
Utilization of the WWW by City and County Governments in the State of Arkansas

Steven G. Lesh, MPA, PT, SCS, ATC,
Assistant Professor of Physical Therapy

David Harding, Ph.D.
Assoc. Professor of Political Science & Public Administration
Arkansas State University

Abstract

The primary purpose of this investigation was to analyze the utilization trends of the World Wide Web by city and county governments in the state of Arkansas. A secondary purpose was to identify the convenience in accessing city and county government web pages by the respective constituents. Web pages for city and county governments in the state of Arkansas (n = 77) were identified from inquiries on multiple Internet search engines and related sites. The sample was analyzed and data was categorized related to the ownership, service availability, and private sponsorship of the web site. The research findings indicate that most city and county government web pages in the state of Arkansas maintain information about the municipality, elected officials, and contact information including E-mail and appropriate phone numbers. Few opportunities existed for the average citizen to electronically interact with the local government outside of E-mail. Using Internet search engines to find local government web sites is a difficult and time consuming challenge that must be considered by the public administrator when promoting a web site.

Introduction

The Challenge of Information Technology

The growth of information technology (IT) in the last decade of the twentieth century has shaken the foundation of traditional public management. The Internet, as an avenue to support the expansion of IT, can provide information at all levels of government including providing

material about local municipalities (3). One stop on the electronic expansion is the World Wide Web (WWW) which allows a portal to access information with an almost unlimited potential. This phenomenal growth of the information availability has made a tremendous impact on public administrators (6). Government agencies are able to easily present information for access through personal computers in the home of the citizen. Maclin (6) feels that "...the web will be the most fundamental medium for administering public and private affairs in the next millennium." With this growth of information technology, the Internet is fast becoming the communication media of choice for public administrators (3).

The basic vocabulary of public managers has changed in response to information technology and must now include the adjective "cyber-" before accepted concepts of technology, management, and democracy. Cyber-technologies have changed the working environment of public administrators (6). Cyber-management creates the possibility to organize a government without having a physical structure in place. Maclin (6) observed that "...it is possible to see how organizations, both public and private, may become synonymous with their information systems because cyber-management creates the possibility of organizing without geographic or political boundaries." Cyber-democracy is the expanded potential to empower citizens to interact with government in public forum debates, policy making, and by accessing public records. A potential set back to this rapid expansion of information, is the inability of public administrators to adjust and manage the new cyber-environment. Alexander and Grubbs (1) feel that the unprecedented opportunity exists for governmental agencies to create interactive external organizations that promote and serve democratic participation. However, if policy and procedure revisions do not keep pace with technological advancements, an entrenchment of information within the government may ensue, further widening the gap of constituent participation in the local government process.

The Goals of Information Technology

Many scholars have presented literature on the expanding role of information technology used by public administrators. Macun (6) feels that the gains in technology can streamline current governmental operations, improve the quality of governmental services, and promote the sharing of

information. Alexander and Grubbs (1) present that the new technologies will serve to integrate the delivery of services and increase citizens access to public information. Ghore and Young (4) present five functions of cyber-technology which include: 1) access engineering, 2) substantive policy, 3) public record retention and retrieval, 4) administrative decision making, and 5) informal communication. Intangible goals must also be considered in promoting advancements in information technology. Web sites maintained by local governments can promote public participation, promote governmental accountability, and establish goodwill with the public. Potential investors and industry may be recruited through web site participation to promote local economic development (6).

The Costs of Implementing Information Technology

Traditional cost and benefit analysis utilized in a rational policy making process have possibly delayed the implementation of new information technologies in the public sector. Maclin (6) feels that "...for public managers, the phenomenal growth of the new cybertechnologies has been accompanied by a growing frustration as to how these technologies might be effectively integrated within existing technological structures." Further frustrations exists as it is difficult to guarantee that citizens will access the new technology if made available by the local government (6). Potential costs include the establishment of the technological infrastructure and support personnel. Historically, most governmental subunits collected, processed, and stored relevant data and information. This created a network of non connected and redundant information systems. A data warehouse is a centralized database of information accessible to all departments within the local government (1). Benefits from establishing a data warehouse include the streamlining of duplicate and redundant services such that all government sub units have instant access to appropriate and timely information. However, some critics argue that the benefits of streamlining services may not exceed the costs of re-engineering the previously established data collection system. The information that is shared from the local government can be downloaded typically at no cost by the citizen through a Web site. This can be viewed as a benefit as revenues are saved by not producing hard copies of similar information. How will a local government assess the effectiveness of delivering services through traditional means and technological means? Maclin (6) feels that "...the web is not yet a proven medium for service delivery, and it remains difficult to

