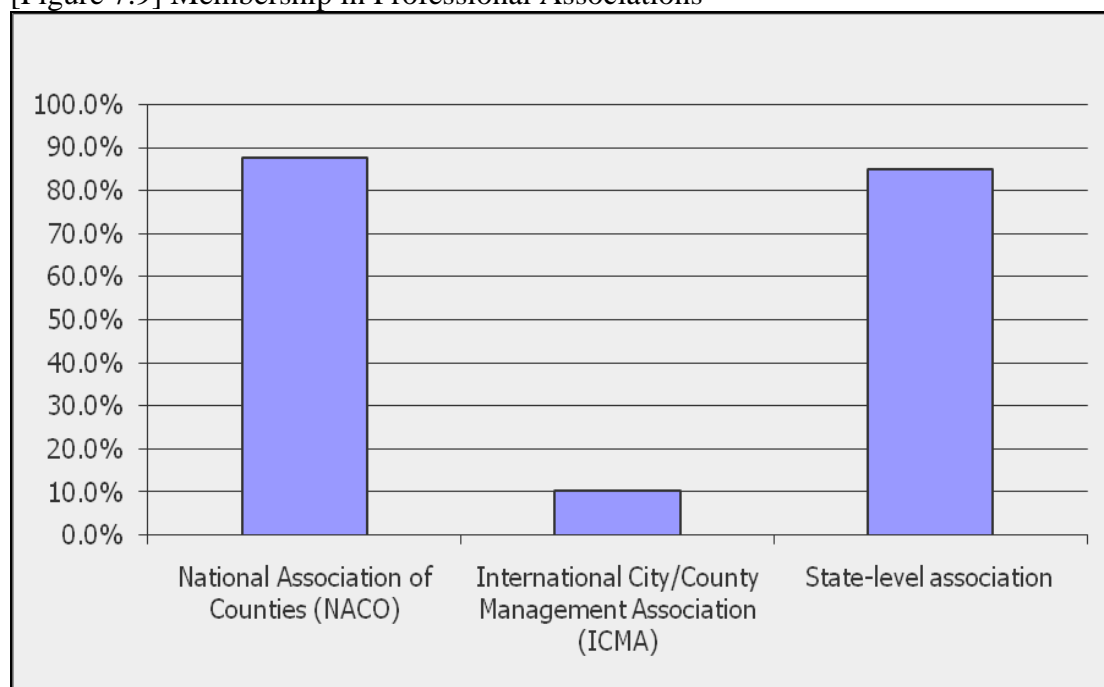
[Figure 7.8] County IT Budget



Professional Networking

The survey also sought to identify the associations of which county governments were members. Most of the responding counties were members of NACO (87.4%), while a similarly high percentage belonged to state-level associations. The counties also reported membership in regional associations such as the Regional Association of Rural Counties and the National Association of Regional Counties. As the statistics show, of the associations named, NACO had the largest county membership (87.4%), closely followed by the state-level associations at 85%. Only 10.5% (35) of the respondents reported that their counties were members of the International City/County Management Association (ICMA).

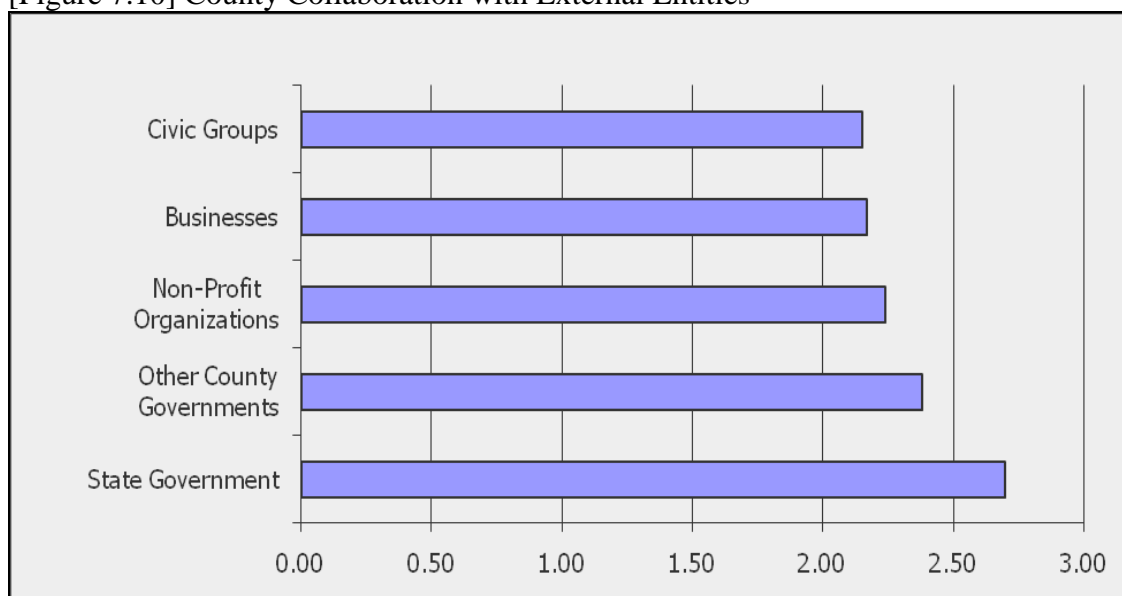
[Figure 7.9] Membership in Professional Associations



External Collaboration

The questionnaire also asked respondents about the extent of collaboration between their counties and several entities that provide public services, including state government, other county governments, nonprofit organizations, businesses, and civic groups. According to the responses, over half the counties collaborate very closely with state governments and other county governments, and apparently collaborate substantially with nonprofit agencies that provide services.

[Figure 7.10] County Collaboration with External Entities



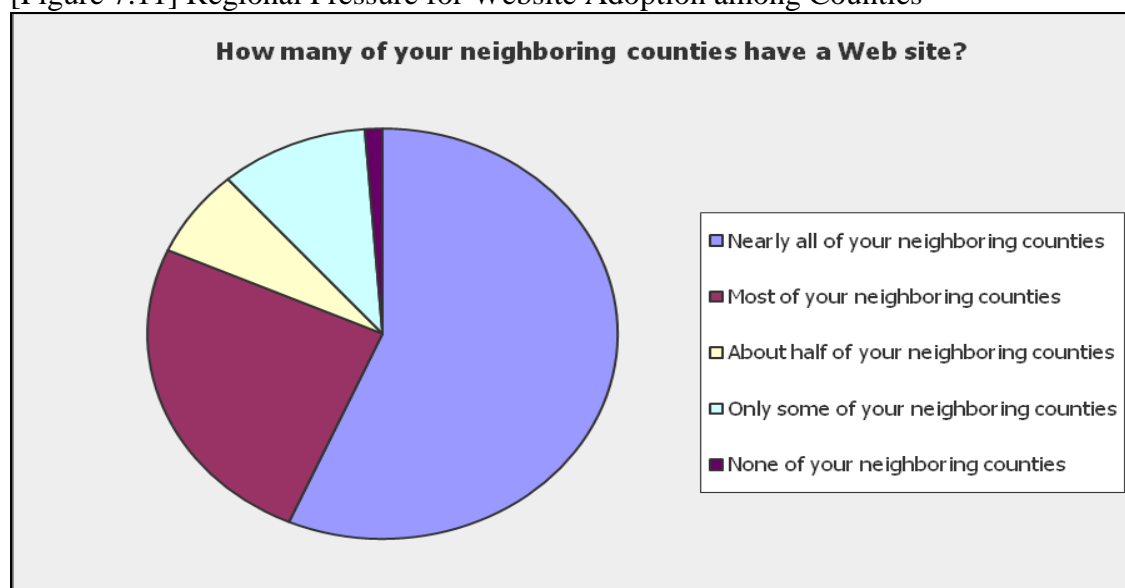
In terms of state government, 12.9% of respondents reported extremely close collaboration, 50.6% reported close collaboration, and 30.5% reported being somewhat collaborative. Only 6% stated that their county did not collaborate with the state government. Results in the other county government category were as follows: 7.2% of counties were extremely collaborative with other county governments, 36.6% very collaborative, 42.9% somewhat collaborative, and 13.2% not collaborative at all.

Whereas only 5.4% of the counties reported being extremely collaborative with nonprofit organizations, 32.5% indicated they were very collaborative, 42.8% somewhat collaborative, and 19.3% not at all collaborative. As regards collaboration with local businesses, 3.6% of respondents claimed their counties were extremely collaborative, 29.5% very collaborative, 47.3% somewhat collaborative, and 19.6% not at all collaborative. Of the 330 individuals giving answers in the civic group category, 3.9% stated that their counties are extremely collaborative, 27% very collaborative, 48.8% somewhat collaborative, and 20.3% not at all collaborative.

Regional Pressure

Of the total number of respondents, 56.5% (188) reported that nearly all of their neighboring counties had an online website, 25.2% (84) stated that most had a website, 6.9% (23) said about half conducted business online, and 11.4% (38) responded that only a few or no neighboring counties had a website. These results clearly indicate that, despite the potential for vast exposure offered by the Internet, many counties are still missing out on these great opportunities by not having a website.

[Figure 7.11] Regional Pressure for Website Adoption among Counties

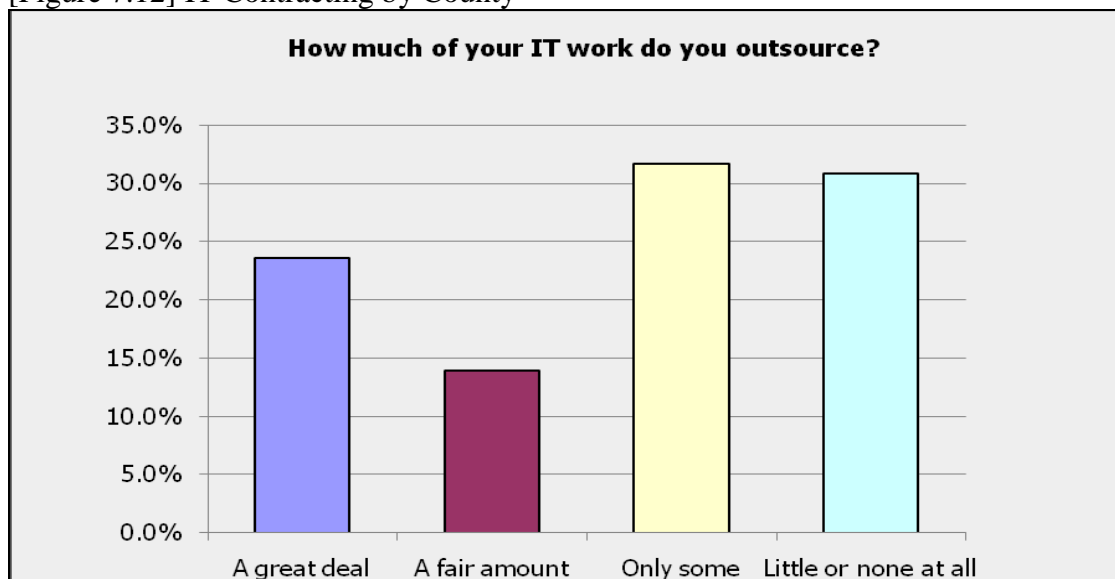


When asked about the quality and effectiveness of their websites compared to those of neighboring counties, 6.8% of respondents answered that the websites of neighboring counties were much better than their own, although 13.3% believed they were only somewhat better. The highest number of respondents, 37.9%, reported that neighboring counties' websites were about equal to their own, 28.1% respondents felt they were not quite or not at all as good as their own county's website, and 13.9% had no opinion. Obviously, today, having an effective website is essential for ensuring that a county is highly visible and easily accessible to those needing information or services.

Contracting Out to the Private Sector

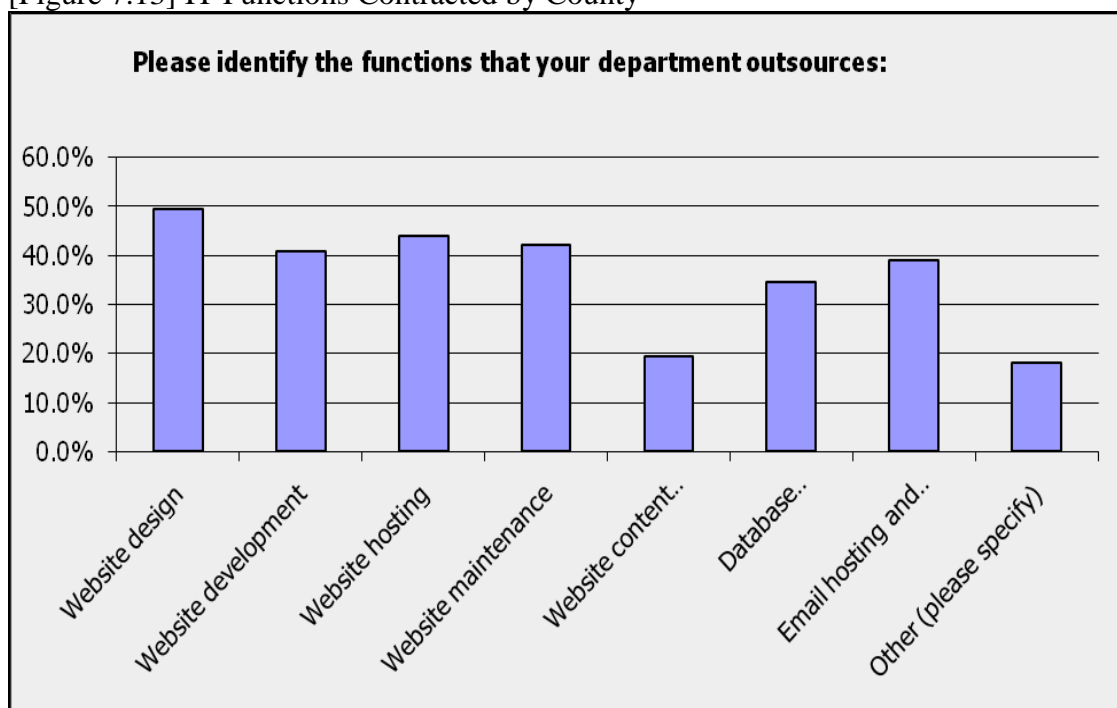
In answer to the survey item on how much IT work the county contracted out, about 23.5% of respondents reported that the amount was large and 13.9% described it as fairly large, but the largest number, 31.7%, reported only some work being contracted out. A similar number, 30.8% (102), said that they outsourced little to no IT work. These numbers indicate that nearly one third of the counties either have an in-house IT department or no IT needs at all, while 37.5% of the counties frequently or regularly outsource their IT work.

[Figure 7.12] IT Contracting by County



The survey also asked what specific IT functions the county departments contract out. The results indicate website design to be the most outsourced work (49.4%), followed closely by a mix of website design and hosting. A slightly lower number, 40.9%, identified website development as the most often outsourced task, with 44% responding that their counties contracted out website hosting most often.

[Figure 7.13] IT Functions Contracted by County



Another frequently outsourced task was website maintenance, reported by 42.1% of respondents, with email hosting and maintenance being the next most highly contracted out category at 39%. County outsourcing of database hosting/maintenance was reported by 34.7% of the respondents, while website content management (19.3%) and other (18.1%) were the least reported categories. The survey results therefore indicate that website design, hosting, and maintenance are the most frequently contracted out areas, while content management and other unspecified tasks may be performed in house.

Functions of County Government

The survey also asked respondents about the services provided (see Table 7.3). The most commonly reported were election and voting services (309 or 91.7% of respondents). The next three most commonly provided services were emergency services, court services, and police services at 85.5%, 84%, and 81.3%, respectively.

[Table 7.3] Functions of County Government

	Response Percentage	Response Count
Elections and voting	91.70%	309
Emergency services	85.50%	288
Courts	84.00%	283
Police services	81.30%	274
Economic development	78.30%	264
Road construction	76.30%	257
Public health services	75.10%	253
Corrections	73.90%	249
Building permits	64.40%	217
Parks and recreation	61.70%	208
Children/ family services	60.80%	205
Code Enforcement	59.90%	202
Animal control	59.60%	201
Street maintenance	56.70%	191
Library	54.60%	184
Welfare services	54.60%	184
Fire services	48.40%	163
Environmental protection	44.80%	151
Public transportation	32.60%	110
Sanitation	30.30%	102
Employment assistance	29.10%	98
Garbage collection	26.40%	89
Water	25.50%	86
Hospitals	21.40%	72
Housing	21.40%	72
Sewage treatment	20.20%	68
K-12 education	19.90%	67
Human rights advocacy	14.80%	50
Consumer protection	8.00%	27
Other (please specify)	8.00%	27
Electricity	2.70%	9

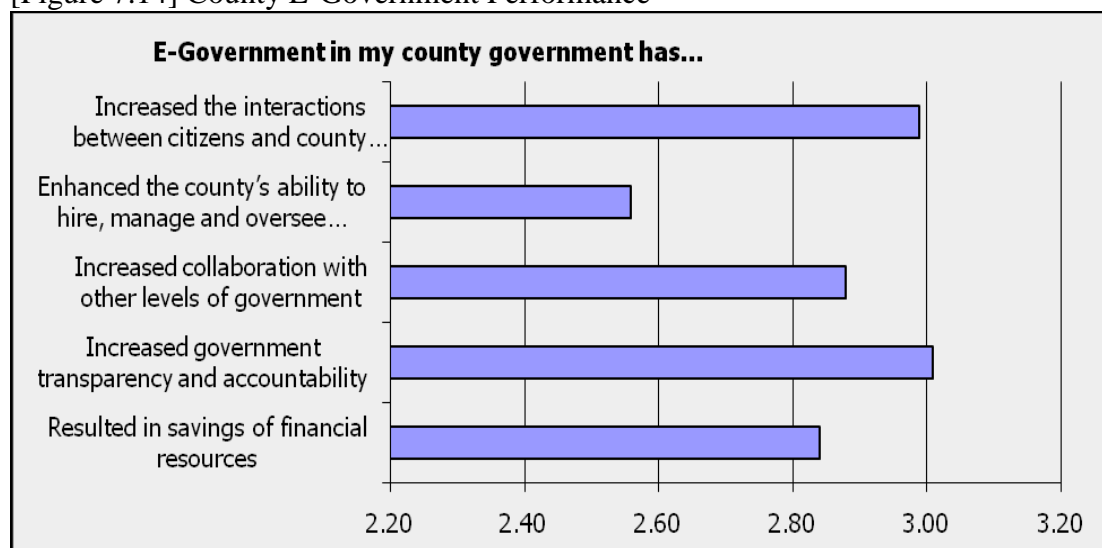
Over three-quarters of the respondents (78.3%) reported the provision of economic development services, followed by public health services (75.1%), road construction (76.3%), and corrections (73.95%). Over 50% of the respondents stated that their

counties offered parks and recreation, animal control, public health, children and family, library, and code enforcement services, as well as welfare services and building permits.

County E-Government Performance

The survey also tried to determine the level of satisfaction with e-government in the counties by asking respondents to state whether they agreed, disagreed, or strongly agreed or disagreed with a number of related statements. When asked whether e-government had resulted in their county saving financial resources, only 2.8% strongly disagreed, while 11% strongly agreed that they had experienced such savings. A majority, 65.1%, agreed that the county had experienced financial savings, but 21.1% disagreed. When respondents were asked whether e-government had resulted in increased government transparency and accountability, the results were as follows: 3.5% strongly disagreed that transparency and accountability had increased, 10.4% disagreed to a certain level, 65.1% agreed that e-government in their county had produced increased transparency and accountability, and 18.6% strongly agreed.

[Figure 7.14] County E-Government Performance



The next topic addressed by the survey was increased collaboration with other levels of government because of e-government implementation in the county. Only 3.5% strongly disagreed with this statement, while 12% strongly agreed. On average, 16.7% disagreed that their county had experienced increased collaboration with other levels of government, while 67.8% agreed they had experienced such an increase.

The survey then asked respondents whether the inclusion of e-government in their county had enhanced the county's ability to hire, manage, and oversee contractors. Although 5.4% of respondents strongly disagreed with this statement, 7% strongly agreed. Of the remaining respondents, 39.9% disagreed and 47.6% agreed that having e-government in their county did in fact enhance hiring and management abilities and the overseeing of contractors.

The last survey item questioned respondents about whether the addition of e-government in their county had helped to increase interactions between citizens and county government. Among those with strong opinions, 3.4% strongly disagreed that e-government had had an influence on increased interactions between citizens and county government, while 21% strongly agreed that it had. Of the remaining respondents, 14.7% disagreed that interactions had increased, while 60.8% agreed that they had.

Chapter 8

E-GOVERNMENT SURVEY RESPONDENT COMMENTS

The following section discusses the various e-government dimensions based on comments made by the IT managers who responded to the County E-Government Study 2009. These qualitative comments in the respondents' own words provide valuable insights not captured by the objective survey responses and are therefore critical to an overall understanding of e-government in the counties surveyed.

Stakeholder Support

This study assumes that counties with greater political support will have better e-government practices than counties with lesser political support, particularly since organizations with tight fiscal budgets can still be innovative if the leadership (e.g., elected officials, top executive officers) is committed to pursuing innovative solutions as an organizational goal. The comments below throw light on current managers' feelings about existing e-government and what needs to be done in the future:

There needs to be more education of elected officials that web-enabled e-gov projects must be funded for (to) work. Existing budgets will not be able to support the e-gov process. In theory, the money saved from other departments needs to be moved to the dept supporting e-gov."

I would like to see e-gov become more independent in developing its own programming and database.

Old habits are hard to break, and a political organization faces unique challenges in implementing technology due to changing faces in positions of authority.

We have a long way to go and need to have elected officials and staff (who) have more in-service experience with e-government.

Likewise, respondents felt that county-elected officials could also introduce innovative changes into the bureaucracy and ensure that government organizations evolve through social and technological change that keeps pace with changing public demands. They also see the support of the top management and county employees, as well as county residents/citizens, as crucial for the successful implementation of e-government at the local government level:

There is so much more we could be doing (webcast our meetings, for example), but some of the older commissioners don't use the Internet or computers in their personal lives.

I am the only one of 5 commissioners who uses email.

Citizens who use [e-government] think it is great, citizens who do not use it think it is a waste of money."

Citizens do not seem to be informed.

Yet, despite any negative implications, county managers are confident that the various stakeholders will gradually come to support e-government services:

We are a rural area and technological change comes hard because it changes jobs. We'll get there though.

It is pretty hard for my county; small, rural, with people in positions of authority who have had to learn how to use computers during their careers. Vision, or taking things to the next level, is somewhat lacking. The other element that is a challenge is electronic records management.

Some of the older employees and administrators sometimes resist e-government but are getting more comfortable with it.

County Budget

Apart from stakeholder support, budget resources are an important consideration for any county in providing e-government services. For traditional bureaucratic organizations, the county budget is almost the only source of revenue and is therefore

closely related to their capabilities to develop programs and projects, including website development and maintenance:

Everyone is supportive of e-government until you start putting price tags on what things cost to either purchase or maintain going forward.

This is a very important component for citizens. Due to budgetary constraints, implementation has been slow in coming.

We've made great strides, but we know there is still more to do. If we have the money, we will continue to improve our systems.

Initial cost to deliver services is a major drawback. We have to find innovative methods to cover the cost of web services.

Given these financial needs, some county managers pointed to the state as a suggested source for additional funding and leadership:

The cost for small counties can be unaffordable, so if the state legislation forces all counties to comply, the state should provide the funding.

Our state has been slow to respond to online payments for license plates and property taxes, but we are just beginning to get started.

Others emphasized the important role that state and local municipal laws must play in the development of e-government:

We have put procedures and programs in place to meet the Open Records Acts for electronic communications.

Rural Counties

Counties are also influenced by whether their location is rural or urban. Generally, urban residents tend to have better access to public services than rural residents, because they are concentrated in dense rather than sparsely distributed areas. As a result, some rural counties seem to face unique obstacles in providing e-government services and hence use traditional offline government:

Our very rural county, with our small population and low tax base, does not have either the resources or the expertise to offer anything other than "brochure-ware" on our website. It is very difficult for us to meet the e-government expectations of new and younger people.

We are a small county and the funds for IT are nonexistent, so any work done now is done in the spare time of the current employees. We are progressive as we can be for the amount of money we have.

In rural counties, not everyone has access to a computer. Traditional communication is still a necessary backup (snail mail and telephone).

One of the most frequent requirements mentioned by county administrators was that cable companies provide high-speed Internet to their residents:.

I would really like to see more advances in technology, mostly, high speed Internet access for our citizens.

Additional broadband access to the rural areas of our county is critical to the continued success of e-government.

Lack of high speed service has limited the success of e-government in our county.

Provision of Citizen centric Services

Residents' socioeconomic conditions can also positively impact the adoption of websites at the local government level. That is, those on the higher end of the socioeconomic scale tend to obtain information at such a rapid rate that the gap in knowledge between them and other citizens tends to increase rather than decrease (Tichenor et al., 1970). Hence, the educational and income level of county residents tends to set a level of expectation for the county government in developing its website:

The more we can assist our citizens with information, forms, collections, permits, agenda/minutes review, applications, and newsletters and so on, the better understanding we will see of our roles.

Yes, we are a mid-sized agricultural county. We have lost much industry and have an aging population. Our constituents are less comfortable with technology than might be expected in a more urban center having greater

higher educational institutions like universities in the area. Hence, our delivery of services is over methods more human (soft) than technical (hard). We evaluate our successes here and buy technology accordingly. In the future, as trends for technology use increase and our population grows younger, we will use more e-government projects. In common sense terms, we have to meet our constituents' needs....

It is the future of government services to supply as high a level as possible to let people serve themselves in order to save on personnel costs.

