

# Electronic Government at the American Grassroots – 2002

Donald F. Norris, Director  
Maryland Institute for Policy Analysis and Research  
University of Maryland, Baltimore County  
Baltimore, MD 21250  
[norris@umbc.edu](mailto:norris@umbc.edu)

M. Jae Moon  
Bush School of Government and Public Service  
Texas A&M University  
College Station, TX 77843  
[jmoon@bushschool.tamu.edu](mailto:jmoon@bushschool.tamu.edu)

## 1. Introduction

Over the past few years, an increasing amount popular and scholarly attention has been focused on the issue of electronic government, or e-government. Defined as the electronic provision of information and services by governments 24 hours per day, 7 days per week (Norris, Fletcher and Holden, 2001), e-government is said, at the minimum, to expand and extend the ability of governmental organizations to serve their constituencies and to promote a host of other, mainly positive benefits to both the governments and their citizens.

In this paper, we examine e-government adoption and sophistication among American city and county governments. These are America's grassroots governments. They are the general purpose governments that are closest to and which deliver the greatest number of services directly to the people.

## 2. Methodology

The data for this paper are from surveys conducted in 2000 and 2002 about local government adoption of e-government in the US (ICMA/PTI, 2000; and ICMA/PTI 2002). The 2000 survey was mailed to 3,749 local governments, including 2,899 municipalities greater than 10,000 in population and 850 counties with either the council-administrator (manager) or council-elected executive form of government. Over half of the local governments surveyed (50.2 percent) responded, including 50.7 percent of municipalities and 48.2 percent of counties. The 2002 survey was mailed to 7,844 local governments, including 7,005 municipalities greater than 2,500 in population and 839 counties with either the council-administrator (manager) or council-elected executive form of government. Over half of the local governments surveyed (52.6 percent) responded to the 2002 survey as well, including 52.8 percent of municipalities and 50.4 percent of counties. In order to provide for direct comparisons between the 2000 and 2002 surveys, from the 2002 survey we selected only municipalities with populations greater than 10,000.

This analysis includes descriptive statistics, cross tabulations and basic tests of statistical significance for relationships between reported local government demographic characteristics (independent variables) and various attributes of e-government (dependent variables). The demographic characteristics included:

- ! population – whether large (>250,000), medium (25,000 to 249,000), or small (<25,000);
- ! type of government – whether city or county;
- ! form of government – whether mayor-council or council-manager among cities and whether council-administrator or council-elected executive among counties;
- ! region of the country – whether located in the west, south, north central, north east; and
- ! metropolitan status – whether central, suburban or independent cities.

The e-government attributes included: web site adoption, age of web site and web site sophistication as measured by whether governments offer on-line transactions on their web sites. We also examined perceived impacts of e-government, but did not conduct tests of statistical significance between these dependent variables and the demographic factors (the independent variables) listed above.

Based on previous research (e.g., Holden, Norris and Fletcher, 2003; and Norris and Campillo, forthcoming 2003), we expected that the typical pattern of statistically significant relationships between the independent and dependent variables would be in the directions indicated above. That is, cities, larger local governments, those with professional managers, those located in the west and south, and central cities and suburbs will be more likely to have adopted e-government, to have older web sites, and to offer on-line transactions on their web sites.

### **3. Findings**

Clearly (and not surprisingly based on previous research), the vast majority of the American local governments have web sites. In 2000, this included 83.6 percent of them and in 2002, 87.7 percent, an increase of 4.1 percent in two years. Additionally, most of the local governments without web sites in both years indicated that they had plans to develop such sites within the next year (69.9 percent in 2000 and 71.4 percent in 2002). We also found that adoption of a web site was related in predicted ways to population, type and form of government and metropolitan status, (at the  $p = <.01$  level). That is, large local governments, cities, cities and counties that are professionally managed, and central cities and counties (followed by those that are suburban) were more likely than their counterparts to have adopted web sites. There was a statistically significant relationship between region and adoption as well but it was slightly different than expected. Here, the order of the relationship was west, north central, south and northeast ( $p = <.001$ ). The predicted relationship is west, south, north central and northeast.