measure its success regarding other strategies [and that a local government] web site may not be able to offer any reliable return on investment for two years or more.” On a smaller financial scale, web sites may be maintained by local governments as a public relations tool rather than expanding electronic exchange between citizens and elected officials (1). The ultimate question that must be answered by the public administrator is which costs and benefits should be considered in creating and maintaining an effective presence on the Internet (6).

How Do Citizens Access Information Technology?

The World Wide Web serves as one of the most common points of access to information found on the Internet. Citizens can access a variety of information in their home by identifying the address (URL) of an appropriate web page on the information super highway. The search engine is an Internet tool that allows entry of key words by the computer user to search for related topics or web sites. When an inquiry to a specific topic is made, appropriate responses are returned to the user in the form of “hits”. The challenge to the user when utilizing a search engine is finding accurate information about the desired topic without wasting time sifting through the multitude of responses that are returned. Frank and Weikart (3) support this challenge by claiming that “...the real issue is sorting out web pages with true information content from all of the ‘noise’ on the Internet.” Once an appropriate local government page has been identified, the citizen could electronically interact by using E-mail and electronic bulletin boards, by paying utility bills or property taxes, and by downloading public codes, permit applications, or even city council minutes and agendas.

The Purpose of Researching Information Technology

“Public managers need to learn about managing in a cyber-driven organization and public administration scholars need to understand how cyber-technology is changing the face of traditional public management.” (7) The primary purpose of this investigation was to analyze the utilization trends of the World Wide Web by city and county governments in the state of Arkansas. A secondary purpose was to identify the convenience in accessing city and county government web pages by the respective constituents.

Methods

Web pages for cities and counties in the state of Arkansas were identified from inquiries on multiple Internet search engines and related sites. Key words of “Arkansas”, “city”, “county” and “government” were utilized on the following information sources: 1) Yahoo (14), 2) Piper Resources (10), 3) USA CityLink (13), 4) Public Technology (11), 5) National Association of State Information Resource Executives (8), and 6) Library of Congress (5). Information requests yielded 77 appropriate hits related to city or county governments in the state of Arkansas. No single source provided a complete listing of all local government web pages, but the composite number sites to be examined was compiled after an exhaustive search of all generated hits. Individual sites were analyzed and data collected on 1) ownership of the web page, 2) government related information available on the web page, and 3) external sponsorship and links. Ownership of the web page was coded by determining 1) whether the page was supported by the actual local government, and 2) what level of government supported the web page (city or county). Service availability was observed as either being present or absent across the data sample. Seventeen categories in total were examined: 1) welcome message, 2) city/county information (demographics), 3) structure of the government, 4) names of elected officials, 5) telephone numbers of elected officials, 6) E-mail addresses for elected officials, 7) city/county department information (names and contact numbers), 8) city/county department E-mail addresses, 9) council or board of directors information (names and contact numbers), 10) minutes of council or BOD meetings, 11) city/county budget information, 12) city/county code or ordinance information, 13) city/county job vacancy notices, 14) local weather information, 15)

voter registration information, 16) local tax information, 17) interactive electronic services (conducting public discussions, maintaining bulletin boards, providing data and information download). External sponsors were identified and coded if support was visible on the governmental web page as well as what links were available for the consumer to access. The large number of web pages that were related to the city or county, but non governmental in ownership were also analyzed to determine 1) the origin of ownership, 2) whether links existed to an actual government web page, 3) whether links existed to community services and business, and 4) whether

pseudo governmental information was presented. Frequency distributions were compiled to describe the data with analysis utilizing Pearson's chi-square (χ^2) distribution to check for statistical significance (12). Statistical significance was established at the .05 level prior to the processing of the collected data.