Benefits of E-Government

According to Yang (2003), the evolution of e-government should be looked on as a “long-term institutional change.” Many counties seemingly agree with this attitude in terms of the impact and potential of e-government services:

Since our county is geographically large, and has its county seat far from a main population hub, we have implemented a 2-way video link for public comment at council meetings. (FYI, we have council members travel large distances to council and committee meetings since we cannot vote over this link due to a state law.) We also broadcast council and committee meetings on cable TV and the web. This has been well received.

We don't do much business online. It is mostly just an informative tool. It does help keep the phone calls to a minimum.

We [are proud to have] developed an online jury impaneling process, which has gained national attention—it saves the county about \$300,000 per year. One Webmaster (salary \$50,000) created this program in two weeks. We were also one of the first counties to provide online video of Commissioners' Court meetings.

Most public and professional interaction with the county website is for property valuation; payment of real estate taxes and the amount of those taxes; the agenda for the county board meeting; and the minutes of county board meetings. The courts do have a presence on the county web page. [However,] the Sheriff and County Attorney do not have a presence on the county web page.

We are currently going through a major transformation in terms of support and reorganization. Benchmarking would be interesting.

All citizens are able to contact all county offices as well as attend meetings and e-mail commissioners.

We created a new website for the county in January of this year, which is much more interactive and informative. The old site was hard to modify and not very useful for up-to-date information.

It has become our primary method of doing business with our citizens/customers.

We have recently begun a new push to enhance e-government services and expect to see big improvements in the next couple of years.

We are just getting our new website going. I expect to see much better results in the future as it will be more user-friendly and [include] more public information.

Some counties, however, are skeptical of e-government facilities:

All it has done is made it more complicated, created more jobs, and wasted more paper. Another boondoggle, is life simpler because of e-government? No.

A useful, but at this point not transformative, tool.

Loss of county government as a physical entity would be hard on our economy because people coming to town for county business help all the commerce in our community. Hospitals, schools, ASCS offices, dealerships, banks, and county government are vital to our existence as a community.

IT Champion

In many government agencies, the presence of highly motivated individuals has the capacity to bring about innovative organizational changes (Hannah, 1995). Such individuals actively promote their personal vision for IT use, steering the project around approval and implementation hurdles, and often risking their reputations to ensure the innovation's success. One such IT champion shared his situation with regard to the attitude of county administration to e-government services:

I do our website. My thoughts are that after my term is over, it could die. I hope that by then the citizens will have seen the value of this communication, and will raise hell, not letting it die. We shall see.

IT Outsourcing

As shown in the previous chapter, many county governments have begun outsourcing their IT functions and services to private contractors, especially the development and maintenance of websites, website hosting, training, and project management across all levels of government. Normally, such outsourcing enables government organizations to access the expertise and skills of professionals outside the public sector free of financial obstacles (Chen & Perry, 2002). Moreover, when implementation is contracted to outside firms, governments are freed from having to bear large overhead or start-up costs. In addition, when technological uncertainty is high, contracting out e-government can transfer some of the risk of system development to private vendors:

I had help on design, which was critical. I maintain two pages, news and agendas. If I need something done on the other pages, I call the outsource company and they get right on it.

However, the relationship between county governments and their IT contractors is still a tenuous one. In some cases, counties may not be able to enforce the power necessary to ensure that contractors provide the desired e-government services to its citizens:

Our rural county has been unable to convince a vendor to provide affordable, countywide service, which limits interaction with citizens.

Chapter 9

ANALYSIS OF COUNTY E-GOVERNMENT WEBSITES

The website content analysis assessed the practice of e-government in counties that responded to the County E-Government Study 2009. Overall, 343 counties responded to the survey, and those with populations above 20,000 were selected as the analytical sample. The websites of these 182 counties were evaluated along three dimensions: (a) e-information, (b) e-transaction, and (c) e-participation, which can be defined as follows: *e-information* refers to the provision of relevant and sufficient information through effective communication, thus leading to an informed citizenry; *e-transactions* are efficient and effective transactions that result from an integrated citizenry; and *e-participation* refers to the promotion of an electronic democracy that produces a participatory citizenry. The overall outcomes reflect the combined scores of each county on every dimension of e-government. The highest possible e-government score for any one city website is 72, while the highest possible score on each of the three dimensions is 24.

E-Government Evaluation Instrument

The evaluation index consists of features adopted from the Rutgers E-Governance Index, the most comprehensive index in e-governance research today with 98 measures classified into the five categories of privacy, usability, content, services, and citizen participation (Holzer & Kim, 2005). The initial draft of the instrument was validated by an expert review panel consisting of faculty and research associates specializing in e-

government. This review ensured that the questions in the index accurately capture all the essentials aspects of each e-government dimension. Table 9.1 shows the performance measures used in the research and the dimensions they represent. The index measures were coded on a scale of 0, 1, or 3, in which 0 indicates the absence of each feature, while a score of 1 or 3 indicates the presence of each feature in basic or more sophisticated form, respectively.

[Table 9.1] E-Government Performance Measures

No.	Dimension	Features
1	E-information	Information on public employees, location of government offices, GIS mapping, FAQ (Frequently Asked Questions), job/position vacancies calendar of events, video clips/minutes of public meetings, targeted audience links
2	E-transaction	Utility bills, fines/tickets, filing taxes, books/reports purchase, permit applications, event tickets licenses applications, e-procurement
3	E-participation	Online policy forums, bulletin boards, e-petitions, e-meetings, community newsletter, online survey polls, crime report, file complaints, feedback forms,

E-Information

The evaluation of e-information determined whether county websites provided relevant, sufficient, and reliable information online. Accordingly, it looked for a schedule of agency offices hours and availability, online contact information (specifically, information about each agency represented on the website), access to public documents, agency mission statements, and the minutes of public meetings. The evaluation also considered targeted audience links or channels that customize the website for specific

groups like citizens, businesses, or other public agencies and checked for time sensitive information like job vacancies or a calendar of community events.

E-Transaction

The evaluation for e-transaction examined the county services provided online, a critical component of e-government in terms of two different service types. The first allows citizens to interact with the county and can be as basic as providing forms for requesting information or filing complaints; the second allows users to register online for municipal events or miscellaneous services. As regards the former, local governments worldwide now (a) provide advanced interactive services that users can use to report crimes or violations, (b) customize county homepages based on user needs (e.g., portal customization), and (c) enable user access to private information like court, educational, or medical records online. Hence, the analysis evaluated county websites to determine whether they offered such services. In terms of the latter—enabling citizens to register online for county services—many counties allow online applications for a range of services as diverse as building permits and dog licenses. Some local governments are also using the Internet for procurement, allowing potential contractors to access requests for proposals or even bid online for contracts. Others are chronicling the procurement process by listing the total number of bidders for a contract online and in some cases listing contact information for bidders. As part of this trend, many counties have also developed the ability to accept payment for county services and taxes on their websites. Hence, the evaluation assessed whether the county websites had developed this capacity, exemplified across the U.S. by transactional services like online payment of public utility bills and parking tickets.

E-Participation

The evaluation for e-participation examined whether county websites allow users to provide online comments or feedback to individual agencies or elected officials. It also considered whether local governments offered current information about county governance either online or through an online newsletter or e-mail listserv and whether they were providing Internet-based polls on specific local issues.

Citizen satisfaction surveys/polls. Citizen satisfaction surveys are effective means of gauging citizen feedback on administrative actions. Most particularly, when conducted on a regular basis using similar questions, these surveys can detect community problems over time (Webb & Hatry, 1973). Hence, providing online mechanisms is an effective strategy for institutionalizing surveys to obtain regular feedback from citizens on the state of their governments. These surveys should be clearly visible to users on the webpage and accompanied by clear instructions for participation. In some cases, citizens prefer to complete them at their convenience while offline. Thus, to accommodate citizen preferences, the webpage should enable users to download the surveys and should provide information for faxing the completed surveys or returning them by mail. Citizen survey results should be posted on the webpage regularly, and previous results should be searchable in an online database.

Bulletin boards. Although in some cases agencies attempt to structure online discussions around policy issues or specific agencies, online bulletin boards actually offer citizens the opportunity to post ideas, comments, or opinions without stipulating specific discussion topics. Hence, e-bulletin boards have enabled a wide scope of citizen discussion ranging from formal to informal (Garson, 2005). However, in order for

government websites to encourage citizen participation, they need to be more interactive. Above all, bulletin boards should encourage citizen posts by being user friendly, especially for first time users, and providing easily understood search mechanisms and relevant keywords. The website should also provide support for users that post their comments directly to elected officials, mayors, or city council; for example, by ensuring that sites include the email addresses for elected officials. Finally, online forums should be more than simply a one-way channel for communication; they should also include public participants, experts, and an active forum moderator.

E-meetings. E-meetings refer to the real-time discussions that occur at specific times in a synchronized manner so that participants can exchange opinions simultaneously. These e-meetings must be scheduled to allow for elaborate discussions between citizens and public officials, and the results of these meetings must be posted on the site. The frequency of such e-meetings or discussion forums should be more than three times in any year.

E-petitions. E-petitions are formal requests to a government agency, signed by a number of citizens online, to raise issues of concern. Together with the above-mentioned tools, citizen participation should also involve channels for online decision making such as e-citizen juries and e-referenda. Electronic citizen juries consist of a group of representative citizens who review evidence that pertains to particular issues over an extended period. They then deliberate online and recommend conclusions to the government. E-referenda or online referenda ask the entire population to vote on issues online, thereby introducing or amending policies.

Community newsletters. Besides performance reports, the county website should also provide a link for updates on community events via newsletters or periodic reports. Such reports should be in a downloaded format like a DOC or PDF, and steps need to be taken to circulate the report via e-mail. It should also provide options for subscribing and unsubscribing to the newsletter and other mail groups. Such measures encourage effective citizen participation and engage the public in decision-making at a local level.

Overall Evaluation Results

Overall, the counties in the West ranked highest in e-government with an average score of 23.76. The Midwest, with a score of 21.98, ranked second, followed by the South and Northeast with scores of 21.44 and 18.65, respectively. Table 9.2 lists the average e-government scores by region.

[Table 9.2] Average Scores by Region, 2009

	Average	Midwest	Northeast	South	West
Averages	21.79	21.98	18.65	21.44	23.76

Martin County, Florida, was the highest ranked county website in the survey, with a score of 45. Glynn County, Georgia, had the second highest ranking, with a score of 44, while Polk County, Florida, ranked third with a score of 43. New Deschutes County, Oregon, ranked fourth with 42 points, while Douglas County, Colorado, and Edgecombe County, North Carolina, shared the fifth ranking with 41 points. The overall average score for all counties was 21.79, while Dane County, Wisconsin (Midwest); Cumberland County, Pennsylvania (Northeast); Martin County, Florida (South); and Douglass County, Colorado (West) emerged as the top ranked county for each U.S. region. Table

9.3 lists the top 20 counties in e-government together with their scores on the three dimensions.

[Table 9.3] Top 25 Counties in E-Government, 2009

Ranking	County	State	E-Info	E-Trans	E-Part	E-Gov
1	Martin	Florida	20	17	8	45
2	Glynn	Georgia	18	16	10	44
3	Polk	Florida	19	15	9	43
4	Deschutes	Oregon	17	16	9	42
5	Douglas	Colorado	17	14	10	41
5	Edgecombe	North Carolina	14	20	7	41
7	Cumberland	Pennsylvania	19	13	8	40
7	Washington	Maryland	16	14	10	40
9	Gwinnett	Georgia	17	14	8	39
9	Howard	Maryland	13	17	9	39
11	Maui	Hawaii	20	12	6	38
11	Dare	North Carolina	17	16	5	38
13	Columbia	Georgia	17	14	6	37
14	King	Washington	18	9	9	36
15	Fort Bend	Texas	15	13	7	35
15	Dane	Wisconsin	15	11	9	35
15	Westmoreland	Pennsylvania	13	16	6	35
18	Baltimore	Maryland	18	10	6	34
18	Placer	California	9	15	10	34
18	Athens	Ohio	14	8	12	34
21	Westchester	New York	15	9	9	33
21	Wasatch	Utah	13	16	4	33
23	Rock Island	Illinois	14	13	5	32
23	Stearns	MN	14	12	6	32
23	Coconino	Arizona	15	13	4	32
23	Jackson	Georgia	11	15	6	32
23	Stutsman	North Dakota	14	9	9	32

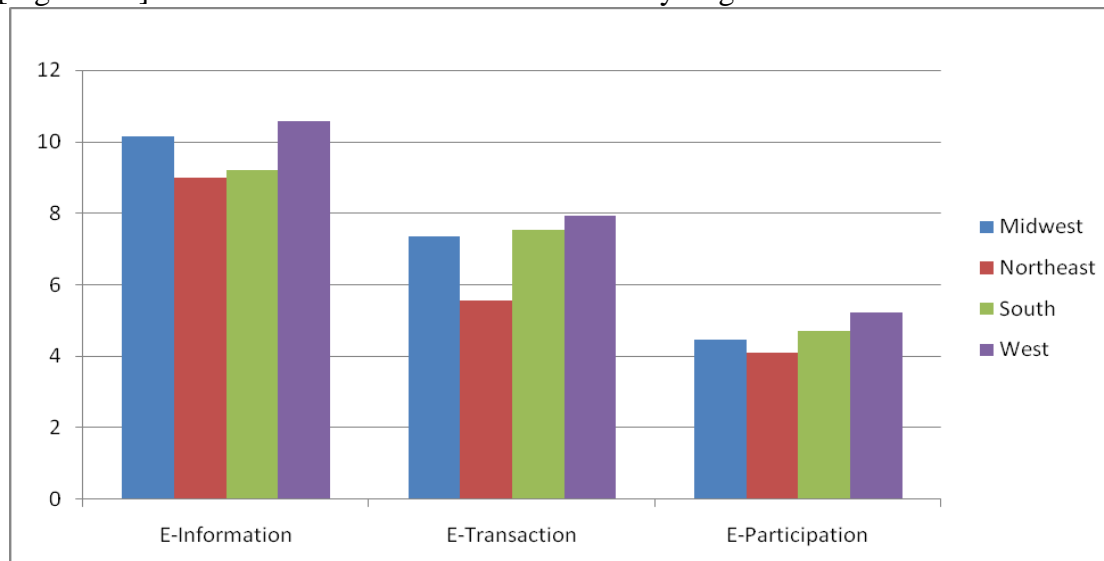
E-Government Results along the Three Dimensions

Table 9.3 and Figure 9.1 show the overall scores for the e-government dimensions by region. In the e-information category, the counties in the West again ranked highest with an average score of 10.58. The Midwest ranked second at 10.16, followed by the South and Northeast with 9.20 and 9.00, respectively. Likewise, for e-transaction, the counties in the West ranked highest with an average score of 7.93. The South ranked second, with a score of 7.54, followed by the Midwest and Northeast at 7.34 and 5.57, respectively. Finally, in the e-participation category, counties in the West ranked highest with an average score of 5.24, the South ranked second with a score of 4.70, followed by the Midwest and Northeast with scores of 4.48 and 4.09, respectively.

[Table 9.4] Scores in E-Government Dimensions by Region

	Average	Midwest	Northeast	South	West
E-Information	9.75	10.16	9.00	9.20	10.58
E-Transaction	7.34	7.34	5.57	7.54	7.93
E-Participation	4.7	4.48	4.09	4.70	5.24
E-Government	21.79	21.98	18.65	21.44	23.76

[Figure 9.1] Scores in E-Government Dimensions by Region



Results for E-Information

On the e-information dimension at the county level, the websites of Martin County, Florida, and Maui County, Hawaii, ranked highest with a score of 20, while Polk County, Florida, and Cumberland County, Pennsylvania, had the third highest ranked website with a score of 19. The fifth rank was shared by Glynn County, Georgia; King County, Washington; Baltimore County, Maryland; and Sumter County, Georgia, all with a score of 18 points. Table 9.4 lists the top 25 counties in e-information together with their scores, while Figure 9.2 gives the average e-information scores by region.

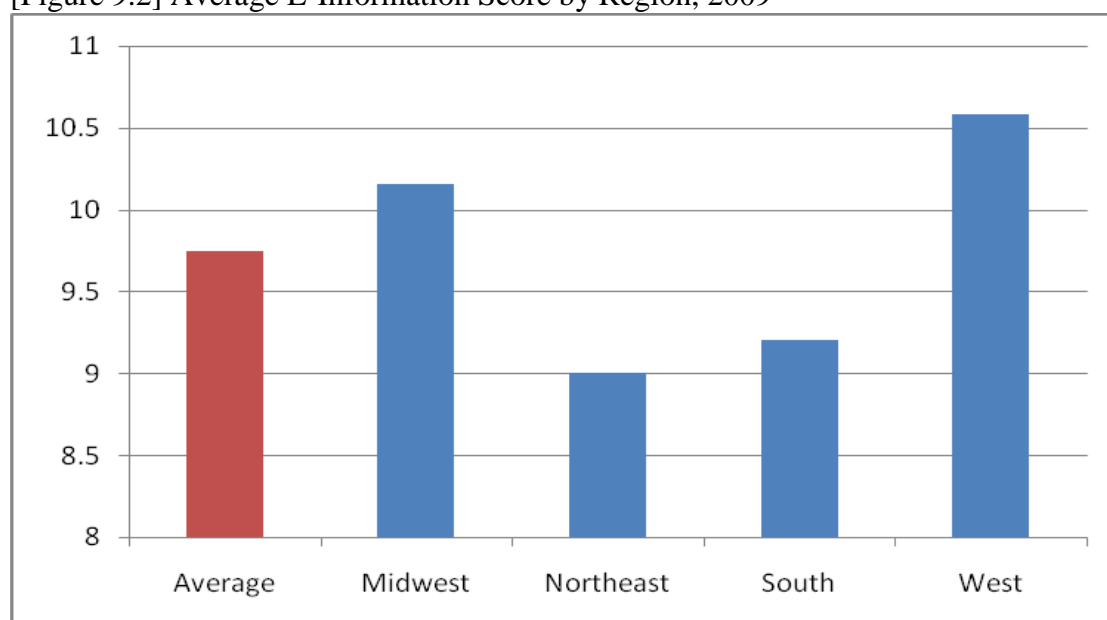
[Table 9.5] Top 25 Counties in E-Information

Ranking	County	State	Score
1	Martin	Florida	20
1	Maui	Hawaii	20
3	Polk	Florida	19
3	Cumberland	Pennsylvania	19
5	Glynn	Georgia	18
5	King	Washington	18
5	Baltimore	Maryland	18
5	Sumter	Georgia	18
9	Deschutes	Oregon	17
9	Douglas	Colorado	17
9	Gwinnett	Georgia	17
9	Dare	North Carolina	17
9	Columbia	Georgia	17
9	Labette	Kansas	17
15	Washington	Maryland	16
15	Barry	Michigan	16
15	Portage	Wisconsin	16
18	Fort Bend	Texas	15
18	Dane	Wisconsin	15
18	Westchester	New York	15
18	Coconino	Arizona	15
18	Mc Henry	Illinois	15

(continued)

Ranking	County	State	Score
18	Outagamie	Wisconsin	15
18	Williamson	TN	15
25	Edgecombe	North Carolina	14
25	Athens	Ohio	14
25	Rock Island	Illinois	14
25	Stearns	MN	14
25	Stutsman	North Dakota	14
25	Harris	Texas	14
25	Washtenaw	Michigan	14
25	Lee	North Carolina	14
25	Napa	California	14
25	Fond Du Lac	Wisconsin	14

[Figure 9.2] Average E-Information Score by Region, 2009



Regionally, the West once again ranked highest with an average score of 10.58.

The Midwest, with a score of 10.16, ranked second, followed by the South and Northeast with scores of 9.2 and 9.0, respectively. Across the United States, Labette County, Kansas (Midwest), Cumberland County, Pennsylvania (Northeast); Martin County, Florida (South); and Maui County, Hawaii (West) emerged as the top ranked counties for each region.

Overall, about 68% of all county websites evaluated were providing information on public agencies/departments, as well as public officials. However, the Midwestern counties scored well above average and ranked first. Table 9.5 shows selected e-information scores by region.

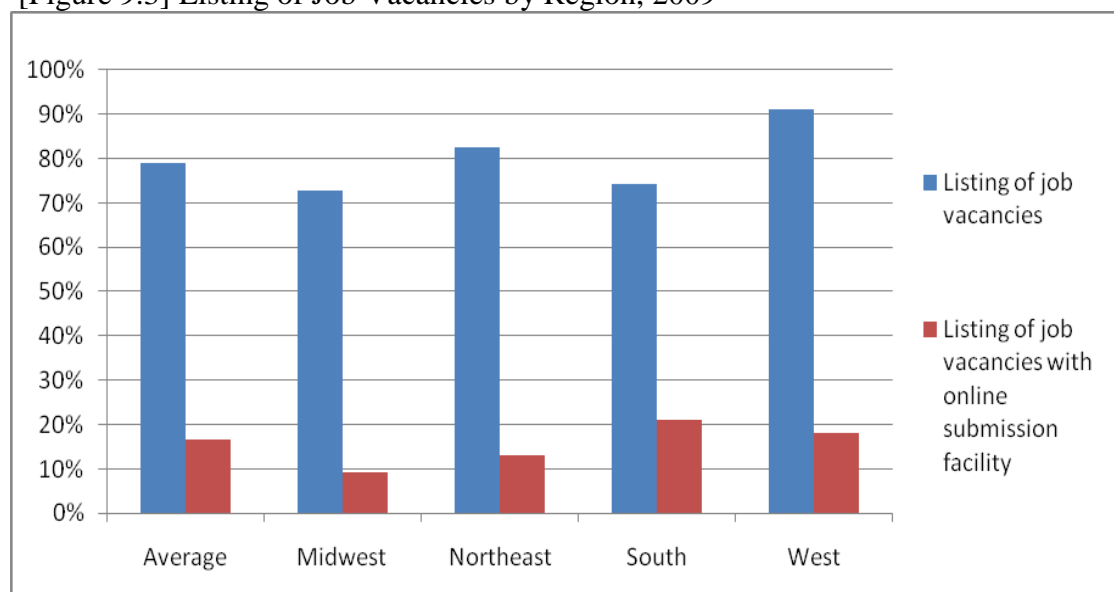
[Table 9.6] E-Information Scores by Region, 2009

Measures	Average (%)	Midwest (%)	Northeast (%)	South (%)	West (%)
Information for agencies/departments or employees/public officials	67.6	72.73	69.6	64.3	66.7
FAQs to guide citizens in county administration	27.5	31.8	21.7	25.7	28.9
Listing of job vacancies of public office	79.1	72.7	82.6	74.3	91.1
Calendar of events	69.2	75.0	78.3	65.7	64.4

With regard to the FAQ (frequently asked questions) option with topical subcategories, 31.8% of counties in the Midwest, 28.9% of counties in the West, 25.7% of counties in the South, and 21.7% of counties in the Northeast were providing FAQs to guide citizens through county administration, while on average 27.5% of all counties had such links. Overall, about 69.2% of all county websites provided a calendar of events, with the Northeast counties ranking first at 78.3. Likewise, about 68% of all the county websites evaluated provided online minutes of public meetings, with the Midwestern counties leading this category with a score of 29.55.

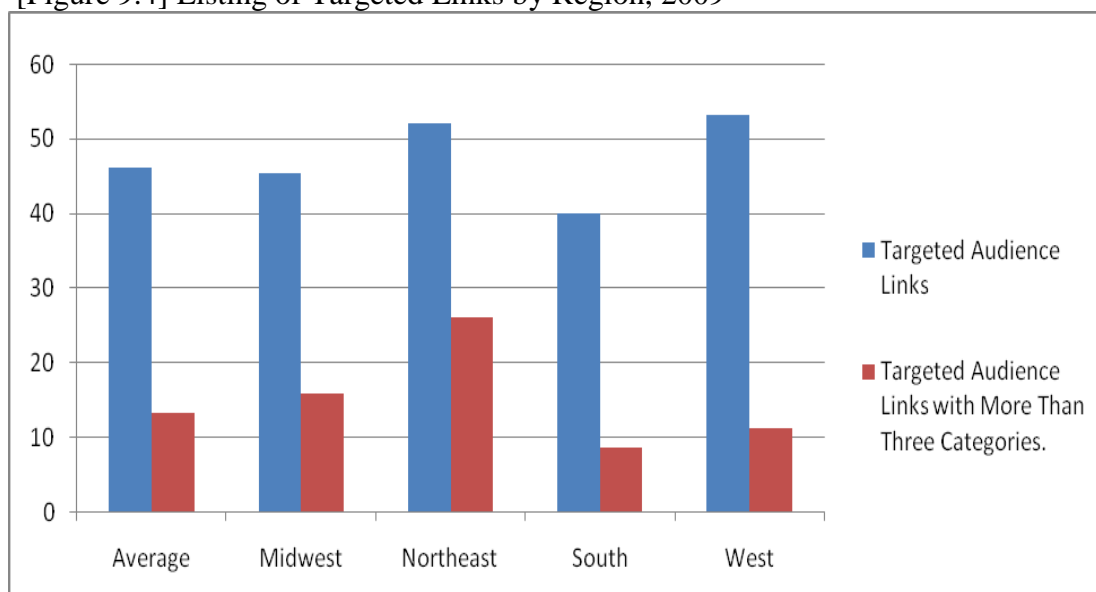
In terms of online job listings for public office or position vacancies in county government (e.g., the presence of a job posting web page), such a service was being provided by 91.1% of the counties in the West, 82.6% of the counties in the Northeast, 74.3% of the counties in the South, and 72.7% of the counties in the Midwest, while on average 79% of all the counties evaluated were offering such links. Among these latter, about 16.5% were enabling online submission of job applications. Figure 9.3 outlines the listing of job vacancies by region.

[Figure 9.3] Listing of Job Vacancies by Region, 2009



As regards links for targeted audience, 53.33% of the counties in the West, 52.17% of the counties in the Northeast, 45.45% of the counties in the Midwest, and 40.0% of the counties in the South were providing these features, while on average 46.2% of all counties were offering them. Among these latter, about 13.18% overall were providing links with more than three subcategories; for example, general citizenry, youth, the elderly, women, family, citizens in need of social welfare services, businesses, industry, small businesses, and public employees. Figure 9.4 lists the targeted links by region.