Among those planning to adopt web sites, there were no statistically significant relationships between size, form of government, and region and plans to adopt. A relationship obtained between metropolitan status and plan to adopt (at the  $p = <.01$  level) but in a different than expected direction. Here, suburban and independent governments were more likely to report plans to adopt than central governments. This makes sense, however, because central were more likely to have already adopted e-government than suburban and independent governments. Type of government appears to matter here as well with counties being more likely to report plans to adopt than cities. Again, this makes sense because cities were more likely than counties to have adopted web sites.

The 2002 survey did not repeat the question asked in 2000 about the age of local government web sites. In 2000, over two-thirds (68.5 percent of local governments reported that their sites were three years old or less. Over one-quarter (27.1 percent) said four to five years and only 4.4 percent said more than five years. Thus, at this writing (ca. 2003), we can be reasonably sure that two-thirds of sites would be six years old or less, that a quarter or so would be seven to eight years old, and that a tiny minority would be over eight years old. This finding continues to tell us that e-government at the grass roots in the US is a very new phenomenon. Large, western and central local governments were more likely to be early adopters ( $p = <.001$ ) than their counterparts. No statistically significant relationships obtained between form and type of government.

Evidence from 25 years or more of research into IT and local government suggests that IT in governmental organizations produces, for the most part, positive results, although not without some problems. (See, for example: Kling, 1978; Kraemer, Dutton and Northrop, 1981; Danziger and Kraemer, 1986; Northrop, et al., 1990; Kraemer and Norris; 1994; Norris and Kraemer, 1996; Bailey, 1996; Kraemer and Dedrick, 1997; and Norris and Moon, 2003.)

Both the 2000 and the 2002 survey asked how e-government has changed the responding local governments (Table 1). The top impacts reported were the same and were in the same order in both surveys. Increased demands on staff led at 28.9 percent in 2002 (up almost seven percent from 2000). Next came changed the role of staff (26.8 percent in 2002 v. 20.5 percent in 2000). This was followed by the re-engineering of business processes (21.3 percent in 2002 v. 18.0 percent in 2000). Then, business processes are more efficient (17.2 percent in 2000 v. 13.6 percent in 2002). Finally reduced time demands on staff (15.0 percent in 2002 v. 8.6 percent in 2000). Negligible numbers of governments reported reduced administrative costs, reduced staff levels or increased non-tax revenues as a result of e-government.

Perhaps the most important thing to note about these data is that only minorities (in many cases, only tiny minorities) of local governments reported any impacts at all. Evidently, most do not feel that e-government has yet reached the stage that it is producing noticeable impacts. These data also indicate, on the one hand, that e-government is producing some salutary results: improving business processes and reducing time demands on staff in growing minorities of local governments. On the other hand, the data also suggest that e-government has increased demands on and has changed the role of staff but it has not produced revenues.

As indicated elsewhere (Holden, Norris and Fletcher, 2003 forthcoming), it is still early days in e-government and, therefore, assessing impacts may be premature. Nevertheless, these data provide at least a preliminary view of e-government impacts -- a view that does not support claims of the types and levels of positive impacts based on the hype surrounding e-government.

Early local government web sites (i.e., those established by “early adopters – Rogers, 1985) were mainly informational. Later and more sophisticated sites add such capabilities as downloadable forms, forms that can be completed on line, transactions (like paying bills and taxes, reporting problems and reserving facilities) and may also provide both horizontal (within a government) and vertical (among layers of government) integration (see also, Layne and Lee, 2001).

How sophisticated are local governmental web sites today. The data from the two surveys permit examination of the extent to which local governments provide transactions on their sites. We use transactional capability as a proxy for site sophistication. We divide transactions into financial and non-financial because it is technically (and in some cases legally) easier and involves fewer privacy and security concerns to automate non-financial than financial transactions. As the data in Table 2 show, first, with only some exceptions, very few local governments offer transactions on-line through their web sites. Among non-financial transactions, only one – the ability to download forms for manual completion – was provided by a majority of local governments (65.8 percent). Only two transactions (requests for service, 33.3 percent; and request for records, 32.2 percent) had been adopted by as many as one-third of local governments. All other non-financial transactions had been adopted by fewer than one-third of these governments. On-line delivery of government records had been adopted by one-fifth of local governments (21.3 percent). The penetration of the remainder of non-financial transactions onto local government web sites ranged from a low of 2.4 percent for voter registration to a high of 15.7 percent for program registration.