Results

Analysis of Governmental Web Pages

After data was collected on the 77 Internet hits, three categories of pages were identified: 1) true government web pages, 2) non governmental web pages, and 3) under construction, non functional pages. The true government web pages constituted 18.2% ($n = 14$) of the sample and were promoted and sponsored by the local government entity. Non governmental web pages represented the larger majority of the sample (80.5%, $n = 62$) existing from various sources including the local chamber of commerce, private ventures or advertising commissions. One web page belonging to a local government was under construction (1.3%, $n = 1$) with no functional attributes and was not considered further. Table A summarizes frequency distributions of Internet hit categories.

Examination of the data for city and county level governments produced a greater trend toward city utilization (85.7%, $n = 12$) than county utilization (14.3%, $n = 2$). Category analysis of the services available on the governmental web pages produced three tiers of observed cases. The three tiers were divide between categories that appeared frequently or greater than half of the observed cases (table B), infrequently or less than half of the observed cases (table C), or rarely appearing in very few of the observed cases (table D). Most pages supported some type of welcome message (85.7%, $n = 12$) typically being generated from the Mayor or administrative head of the city or county. The names of elected officials appeared frequently (85.7% $n = 12$) as did appropriate contact numbers and addresses (85.7%, $n = 12$). The ability to contact the elected officials directly through the use of E-mail was also present in a majority of the observations (57.1, $n = 8$). The web pages often maintained the departmental information (85.7%, $n = 12$) of the governmental entity necessary for citizens to contact the appropriate department via telephone or by mail, however, departmental E-mail availability was present much less frequently (28.6%, $n = 4$). Members

of the city council or board of directors were present often (71.4%, $n = 10$) usually having names of the members, mailing addresses and in some cases photo images of the individual. Less frequently was information given about the actual activities of the council or board including meeting dates, agendas or actual minutes from meetings (50.0%, $n = 7$).

The structure of the government including the duties and responsibilities of the elected officials was present in some of the observed web pages (42.9%, $n = 6$). City or county codes and ordinances were not commonly available (42.9%, $n = 6$), but in the instances where the codes were listed, a citizen could access construction regulations and permit applications for various activities. A small number of web sites identified the tax structure imposed on citizens living in the area (28.6%, $n = 4$) with county level government typically presenting the information more readily than city level government ($\chi^2 = 5.833$, $df = 1$, Asymp. Sig. = .016). Some cities and counties utilized the Internet as a job posting service listing available local governmental positions and opportunities (28.6%, $n = 4$). Only 14.3% of the sites listed any information about the city or county budget. A small percentage (7.1%, $n = 1$) had information related to how a citizen could register to vote. Statistical significance presented as county level governments typically provided voter registration information as compared to city level governments ($\chi^2 = 6.462$, $df = 1$, Asymp. Sig. = .011).

Information about the city or county including demographics, location and local attractions was commonly seen in the data set (78.6%, $n = 11$). City government web pages were statistically more likely to present information about the city or municipality than were county supported web pages ($\chi^2 = 8.556$, $df = 1$, Asymp. Sig. = .003). A few pages included details about the local climate and weather conditions (35.7%, $n = 5$). There was a common trait among all of the governmental web sites in such that no external sponsors were visibly identifiable on the page (0%, $n = 0$). The ability for local citizens to electronically interact in the government was not typically present (21.4%, $n = 3$). One observation allowed employees to log on to the local Internet server from a remote location and a second observation revealed the ability for citizens to access mailboxes and receive information and messages from the local government. A third observation produced the ability for "ftp" (file transfers) of local codes and ordinances. The presence of electronic bulletin boards and public dialogue were not observed.

Accessing the web page of the local government, citizens found the opportunity to link to related sites 92.9% of the time ($n = 13$). The most common link made was to local businesses (50.0%, $n = 7$) followed by community and non profit organizations (42.9%, $n = 6$) as well as schools and higher education centers (42.9%, $n = 6$). A smaller frequency of links was observed to the local chamber of commerce (28.6%, $n = 4$) and to local news media (21.4%, $n = 3$). Table E represents the frequency distribution of observations made about links on local governmental web pages.