[Figure 9.4] Listing of Targeted Links by Region, 2009



Best Practices in E-Information by Region

Among the counties in the Midwest, the website for Labette County, Kansas, received the highest score in the e-information category, with a score of 17. Barry County, Michigan; Kandiyohi County, Minnesota; and Portage County, Wisconsin, tied for the second highest with a score of 16 points each, while McHenry County, Illinois; Dane County, Wisconsin; and Outagamie County, Wisconsin, shared fifth ranking with a score of 15 points each (see Table 9.6).

[Table 9.7] Top Five Counties in E-Information: Midwest

Ranking	County	State	Score
1	Labette	Kansas	17
2	Barry	Michigan	16
2	Kandiyohi	Minnesota	16
2	Portage	Wisconsin	16
5	McHenry	Illinois	15
5	Dane	Wisconsin	15
5	Outagamie	Wisconsin	15

Among the counties in the Northeast, Cumberland County, Pennsylvania, received the highest e-information ranking with a score of 19, followed by Westchester

County, New York, in second position with a score of 15. Barnstable County, Massachusetts, and Essex County, New Jersey, ranked third with a score of 14, while Franklin County, Pennsylvania, and Westmoreland County, Pennsylvania, shared fifth place, each with a score of 13 points (see Table 9.7).

[Table 9.8] Top Five Counties in E-Information: Northeast

Ranking	County	State	Score
1	Cumberland	Pennsylvania	19
2	Westchester	New York	15
3	Barnstable	Massachusetts	14
3	Essex	New Jersey	14
5	Franklin	Pennsylvania	13
5	Westmoreland	Pennsylvania	13

Among the counties in the South, Martin County, Florida, scored the highest points for its website at 20, followed by Polk County, Florida, with a score of 19. Glynn County, Georgia; Sumter County, Georgia; and Baltimore County, Maryland, followed in a three-way tie, each with a score of 18 points.

[Table 9.9] Top Five Counties in E-Information: South

Ranking	County	State	Score
1	Martin	Florida	20
2	Polk	Florida	19
3	Glynn	Georgia	18
3	Sumter	Georgia	18
3	Baltimore	Maryland	18

Among the counties in the West, Maui County, Hawaii, emerged with the high-ranking score of 20, followed by Douglas County, Colorado, in second position with a score of 19. King County, Washington, ranked third with a score of 18, followed by Deschutes County, Oregon, and Coconino County, Arizona, with scores of 17 and 15, respectively.

[Table 9.10] Top Five Counties in E-Information: West

Ranking	County	State	Score
1	Maui	Hawaii	20
2	Douglas	Colorado	19
3	King	Washington	18
4	Deschutes	Oregon	17
5	Coconino	Arizona	15

Results for E-Transaction

Of all the county websites evaluated along the dimension of e-transaction, Edgecombe County, North Carolina, ranked highest with a score of 20. Martin County, Florida; Howard County, Maryland; and Hennepin County, Minnesota, shared the second position with a score of 17, while Glynn County, Georgia; Deschutes County, Oregon; Dare County, North Carolina; Westmoreland County, Pennsylvania, Wasatch County, Utah; and Kandiyohi County, Minnesota, shared fifth rank with a score of 16 points each (see Table 9.12). Regionally, the West ranked highest with an average score of 7.93, followed by the South, with a score of 7.54, and then the Midwest and Northeast with scores of 7.34 and 5.57, respectively (see Figure 9.5).

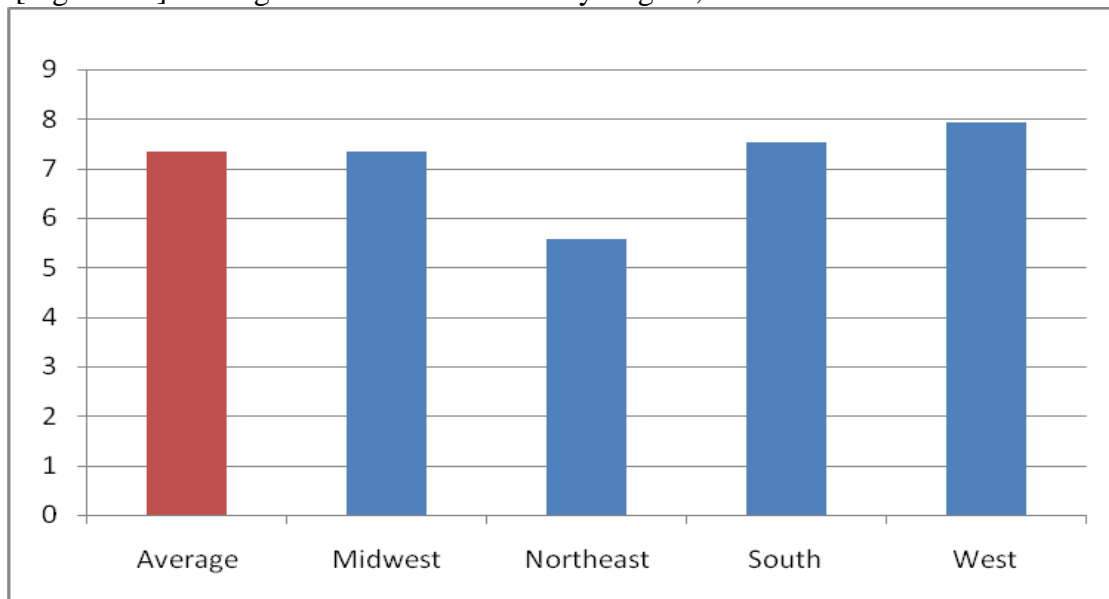
[Table 9.11] Top 25 Counties in E-Transaction

Ranking	County	State	Score
1	Edgecombe	North Carolina	20
2	Martin	Florida	17
2	Howard	Maryland	17
2	Hennepin	Minnesota	17
5	Glynn	Georgia	16
5	Deschutes	Oregon	16
5	Dare	North Carolina	16
5	Westmoreland	Pennsylvania	16
5	Wasatch	Utah	16
5	Kandiyohi	Minnesota	16
11	Polk	Florida	15
11	Jackson	Georgia	15

(continued)

Ranking	County	State	Score
11	Placer	California	15
14	Douglas	Colorado	14
14	Gwinnett	Georgia	14
14	Columbia	Georgia	14
14	Washington	Maryland	14
18	Cumberland	Pennsylvania	13
18	Fort Bend	Texas	13
18	Coconino	Arizona	13
18	Rock Island	Illinois	13
18	Whitefield	Georgia	13
18	Peoria	Illinois	13
24	Maui	Hawaii	12
24	Stearns	MN	12
24	Barry	Michigan	12
24	Whatcom	Washington	12
24	Pierce	Wisconsin	12
24	Garrett	MD	12

[Figure 9.5] Average E-Transaction Score by Region, 2009



Hennepin County, Minnesota (Midwest); Westmoreland County, Pennsylvania (Northeast); Edgecombe County, North Carolina (South); and Deschutes County, Oregon, and Wasatch County, Utah (West), emerged as the top ranked county websites for each U.S. region.

Overall, about 57% of all county websites were allowing users to file or pay taxes on line, with the Southern counties scoring well above the average and ranking first with a score of 77.78. In terms of ability to pay utilities on line (county utilities in the category description; e.g., tap water, sewage, gas, electricity), 6.7% of the counties in the West, 8.7% of the counties in the Northeast, 17.14% of the counties in the South, and 2.27% of the counties in the Midwest were providing such capability, while on average 9.9% of all the counties evaluated were offering this type of link. Among these latter, about 16.5% overall were enabling online submission of job applications. Table 9.13 shows the results for e-transaction by region.

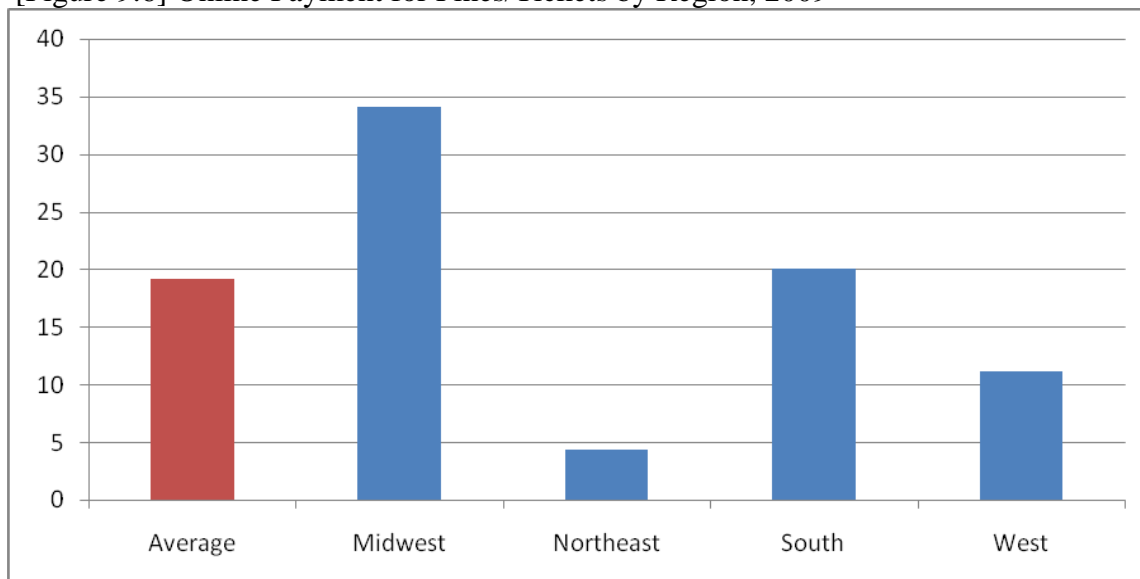
[Table 9.12] Results for E-Transaction by Region, 2008)

Measures	Average (%)	Midwest (%)	Northeast (%)	South (%)	West (%)
Online payment of utilities	9.9	2.27	8.70	17.14	6.67
Online payment of taxes	56.6	47.73	21.74	60.00	77.78
Online payment of fines/tickets	19.2	34.09	4.35	20.00	11.11
Online application for licenses	6.6	4.55	4.35	8.57	6.67

With regard to the option of paying fines/tickets on line, 34.09% of the counties in the Midwest, 20.0% of the counties in the South, 11.11% of the counties in the West, and 4.35% of the counties in the Northeast were providing this capability, while on average 19.2% of all counties evaluated were offering such links. Overall, about 6.6% of all county websites evaluated were enabling users to apply for licenses on line, with counties

in the South ranking first with a score of 8.57%. Figure 9.14 gives the results for online payment of fines/tickets by region.

[Figure 9.6] Online Payment for Fines/Tickets by Region, 2009



In terms of online application for permits, 6.67% of the counties in the West, 4.35% of the counties in the Northeast, 5.71% of the counties in the South, and 4.55% of the counties in the Midwest were enabling such applications, while on average 5.49% of all counties evaluated were offering such a feature. Among these latter, about 16.5% overall were also enabling online submission of job applications. With regard to the option of allowing users to register or purchase tickets to events in county/municipal halls, arenas, or other such facilities, only 2.19% of all counties evaluated were offering this capability, while only about 3% of all county websites evaluated were allowing users to purchase or order documents, reports, and/or books (publications) on line.

Best Practices in E-Transaction by Region

Among the counties in the Midwest, Hennepin County, Minnesota, earned the top score of 17, making it the highest-ranked county website in the e-transaction category. Dane County, Wisconsin, ranked second with a score of 15, while Rock Island County,

Illinois; Jefferson County, Michigan; and Peoria County, Illinois, shared third rank with a score of 13 points each.

[Table 9.13] Top Five Counties in E-Transaction: Midwest

Ranking	County	State	Score
1	Hennepin	Minnesota	17
2	Dane	Wisconsin	15
3	Rock Island	Illinois	13
3	Jefferson	Michigan	13
3	Peoria	Illinois	13

Among the counties in the Northeast, Westmoreland County, Pennsylvania, emerged as the highest-ranked country website in the e-transaction category with a score of 16, followed by Cumberland County, Pennsylvania, in second position with a score of 13. Genesee County, New York, ranked third at 10 points, while Westchester County, New York, and Washington County, New York, shared fourth rank with a score of 9 points each.

[Table 9.14] Top Five Counties in E-Transaction: Northeast

Ranking	County	State	Score
1	Westmoreland	Pennsylvania	16
2	Cumberland	Pennsylvania	13
3	Genesee County	New York	10
4	Westchester	New York	9
4	Washington	New York	9

Among the counties in the South, Edgecombe County, North Carolina, had the highest-ranked county website in the e-transaction category with a score of 20. Martin County, Florida; Gwinnett County, Georgia; and Howard County, Maryland, shared second rank with a score of 17, while Glynn County, Georgia, and Dare County, North Carolina, shared fifth rank with a score of 16 points each (see Table 9.17)..

[Table 9.15] Top Five Counties in E-Transaction: South

Ranking	County	State	Score
1	Edgecombe	North Carolina	20
2	Martin	Florida	17
2	Gwinnett	Georgia	17
2	Howard	Maryland	17
5	Glynn	Georgia	16
5	Dare	North Carolina	16

Among the counties in the West, Deschutes County, Oregon, and Wasatch County, Utah, tied for first place in the e-transaction category, with a score of 16 points each. Placer County, California, had the third-highest ranked website, with a score of 15, while Douglas County, Colorado, and Coconino County, Arizona, ranked fourth and fifth with scores of 14 and 13, respectively (see Table 9.18).

[Table 9.16] Top Five Counties in E-Transaction: West

Ranking	County	State	Score
1	Deschutes	Oregon	16
1	Wasatch	Utah	16
3	Placer	California	15
4	Douglas	Colorado	14
5	Coconino	Arizona	13

Results for E-Participation

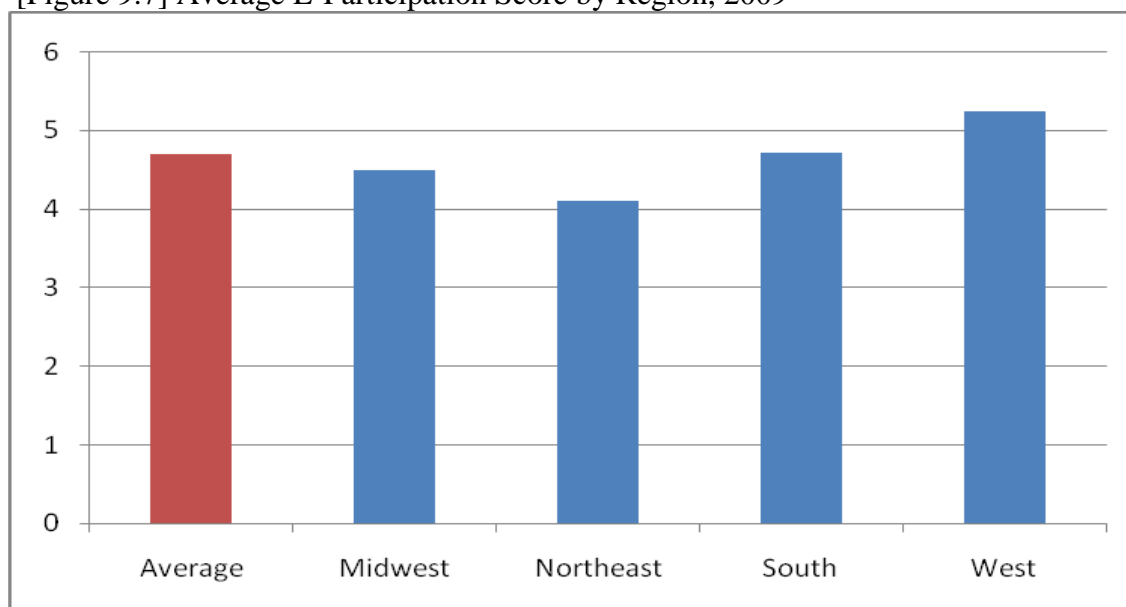
On the dimension of e-participation, Athens County, Ohio, had the highest ranked county website, with a score of 12. Glynn County, Georgia; Placer County, California; Douglas County, Colorado; Washington County, Maryland; Wakulla County, Florida; Yuma County, Arizona; and Florence County, South Carolina, shared second rank with a score of 10 points (see Table 9.19). Regionally, the West ranked highest with an average score of 5.24 and the South ranked second with a score of 4.70, followed by the Midwest and Northeast with scores of 4.48 and 4.09, respectively.

[Table 9.17] Top 25 Counties in E-Participation

Ranking	County	State	Score
1	Athens	Ohio	12
2	Glynn	Georgia	10
2	Placer	California	10
2	Douglas	Colorado	10
2	Washington	Maryland	10
2	Wakulla	Florida	10
2	Yuma	AZ	10
2	Florence	SC	10
9	Howard	Maryland	9
9	Deschutes	Oregon	9
9	Polk	Florida	9
9	Dane	Wisconsin	9
9	King	Washington	9
9	Westchester	New York	9
9	Stutsman	North Dakota	9
9	Mesa	Colorado	9
9	Sumter	Georgia	9
18	Martin	Florida	8
18	Gwinnett	Georgia	8
18	Cumberland	Pennsylvania	8
18	Yakima	Washington	8
18	Durham	NC	8
18	Benton	Oregon	8
18	Marion	Oregon	8
18	Racine	Wisconsin	8
18	Coryell	Texas	8
18	Polk	MN	8

Athens County, Ohio (Midwest); Westchester County, New York (Northeast); Glynn County, Georgia; Washington County, Maryland,; Wakulla County, Florida (South); and Douglass County, Colorado (West), emerged as the top ranked counties for each region in the United States. Figure 9.6 outlines the regional rankings along this dimension of e-participation.

[Figure 9.7] Average E-Participation Score by Region, 2009



The regional results for key e-participation aspects are reported in Table 9.20. As regards bulletin board or chat capabilities for gathering citizen input on public issues (e.g., a city website on which citizens can post ideas, comments, or opinions without discussion topics being specified), about 5.5% of the websites surveyed had such capabilities.

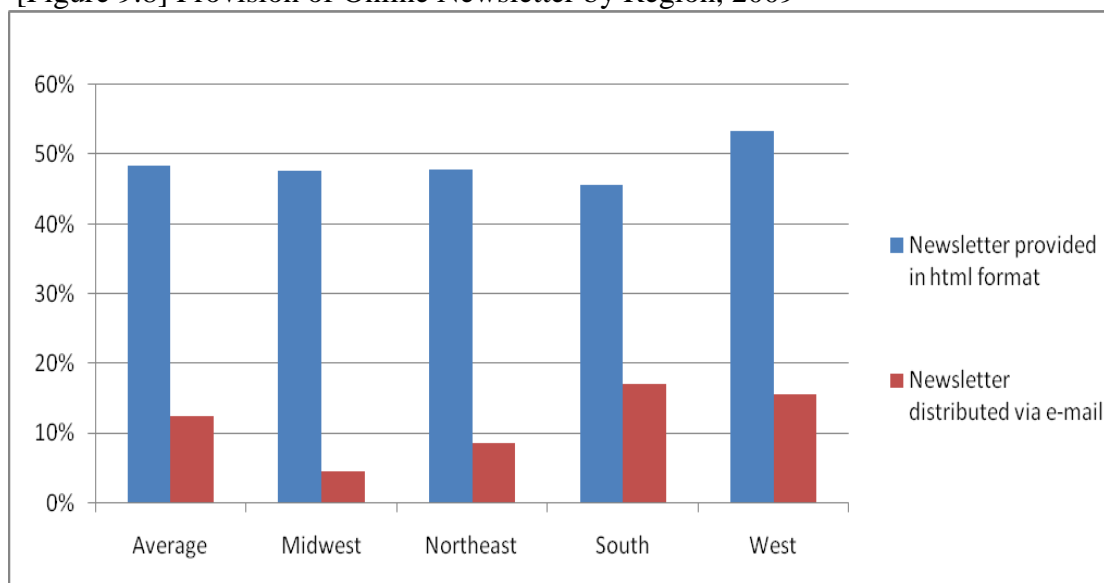
[Table 9.18] Results for E-Participation by Region, 2009

Measures	Average (%)	Midwest (%)	Northeast (%)	South (%)	West (%)
Online survey/polls for specific issues	20.32	20.45	17.39	24.29	15.56
Newsletter or community updates linked to the main county homepage	12.63	4.55	8.70	17.14	15.56
Online bulletin board or chat capabilities for gathering citizen input on public issues	5.5	6.82	8.70	2.86	6.67
Online decision-making (e-petition, electronic citizen juries, e-referenda)	2.2	4.55	0.00	1.43	2.22

In terms of tools for online decision-making—such as e-petitions, electronic citizen juries, or e-referenda—only about 2% of the municipalities evaluated had a site containing such features, while only about 20% of all counties evaluated were providing online surveys/polls.

Overall, about 13% of all county websites evaluated were offering an online newsletter or community updates linked to the main county homepage, with the Southern counties scoring well above the average and ranking first. With regard to the website allowing users to provide comments or feedback to individual departments/agencies through online forms, 11.36% of the counties in the Midwest, 11.11% of the counties in the West, and 10% of the counties in South were providing such a feature, while on average 9.34% of all counties had such links. Figure 9.7 outlines the provision of online newsletters by region.

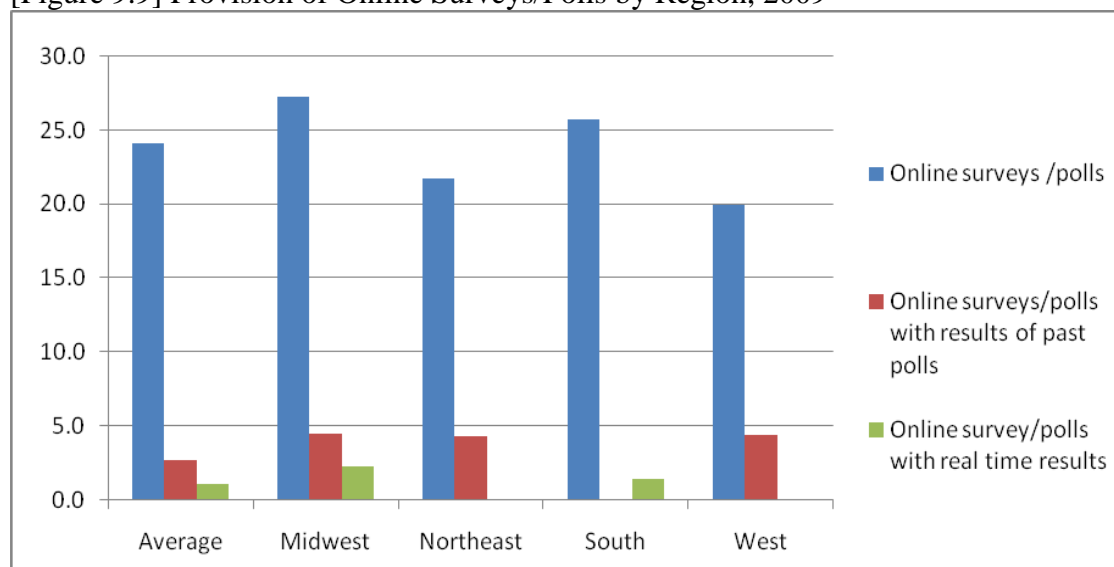
[Figure 9.8] Provision of Online Newsletter by Region, 2009



In terms of online survey/polls for specific issues, 15.56% of counties in the West, 17.39% of the counties in the Northeast, 24.29% of the counties in the South, and 20.45% of the counties in the Midwest were providing this feature (see Figure 9.8), while

on average 20.32% of all counties evaluated had such a link. Among these latter, about 16.5% overall were enabling online submission of job applications.

[Figure 9.9] Provision of Online Surveys/Polls by Region, 2009



Best Practices in E-Participation by Region

Among the counties in the Midwest, the highest-ranked county website in the e-participation category was Athens County, Ohio, with a score of 12 points. Knox County, Indiana, scored second highest with a score of 11, while Dane County, Wisconsin, and Polk County, Minnesota, ranked third and fourth with scores of 9 and 8, respectively. Jefferson County, Michigan; Peoria County, Illinois; Vanderburgh County, Indiana; and Wyandot County, Ohio, shared fifth position with a score of 7 points each.

[Table 9.19] Top Five Counties in E-Participation: Midwest

Ranking	County	State	Score
1	Athens	Ohio	12
2	Knox	Indiana	11
3	Dane	Wisconsin	9
4	Polk	Minnesota	8
5	Jefferson	Michigan	7
5	Peoria	Illinois	7
5	Vanderburgh	Indiana	7
5	Wyandot	Ohio	7

Among the counties in the Northeast, the website for Westchester County, New York, scored highest for e-participation with 9 points. Cumberland County, Pennsylvania, emerged in second place with a score of 8, while Washington County, Pennsylvania, and Westmoreland County, Pennsylvania, shared third position with 6 points each. Essex County, New Jersey; St. Lawrence County, New York; and Somerset County, Dauphin County, and Elk County (all in Pennsylvania) shared fifth ranking with 5 points each.

[Table 9.20] Top Five Counties in E-Participation: Northeast

Ranking	County	State	Score
1	Westchester	New York	9
2	Cumberland	Pennsylvania	8
3	Washington	Pennsylvania	6
3	Westmoreland	Pennsylvania	6
5	Essex	New Jersey	5
5	St. Lawrence	New York	5
5	Somerset	Pennsylvania	5
5	Dauphin	Pennsylvania	5
5	Elk	Pennsylvania	5

Among the counties in the South, Glynn County, Georgia; Washington County, Maryland; Wakulla County, Florida; and Florence County, South Carolina, shared the first position in e-participation with a score of 10 points each. There was a four-way tie for fifth position, shared by Howard County, Maryland; Polk County, Florida; Durham County, North Carolina; and Sumter County, Georgia, each with a score of 9 points.