Second, in four of the seven non-financial transactions for which data were available for both 2000 and 2002, substantial increases occurred in adoption during this two year period. This was true for requests for services, requests for records, program registration, and permit applications and renewals. Only small increases occurred, however, in three cases – business licenses, voter registration or property registration.

Third, only a tiny minority of governments offered on-line financial transactions – *only five to six and one-half percent* of local governments reported offering on-line financial transactions on their web sites– and the increases in adoption between 2000 and 2002 were modest at best.

These data lead to the conclusion that, as measured by the number of on-line transactions available, most local government web sites are relatively unsophisticated, although the trend is toward increased transactional capability (albeit gradually).

Except for size, local government demographic characteristics were not uniformly associated with the adoption of on-line transactions (either at all or in predicted directions). Size was positively associated with adoption (at the  $p = <.05$  level or less) for all on-line transactions. Metro status was positively associated with adopting on-line transactions in the predicted direction ( $p = <.05$  or less) for utility bills, fines and fees, requests for records, registration for recreation programs and downloadable forms. Metro status was positively associated with adoption, but in other than the predicted direction for paying taxes (central, independent, suburban), permits (central, independent, suburban), delivery of records (central, independent, suburban) and requests for services (suburban, central, independent). For all transactions except but requests for services, governments with central location, as predicted, were more likely to adopt than suburban or independent governments. No statistically significant relationships were found for metro status and business licenses, voter registration and property registration.

The remaining demographic characteristics were not found to be associated with the adoption of on-line transactions consistently, if at all. The pattern of association between geographic region and transactions was different than predicted for nine transactions, and in four there was no statistically significant relationship. More often than not, type of government was found to be either in a different direction than predicted (five cases) or not statistically significant (seven cases). Form of government was mostly not statistically significant. In eight of 13 transactions, city form was not statistically significant. For county form, it was not for 12 of 13.

#### **4. Conclusion**

These data admit to at least the following conclusions. First, most American local governments have web sites, although most are relatively young at this writing. Second, adoption of web sites is related to several local government demographic characteristics, including: population, type and form of government and metropolitan status. Third, few local governments report that impacts have occurred from e-government. However, those reporting impacts generally report positive impacts, with the exception of increased demands on staff. Fourth, for the most part, local government web sites, as measured by the number of on-line transactions available, are not particularly sophisticated. However, there is a slow trend in the direction of adding more transactions.

It is important that scholars continue to conduct research on e-government adoption and impacts. Among other things, such research is needed in order to keep up with the practice, to ascertain the actual impacts (as distinct from impacts predicted in the considerable hype surrounding e-government) of this dynamic and rapidly evolving means of delivering governmental information and services.

**Table 1 - Impacts – Survey Data**

	2000		2002	
	No.	%	No.	%
Increased demands on staff	344	21.9	616	28.9
Changed role of staff	323	20.5	570	26.8
Business processes are being re-engineered	283	18.0	453	21.3
Business processes are more efficient	214	13.6	367	17.2
Reduced time demands on staff	135	8.6	319	15.0
Reduced administrative costs	79	5.0	147	6.9
Reduced number of staff	11	.07	23	1.1
Increased non-tax-based revenues	10	.06	16	.8

**Table 2 - On-Line Service Adopted**

	2000		2002	
	No.	%	No.	%
<b>Non-financial Transactions:</b>				
Request for service	284	18.1	587	33.3
Request for local government records	234	14.9	573	32.2
Interactive maps	175	11.1	xxx	xxx
Registration for programs **	118	7.5	272	15.7
Permit application or renewal**	77	4.9	201	11.4
Business license application or renewal**	52	3.3	101	5.8
Voter registration	31	2.0	40	2.4
Property registration	15	1.0	45	3.3
Delivery of local government records	xxx	xxx	371	21.3
Download forms for manual completion	xxx	xxx	1,064	65.8
	No.	%	No.	%
<b>Financial Transactions:</b>				
Payment of taxes	41	2.6	114	6.5
payment of utility bills	35	2.2	105	6.1
Payment of license fees	27	1.7	xxx	xxx
Payment of ticket/fines	26	1.7	xxx	xxx
Payment of fines and fees	xxx	xxx	98	5.6

\*\*There are differences in the wording of the questions between the two surveys; xxx-No data available.

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