Analysis of Non Governmental Web Pages

A larger number of Internet hits revealed locations that supported information similar in appearance to the analyzed governmental page, but were not maintained by the actual local government. Four categories of non governmental promotion of web pages were identified. The local chamber of commerce directly maintained the largest percentage of non governmental web page sponsorship (41.9%, $n = 26$). The chamber of commerce may also indirectly maintained a presence on the WWW representing the city of origin through a network supported by an economic development compendium in the state of Arkansas. The Development Information Network of Arkansas (DNA) (2) “includes information about the state of Arkansas, its cities, utilities, universities and nonprofit organizations.” Typical information presented on a DNA supported page include local attraction and business information, local history, information on city services, maps, demographics and when available city government information. DNA related pages compromised 30.6% ($n = 19$) of the total of non government supported web pages. Private industry (19.4%, $n = 12$) and advertising commissions or bureaus (8.1%, $n = 5$) were the remaining categories identified as promoting local web page serving the citizens of a local community. Table F summarizes the frequency distribution of the ownership of non governmental local web pages found in the state of Arkansas.

Examining the links found on a non governmental page found that typically, no reference was made to an officially sponsored local web page (3.2%, $n = 2$). Despite the low frequency of observations, advertising commissions and bureaus tended to provide more link opportunities to actual local government web pages when compared to other non governmental web

pages ($\chi^2 = 4.902$, $df = 1$, Asymp. Sig. = .027). Pseudo governmental information was noted on some pages as listings of city or county officials, departments, services, and important local government contact numbers were provided (24.2%, $n = 15$). An overwhelming number of links were directed to community services and businesses (95.2%, $n = 59$). Privately owned web pages demonstrated a statistically significant trend to not provide information about local community services ($\chi^2 = 13.136$, $df = 1$, Asymp. Sig. = .000) at the same rate as other non governmental pages. Table G presents the number of observations made related to links on non governmental web pages.

Discussion

The complexity and consistency of Internet search engine results or hits make collecting appropriate and exact information difficult. The large number of search engine hits related to city or county governments in the state of Arkansas ($n = 77$) was not indicative of the actual number of local governments that sponsored a web page ($n=14$). Multiple Internet searches were needed to identify the data set related to local government web pages for this investigation. The average computer user may not have the amount of time or the technical skills necessary to find exact source information that is desired. This may indicate to the public administrator that reliance on only one search engine to promote the URL or location of the city or county web page may not be sufficient. Statistically, the common computer user would be more likely to find a web page sponsored by a local chamber of commerce or a private industry as to finding the actual local governmental web page. As identified in this investigation, links to official web pages are limited from the privately sponsored web page. A strategy to enhance the visibility of a local government web page could be to ensure that links to the official government page are present on as many privately sponsored local web pages as possible.

Internet presence by local governments in the state of Arkansas appear to have cities taking the lead in promoting services as compared to county level governments. Services identified on local governmental web pages were mostly one way in direction. The typical observation of provided services was from the government to the citizen in the form of information about the city or county and information about the elected officials, councils, boards or departments. County level web pages trended to provide

more information about taxes and voter registration than city level governments. Observed links from the local government web page to sites were most commonly seen for local businesses, community organizations, non profit organizations, and schools. In general, limited opportunities existed on all local government web pages for the citizen to access all levels of the government electronically. Evidence collected in this investigation support the conclusions of Alexander and Grubbs (1) who claimed that web sites maintained by local and municipal governments were no more than electronic address books for contacting government officials. However, the potential does exist for the citizen to eventually interact electronically by applying for business permits, paying taxes, expressing concerns, or by attending electronically formatted city council meetings.

This investigation revealed that many web pages had the appearance of being sponsored by a local government, but in reality were private in nature. These trends were supported by the presence of government officials names, contact numbers, department names, and addresses on these non governmental pages. The privately sponsored web pages typically made no reference or link to an officially sponsored local web page. The inherent observed purposes of these pages were for promotion of local businesses and privates services. These non governmental pages tended not to provide support and access to local community services. The local chamber of commerce was the probable sponsor for most of the government look-a-like web pages. Private industry and advertising commissions represented a smaller percentage of observed web pages. This discussion should non construe that a small number of privately supported web pages exist providing city or county information in the state of Arkansas. It was not the focus of this investigation to examine all hits produced from Internet searches only those that were actual government or resembled local government web pages.