[Table 9.21] Top Five Counties in E-Participation: South

Ranking	County	State	Score
1	Glynn	Georgia	10
1	Washington	Maryland	10
1	Wakulla	Florida	10
1	Florence	South Carolina	10
5	Howard	Maryland	9
5	Polk	Florida	9
5	Durham	North Carolina	9
5	Sumter	Georgia	9

Among the counties in the West, Douglas County, Colorado, received the highest-ranking e-participation score of 13 points. Yuma County, Arizona, had the second-highest ranking with 11 points, while Placer County, California, ranked third with 10 points. Deschutes County, Oregon; Summit County, Utah; King County, Washington; Stutsman County, North Dakota; and Mesa County, Colorado, shared fifth position with a score of 9 points each.

[Table 9.22] Top Five Counties in E-Participation: West

Ranking	County	State	Score
1	Douglas	Colorado	13
2	Yuma	Arizona	11
3	Placer	California	10
4	Deschutes	Oregon	9
4	Summit	Utah	9
4	King	Washington	9
4	Stutsman	North Dakota	9
4	Mesa	Colorado	9

Chapter 10

REGRESSION ANALYSIS

The final statistical analysis conducted for the research was multiple regressions using SPSS on the three dimensions of e-information, e-transaction and e-participation. The three blocks of independent variables include institutional variables, contextual variables and socioeconomic variables. Prior to the analysis, certain independent variables were re-coded to best fit the study. These were primarily institutional and contextual variables, which measures were obtained from the County E-Government Study 2009. Also, some of the independent variables (institutional and contextual) had some missing values, which were replaced by the median of the variable. Appendix F shows the variables used in the analysis with the original values. The variables that were re-coded are Form of Government, IT Champion, IT Budget, IT Neighboring Websites and IT Contracting. Appendix G shows the list of variables along with the above variables re-coded. The variable Form of Government was re-coded as (1 = Board of Commissioners, 0 = non-Board of Commissioners) which include Council Administrator/Manager, Council-Elected Executive and additional forms. The variable IT Champion was re-coded as (1 = Yes, 0 = No/Don't Know). The variable IT Budget was re-coded as (1= Above \$500,000, 0 = \$500,000 and below). Finally both Neighboring Websites and IT Contracting were re-coded separately as (1 = Yes, 0 = No). Additionally, the socioeconomic variables were converted into their natural log form to reduce the

skewness level. The results of the regression analysis are discussed in the following pages.

[Table 10.1] Descriptive Statistics

Dependent Variables	N	Min	Max	Mean
E-Information	182	0.00	6.00	2.23
E-Transaction	182	0.00	12.00	3.98
E-Participation	182	0.00	6.00	0.44
E-Government	182	0.00	18.00	6.65
Independent Variables				
Institutional Variables				
Form of Government	182	0.00	1.00	0.09
IT Champion	182	0.00	1.00	0.18
IT Budget	182	0.00	1.00	0.61
IT Contracting	182	0.00	1.00	0.73
IT Employees	182	1.00	5.00	2.78
Elected Officials Support	182	1.00	4.00	2.97
Top Administrators Support	182	1.00	4.00	3.20
Employees Support	182	1.00	4.00	2.88
Citizens Support	182	1.00	4.00	2.70
No. of Functions	182	2.00	28.00	15.86
Contextual Variables				
Neighboring Websites	182	0.00	1.00	0.15
County Collaboration	182	1.00	4.00	2.41
Nonprofit Collaboration	182	1.00	4.00	2.37
Business Collaboration	182	1.00	4.00	2.18
Civic groups Collaboration	182	1.00	4.00	2.15
Private Non farm Businesses	182	237.00	86566.00	4266.88
Socioeconomic Variables				
Area (sq miles)	182	132.13	18661.21	1234.03
Population	182	20130.00	3886207.00	164402.78
High School Education (%)	182	60.07	96.96	80.98
Income Per Capita (\$)	182	18557.00	62045.00	30579.28
Revenue Per Capita(\$)	182	487.00	5817.00	2971.63
Voted for Republican Party (%)	182	27.30	83.00	57.74

[Table 10.2]Regression Analysis of Determinants of E-Government Scale

Institutional Variables	Model 1	Model 2	Model 3	Model 4
Form of Government	-0.019	0.017		
IT Champion	0.06	-0.004		
IT Budget	-0.033	0.022		
IT Contracting	0.044	0.106		
IT Employees	.240**	0.263***		
Elected Officials Support	0.075	0.078		
Top Administrators Support	0.078	0.024		
Employees Support	0.038	0.098		
Citizens Support	-0.053	-0.001		
No of Functions	.302***	0.267		
Contextual Variables				
Neighboring Websites	0.009		-0.059	
County Collaboration	-0.032		-0.027	
Nonprofit Collaboration	0.065		0.189***	
Business Collaboration	0.057		0.063	
Civic groups Collaboration	-0.03		0.064	
Private Non-farm Businesses	-0.163		0.218***	
Socioeconomic Variables				
Log Area	0.064			0.073
Log Population	0.398			0.308***
Log High School Education	0.187**			0.106
Log Income per capita	-0.009			0.067
Log Revenue Per Capita	0.002			0.046
Log Voted Republican	-0.124			-0.049
R-Square	0.352***	0.285***	0.142***	0.20***

*p<0.10

**p<0.05

***p<0.01

[Table 10.3]
Regression Analysis of Determinants of E-Information

Institutional Variables	Model 1	Model 2	Model 3	Model 4
Form of Government	0.069	0.076		
IT Champion	0.085	0.052		
IT Budget	-0.09	-0.02		
IT Contracting	-0.052	0.018		
IT Employees	-0.046	0.111		
Elected Officials Support	.219**	0.247**		
Top Administrators Support	-0.069	-0.086		
Employees Support	-0.104	0.026		
Citizens Support	-0.017	-0.038		
No. of Functions	0.128	0.081		
Contextual Variables				
Neighboring Websites	-0.145		-.137*	
County Collaboration	0.101		0.116	
Nonprofit Collaboration	-0.026		0.046	
Business Collaboration	-0.133		-0.138	
Civic groups Collaboration	0.077		0.113	
Private Nonfarm Businesses	-0.109		.298***	
Socioeconomic Variables				
Area	0.129			0.138*
Population	0.239			0.146
High School Education	0.094			0.012
Income Per Capita	-0.01			0.018
Revenue Per Capita	0.103			0.081
Voted for Republican Party	-.208**			-0.109
R-Square	0.215**	0.081	0.154***	0.094***

*p<0.10

**p<0.05

***p<0.01

[Table 10.4]
Regression Analysis of Determinants of E-Transaction

Institutional Variables	Model 1	Model 2	Model 3	Model 4
Form of Government	-0.051	-0.002		
IT Champion	0.032	-0.012		
IT Budget	-0.01	0.075		
IT Contracting	.132*	.154**		
IT Employees	.172*	0.236		
Elected Officials Support	-0.003	-0.003		
Top Administrators Support	0.107	0.056		
Employees Support	0.145	.150*		
Citizens Support	-0.057	-0.003		
No. of Functions	.260**	.251***		
Contextual Variables				
Neighboring Websites	0.026		-0.052	
County Collaboration	-0.066		-0.064	
Nonprofit Collaboration	0.123		.221*	
Business Collaboration	0.07		0.085	
Civic groups Collaboration	-0.058		0.039	
Private Nonfarm Businesses	-0.127		.129*	
Socioeconomic Variables				
Area	0.005			0.024
Population	0.258			.308***
High School Education	.158*			0.113
Income Per Capita	0.035			0.105
Revenue Per Capita	-0.076			0.02
Voted for Republican Party	-0.006			0.02
R-Square	0.368***	0.310***	0.112***	0.19***

*p<0.10

**p<0.05

***p<0.01

[Table 10.5]
Regression Analysis of Determinants of E-Participation

Institutional Variables	Model 1	Model 2	Model 3	Model 4
Form of Government	-0.04	-0.025		
IT Champion	-0.01	-0.045		
IT Budget	-0.131	-0.113		
IT Contracting	-0.108	-0.07		
IT Employees	0.083	.182*		
Elected Officials Support	0.023	0		
Top Administrators Support	0.053	0.038		
Employees Support	-0.124	-0.099		
Citizens Support	0.044	0.053		
No. of Functions	.205**	.192**		
Contextual Variables				
Neighboring Websites	0.093		0.103	
County Collaboration	-0.027		-0.065	
Nonprofit Collaboration	-0.023		0.018	
Business Collaboration	0.129		0.171	
Civic groups Collaboration	-0.005		-0.009	
Private Nonfarm Businesses	-0.005		0.086	
Socioeconomic Variables				
Area	0.05			0.037
Population	0.122			0.097
High School Education	0.135			0.061
Income Per Capita	-0.115			-0.074
Revenue Per Capita	0.02			0.014
Voted for Republican Party	-.167*			-0.111
R-Square	0.129	0.071	0.041	0.029

*p<0.10

**p<0.05

***p<0.01

Regression Analysis for E-Information

Standard multiple regression was employed to evaluate the four different models in order to determine which of the models best predicted variance in the dependent variable, e-information. Each model included the independent variables that fell into one of the following categories: institutional, contextual and socioeconomic factors.

Additionally, in the fourth model, all independent variables in the study were entered together. The effect of these independent variables on the three models is discussed in the following section.

Model 1: Institutional Variables

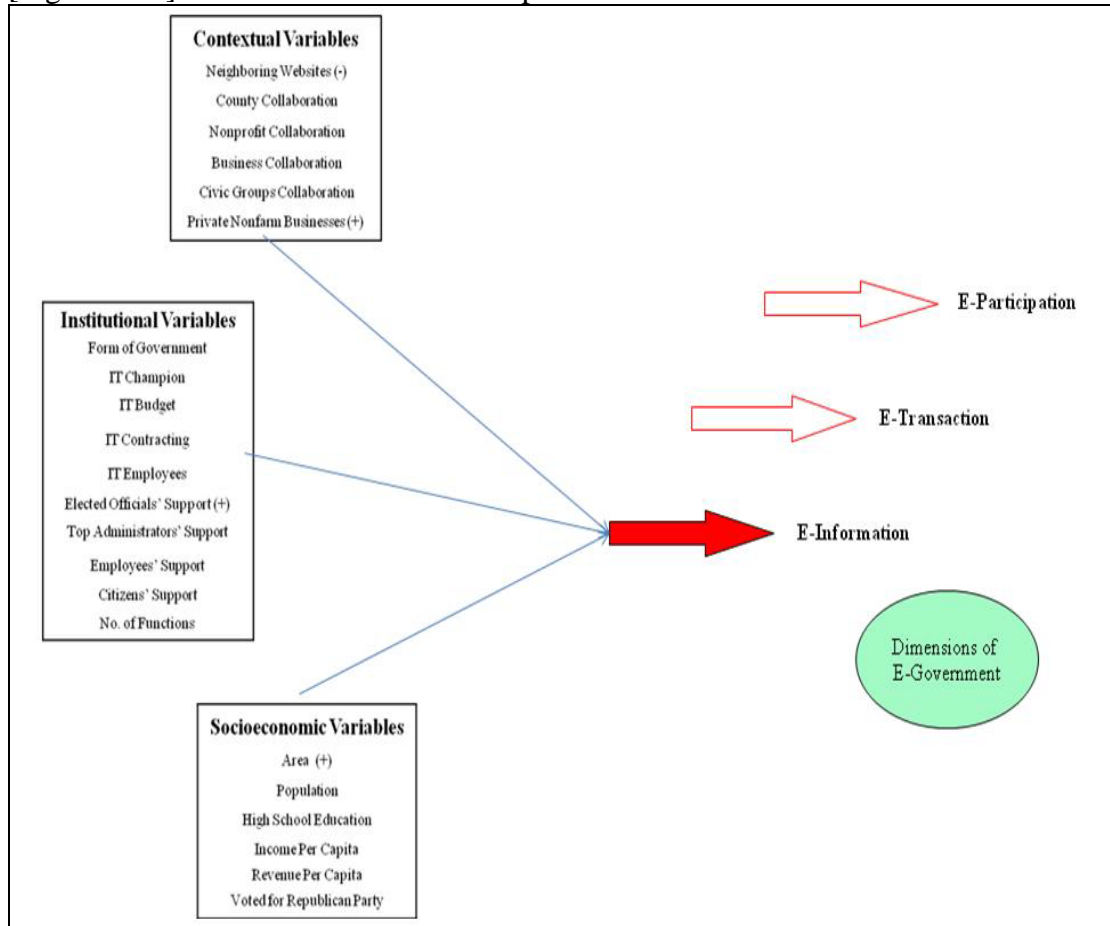
In Model 1, the following variables associated with institutional factors were entered: form of government, presence of IT champion, IT budget, IT contracting, IT employees, elected officials' support, top administrators' support, employees' support, citizens' support, and the number of functions provided by county. The model predicted only 8% of variance in the dependent variable of e-information. Only one of the entered variables, elected officials' support, made a significant contribution to the prediction of information scores ($b = .247, p < 0.05$) when the variance explained by all other variables in the model was controlled for.

Model 2: Contextual Variables

Model 2 included such contextual factors as county collaboration, nonprofit collaboration, civic group collaboration, business collaboration, neighboring websites, and private nonfarm businesses. As a model, the external variables predicted moderate, but statistically significant amount of variance (15%) in information, with $R^2 = .154, p < .01$. Only two of the individual independent variables, neighboring websites ($b = -0.137$,

$p < 0.10$) and private nonfarm businesses ($b = 0.298$, $p < 0.01$) made a significant unique contribution to the equation.

[Figure 10.1] E-Information Relationship Model



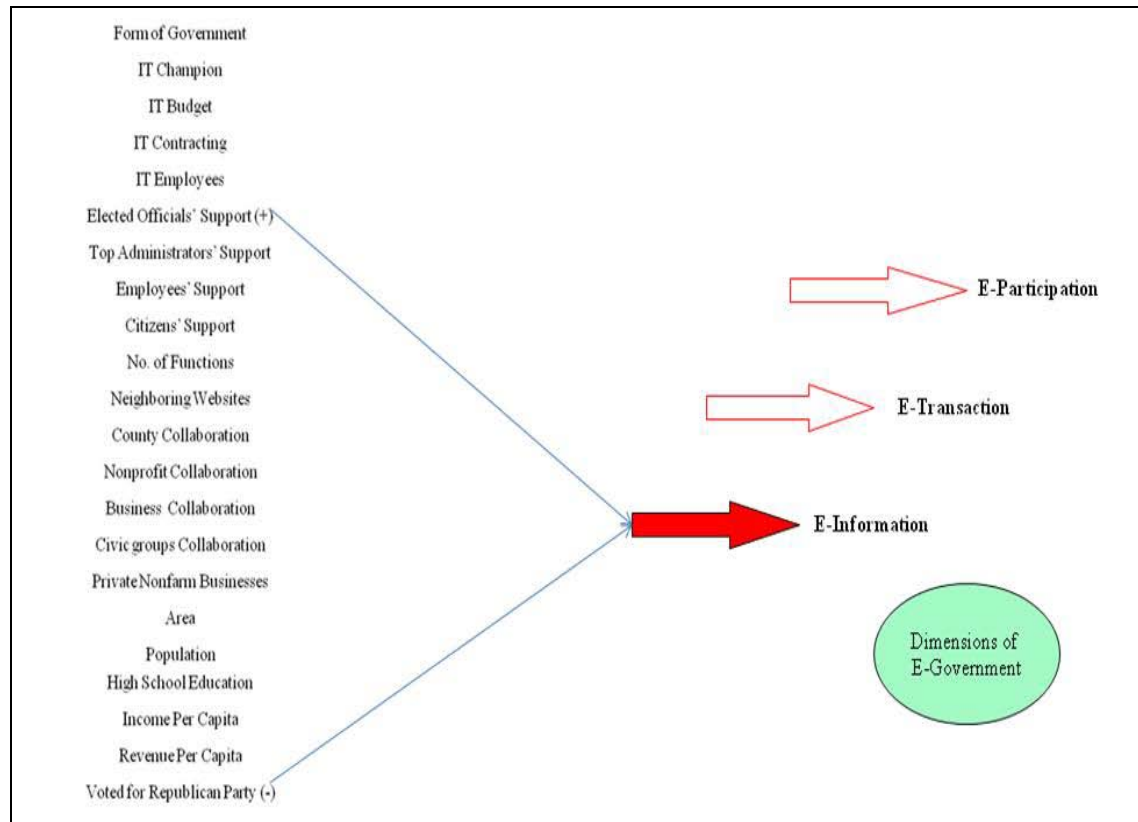
Model 3: Socioeconomic Variables

The socioeconomic independent variables entered into Model 3 were area, population, high school education, income per capita, and revenue per capita, and voted for Republican Party. The model explained about 9.4% of variance in e-information scores, with $R^2 = .094$, $p < .01$. Only one variable made a unique contribution to the equation, area ($b = 0.138$, $p < 0.1$).

Model 4: Institutional, Contextual, Socioeconomic Variables

In Model 4, all institutional, contextual and socioeconomic variables were entered into the equation. The model explained a substantial amount of variance (21.5%) in the dependent variable, with $R^2 = .215$, $p < .05$.

[Figure 10.2] E-Information Relationship Model (All Variables Considered)



Among the independent variables, only two variables made a significant contribution to explaining variance in e-information. These included elected officials' support ($b = .219$, $p = .05$), percentage voting for Republican Party ($b = -0.208$, $p < 0.05$)

Regression Analysis for E-Transaction

Standard multiple regression was employed to evaluate the four different models in order to determine which of the models best predicted variance in the dependent variable, e-transaction. Each model included the independent variables that fell into one of the following categories: institutional, contextual and socioeconomic factors.

Additionally, in the fourth model, all independent variables associated with the organizations in the study were entered. The effect of these independent variables on the three models is discussed in the following section.

Model 1: Institutional Variables

In Model 1, the following variables associated with institutional factors were entered: form of government, presence of IT champion, IT budget, IT contracting, IT employees, elected officials' support, top administrators' support, employees' support, citizens' support, and the number of functions provided by county. The model predicted 31% of variance in the dependent variable of e-transaction, which was a statistically significant result ($R^2 = 0.310$, $p < .001$). Only two of the entered variables, IT contracting ($b = .15$, $p < 0.05$), and no. of functions ($b = .25$, $p < 0.001$), made a significant unique contribution to the prediction of e-transaction scores when the variance explained by all other variables in the model was controlled for.

Model 2: Contextual Variables

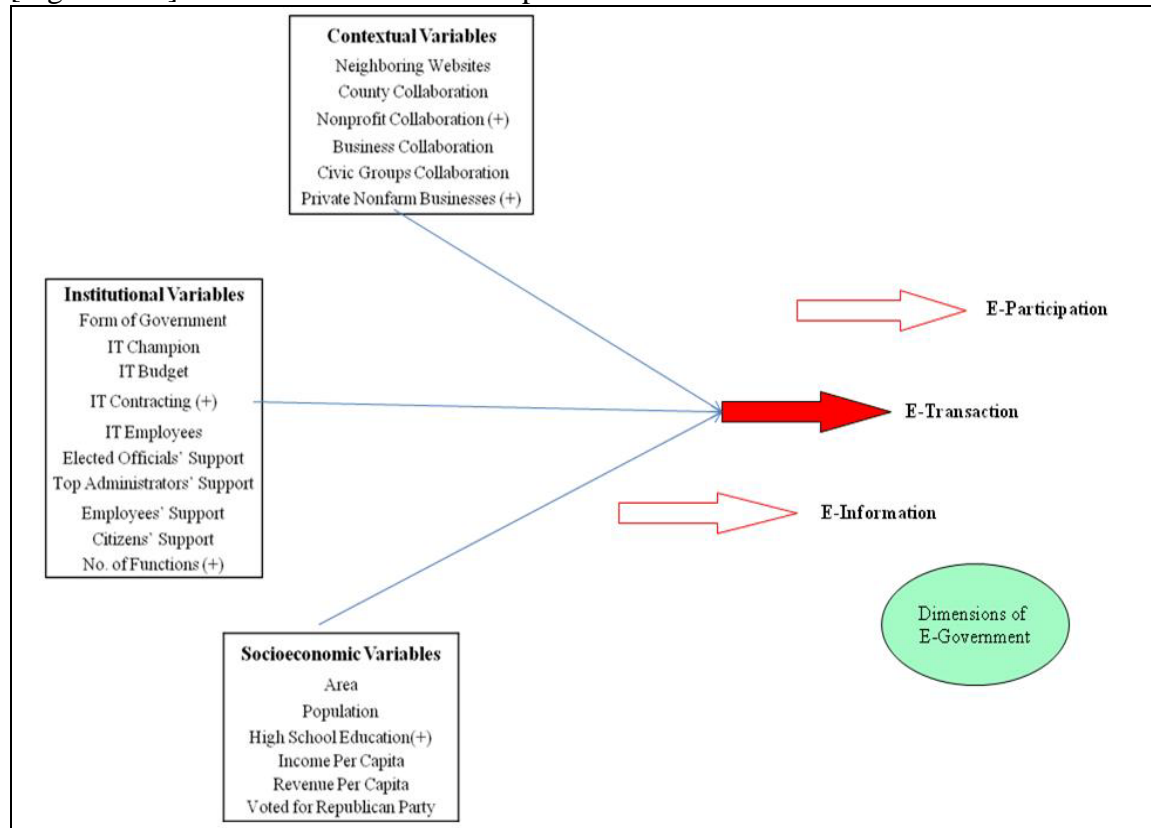
Model 2 included such contextual factors as County collaboration, nonprofit collaboration, civic group collaboration, business collaboration, neighboring websites, and private nonfarm businesses. As a model, the contextual variables predicted a statistically significant amount of variance (11%) in e-transaction, with $R^2 = .112$, $p < .01$.

Only two of the individual independent variables, non-profit collaboration ($b = .22, p < 0.1$) and private nonfarm businesses ($b = .13, p < 0.01$), made a moderate contribution to the equation.

Model 3: Socioeconomic Variables

The socioeconomic independent variables entered into Model 3 were area, population, population density, total education, high school education, bachelor's degree, income per capita, local government employment, revenue per capita, voted for Republican Party.

[Figure 10.3] E-Transaction Relationship Model

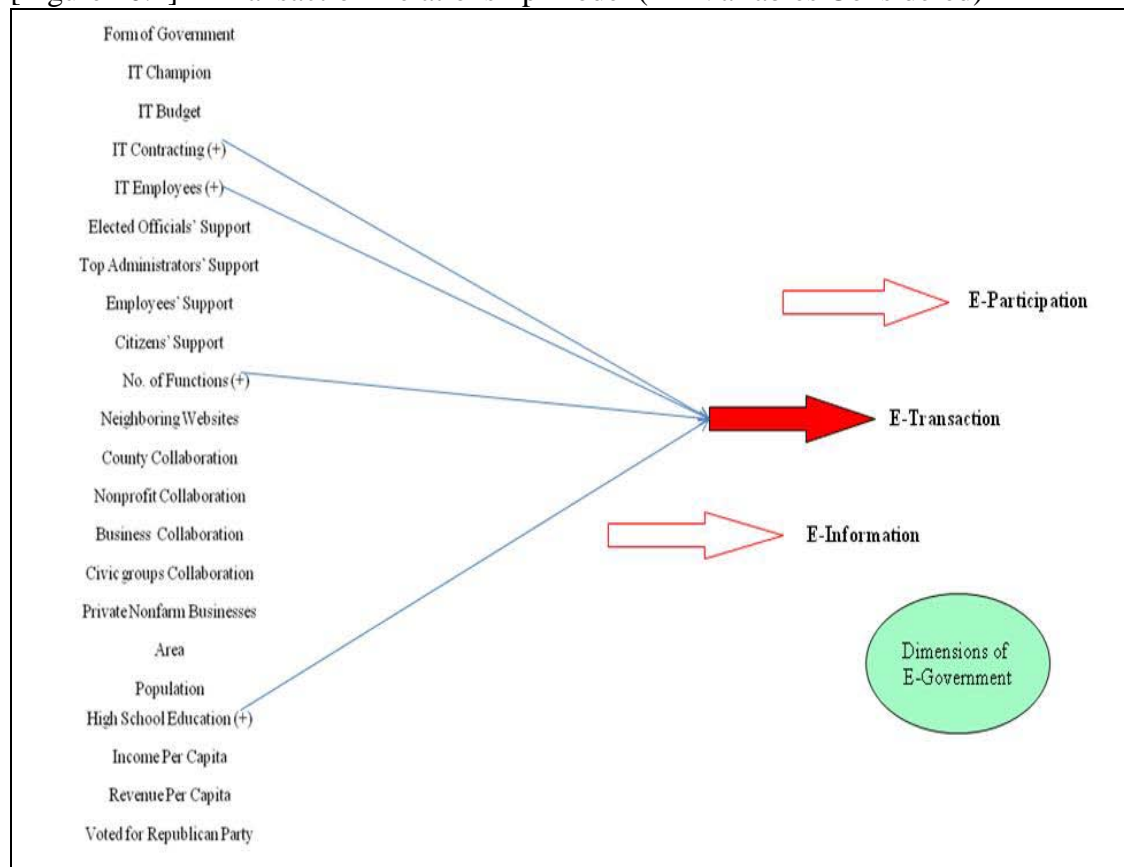


The model explained about 19% of variance in e-transaction scores, with $R^2 = .19$, $p < .01$. Three individual variables made significant contributions to the equation - population, population density and local government employment. Only one variable made significant unique contribution to the equation, population ($b = 0.308, p < 0.01$).

Model 4: Institutional, Contextual, Socioeconomic Variables

In Model 4, all institutional, contextual and socioeconomic variables were entered into the equation. The model explained a substantial amount of variance (36.8%) in the dependent variable, with $R^2 = .368$, $p < .01$. Several independent variables made a significant contribution to explaining variance in e-transaction. These included IT employees support ($b = .17$, $p < 0.1$), no. of functions ($b = .26$, $p < 0.05$), IT contracting ($b = 0.132$, $p < 0.1$), and high school education ($b = .16$, $p < 0.1$).

[Figure 10.4] E-Transaction Relationship Model (All Variables Considered)



Regression Analysis for E-Participation

Standard multiple regression was employed to evaluate the four different models in order to determine which of the models best predicted variance in the dependent variable, e-participation. Each model included the independent variables that fell into one of the following categories: institutional, contextual and socioeconomic factors.

Additionally, in the fourth model, all independent variables associated with the organizations in the study were entered. The effect of these independent variables on the three models is discussed in the following section.

Model 1: Institutional Variables

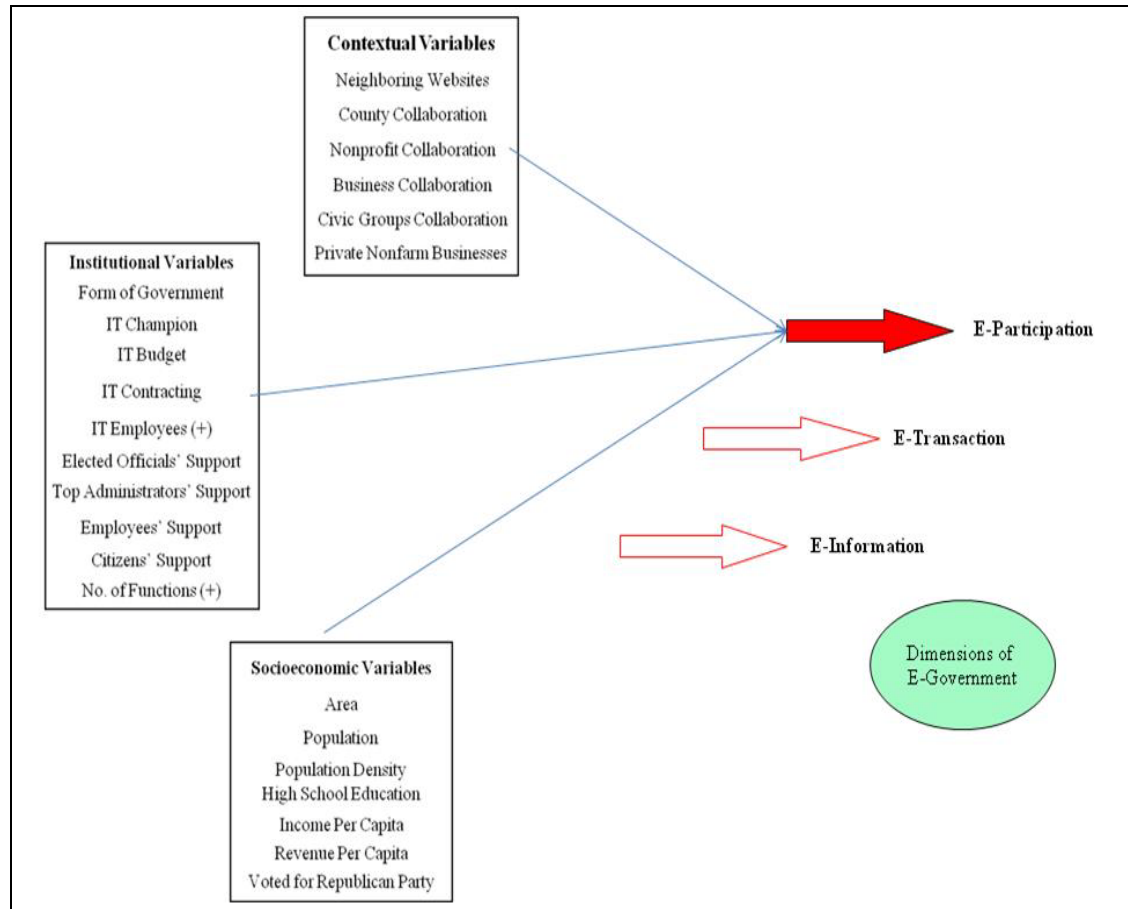
In Model 1, the following variables associated with institutional factors were entered: form of government, presence of IT champion, IT budget, IT contracting, IT employees, elected officials' support, top administrators' support, employees' support, citizens' support, and the number of functions provided by county. The model does not significantly predict the dependent variable of e-participation. However, two of the entered variables made a significant unique contribution to the prediction of e-participation scores when the variance explained by all other variables in the model was controlled for. These are IT employees ($b = .18, p < 0.1$), and no. of functions provided by the county ($b = .19, p < 0.05$).

Model 2: Contextual Variables

Model 2 included such contextual factors as county collaboration, nonprofit collaboration, civic group collaboration, business collaboration, neighboring websites, and private nonfarm businesses. As a model, the contextual variables do not predict any

variance in the dependent variable. Also, none of the independent variables made a significant contribution to explaining variance in e-participation.

[Figure 10.5] E-Participation Relationship Model



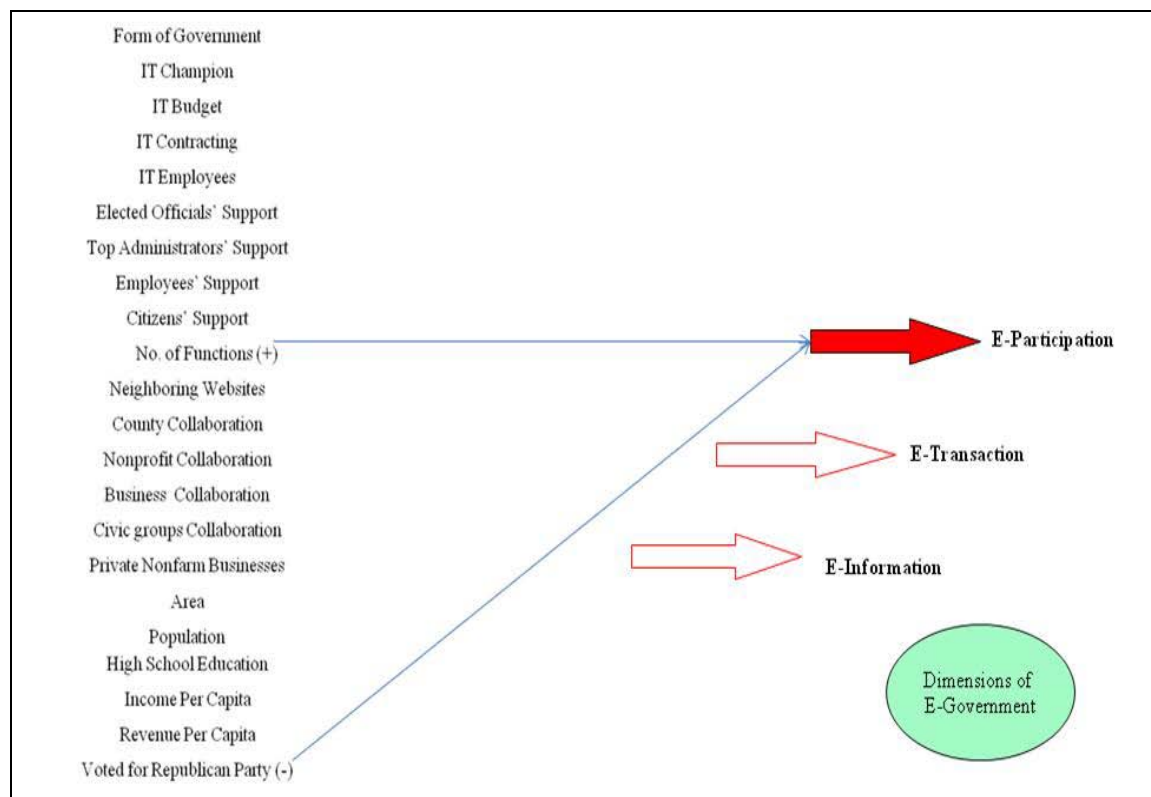
Model 3: Socioeconomic Variables

The socioeconomic independent variables entered into Model 3 were area, population, population density, total education, high school education, Bachelor's degree, income per capita, local government employment, revenue per capita, voted for Republican Party. As a model, the contextual variables do not predict any variance in the dependent variable. Also, none of the independent variables made a significant contribution to explaining variance in e-participation.

Model 4: Institutional, Contextual, Socioeconomic Variables

In Model 4, all institutional, contextual and socioeconomic variables were entered into the equation. As a model, all the variables taken together do not predict any variance in the dependent variable. Only two of the entered variables, number of functions, made a significant unique contribution to the prediction of e-participation scores when the variance explained by all other variables in the model was controlled for. These are no. of functions ($b = .20, p < 0.05$), and percentage voted for Republican Party ($b = -0.167, p < 0.1$), which exerted a negative influence.

[Figure 10.6] E-Participation Relationship Model (All Variables Considered)



Regression Analysis for E-Government

Finally the three dimensions were considered together on a comprehensive e-government factor as a dependent variable. Standard multiple regression was employed to evaluate the four different models in order to determine which of the models best predicted the variance in the dependent variable, e-government. Each model included the independent variables that fell into one of the following categories: institutional, contextual and socioeconomic factors. Additionally, in the fourth model, all independent variables associated with the organizations in the study were entered. The effect of these independent variables on the three models is discussed in the following section.

Model 1: Institutional Variables

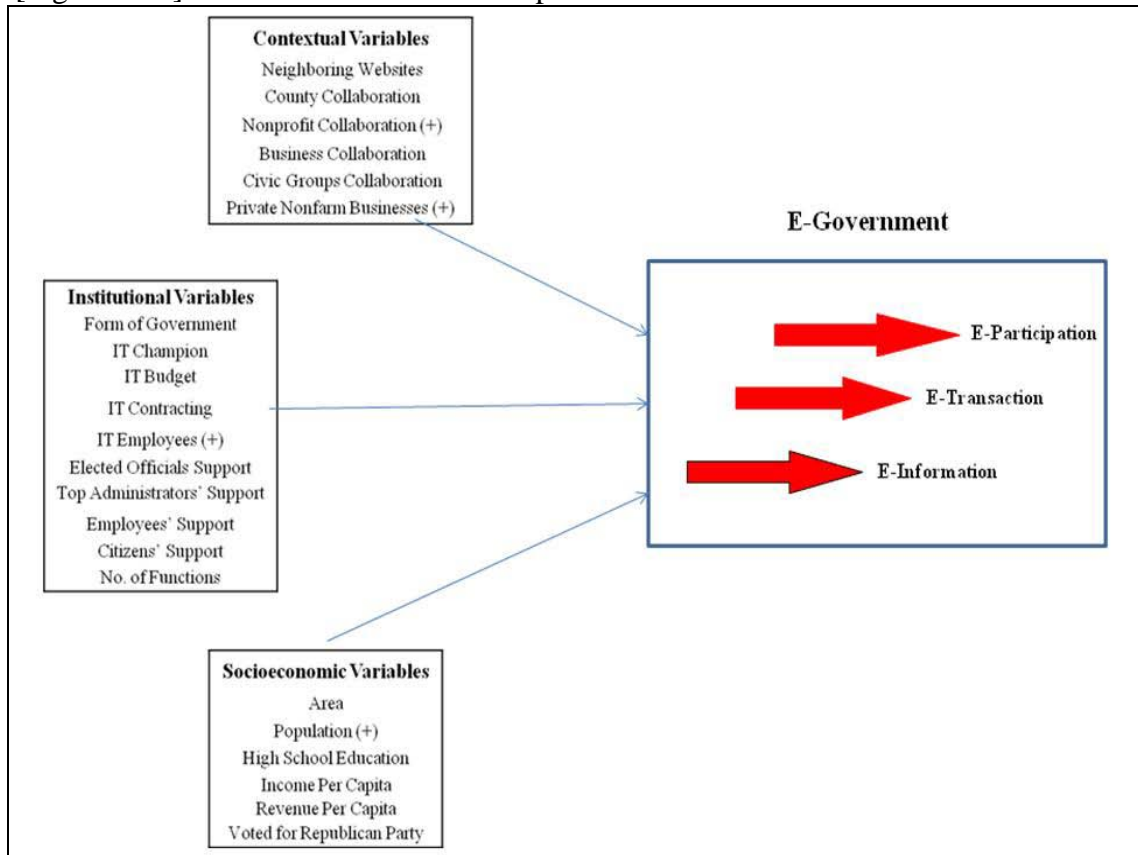
In Model 1, the following variables associated with institutional factors were entered: form of government, presence of IT champion, IT budget, IT contracting, IT employees, elected officials' support, top administrators' support, employees' support, citizens' support, and the number of functions provided by county. The model predicted about 28.5% of variance in the dependent variable of e-information, which was a statistically significant result ($R^2 = 0.285, p < .01$). Only one of the entered variables, IT employees, made a significant unique contribution to the prediction of information scores ($b = .26, p < 0.01$, when the variance explained by all other variables in the model was controlled for).

Model 2: Contextual Variables

Model 2 included such contextual factors as county collaboration, nonprofit collaboration, civic group collaboration, business collaboration, neighboring websites, and private nonfarm businesses. As a model, the external variables predicted moderate,

but statistically significant amount of variance (14%) in information, with $R^2 = .142$, $p < .01$. Only two of the individual independent variables, non-profit collaboration ($b = .19$, $p < .01$) and private nonfarm businesses ($b = .21$, $p < .01$), made a significant unique contribution to the equation.

[Figure 10.7] E-Government Relationship Model

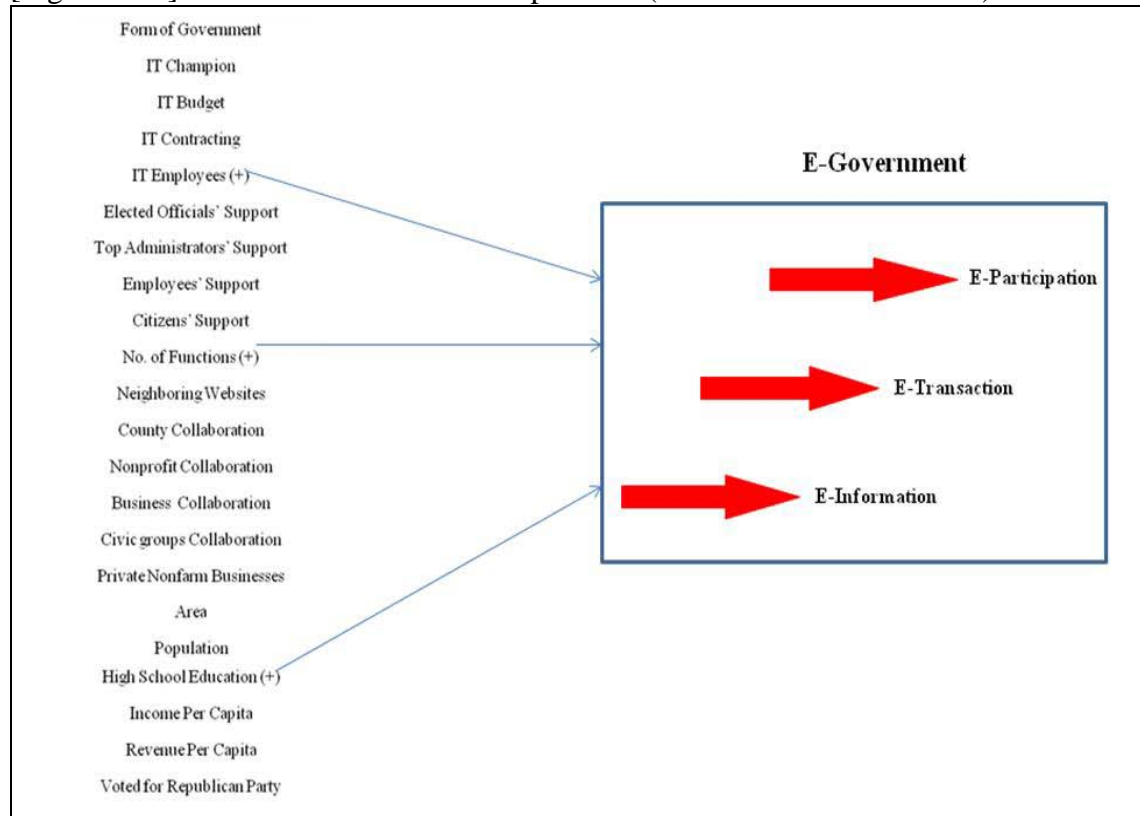


Model 3: Socioeconomic Variables

The socioeconomic independent variables entered into Model 3 were area, population, population density, total education, high school education, bachelor's degree, income per capita, local government employment, revenue per capita, voted for Republican Party. The model explained about 20% of variance in e-information scores, with $R^2 = .173$, $p < .01$. Only one of the entered variables, population made a significant

unique contribution to the prediction of information scores ($b = .30, p < 0.05$), when the variance explained by all other variables in the model was controlled for.

[Figure 10.8] E-Government Relationship Model (All Variables Considered)



Model 4

In Model 4, all institutional, contextual and socioeconomic variables were entered into the equation. The model explained a substantial amount of variance (35.2%) in the dependent variable, with $R^2 = .352, p < .01$. Three independent variables made a significant contribution to explaining variance in e-government. These included IT employees ($b = .24, p < 0.05$), no. of functions ($b = .30, p < 0.01$), and high school education ($b = .187, p < .05$).

Chapter 11

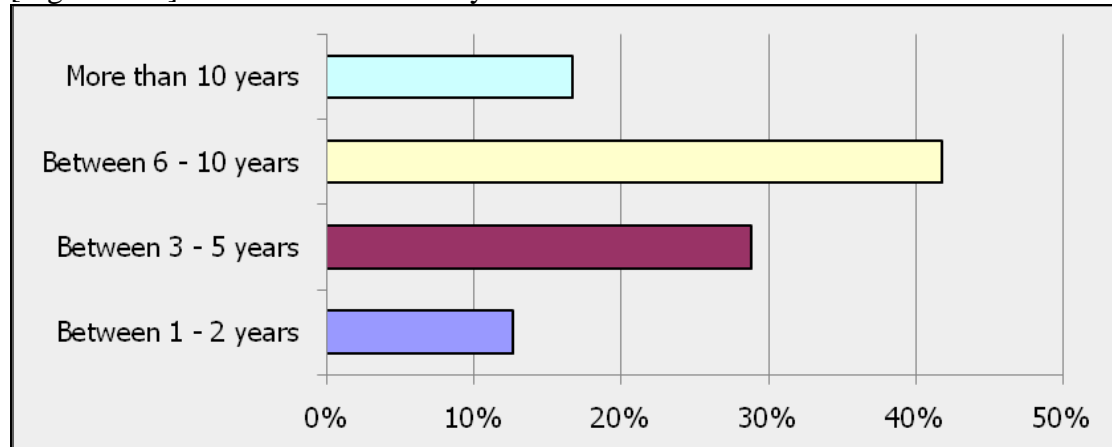
FINDINGS AND DISCUSSION

The study focused on the status of counties' e-government across the United States. Overall about 76.5% of all counties are transforming to e-government by adopting official websites, with the counties in the West having the highest adoption rate of 84% among the four regions. Among the 50 states, all counties in the six states of Arizona, California, Delaware, Florida, New Hampshire and New Jersey, have adopted official websites. The states with websites seem to differ significantly in terms of the socioeconomic factors in the counties. Based on independent t-tests, the counties that have adopted websites tended to have larger populations, higher federal funding, higher per capita income and higher levels of education among its citizens. Although counties without websites had higher government employment as a percentage of the total employment, and higher government earnings as a percentage of the total, these two variables were not significant in predicting the adoption of websites by counties.

The digital gap between counties with websites and counties without websites also seem to extend into social and economic factors. The counties without websites (23.5%) evidently need to address these essential disparities as they plan to implement e-government strategies. Based on the County E-Government Survey 2009, the number of counties adopting websites has been decreasing over the last five years. Totally, about 12.7% of those counties responding to the survey stated that they have had a website between 1 and 2 years, while about 28.8% of the respondents indicated that their

government has had a website between 3 and 5 years. This trend closely resembles the classic non-linear S-shaped curve, as the number of counties adopting innovation initially increases and then decreases with time.

[Figure 11.1] Time-Period of County Websites

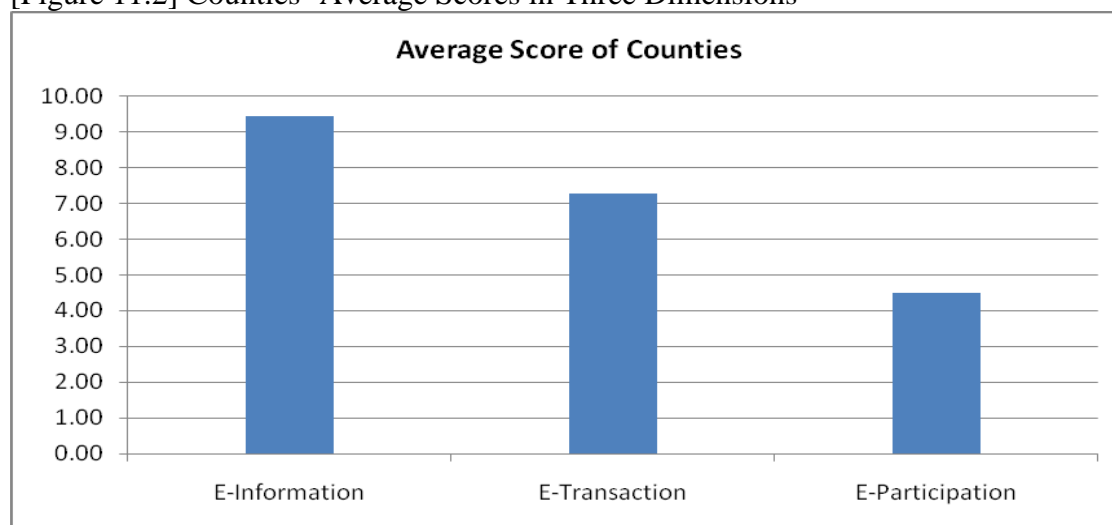


An interesting finding from the survey was that only 61.4% of the responding counties have created an Information Technology (IT) department. IT departments are responsible for processing and protecting information, the transmission of information, and storing and retrieving of this information as needed. In today's technology, an IT department would most likely use database management systems and cryptography, as well as computers and servers. Most departments would have at the least one IT manager, and several system administrators. Normally, the IT department reports to a Chief Information Officer (CIO). With the malicious activity that occurs online in current times, and hackers at every turn, that nearly 40% of online counties do not employ the services of an IT department is unsettling, and demonstrates that perhaps these counties do not realize the importance of protecting and preserving county information.

Stages of County E-Government

Based on the content analysis of the counties' websites, counties were found to score highest in the dimension of e-information with an average of 9.41, followed by the e-transaction dimension with an average of 7.26. The e-participation dimension ranked third with an average score of 4.47. These scores show that counties are adopting e-government in different stages, and that the conceptualized e-government dimensions appropriately describe these stages of development.

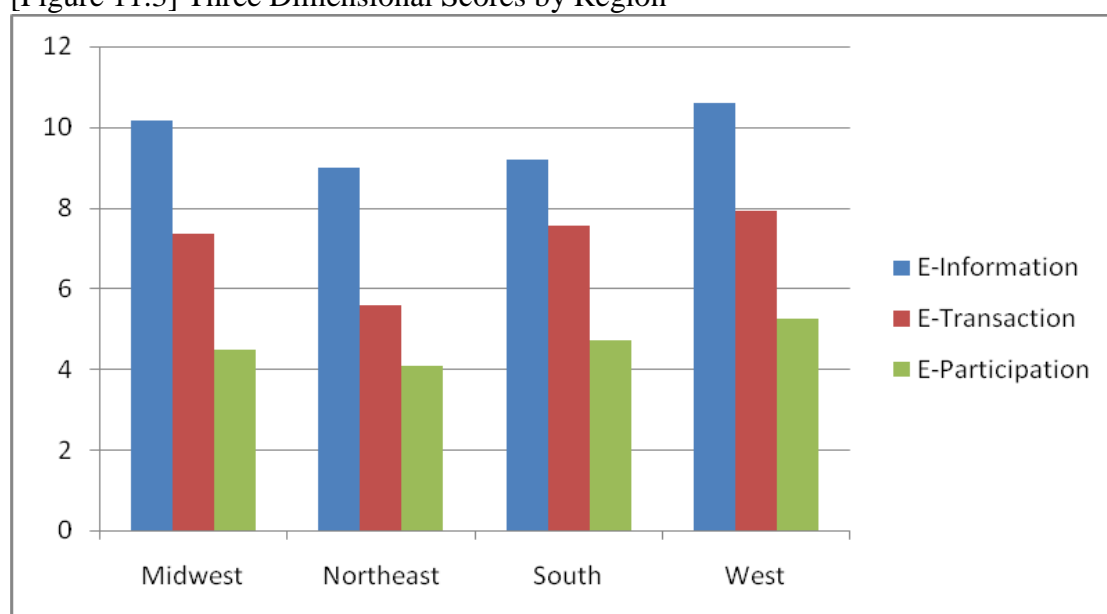
[Figure 11.2] Counties' Average Scores in Three Dimensions



This trend is repeated among the four regions in the United States. In the Midwest, counties were found to score highest in the dimension of e-information with an average of 10.16. This is followed by the e-transaction dimension with an average of 7.34, and finally, the e-participation dimension with an average score of 4.48. In the Northeastern region, counties were also found to score highest in the dimension of e-information with an average score of 9.00. This is followed by the e-transaction dimension with an average of 5.57, and finally, the e-participation dimension ranks third with an average score of 4.09. In the South, counties were found to score highest in the

dimension of e-information as well, with an average of 9.20. This is followed by the e-transaction dimension with an average of 7.54, and finally, the e-participation dimension with an average score of 4.70. In the West, counties were similarly found to score highest in the dimension of e-information with an average of 10.58. This is followed by the e-transaction dimension with an average of 7.93, and finally, the e-participation dimension with a third-place ranking average score of 5.24.