Trends identified in this investigation of minimal electronic interaction by the citizen and lack of external sponsorship fuel current debate among public administrators. To allow electronic access to public information by all citizens creates a new level of cyber-management, policy making, and the need for electronic security systems. Sponsorship of government information technology through joint and private ventures open avenues for privatization and managerial ethics debates. Both issues are relevant

concerns that were not the focus of this investigation, but would serve as legitimate research proposals for future investigations.

Conclusions

This study provides observed frequencies of services supported on local government sponsored web sites in the state of Arkansas. Most local government participation is in the form of one way information providing names and communication information about the municipality. Little opportunity exists for electronic interaction between the citizen and the local government entity, however, the growth of E-mail listings of elected officials and departments will open a potential expansion of electronic services. Finding appropriately sponsored government web pages on the Internet is difficult and requires multiple inquiries and searches. Some observations of web pages provide difficulty in determining whether the web site is sponsored by the local government or endorsed by a private entity. If city or county governments are going to utilize the World Wide Web for promotion of services and constituent interaction, then easy access by the average computer user should be considered. Security issues during the electronic exchange of information will continue to challenge the public manager. Joint ventures and private business opportunities will cloud the political environment surrounding the use of information technology by the government and possibly confuse the consumer. Further scholarly research is warranted to assess the effectiveness of the information technology presented by local governments on the web and the Internet. If the challenge to the public administrator is to manage and keep pace with cyber-technology, local municipalities in the state of Arkansas have only taken a small step toward the coming millennium.

Reference

1. Alexander, Jason Hansen and Joseph W. Grubbs (1998). "Wired Government: Information Technology, External Public Organizations, and Cyber-democracy." 3(1) Public Administration and Management: An Interactive Journal [<http://www.pamij.com/index.html>]
2. DNA. (1995). The Development Information Network of Arkansas. [<http://www.aiea.ualr.eduldina/default.html>] Referenced on 1/20/98.

3. Frank, Jonathan and Lynne Weikart (1996). "Researching Public Administration Resources on the Internet." 1(2) Public Administration and Management: An Interactive Journal [<http://www.pamij.com/index.html>]
4. Ghere, Richard K. and Brian A. Young. (1998). "The Cyber-Management Environment: Where Technology and Ingenuity Meet Public Purpose and Accountability." 3(1) Public Administration and Management: An Interactive Journal [<http://www.pamij.com/index.html>]
5. Library of Congress. (1996). State and Local Governments. [<http://lcweb.loc.gov/global/state/stategov.html>] Referenced on 4/5/98.
6. Maclin, Stephen A. (1998). "Going Online: What Public Managers Need to Know." 3(1) Public Administration and Management: An Interactive Journal [<http://www.pamij.com/index.html>]
7. Menzel, Donald C. (1998). "Symposium on Cyber-Management and Public Administration." 3(1) Public Administration and Management: An Interactive Journal [<http://www.pamij.com/index.html>]
8. National Association of State Information Resource Executives. (1998). StateSearch. [<http://www.nasire.org/ss/>] Referenced on 4/5/98.
9. Nunn, Sanimuel and Joseph B. Rubleske. (1997). "'Webbed' Cities and Development of the National Information Highway: The Creation of World Wide Web Sites by U.S. City Governments." Journal of Urban Technology 4(1):53-79.
10. Piper Resources. (1997). The PIPER Letter. [<http://www.piperinfo.conilindex.htm>] Referenced on 4/5/98.
11. Public Technology, Inc. (1998). [<http://pti.nw.dc.us/>] Referenced on 4/5/98.

12. Spatz, Chris and James O. Johnston (1989). Basic Statistics: Tales of Distributions. 4th ed. Pacific Grove: Brooks/Cole Publishing Company, pp. 232-250.
13. USA CityLink. (1998). [<http://www.usacitylink.com>] Referenced on 4/5/98.
14. Yahoo, Inc. (1994). [<http://www.yahoo.com>] Referenced on 1/19/98.