[Figure 11.3] Three Dimensional Scores by Region



Overall Evaluation Results

Overall, the counties in the West were ranked highest in e-government with an average score of 23.76. The Midwest, with a score of 21.98, ranked second, followed by the South and Northeast with scores of 21.44 and 18.65, respectively. This trend can be attributed to the influence of Silicon Valley and the city of Seattle, which were major driving forces of internet innovations in the early 1990s. The counties in the West also scored highest on average across all three dimensions. Table 11.1 shows the average scores by region in the three dimensions.

[Table 11.1] Average Scores by Region 2009

	Midwest	Northeast	South	West
E-Information	10.16	9	9.2	10.58
E-Transaction	7.34	5.57	7.54	7.93
E-Participation	4.48	4.09	4.7	5.24

Counties were found to be more advanced in the e-information dimension. Overall about 68% of all county websites evaluated provided information on public agencies/departments as well as public officials. Overall about 68% of all county websites evaluated provide minutes of public meetings online, with the Midwestern counties leading the category with a score of 29.55. In terms of job listings of public office or position vacancies at the county government online, about 80% of all counties provide such links to citizen-users.

In the dimension of e-transaction, about 57% of all counties were found to enable users to file taxes online, while 9.9% of all counties allow payment for utilities online. Compared to e-transaction, counties on average offered more advanced features in the e-information. Additionally, the regional disparity among counties was significantly lesser in the e-information dimension than the e-transaction dimensions. For e.g. with regard to the option of paying fines/tickets online, 34.09% of counties in the Midwest, 20.0% of counties in the South, 11.11% of counties in West and 4.35% of counties in Northeast provide this facility, while on average 19.2% of all counties has such links. In terms of the ability to pay utilities online 6.7% of counties in the West, 8.7% of counties in the Northeast, 17.14% of counties in South and 2.27% of counties in Midwest provide such facility,

Finally, in the dimension of e-participation, counties on average scored only 4.47 points, less than half of the average score in e-information. In response to the question on online bulletin board or chat capabilities for gathering citizen input on public issues, about 5.5% do have these capabilities. With regard to tools for online decision-making such as e-petition, electronic citizen juries, or e-referenda, only about 2% of counties evaluated do have a site containing features, while online surveys/polls are being provided by about 20% of all evaluated counties. Overall about 13% of all county websites evaluated provide an online newsletter or community updates linked to the main county homepage. An interesting observation in e-participation is that, although its average score is lowest, the regional disparity among counties is much lesser in e-participation than that of e-transaction.

Discussion of Regression Analysis Results

Using multiple regression analysis, the influence of institutional, contextual and socio-economic factors on county e-government and its three dimensions was determined. Statistical analysis demonstrated that a combination of the three blocks of independent variables best predicted overall e-government, explaining 35% of variance in scores, compared to institutional (28.5%), contextual (14.2%) and socioeconomic variables (20%). When considered in terms of its influence on various dimensions, all variables considered together, best explain the variance in e-transaction (36.8%), followed by e-information (21.5%) The specific factors that contributed most to predicting e-information were number of IT employees, number of functions offered by the county, percentage of county residents with high school education (in e-government); support of elected officials, percentage of county residents voting for Republican Party

(in e-information); number of employees in the IT department, number of functions performed by the county, and number of IT functions contracted out (in e-transaction); number of functions, and percentage of county residents voting for Republican Party (in e-participation).

Determinants of E-Information

In the dimension of e-information, the combination of all variables best predicted the variance (21.5%), followed by contextual variables (15.4%) and socioeconomic variables (9.4%). The influence of institutional variables was not significant, but one factor that was individually significant was the support of elected officials towards providing more e-information practices. The percentage of residents voting for Republican Party was found to be exerting negative influence on e-information. Among contextual factors, the specific variables that contributed to explaining e-information were the adoption of websites by neighboring counties (negative) and the number of private nonfarm businesses in the county (positive). Among socioeconomic variables, the area of the counties was found significant in this dimension.

Determinants of E-Transaction

In the dimension of e-transaction the combinations of all variables again best predicted the variance (36.8%) followed by institutional variables (31%), socioeconomic variables (19%) and contextual variables (11.2%). The specific institutional factors that contributed most to predicting e-transaction in this equation were the number of functions performed by the county, and number of IT functions contracted out. Among contextual factors, the variables that contributed to explaining e-transaction were the extent of collaboration of counties with non-profit agencies and the number of private nonfarm

businesses in the county. Among socioeconomic variables, the population of the counties was found significant in predicting this dimension.

Determinants of E-Participation

With regard to e-participation, none of three blocks of independent variables were found to significantly predict this dimension. The specific institutional factors that contributed most to predicting e-participation were the number of functions performed by the county, and number of IT employees. Among socioeconomic variables, the only variable found significant in predicting this dimension, was the percentage of residents voting for Republican Party in the county.

Determinants of E-Government Dimensions

Institutional Determinants of E-Government Dimensions

The form of government is an important determinant of municipal e-government; however this trend is not significant among counties. Among all three dimensions, the form of government does not exhibit any significant influence and hence, the hypothesis 1a-c is rejected. Among the variables relating to the support of the stakeholders, the hypothesis 2a is accepted with regard to elected officials' support; and hypothesis 2b is accepted with regard with e-transaction. Counties with greater support from elected officials have more sophisticated e-information practices while support from IT employees is crucial in the e-transaction dimension.

Counties with greater number of IT employees tend to provide more sophisticated practices, especially with regard to e-participation and e-transaction. Thus the hypotheses 3b, 3c dealing with technical capacity are accepted while the variable does not contribute towards better e-information practices. County IT budget does not seem to affect e-

government practices unlike its influence on municipal e-government. Also the presence of an IT champion does not predict any variance in e-government practices. Thus the hypotheses 4a-c (IT budget) and 6a-c (IT champion) are rejected across the three dimensions. Counties that provide greater number of functions tend to provide more sophisticated e-government practices, especially with regard to e-transaction and e-participation. Hence, hypotheses 5b, 5c are accepted; however this variable was not significant in predicting e-information. Finally counties that tend to contract their IT services provide more sophisticated e-transaction practices unlike in other dimensions. So, hypothesis 7b is accepted and both hypotheses 7a and 7c are rejected.

Contextual Determinants of E-Government Dimensions

Regional pressure among counties does not seem to be an important factor influencing counties' decision to provide more sophisticated practices. The variable dealing with neighboring counties' websites was found to be negatively related to counties' score in e-information dimension, thus the hypothesis 9a-c is rejected across the three dimensions. Counties that collaborate with non-profit agencies were found to provide more sophisticated e-transactional services, while other collaboration variables were not found to be significant in predicting the dependent variables. The hypothesis 10b is thus accepted with regard to external collaboration of counties with non-profits. Finally, counties were found to be highly responsive to the presence of private nonfarm business units in their jurisdictions. Hypothesis 11 is accepted across all three dimensions since counties with greater number of business units tend to provide more sophisticated e-information, e-transaction and e-participation practices.

Socioeconomic Determinants of E-Government Dimensions

Among the socioeconomic variables considered in the analysis, counties with larger areas tend to provide better e-informational practices, while those with greater populations tend to provide more sophisticated e-informational and e-transactional services. Interestingly, more population does not seem to motivate counties to provide more e-participation practices. Counties with greater percentage of educated residents provide more sophisticated e-transaction practices rather than e-information and e-participation. The variables of income per capita and revenue per capita were not found to be significant in any dimensions. Finally counties with greater percentage of Republican Party voters tend to provide lesser e-government practices especially with regard to e-information and e-participation.

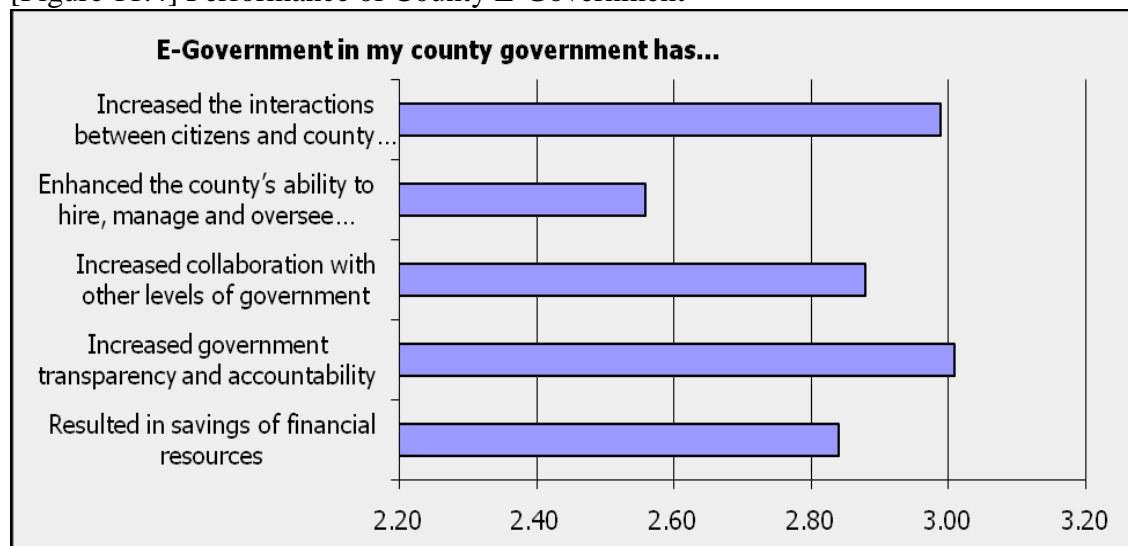
Performance of County E-Government

The Survey asked respondents to rate the performance of their counties' e-government with regard to transparency, financial savings, interaction with citizens, collaboration with other governments, and managing contractors. They were asked to state whether they agree, disagree or strongly agree or disagree with a number of statement offered in the poll.

When asked whether e-government had resulted in saving of financial resources for their county, 2.8% strongly disagreed, while 11% strongly agreed that they had experienced savings of financial resources. 65.1% agreed that savings of financial resources resulted, while 21.1% disagreed. When asked about if e-government had resulted in increased government transparency and accountability, the results were as follows: 3.5% strongly disagreed that increased transparency and accountability resulted,

while 10.4% disagreed to a certain level. 65.1% agreed that e-government in their county had produced an increased transparency and accountability, and 18.6% strongly agreed.

[Figure 11.4] Performance of County E-Government



Increased collaboration with other levels of government because of the implementation of e-government in a county was the next topic. These results concluded that 3.5% strongly disagreed with this statement, and 12% strongly agreed. On average, 16.7% disagreed that their county had experienced increased collaboration with other levels of government, while 67.8% agreed they had experienced an increase.

The Survey then questioned respondents about whether the inclusion of e-government in their county had enhanced the county's ability to hire, manage and oversee contractors. 5.4% of respondents strongly disagreed with this statement, and 7% strongly agreed. Of the remaining respondents, 39.9% disagreed and 47.6% agreed that having e-government in their county did in fact enhance the hiring and management abilities, and the overseeing of contractors. The last statement of the survey polled respondents about whether the addition of e-government in their county helped increase interactions between citizens and county government. These were the findings: Of those with strong

opinions, 3.4% strongly disagreed that e-government had had an influence on increasing interactions between citizens and county government, while 21% strongly agreed that it had. The remaining respondents answered that 14.7% disagreed that interactions were increased, while 60.8% agreed that they were.

Thus based on the above responses, we can conclude that overall e-government is viewed positively within most counties. The majority of employees working for these counties feel that e-government for the most part is beneficial to their county in a variety of ways.

CONCLUSION

The significance of this study is three-fold 1) the research captures the role played by institutional and contextual variables on county e-government across the United States; 2) this research tests the stages of development of e-government among counties; and 3) the research focuses exclusively on websites as representative of the status of e-government. Additionally, the effects of certain socio-economic factors such as population, education level and income level are also examined.

Overall about 76.5% of all counties in the United States have adopted official websites, signifying their transformation towards e-government. These counties seem to differ significantly in terms of the socioeconomic factors from counties without websites. The latter category, constituting 23.5% of all counties, evidently need to address these essential disparities as they plan to implement e-government strategies. The citizens' acceptance of its government's decision to provide services through websites is dependent on their access to internet facilities and appropriate hardware infrastructure. Counties need to be aware of the socioeconomic conditions of their populations, decide on their level of expectation for e-government and provide online services appropriately. As one rural county in the Midwest responded, "...our delivery of services is over methods more human than technical. We evaluate our successes here and buy technology accordingly. In the future, as trends for technology use increase and our population grows younger, we will use more e- Government projects. In common sense terms, we have to meet our constituents' needs".

Thus counties should avoid the tendency to ‘leapfrog’ years of e-government in the urge to catch up with their counterparts. Also as stated by the respondent, counties need to measure their e-government performance and advance accordingly. Thus, as counties without websites gradually adopt e-government, in consideration to their socioeconomic conditions, the rate of website adoption may experience a decreasing trend. Based on the survey responses, the number of counties adopting websites has been decreasing over the last five years. This phenomenon closely resembles the classic non-linear S-shaped curve, as the number of counties adopting innovation initially increases and then decreases with time.

The tendency of nations, states and cities to ‘leapfrog’ years of progress is however, not uncommon. One example of this phenomenon is for nations without basic telephone lines that rapidly introduce cell phones among their populations. Relating to the research, certain counties with websites also seem to have fallen into this trap in their urge to compete with other counties. The fact that about 40% of the counties with websites do not have an IT department is alarming, and demonstrates that perhaps these counties do not realize the importance of protecting and preserving county information.

County e-government also tends to develop in terms of e-information, e-transaction and e-participation. Research on e-government needs to recognize this phenomenon and study these stages separately rather than continuing with the trend to consider e-government as one single phenomenon. E-government has grown rapidly and diversified over the past decade, and we need to move away from the ‘one size fits all’ view of e-government. Moreover, many nations and cities across the world are adopting unique strategies and indigenous models in implementing e-government, that are worthy

of study and comparison. Thus, comprehensive global studies are needed as a basis for comparison. Even more important, identifying regional best practices provide benchmarks for increased performance in e-governance over time for those governments still in the earliest stages of development.

The research also produces some interesting results in terms of the determinants of the e-government phenomenon among counties. Counties with greater number of IT employees have a higher probability of providing more sophisticated e-government practices. Along with adopting new technology, counties need to involve their employees in IT training and development to update their skills with current trends. A commonly ignored factor in e-government research, elected officials' support is also found to be crucial to implementing e-government, especially with regard to the content on the websites. More than the socioeconomic factors discussed earlier, counties' websites seem more responsive to the number of business units in their jurisdiction. There is surely a need to attract and encourage business opportunities in the counties, which lead to higher employment; however counties need to satisfy both the G2B and G2C relationship in this process. This is particularly important with IT services are contracted to private vendors. According to one respondent, their rural county "... has been unable to convince a vendor to provide affordable, county-wide service which limits interaction with citizens".

Nevertheless, counties overall have a positive outlook towards e-government, with majority of them responding feel that e-government for the most part is beneficial to their county in a variety of ways. As one respondent claimed, their online jury impaneling process created by a Webmaster (salary \$50,000) in two weeks "...saves the county about \$300,000 per year". There are tremendous potentialities for e-government

among local governments; however counties need to balance e-government strategies from the G2G, G2C, and G2B perspectives, to attain an online government beneficial and inclusive of all sections of the society.

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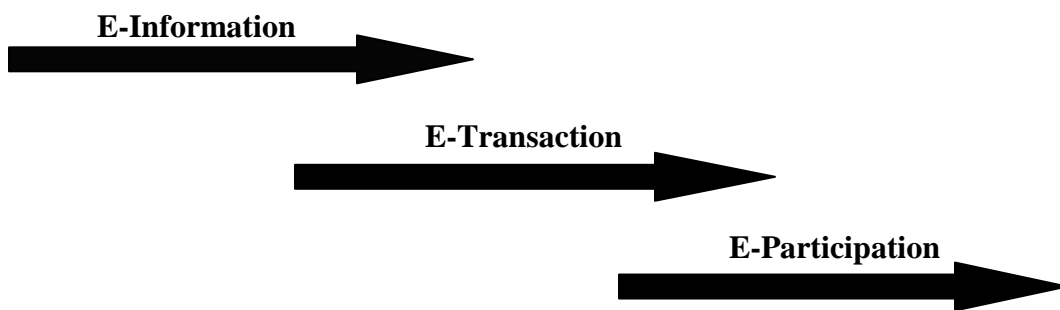
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Appendix A - Models of E-Government Growth

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Baum and Maio (2000)	Web Presence		Interactions	Transactions		Transformation
Layne and Lee (2001)		Catalogue		Transaction	Vertical Integration	Horizontal Integration
UN Model (2001)	Emerging Presence	Enhanced Presence	Interactive	Transactional Presence		Networked Presence
Watson & Mundy (2001)	Initiation	Infusion				Customization
Moon (2002)		Simple Information Dissemination	Two-way communication	Service and financial transaction	Integration	Political Participation
Siew and Leng (2003)		Publish Level	Interact Level	Transact Level	Integrate Level	
Rao, Mets and Monge (2003)	Presence	Portals		Transaction Integration	Enterprises Integration	
Reddick (2004)		Cataloging		Transaction		



Dimensions of E-Government (*based on the Models of E-Government Growth*)

Appendix B- E-Government Index
(Selected Measures Adopted from Rutgers E-Governance Performance Index)

	E-Information
1	Availability of a sitemap
2	Contact details of government offices
3	Contact details of public employees
4	Online searchable database
5	Date of recent website update
6	Calendar of events
7	County code/ordinance/regulations
8	Audio/Video clips of public meetings, discussion
9	Minutes of public meetings, discussion
10	Performance measurement reports/citizen survey results
11	Availability of search tools
12	Ability of citizens to file complaints
13	Availability of feedback forms
14	Ability to register/purchase tickets for public events
15	Ability to report crimes, corruption, traffic problems
16	Availability of webmaster's contact details
17	Provision of online surveys/polls
18	Use of GIS mapping
19	Ability to request for government records/services
20	FAQ to guide citizen users on county administration
	E-Transaction
21	Availability of privacy/security policy
22	Ability to pay utility bills
23	Ability to pay fines/tickets
24	Ability to file taxes

25	Ability to purchase books, reports
26	Application for permits/registers
27	Application for employment opportunities
28	Application for licenses
29	Application for birth/death certificates
30	Use of digital signatures
31	Access private information online
32	Availability of mission statement of agencies
33	Access to federal website
34	Access to state website
35	Access to local government websites (city/county)
	E-Participation
36	Availability of online policy forums
37	Provision of bulletin boards
38	Ability to submit e-petition
39	Option for e-meetings
40	Web site customization option
41	Availability of disability access
42	Option of secondary language (e.g. Spanish)
43	Provision of budget information
44	Provision of targeted links
45	Availability of community newsletter

Appendix C - E-Government Performance Index
(Based on Results of Expert Review Process)

		County	Essex
		State	NJ
S.No	Questions	Examples/Measures	
1	Targeted audience links: Are targeted audience links available on the homepage? (e.g. general citizens, youths, the old, women, family, citizens in need of social welfare services, businesses, industry, small businesses, public employees, etc.)	0=No; 1= targeted audience links are divided into two categories; 2=targeted audience links are divided into three categories; 3= targeted audience links are divided into more than three categories.	
2	Does the website provide a FAQ (Frequently Asked Questions) corner to guide citizens in county administration?	0=No; 1=the site provides a FAQ (Frequently Asked Questions) without subcategories of topics; 2=the site provides a FAQ with three or less subcategories of topics. 3=the site provides a FAQ with more than three subcategories of topics.	
3	Does the website provide information about the location (direction, address) of offices?	0=No; 1=The site offers a listing of the location of offices; 2=The site allows users to download the location of offices; 3=The site allows users to search a database of the location of offices.	
4	Does the website offer contact information for agencies/departments or employees/public officials?	0=No; 1=The site offers a listing of phone numbers or e-mail addresses for agencies/departments or employees/ public officials; 2=The site allows users to download a phone number directory or an e-mail directory; 3=The site allows users to search a database	
5	Does the website offer job listings of public office or position vacancies at the county government online ?	0=No; 1=The site provides job listings or position vacancies online in html format (e.g. as a web page); 2=the site provides job listings or position vacancies online in a downloadable format (e.g. .doc or .pdf); 3=The site provides an online searchable database of job listings or position vacancies or the site allows online submission of job applications.	

6	Does the website provide minutes of public meetings?	0=No; 1=The site offers public meeting minutes online in html format (e.g. as a web page); 2=the site offers public meeting minutes online in a downloadable format (e.g. .doc or .pdf); 3=The site offers an online searchable database or archives of public	
7	Does the website offer a calendar of events?	0=No; 1=The site provides news or a calendar of events online in html format (e.g. a web page); 2=the site offers a calendar of events online in a downloadable format (e.g. .doc or .pdf); 3=The site provides an online searchable calendar of events (or under each month).	
8	Does the website have GIS capabilities?	0=No; 1=The site offers static GIS maps; 2=The site offers GIS data in a downloadable format; 3=The site offers dynamic GIS capabilities (customizable maps).	
9	Does the website allow users to pay utilities? (county utilities in description: e.g. tap water, sewage, gas, electricity)	0=No; 1=the site provides information for users to pay their utilities; 2=the site allows users to download a form for paying utilities that can be returned via fax or mail; 3=the site allows users to pay their utilities online.	
10	Does the website allow users to file or pay taxes?	0=No; 1=the site provides information for users to pay their taxes; 2=the site allows users to download tax forms (to be returned via mail or fax); 3=the site allows users to pay taxes online	
11	Does the website allow users to pay fines or tickets?	0=No; 1=the site provides information about where to call about paying fines or tickets; 2=the site allows users to download forms for paying fines or tickets (to be returned via mail or fax); 3=the site allows users to pay fines or tickets online	
12	Does the website allow e-procurement?	0=No; 1=the site allows potential bidders to access RFPs (requests for proposals) and status of procurement online in html format; 2=the site allows potential bidders to download RFPs (.doc or .pdf); 3=the site allows potential bidders to place bids online	

13	Does the website allow users to apply for permits (or register)?	0=No; 1=the site provides information about where to call about applying for permits; 2=the site allows users to download forms for applying for permits (to be returned via mail or fax); 3=users can apply for permits online.	
14	Does the website allow users to apply for licenses?	0=No; 1=the site provides information for users to apply for licenses fax or telephone; 2=the site allows users to download license forms (.doc or .pdf) to be returned via mail or fax; 3=users can apply for licenses through online forms.	
15	Does the website allow users to register or purchase tickets to events in county/municipal halls, arenas, or facilities of the county?	0=No; 1=the site contains information for registering or purchasing tickets to events; 2=the site allows users to download a form for registering or purchasing tickets to events that can be returned via fax or mail; 3=the site allows users to register online.	
16	Does the website allow users to purchase or order documents, reports, or books (publications)?	1=the site provides information on documents, reports, books; 2=the site allows users to download information on documents, reports, books; 3=the site allows users to purchase or order documents, reports, books (publications) online.	
17	Does the website offer online survey/polls for specific issues?	0=No; 1=the site offers online survey/polls for specific issues; 2= In addition, the site posted results of past online survey/polls; 3=The site shows real time results of current online survey/polls.	
18	Does the website offer a newsletter or community updates linked to the main county homepage?	0=No; 1=the site has a newsletter or community updates in html format; 2=the site has a newsletter or community updates that can be downloaded (as a .doc or .PDF); 3=the site has a newsletter or community updates that are distributed via e-mail.	
19	Does the website have online bulletin board or chat capabilities for gathering citizen input on public issues? ("Online bulletin board" or "chat capabilities" means the county website where any citizens can posts ideas, comments, or opinions without specific	0=No; 1=the site has online bulletin board or chat capabilities for gathering citizen input on issues; 2=the site has online bulletin board or chat capabilities which can search authors or key words; 3=the site has online bulletin board or chat capabilities which can search authors or key words.	

20	Does the website offer online discussion forum on policy issues? ("Online discussion forum" means the county website where the county arranges public consultation on policy issues and citizens participate in discussing those specific topics)	0=No; 1=The site has no online discussion forum, but the site posts a notice of gathering citizens' opinion about policy issues through e-mail, fax, or telephone; 2=The site has online discussion forum; 3=The site has online discussion forum and posted past discussion subjects and results.	
21	Does the website allow users to report crimes, violations of administrative laws and regulations, or corruption?	0=No; 1=the site contains contact information (mailing addresses, phone numbers, or e-mail addresses) for reporting crimes, violations, or corruption; 2=the site provides forms for reporting in a downloadable format (e.g. .doc or .pdf); 3= users can report crimes, violations, or corruption through online forms.	
22	Does the website allow users to provide comments or feedback to individual departments/agencies through online forms?	0=No; 1= Departments/agencies post phone numbers or fax numbers for submitting comments or feedback; 2=Departments/agencies provide an e-mail (mail to) for submitting comments or feedback; 3=Several departments allow users to provide comments or feedback through online forms.	
23	Does the website allow users to file complaints?	0=No; 1=the site has contact information for users to submit complaints; 2=the site has an e-mail link (mail to:) or an online form that users can use to submit complaints; 3=the site allows users to track their complaint as it is processed and/or action taken.	
24	Does the website offer tools for online decision-making? (e-petition, electronic citizen juries, e-referenda) Note.E-petition or electronic petition is a formal request to a government agency, signed by a number of citizens online, to raise issues of concern.	0=No; 1= one category; 2=two categories; 3= three categories Note (continued).Electronic citizen juries consist of a group of representative citizens who take evidence about issues over an extended period, deliberate online and recommend conclusions to government. E-referenda or online referenda refer to asking the whole population to vote online on issues, thereby introducing or amending policies).	

APPENDIX D
Survey Responses

1. About how many years has your county had a Web site?

Years	Response Percent	Response Count
Between 1 - 2 years	12.7%	42
Between 3 - 5 years	28.8%	95
Between 6 - 10 years	41.8%	138
More than 10 years	16.7%	55
answered questions		330
skipped questions		13

2. Does your county have an information Technology (IT) department or division?

	Response Percent	Response Count
Yes	61.4%	208
No	38.6%	131
answered questions		339
skipped questions		4

3. If “Yes”, how many employees are in the IT department or division?

Years	Response Percent	Response Count
Between 1 – 2 years	42.0	89
Between 3 – 5 years	19.8%	42
Between 6 - 10 years	14.2%	30
Between 10 – 20	9.4%	20
More than 20	14.6%	31
answered questions		212
skipped questions		131

4. Please identify the form of your county government?

	Response Percent	Response Count
Board of Commissioners	77.3%	262
Council – Administrator / Manager	5.0%	17
Council – Elected Executives	8.6%	29
Other (Please specify)	9.1%	31
answered questions		339
skipped questions		4

5. How supportive would you say the following people in your county are of e-government?

	Not Supportive	Somewhat Supportive	Very Supportive	Extremely Supportive	Rating Average
County elected officials	2.1% (7)	35.0% (118)	41.2% (139)	21.7% (73)	2.82
Top county administration	2.1% (7)	26.0% (85)	40.1% (131)	31.8% (104)	3.02
County employees	3.6% (12)	38.5% (129)	41.5% (139)	16.4% (55)	2.71
Citizens who live in your county	3.3% (11)	47.3% (158)	39.2% (131)	10.2% (34)	2.56

6. Is there anyone in your county that you consider a very strong advocate, champion of e-government?

	Response Percent	Response Count
Yes	62.1%	210
No	18.3%	62
Don't Know	19.5%	66
answered questions		338
skipped questions		5

7. For the current fiscal year, what is your approximate IT budget?

	Response Percent	Response Count
Under \$ 100,000	46.9%	152
Between \$ 100,001 - \$ 200,000	12.0%	39
Between \$ 200,001 - \$ 500,000	13.9%	45
Between \$ 500,001 - \$ 1,000,000	9.0%	29
More than \$ 1,000,000	18.2%	59
answered questions		324
skipped questions		19

8. What is the approximate amount of the total county budget for the current fiscal year? (in millions)

	Response Count
	289
answered questions	289
skipped questions	54

9. Is your county government a member of any of the following associations? (check all that apply)

	Response Percent	Response Count
National Association of Counties (NACO)	87.4%	292
International City / County Management Association (ICMA)	10.5%	35
State – level association	85.0%	284
Other (please specify)		34

10. How closely does your county collaborate with the following entities to provide public services?

	Not That Closely	Somewhat Closely	Very Closely	Extremely Closely	Rating Average	Count
State Government	6.0% (20)	30.5% (102)	50.6% (169)	12.9% (43)	2.70	334
Other County Governments	13.2% (44)	42.9% (143)	36.6% (122)	7.2% (24)	2.38	333
Non-Profit Organizations	19.3% (64)	42.8% (142)	32.5% (108)	5.4% (18)	2.24	332
Businesses	19.6% (65)	47.3% (157)	29.5 (98)	3.6% (12)	2.17	332
Civic Groups	20.3% (67)	48.8% (161)	27.0% (89)	3.9% (13)	2.15	330
answered question						336
skipped question						7

11. How many of your neighboring counties have a Web site?

	Response Percent	Response Count
Nearly all of your neighboring counties	56.5%	188
Most of your neighboring counties	25.2%	84
About half of your neighboring counties	6.9%	23
Only some of your neighboring counties	10.2%	34
None of your neighboring counties	1.2%	4
answered questions		333
skipped questions		10

12. Would you say the Web sites of neighboring counties are...

	Response Percent	Response Count
Much better than your website	6.8%	23
Somewhat better than your website	13.3%	45
About the same as your website	37.9%	128
Not quite as good as your website	20.1%	68
Not at all as good as your website	8.0%	27
No opinion	13.9%	47
answered questions		338
skipped questions		5

13. How much of your IT work do you outsource?

	Response Percent	Response Count
A great deal	23.6%	78
A fair amount	13.9%	46
Only some	31.7%	105
Little or none at all	30.8%	102
answered questions		331
skipped questions		12

14. Please identify the functions that your department out sources: (check all that apply)

	Response Percent	Response Count
Website design	49.4%	128
Website development	40.9%	106
Website hosting	44.0%	114
Website maintenance	42.1%	109
Website content management	19.3%	50
Database hosting / maintenance	34.7%	90
Email hosting and maintenance	39.0%	101
Other (please specify)	18.1%	47
answered questions		259
skipped questions		84

15. Which of the following services does your county government provide: (check all that apply)

	Response Percent	Response Count
K-12 Education	19.9%	67
Parks and Recreation	61.7%	208
Employment Assistance	29.1%	98
Hospitals	21.4%	72
Animal Control	59.6%	201
Garbage collection	26.4%	89
Housing	21.4%	72
Corrections	73.9%	249
Road Construction	76.3%	257
Police Services	81.3%	274
Street Maintenance	56.7%	191
Public Health Services	75.1%	253
Fire Services	48.4%	163
Economic Development	78.3%	264
Environmental Protection	44.8%	151
Water	25.5%	86
Public Transportation	32.6	110
Sewage Treatment	20.2%	68
Courts	84.0%	283
Children / Family Services	60.8%	205
Elections and Voting	91.7%	309
Library	54.6%	184
Code Enforcement	59.9%	202

Welfare Services	54.6%	184
Sanitation	30.3%	102
Emergency Services	85.5%	288
Human Rights Advocacy	14.8%	50
Electricity	2.7%	9
Consumer Protection	8.0%	27
Building Permits	64.4%	217
Other (please specify)	8.0%	27
answered questions		337
skipped questions		6

16. Please indicate your level of agreement or disagreement with each of the following. E-Government in my county government has.

	Strongly Disagree	Disagree	Agree	Strongly Agree
Resulted in saving of financial resources	2.8% (9)	21.1% (67)	65.1 (207)	11.0% (35)
Increased government transparency and accountability	3.5% (11)	10.4% (33)	67.6% (215)	18.6% (59)
Increased collaboration with other levels of government	3.5% (11)	16.7% (53)	67.8% (215)	12.0% (38)
Enhanced the county's ability to hire, manage and oversee contractors	5.4% (17)	39.9% (125)	47.6% (149)	7.0% (22)
Increased the interactions between citizens and county government	3.4% (11)	14.7% (47)	60.8% (194)	21.0% (67)

17. Overall, how would you rate the success of your county in the area of e-government? (1 = “Not successful at all” to Successful”)

	1	2	3	4	5	6	7	8	9	10
Score	4.6%	6.8%	9.5%	7.4%	14.5%	15.4%	17.8%	16.9%	4.3%	2.8%
	(15)	(22)	(31)	(24)	(47)	(50)	(58)	(55)	(14)	(9)

18. Do you have any additional comments on e-government that you would like to share with us? (optional)

	Response Count
	55
answered question	55
skipped question	288

19. If you would like a summary of the survey results, please provide your email address below:

	Response Count
	160
answered question	160
skipped question	183

APPENDIX E – OPEN ENDED SURVEY COMMENTS

There needs to be more education of elected officials that web enabled e-gov projects must be funded for it (to) work. Existing budgets will not be able to support the e-gov process. In theory, the money saved from other departments needs to be moved to the dept supporting e-gov.

I would like to see e-gov become more independent in developing its own programming and data base.

Old habits are hard to break and a political organization faces unique challenges in implementing technology due to changing faces in positions of authority”.

We have a long way to go and need to have elected officials and staff (need to) have more in service experiences with e-government.

There is so much more we could be doing (webcast our meetings for example) but some of the older commissioners don't use the internet or computers in their personal lives.

I am the only one of 5 commissioners who uses email.

Citizens who use it think it is great, citizens who do not use it think it is a waste of money.

Citizens do not seem to be informed.

We are a rural area and technology change comes hard because it changes jobs. We'll get there though.

It is pretty hard for my county; small, rural, with people in positions of authority who have had to learn how to use computers during their careers. Vision, or taking things to the next level is somewhat lacking. The other element that is a challenge is electronic records management.

Some of the older employees and administrators sometimes resist e-government but are getting more comfortable with it.

Everyone is supportive of e-government until you start putting price tags on what things cost to either purchase or maintain going forward.

This is a very important component for citizens. Due to budgetary constraints, implementation has been slow in coming.

We've made great strides, but we know there is still more to do. If we have the money we will continue to improve our systems.

Initial cost to deliver services is major drawback. We have to find innovative methods to cover cost of web services.

The cost for small counties can be unaffordable so if the state legislation forces all counties to comply the state should provide the funding.

Our state has been slow to respond to online payments for license plates and property taxes but we are just beginning to get started.

We have put procedures and programs in place to meet the Open Records Acts for electronic communications.

Our very rural county, with our small population and low tax base, does not have either the resources or the expertise to offer anything other than "brochure-ware" on our website. It is very difficult for us to meet the e-government expectations of new and younger people.

We are a small county and the funds of IT are nonexistent any work done now is done in the spare time of the current employees. We are progressive as we can be for the amount of money we have.

In rural counties not everyone has access to a computer. Traditional communication is still a necessary backup (snail mail and telephone).

I would really like to see more advances in technology mostly, high speed internet access for our citizens.

Additional Broadband access to the rural areas of our County is critical to the continued success of e-government.

The more we can assist our citizens with information, forms, collections, permits, agenda/minutes review, applications, newsletters and so on, we will see better understanding of our roles.

Yes- we are a mid-sized agricultural county. We have lost much industry, and have an aging population. Our constituents are less comfortable with technology than what might be expected in a more urban center having greater higher educational institutions like universities in the area. Hence, our delivery of services is over methods more human (soft) than technical (hard). We evaluate our successes here and buy technology accordingly. In the future, as trends for technology use increase and our population grows younger, we will use more e-Government projects. In common sense terms, we have to meet our constituents' needs. Thank you.

It is the future of government services, to supply as high of level as possible to let people serve themselves in order to save on personnel costs.

All it has done has made it more complicated, created more jobs and wasted more paper. Another boondoggle, is life simpler because of e-government? No.

Lack of high speed service has limited the success of e-government in our county.

A useful, but at this point, not transformative, tool.

Since our county is geographically large, and has its County seat far from a main population hub, we have implemented a 2 way video link for public comment at Council meetings. (FYI, we have Council members travel large distances to Council and Committee meetings since we cannot vote over this link due to a State law.) We also broadcast Council and Committee meetings on cable TV and the web. This has been well received.

We don't do much business online. It is mostly just an informative tool. It does help keep the phone calls to a minimum.

Brag: We developed an online jury impaneling process which has gained national attention--it saves the county about \$300,000 per year. One Webmaster (salary \$50,000) created this program in two weeks. We were also one of the first counties to provide online video of Commissioners Court meetings.

Most public and professional interaction with the county web site is for: property valuation; payment of real estate taxes and the amount of those taxes; the agenda for the county board meeting; and the minutes of county board meetings. The Courts do have a presence on the County web page. The Sheriff and County Attorney do not have a presence on the County web page.

We are currently going thru a major transformation in terms of support and reorganization. Benchmarking would be interesting.

All citizens are able to contact all County Offices as well as attend meetings, and e-mail Commissioners.

I do our website. My thoughts are that after my term is over, it could die. I hope that by then the citizens will have seen the value of this communication, and will raise hell, not letting it die. We shall see.

Our rural County has been unable to convince a vendor to provide affordable, county-wide service which limits interaction with citizens.

I had help on design, which was critical. I maintain two pages, news and agendas. If I need something done on the other pages, I call the outsource company and they get right on it.

Not on our radar screen. Ours is a weak county, strong municipality state so service mix has limited applicability for e-gov.

We created a new website for the county in January of this year, which is much more interactive and informative. The old site was hard to modify and not very useful for up to date information.

We have 100 folks in our IT dept, but we have only three webmasters maintaining and developing our external site, internal site and implementing the new portal technology.

It has become our primary method of doing business with our citizens / customers.

We have recently begun a new push to enhance e-government services and expect to see big improvements in the next couple of years.

We are just getting our new website going. I expect to see much better results in the future as it will be more user friendly and have more public information on it.

Additional Comments on the Question of IT Outsourcing

Spam filtering, HR applicant tracking, telecommunication services (MACs).

Maintenance of proprietary software.

All computer set-up and repair.

Some specialized web development.

The County Treasurer and Equalization Department are the main focus of the website.

Bringing these functions in house by March 2010.

Financial and HR functions and Maintenance.

Only Consultation on Major System Changes.

A portion of new application development, Strategic Analysis consultants such as Network Security, GIS Strategic Plan, Disaster Recovery.

Some application development and support, as needed.

Network/router configures.

Software/program installation.

Some network management.

I had help on design, which was critical. I maintain two pages, news and agendas. If I need something done on the other pages, I call the outsource and they get right on it.

Setting up the case management system.

We only outsource new data systems that cannot be created in house.(licensed programs specific to local government).

“Some consulting and development work for certain line-of-business applications”.

Televised meetings.

MUNIS our financial system.

We do not have an IT department. We contract our IT services out. This contract does not include maintenance of the website. Someone else does that and we have very little information on our website.

All internal governmental accounting program maintenance-ADP.

All network and desktop support, all vendor software support-nearly all work except management.

Spam filtering, email archiving, security services, various business applications (i.e. payroll).

Consulting, some wiring.

Local government specific software providers.

3rd-party software support based on yearly contracts.

Software maintenance.

Off-site storage.

Data storage and cabling needs.

Spanish-language translation.

None, all done in-house.

Loss of county government as a physical entity would be hard on our economy because people coming to town for county business helps all the commerce in our community.

Hospitals, Schools, Ascs offices, implement dealer ships, banks, and County Government are vital to our existence as a community.

Operations involving financial transactions such as payment of property taxes.

Infrastructure.

Hardware support, network support, software support, WAN maintenance and support, 911 system maintenance.

Pulling fiber optics.

It is extremely important to us that our citizens receive the most cost-effective county services in the provision of material via e-government.

All citizens are able to contact all County Offices as well as attend meetings, and e-mail Commissioners.

Would love to increase e-gov however, what is available for small rural areas like (ours).

We are a small, rural community just developing a website. Will have to wait to offer comments on its effectiveness.

Our citizens can also pay their property taxes on e-government”

Additional Comments on County Functions

Wind Energy Marketing, GIS.

Weed control, museum, cemetery, ambulance, nursing home, we support a variety of non- profits; arts and humanities, daycare, early childhood education, senior lunches and transportation, local humane society.

We are an appointing authority to boards of various special districts that provide other services you have mentioned.

Water and Sewage are provided by other semi-public service districts”.

Taxation, Mental Health, Jail, Probation, youth detention, homeless shelter, public defender, assistant district attorney and register of deeds.

Tax Collection.

Tax assessing, collection, and disbursement.

Sheriff services Scholarships.

Property Assessment, Public Defense, King County International Airport, Ferry System.

Property Assessment, Prosecuting Attorney, Courts, Recording, Tax Collection.

Police services are actually Sheriff services---Juvenile services provide certain child and family services.

Planning.

Passport Issuance, Public Records, Television Station.

Nursing home, prosecution, deeds records, house of corrections, community corrections landfill, recycling and e-waste, tourism.

High School education; land transfer registration.

Emergency Management.

E 911.

Drug & alcohol prevention and treatment, Senior citizen services, Mental Health services, Developmental Disabilities services, Veterans Affairs services, farmland preservation, weights & measures, nursing home.

County Road Maintenance.

County recorder, criminal prosecution, mental health payment.

COMMENT: Even in this category, my responses are tentative because no definitions for these services are provided. Our county is served by a district court, but the services are not provided through the county. We have a sanitarian but that's not the same as providing for sanitation. WE have a welfare department, but much of our work in that area is coordinated with the state level agency. There are libraries in the county. Only some of their funds come from us.

Children/Family Services, Welfare Services, Employment Assistance, and Public Health Services are State agencies that work in cooperation with the County offices.

Best County Fair in Sd, Weed & Pest, County Extension Service, Disaster/Emer. Management, Poor Relief.

All of the other services are available locally, but provided by other entities.

Appendix F– Independent Variables

	N	Minimum	Maximum	Mean	SD
	Statistic	Statistic	Statistic	Statistic	Statistic
EInformation	182	.00	6.00	2.2253	1.25210
ETransaction	182	.00	12.00	3.9835	2.91211
EParticipation	182	.00	6.00	.4396	.96581
EGovernment	182	.00	18.00	6.6484	3.81441
IT_Department	182	1.00	2.00	1.1868	.39084
IT_Employees	148	1.00	5.00	2.7297	1.50100
Form_of_Government	182	.00	3.00	1.1703	.71186
Elected_Officials_Support	180	1.00	4.00	2.9667	.75413
Top_Administrators_Support	178	1.00	4.00	3.2022	.75434
Employees_Support	179	1.00	4.00	2.8771	.67581
Citizens_Support	179	1.00	4.00	2.6983	.70196
IT_Champion	181	1.00	3.00	1.4862	.78604
IT_Budget	174	1.00	5.00	3.0805	1.57816
State_Collaboration	178	1.00	4.00	2.8483	.73225
County_Collaboration	178	1.00	4.00	2.4157	.78559
Nonprofit_Collaboration	176	1.00	4.00	2.3864	.79184
Business_Collaboration	175	1.00	4.00	2.1886	.78337
Civicgroups_Collaboration	175	1.00	4.00	2.1600	.75628
Neighbouring_websites	181	1.00	4.00	1.6188	.95072
IT_Contracting	178	1.00	4.00	2.9551	1.04054
No#_of_Functions_	181	2.00	28.00	15.8619	5.11618
Area	182	132.13	18661.21	1234.0281	1840.27412
Population	182	20130.00	3886207.00	164402.7802	3.52076E5
Population_Density	182	3.16	3860.60	255.7542	454.19157
Total_Education	182	8448.00	2067399.00	97599.5879	2.00945E5
High_School	182	60.07	96.96	80.9770	7.20472
Bachelors_Degree	182	6.70	52.90	20.8527	9.54695
Income_Per_Capita_	182	18557.00	62045.00	30579.2802	7423.14193
Private_Nonfarm_Businesses	182	237.00	86566.00	4266.8791	9162.79585

Local_Government_Employment	182	166.00	171537.00	7132.0110	15511.11255
Revenue_Per_Capita_	182	487.00	5817.00	2971.6264	916.80288
Voted_for_Republican_Party	182	27.30	83.00	57.7440	11.24909

Frequency Table

		EGovernment			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	4	2.2	2.2	2.2
	1	4	2.2	2.2	4.4
	2	20	11.0	11.0	15.4
	3	15	8.2	8.2	23.6
	4	16	8.8	8.8	32.4
	5	15	8.2	8.2	40.7
	6	25	13.7	13.7	54.4
	7	20	11.0	11.0	65.4
	8	10	5.5	5.5	70.9
	9	10	5.5	5.5	76.4
	10	10	5.5	5.5	81.9
	11	11	6.0	6.0	87.9
	12	5	2.7	2.7	90.7
	13	5	2.7	2.7	93.4
	14	9	4.9	4.9	98.4
	15	1	.5	.5	98.9
	17	1	.5	.5	99.5
	18	1	.5	.5	100.0
	Total	182	100.0	100.0	

E-Information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	16	8.8	8.8	8.8
	1	14	7.7	7.7	16.5
	2	109	59.9	59.9	76.4
	3	13	7.1	7.1	83.5
	4	22	12.1	12.1	95.6
	5	2	1.1	1.1	96.7
	6	6	3.3	3.3	100.0
	Total	182	100.0	100.0	

E-Transaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	26	14.3	14.3	14.3
	1	19	10.4	10.4	24.7
	2	20	11.0	11.0	35.7
	3	19	10.4	10.4	46.2
	4	22	12.1	12.1	58.2
	5	21	11.5	11.5	69.8
	6	17	9.3	9.3	79.1
	7	15	8.2	8.2	87.4
	8	10	5.5	5.5	92.9
	9	4	2.2	2.2	95.1
	10	7	3.8	3.8	98.9
	11	1	.5	.5	99.5
	12	1	.5	.5	100.0
	Total	182	100.0	100.0	

E-Participation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	133	73.1	73.1	73.1
	1	35	19.2	19.2	92.3
	2	5	2.7	2.7	95.1
	3	5	2.7	2.7	97.8
	4	2	1.1	1.1	98.9
	6	2	1.1	1.1	100.0
	Total	182	100.0	100.0	

IT_Department

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	148	81.3	81.3	81.3
	2	34	18.7	18.7	100.0
	Total	182	100.0	100.0	

IT_Employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	44	24.2	29.7	29.7
	2	29	15.9	19.6	49.3
	3	28	15.4	18.9	68.2
	4	17	9.3	11.5	79.7
	5	30	16.5	20.3	100.0
	Total	148	81.3	100.0	
Missing	System	34	18.7		
Total		182	100.0		

Form_of_Government

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	16	8.8	8.8	8.8
	1	136	74.7	74.7	83.5
	2	13	7.1	7.1	90.7
	3	17	9.3	9.3	100.0
	Total	182	100.0	100.0	

Elected_Officials_Support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	1.1	1.1	1.1
	2	48	26.4	26.7	27.8
	3	84	46.2	46.7	74.4
	4	46	25.3	25.6	100.0
	Total	180	98.9	100.0	
Missing	System	2	1.1		
Total		182	100.0		

Top_Administrators_Support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	1.6	1.7	1.7
	2	27	14.8	15.2	16.9
	3	79	43.4	44.4	61.2
	4	69	37.9	38.8	100.0
	Total	178	97.8	100.0	
Missing	System	4	2.2		
Total		182	100.0		

Employees_Support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	1.1	1.1	1.1
	2	47	25.8	26.3	27.4
	3	101	55.5	56.4	83.8
	4	29	15.9	16.2	100.0
	Total	179	98.4	100.0	
Missing	System	3	1.6		
Total		182	100.0		

Citizens_Support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	1.6	1.7	1.7
	2	70	38.5	39.1	40.8
	3	84	46.2	46.9	87.7
	4	22	12.1	12.3	100.0
	Total	179	98.4	100.0	
Missing	System	3	1.6		
Total		182	100.0		

IT_Budget

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	43	23.6	24.7	24.7
	2	28	15.4	16.1	40.8
	3	27	14.8	15.5	56.3
	4	24	13.2	13.8	70.1
	5	52	28.6	29.9	100.0
	Total	174	95.6	100.0	
Missing	System	8	4.4		
Total		182	100.0		

County_Collaboration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	11.5	11.8	11.8
	2	74	40.7	41.6	53.4
	3	71	39.0	39.9	93.3
	4	12	6.6	6.7	100.0
	Total	178	97.8	100.0	
Missing	System	4	2.2		
Total		182	100.0		

Nonprofit_Collaboration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	22	12.1	12.5	12.5
	2	76	41.8	43.2	55.7
	3	66	36.3	37.5	93.2
	4	12	6.6	6.8	100.0
	Total	176	96.7	100.0	
Missing	System	6	3.3		
Total		182	100.0		

Business_Collaboration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	34	18.7	19.4	19.4
	2	80	44.0	45.7	65.1
	3	55	30.2	31.4	96.6
	4	6	3.3	3.4	100.0
	Total	175	96.2	100.0	
Missing	System	7	3.8		
Total		182	100.0		

Civigroups_Collaboration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	31	17.0	17.7	17.7
	2	92	50.5	52.6	70.3
	3	45	24.7	25.7	96.0
	4	7	3.8	4.0	100.0
	Total	175	96.2	100.0	
Missing	System	7	3.8		
Total		182	100.0		

Neighbouring_websites

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	113	62.1	62.4	62.4
	2	40	22.0	22.1	84.5
	3	12	6.6	6.6	91.2
	4	16	8.8	8.8	100.0
	Total	181	99.5	100.0	
Missing	System	1	.5		
Total		182	100.0		

IT_Contracting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	25	13.7	14.0	14.0
	2	25	13.7	14.0	28.1
	3	61	33.5	34.3	62.4
	4	67	36.8	37.6	100.0
	Total	178	97.8	100.0	
Missing	System	4	2.2		
Total		182	100.0		

		<u>No#_of_Functions</u>			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	.5	.6	.6
	3	2	1.1	1.1	1.7
	5	2	1.1	1.1	2.8
	6	2	1.1	1.1	3.9
	7	3	1.6	1.7	5.5
	8	5	2.7	2.8	8.3
	9	6	3.3	3.3	11.6
	10	6	3.3	3.3	14.9
	11	9	4.9	5.0	19.9
	12	10	5.5	5.5	25.4
	13	9	4.9	5.0	30.4
	14	12	6.6	6.6	37.0
	15	17	9.3	9.4	46.4
	16	18	9.9	9.9	56.4
	17	7	3.8	3.9	60.2
	18	10	5.5	5.5	65.7
	19	20	11.0	11.0	76.8
	20	7	3.8	3.9	80.7
	21	14	7.7	7.7	88.4
	22	5	2.7	2.8	91.2
	23	4	2.2	2.2	93.4
	24	5	2.7	2.8	96.1
	25	2	1.1	1.1	97.2
	26	3	1.6	1.7	98.9
	28	2	1.1	1.1	100.0
	Total	181	99.5	100.0	
Missing	System	1	.5		
Total		182	100.0		

Q16_SAVINGS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	2.7	2.9	2.9
	2	23	12.6	13.4	16.3
	3	118	64.8	68.6	84.9
	4	26	14.3	15.1	100.0
	Total	172	94.5	100.0	
Missing	System	10	5.5		
Total		182	100.0		

Q16_TRANSPERANCY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	3.3	3.5	3.5
	2	9	4.9	5.2	8.7
	3	118	64.8	68.6	77.3
	4	39	21.4	22.7	100.0
	Total	172	94.5	100.0	
Missing	System	10	5.5		
Total		182	100.0		

Q16_COLLABORATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	2.7	2.9	2.9
	2	28	15.4	16.4	19.3
	3	114	62.6	66.7	86.0
	4	24	13.2	14.0	100.0
	Total	171	94.0	100.0	
Missing	System	11	6.0		
Total		182	100.0		

Q16_HIRING

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	3.3	3.6	3.6
	2	60	33.0	35.7	39.3
	3	86	47.3	51.2	90.5
	4	16	8.8	9.5	100.0
	Total	168	92.3	100.0	
Missing	System	14	7.7		
Total		182	100.0		

Q16_CITIZEN_INTERACTIONS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	2.7	2.9	2.9
	2	14	7.7	8.2	11.1
	3	103	56.6	60.2	71.3
	4	49	26.9	28.7	100.0
	Total	171	94.0	100.0	
Missing	System	11	6.0		
Total		182	100.0		

Q17_EGovernment Success

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	3.3	3.4	3.4
	2	6	3.3	3.4	6.8
	3	12	6.6	6.8	13.6
	4	8	4.4	4.5	18.2
	5	22	12.1	12.5	30.7
	6	31	17.0	17.6	48.3
	7	36	19.8	20.5	68.8
	8	39	21.4	22.2	90.9
	9	10	5.5	5.7	96.6
	10	6	3.3	3.4	100.0
	Total	176	96.7	100.0	
Missing	System	6	3.3		
Total		182	100.0		

Appendix G – Independent Variables (Transformed)

	N	Minimum	Maximum	Mean	SD
	Stat	Statistic	Statistic	Statistic	Statistic
EInformation	182	.00	6.00	2.2253	1.25210
ETransaction	182	.00	12.00	3.9835	2.91211
EParticipation	182	.00	6.00	.4396	.96581
EGovernment	182	.00	18.00	6.6484	3.81441
MEDIAN(IT_Department,ALL)	182	1.00	2.00	1.1868	.39084
MEDIAN(IT_Employees,ALL)	182	1.00	5.00	2.7802	1.35681
MEDIAN(Elected_Officials_Support,ALL)	182	1.00	4.00	2.9670	.74996
MEDIAN(Top_Administrators_Support,ALL)	182	1.00	4.00	3.1978	.74655
MEDIAN(Employees_Support,ALL)	182	1.00	4.00	2.8791	.67037
MEDIAN(Citizens_Support,ALL)	182	1.00	4.00	2.7033	.69718
MEDIAN(IT_Budget,ALL)	182	1.00	5.00	3.0769	1.54298
MEDIAN(County_Collaboration,ALL)	182	1.00	4.00	2.4066	.77926
MEDIAN(Nonprofit_Collaboration,ALL)	182	1.00	4.00	2.3736	.78167
MEDIAN(Business_Collaboration,ALL)	182	1.00	4.00	2.1813	.76893
MEDIAN(Civicgroups_Collaboration,ALL)	182	1.00	4.00	2.1538	.74215
MEDIAN(No#_of_Functions_,ALL)	182	2.00	28.00	15.8626	5.10203
MEDIAN(Area,ALL)	182	132.13	18661.21	1234.0281	1840.274
MEDIAN(Population,ALL)	182	20130.00	3886207.00	164402.72	3.52076
MEDIAN(Population_Density,ALL)	182	3.16	3860.60	255.7542	454.197
MEDIAN(Total_Education,ALL)	182	8448.00	2067399.00	97599.587	2.00945
MEDIAN(High_School,ALL)	182	60.07	96.96	80.9770	7.2042
MEDIAN(Bachelors_Degree,ALL)	182	6.70	52.90	20.8527	9.595
MEDIAN(Income_Per_Capita_,ALL)	182	18557.00	62045.00	30579.202	7423.13
MEDIAN(Private_Nonfarm_Businesses,ALL)	182	237.00	86566.00	4266.8791	9162.85
MEDIAN(Local_Government_Employment,	182	166.00	171537.00	7132.0110	15511.5
MEDIAN(Revenue_Per_Capita_,ALL)	182	487.00	5817.00	2971.6264	916.88
MEDIAN(Voted_for_Republican_Party,ALL)	182	27.30	83.00	57.7440	11.209
ITDepartmentrecode	182	.00	.00	.0000	.00000

FormofGovrcode	182	.00	1.00	.0934	.29180
ITChampionrcode	182	.00	1.00	.1813	.38634
ITBudgetrcode	182	.00	1.00	.6099	.48912
NeighbroringWebsitesRecode	182	.00	1.00	.1538	.36180
ITcontractingrcode	182	.00	1.00	.7253	.44761
SavingRecode	182	.00	1.00	.8462	.36180
transparencyrcode	182	.00	1.00	.9176	.27576
collaborationrcode	182	.00	1.00	.8187	.38634
Hiringrcode	182	.00	1.00	.6374	.48209
Citizeninteractions	182	.00	1.00	.8956	.30662
Valid N (listwise)	1				

E-Information

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	16	8.8	8.8	8.8
1	14	7.7	7.7	16.5
2	109	59.9	59.9	76.4
3	13	7.1	7.1	83.5
4	22	12.1	12.1	95.6
5	2	1.1	1.1	96.7
6	6	3.3	3.3	100.0
Total	182	100.0	100.0	

E-Participation

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	133	73.1	73.1	73.1
1	35	19.2	19.2	92.3
2	5	2.7	2.7	95.1
3	5	2.7	2.7	97.8
4	2	1.1	1.1	98.9
6	2	1.1	1.1	100.0
Total	182	100.0	100.0	

E-Transaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	26	14.3	14.3	14.3
	1	19	10.4	10.4	24.7
	2	20	11.0	11.0	35.7
	3	19	10.4	10.4	46.2
	4	22	12.1	12.1	58.2
	5	21	11.5	11.5	69.8
	6	17	9.3	9.3	79.1
	7	15	8.2	8.2	87.4
	8	10	5.5	5.5	92.9
	9	4	2.2	2.2	95.1
	10	7	3.8	3.8	98.9
	11	1	.5	.5	99.5
	12	1	.5	.5	100.0
Total		182	100.0	100.0	

E-Government

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	4	2.2	2.2	2.2
	1	4	2.2	2.2	4.4
	2	20	11.0	11.0	15.4
	3	15	8.2	8.2	23.6
	4	16	8.8	8.8	32.4
	5	15	8.2	8.2	40.7
	6	25	13.7	13.7	54.4
	7	20	11.0	11.0	65.4
	8	10	5.5	5.5	70.9
	9	10	5.5	5.5	76.4
	10	10	5.5	5.5	81.9
	11	11	6.0	6.0	87.9
	12	5	2.7	2.7	90.7
	13	5	2.7	2.7	93.4
	14	9	4.9	4.9	98.4
	15	1	.5	.5	98.9
	17	1	.5	.5	99.5
	18	1	.5	.5	100.0
	Total	182	100.0	100.0	

MEDIAN(IT_Employees,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	44	24.2	24.2	24.2
	2	29	15.9	15.9	40.1
	3	62	34.1	34.1	74.2
	4	17	9.3	9.3	83.5
	5	30	16.5	16.5	100.0
	Total	182	100.0	100.0	

MEDIAN(Elected_Officials_Support,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	1.1	1.1	1.1
	2	48	26.4	26.4	27.5
	3	86	47.3	47.3	74.7
	4	46	25.3	25.3	100.0
	Total	182	100.0	100.0	

MEDIAN(Top_Administrators_Support,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	1.6	1.6	1.6
	2	27	14.8	14.8	16.5
	3	83	45.6	45.6	62.1
	4	69	37.9	37.9	100.0
	Total	182	100.0	100.0	

MEDIAN(Employees_Support,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	1.1	1.1	1.1
	2	47	25.8	25.8	26.9
	3	104	57.1	57.1	84.1
	4	29	15.9	15.9	100.0
	Total	182	100.0	100.0	

MEDIAN(Citizens_Support,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	1.6	1.6	1.6
	2	70	38.5	38.5	40.1
	3	87	47.8	47.8	87.9
	4	22	12.1	12.1	100.0
	Total	182	100.0	100.0	

MEDIAN(County_Collaboration,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	11.5	11.5	11.5
	2	78	42.9	42.9	54.4
	3	71	39.0	39.0	93.4
	4	12	6.6	6.6	100.0
	Total	182	100.0	100.0	

MEDIAN(Nonprofit_Collaboration,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	22	12.1	12.1	12.1
	2	82	45.1	45.1	57.1
	3	66	36.3	36.3	93.4
	4	12	6.6	6.6	100.0
	Total	182	100.0	100.0	

MEDIAN(Business_Collaboration,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	34	18.7	18.7	18.7
	2	87	47.8	47.8	66.5
	3	55	30.2	30.2	96.7
	4	6	3.3	3.3	100.0
	Total	182	100.0	100.0	

MEDIAN(Civicgroups_Collaboration,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	31	17.0	17.0	17.0
	2	99	54.4	54.4	71.4
	3	45	24.7	24.7	96.2
	4	7	3.8	3.8	100.0
	Total	182	100.0	100.0	

ITChampionrecode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	149	81.9	81.9	81.9
	1	33	18.1	18.1	100.0
	Total	182	100.0	100.0	

ITBudgetrecode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	71	39.0	39.0	39.0
	1	111	61.0	61.0	100.0
	Total	182	100.0	100.0	

MEDIAN(No#_of_Functions_,ALL)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	.5	.5	.5
	3	2	1.1	1.1	1.6
	5	2	1.1	1.1	2.7
	6	2	1.1	1.1	3.8
	7	3	1.6	1.6	5.5
	8	5	2.7	2.7	8.2

9	6	3.3	3.3	11.5
10	6	3.3	3.3	14.8
11	9	4.9	4.9	19.8
12	10	5.5	5.5	25.3
13	9	4.9	4.9	30.2
14	12	6.6	6.6	36.8
15	17	9.3	9.3	46.2
16	19	10.4	10.4	56.6
17	7	3.8	3.8	60.4
18	10	5.5	5.5	65.9
19	20	11.0	11.0	76.9
20	7	3.8	3.8	80.8
21	14	7.7	7.7	88.5
22	5	2.7	2.7	91.2
23	4	2.2	2.2	93.4
24	5	2.7	2.7	96.2
25	2	1.1	1.1	97.3
26	3	1.6	1.6	98.9
28	2	1.1	1.1	100.0
Total	182	100.0	100.0	

FormofGovrcode

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	165	90.7	90.7	90.7
1	17	9.3	9.3	100.0
Total	182	100.0	100.0	

ITDepartmentrcode

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	182	100.0	100.0	100.0

NeighboringWebsitesRecode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	154	84.6	84.6	84.6
	1	28	15.4	15.4	100.0
	Total	182	100.0	100.0	

ITcontractingrecode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	50	27.5	27.5	27.5
	1	132	72.5	72.5	100.0
	Total	182	100.0	100.0	

SavingRecode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	28	15.4	15.4	15.4
	1	154	84.6	84.6	100.0
	Total	182	100.0	100.0	

Transparencyrecode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	15	8.2	8.2	8.2
	1	167	91.8	91.8	100.0
	Total	182	100.0	100.0	

Collaborationrecode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	33	18.1	18.1	18.1
	1	149	81.9	81.9	100.0
	Total	182	100.0	100.0	

Hiringrrecode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	66	36.3	36.3	36.3
	1	116	63.7	63.7	100.0
	Total	182	100.0	100.0	

Citizeninteractions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	19	10.4	10.4	10.4
	1	163	89.6	89.6	100.0
	Total	182	100.0	100.0	

Appendix H - Means for Socioeconomic Variables (Midwest)

	Counties with Websites (n=790)		Counties with Websites (n=265)	
	Mean	Std. Deviation	Mean	Std. Deviation
Area	780.39	599.81	774.42	504.96
Population	78719.67	243653	15204.52	16609.41
Population	78370.63	244007.5	15183.4	16521.32
Population	76453.52	245255.1	15082.68	16056.95
Population	70743.92	233523.4	14270.28	14747.38
Population Density	155.02	444.79	29.24	42.37
No. of Households	29349.08	92362.82	5844.38	6130.97
Age	34.01	4.19	33.6	5.76
Total Education (%)	49243.49	158041.3	9942.06	10495.23
High School Education (%)	82.83	4.95	79.26	6.34
Bachelors Education (%)	16.96	6.66	13.52	3.85
Languages other than English (%)	5.34	4.48	4.93	4.85
Workers driving to work	78.06	5.69	73.82	7.66
Households with income above \$75,000	14.57	6.68	9.91	3.58
Persons in Poverty(%)	10.78	3.12	12.91	5.1
Persons in Poverty(%)	9.72	3.23	12.59	5.35
Civilian Labor Force (%)	41504.08	123562.2	7699.77	8638.22
Civilian Labor Force (%)	40581.08	126473.2	7518.02	8258.91
Unemployed	2054.54	6327.77	390.94	492.2
Unemployed	1469.59	5508.93	293.35	344.36
Unemployment Rate (%)	4.75	1.56	4.71	1.73
Unemployment Rate (%)	3.68	1.17	3.77	1.47
Private Nonfarm businesses	1995.9	6197.89	366.13	377.22
Earnings by Place of Work (mil dol)	2089.74	8750.39	227.84	295.65
Government (%)	20.49	14.19	25.58	19.21
Federal Gov Expenditure 2004 (mil. Dol.)	461.0687	1588.965	98.18542	99.335143
Federal Gov Expenditure, 2000 -04 (%)	23.633	17.1044	23.856	21.5883
Federal Gov Expenditure Per Capita 2004	6367.92	2853.757	8007.57	4031.065
Direct Payment to Individuals,	62.099	13.0495	56.98	15.4238
Federal Gov Expenditure 2000	365.5092	1283.923	79.8111	79.219376
Fed, State,Local Gov Earnings 2005	306.696	1064.255	52.1472	87.71077
Fed, State,Local Gov Earnings 2005	20.851	10.0819	25.581	19.2075
Fed, State,Local Gov Earnings	28.565	12.3364	26.84	10.4223
Fed, State,Local Gov Earnings 2000 (mil. Dol.)	240.4666	859.6905	40.81958	64.41091
Fed, State,Local Gov Employment 2005	5985.28	17537.23	1238.06	1545.202
Fed, State,Local Gov Employment 2005				
Percent of Total (%)	14.924	6.0578	17.111	10.1517
Fed, State,Local Gov Employment				
Percent Change 2000 - 2005	1.021	8.5707	-1.127	7.6683
Fed, State,Local Gov Employment 2000	5898.7	17691.72	1239.81	1544.843

Appendix I - Means for Socioeconomic Variables (Northeast)

	Counties with Websites (n=173)		Counties with Websites (n=44)	
	Mean	Std. Deviation	Mean	Std. Deviation
Area	839.95	729.75	818.49	769.31
Population	261212.72	382207.82	217080.75	323835.50
Population	260901.94	382661.33	216892.18	323510.23
Population	255749.70	377692.11	212501.95	319138.26
Population	241998.79	356251.47	203693.70	305796.33
Population Density	1625.83	6761.35	418.00	559.70
No. of Households	96462.09	141165.09	81765.45	121712.91
Age	33.72	3.59	33.50	2.15
Total Education (%)	170848.45	250660.90	142531.93	215831.74
High School Education (%)	82.04	5.02	83.84	4.02
Bachelors Education (%)	21.54	8.80	25.52	8.67
Foreign born Population (%)	5.71	7.57	5.18	3.94
Languages other than English (%)	9.93	10.11	9.45	6.49
Workers driving to work	76.22	10.52	78.26	3.67
Households with income above \$75,000	19.75	10.46	20.89	9.18
Persons in Poverty(%)	10.86	3.52	9.48	2.34
Persons in Poverty(%)	9.95	3.37	8.76	2.45
Civilian Labor Force (%)	132180.23	185935.7	115696.45	171478.07
Civilian Labor Force (%)	127172.20	180512.5	111093.07	168313.21
Civilian Labor Force (%)	5008.03	8361.69	4603.39	6637.98
Unemployed	6053.65	8717.83	5295.25	7869.95
Unemployed	5195.13	8881.27	3024.82	4247.27
Unemployment Rate (%)	4.73	0.90	4.47	0.89
Unemployment Rate (%)	4.09	1.02	3.22	1.04
Private Nonfarm businesses	6905.27	11634.90	5883.70	8966.55
Earnings by Place of Work (mil dol)	8050.11	23065.52	6865.38	13331.75
Retail Trade (%)	7.98	2.13	7.76	1.93
Government (%)	19.82	8.85	17.96	7.04
Federal Gov Expenditure 2004 (mil. Dol.)	1827.41	5209.08	1654.86	2803.66
Federal Gov Expenditure, 2000 -2004 (%)	28.71	14.76	33.46	20.68
Federal Gov Expenditure Per Capita 2004 (dol.)	6744.19	3697.04	6743.82	2793.85
Direct Payment to Individuals, Percent 2004	63.20	12.71	58.57	13.99
Federal Gov Expenditure 2000 (mil. Dol.)	1432.60	3934.76	1204.92	1983.85
Fed, State,Local Gov Earnings 2005 (mil. Dol.)	965.87	1371.67	878.35	1293.23
Fed, State,Local Gov 2005 Percent of Total (%)	19.88	8.85	17.96	7.04
Fed, State,Local Gov Earnings 2000 - 2005	30.50	16.03	32.46	13.45
Fed, State,Local Gov Earnings 2000 (mil. Dol.)	753.83	1106.21	696.25	1037.37
Fed, State,Local Gov Employment 2005	16692.58	20831.97	15326.23	20962.34
Fed, State,Local Gov Employment 2005 Percent of Total (%)	14.50	5.57	13.26	4.40
Fed, State,Local Gov Change 2000 - 2005	5.11	10.60	2.49	6.53
Fed, State,Local Gov Employment 2000	16114.20	20870.21	15267.09	21034.26

APPENDIX J - Means for Socioeconomic Variables (South)

	Counties with Websites (n=1038)		Counties with Websites (n=345)	
	Mean	Std. Deviation	Mean	Std. Deviation
Area	675.3837	482.21048	627.6550	337.91455
Population	92889.92	229087.369	28069.71	56517.825
Population	91243.79	224267.386	28595.28	59544.992
Population	84300.82	205979.535	28433.99	59023.975
Population	70700.85	171737.541	26710.91	55733.556
Population Density	176.303	456.9539	57.029	117.1508
No. of Households	31866.97	76434.098	10943.10	23007.474
Age	36.850	5.4467	36.136	4.3108
Total Education (%)	54591.51	131821.354	18493.83	38158.105
High School Education (%)	72.369	8.3884	69.106	6.8319
Bachelors Education (%)	15.481	7.6567	11.682	3.7472
Languages other than English (%)	9.842	13.5177	5.232	8.6097
Workers driving to work	78.381	4.4241	77.920	4.2513
Households with income above \$75,000	13.976	7.1607	9.608	3.5627
Persons in Poverty (%)	15.729	5.1723	18.345	4.9742
Persons in Poverty (%)	15.284	5.6212	18.300	5.2929
Civilian Labor Force (%)	46207.80	115913.1	13078.34	29984.62
Civilian Labor Force (%)	42226.62	106728.3	12979.61	29781.07
Unemployed	2031.84	5109.9	677.41	1283.328
Unemployed	1627.00	4252.196	614.79	1231.063
Unemployment Rate (%)	5.046	1.7125	5.675	1.7186
Unemployment Rate (%)	4.455	1.6252	5.125	1.6319
Private Nonfarm businesses	2175.47	5947.299	588.06	1510.720
Earnings by Place of Work (mil dol)	2295.55	8356.246	492.70	1621.01
Government (%)	23.082	11.2252	24.699	10.1575
Federal Gov Expenditure 2004 (mil. Dol.)	607.116	1618.466	214.47	508.203
Federal Gov Expenditure, 2000 -04 (%)	30.978	23.4928	26.584	19.9527
Federal Gov Exp Per Capita 2004 (dol.)	6616.12	3567.430	7211.33	2117.628
Direct Payment to Individuals, Percent 2004	62.963	15.2358	61.378	11.5537
Federal Gov Expenditure 2000 (mil. Dol.)	457.7	1204.47	170.79	417.790
Fed, State,Local Gov Earnings 2005 (mil. Dol.)	394.341	1088.77	112.79	350.344
Fed, State,Local Gov Earnings 2005 (%)	23.087	11.2394	24.686	10.1271
Fed, State,Local Gov Earnings 2000 - 205	31.131	14.6141	30.406	19.6732
Fed, State,Local Gov Earnings 2000	303.916	843.63	85.03488	261.780
Fed, State,Local Gov Employment 2005	7470.81	17934.61	2434.34	6091.270
Fed, State,Local Gov Employment 2005 Percent of Total (%)	16.572	6.8451	17.389	6.0163
Fed, State,Local Gov Employment Percent Change 2000 - 2005	4.527	10.2326	3.195	18.7793
Fed, State,Local Gov Employment 2000	7072.47	16968.367	2387.79	6116.303

APPENDIX K - Means for Socioeconomic Variables (West)

	Counties with Websites (n=373)		Counties with Websites (n=71)	
	Mean	Std. Deviation	Mean	Std. Deviation
Area	3621.43	6343.23	7328.13	18810.67
Population	184044.54	646076.50	9321.06	12718.25
Population	181330.99	641442.79	9286.13	12692.38
Population	167584.39	602971.70	9161.37	11973.76
Population	140038.51	539548.11	8493.01	11120.58
Population Density	166.54	905.69	4.25	9.36
No. of Households	59518.71	203889.28	3438.61	4392.41
Age	36.69	7.21	35.33	7.21
Total Education (%)	105925.82	376467.41	5837.11	7218.69
High School Education (%)	82.53	7.15	81.15	6.56
Bachelors Education (%)	20.84	9.13	16.96	6.24
Foreign born Population (%)	7.00	6.93	3.51	4.70
Languages other than English (%)	15.38	13.73	14.47	16.66
Workers driving to work	70.68	9.25	62.62	13.79
Households with income above \$75,000	16.70	8.78	12.01	6.96
Persons in Poverty(%)	12.76	4.13	13.77	4.42
Persons in Poverty(%)	13.01	4.86	15.16	5.19
Civilian Labor Force (%)	92374.88	321043.73	4711.11	6670.23
Civilian Labor Force (%)	84790.27	301078.85	4459.61	6082.89
Unemployed	4239.20	14414.86	247.15	367.92
Unemployed	3911.40	14890.26	258.69	343.98
Unemployment Rate (%)	4.90	2.13	5.23	2.81
Unemployment Rate (%)	5.18	2.14	5.94	2.43
Private Nonfarm businesses	4499.73	15549.21	269.87	385.58
Earnings by Place of Work (mil dol)	5043.88	19808.07	194.43	368.19
Government (%)	26.99	13.50	31.02	11.61
Federal Gov Expenditure 2004 (mil. Dol.)	1159.33	3995.10	89.33	173.58
Federal Gov Expenditure Percent Change,	33.209	29.6577	29.400	37.50
Federal Gov Expenditure Per Capita 2004	7338.59	6421.85	10245.55	5476.37
Direct Payment to Individuals, 2004	53.545	16.2964	42.727	18.64
Federal Gov Expenditure 2000 (mil. Dol.)	874.67	3058.57	6534	110.83
Fed, State,Local Gov Earnings 2005	871.88	2833.24	58.04537	152.54
Fed, State,Local Gov Earnings 2005 (%)	26.941	13.4354	31.022	11.6061
Fed, State,Local Gov Earnings 2000 - 2005	34.856	13.6946	29.426	14.0413
Fed, State,Local Gov Earnings 2000	634622	2105288	42.69	105.519
Fed, State,Local Gov Employment 2005	14728.34	44441.643	1201.27	2325.791
Fed, State,Local Gov Employment 2005 Percent of Total (%)	18.182	7.8144	19.882	7.7442
Fed, State,Local Gov Employment Percent Change 2000 - 2005	4.711	8.9461	.896	10.4741
Fed, State,Local Gov Employment 2000	13978.68	42979.346	1155.72	2201.178

APPENDIX L – SURVEY COVER LETTER



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Dear *(name of official)*,

On behalf of the National Center for Public Performance (NCPP) at Rutgers University, we would like to request your participation with an important study on the adoption of technology among local governments. We would like you to participate in a brief web survey that would help us to better understand the adoption of technology in your government. The entire survey will take less than 5 minutes of your time. Your answers will be completely confidential and the results will be released only in aggregated format. Your name and contact information will not be shared with anyone outside the research project. On completion of the survey, we will share with you the overall results of the project.

The survey is available in the following link: *(link to survey instrument)*

This project is being conducted by the E-Governance Institute of the National Center for Public Performance at Rutgers University. Our more recent study of adoption of technology worldwide included the evaluation of the website of the largest municipality in 100 most wired nations throughout the world. That full report and findings are included in the link below.

<http://www.andromeda.rutgers.edu/~egovinst/Website/researchpg.htm>

Should you need further information or have questions about this survey, please contact Aroon Manoharan at amano@rutgers.edu. We appreciate your time and assistance with this important study.

VITA

Aroon Prasad Manoharan

1979	Born December 30 th in Chennai (Madras), India.
1997	Graduated from SBOA High School, Chennai, India
1997-2002	Attended PSG College of Technology; majored in mechanical engineering
2002	B.E., PSG College of Technology, Bharathiyar University
2002-2005	Attended Kansas State University, Manhattan, Kansas.
2006	M.P.A., Kansas State University.
2005-2009	Attended School of Public Affairs and Administration, Graduate work in Public Administration, Rutgers University, Newark, New Jersey.