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COMPUTING IN SMALL LOCAL GOVERNMENTS  
IN NEBRASKA

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In the final analysis, however, the author must take sole responsibility for any errors of fact or interpretation appearing in this paper.

## COMPUTING IN SMALL LOCAL GOVERNMENTS IN NEBRASKA

### Introduction

A 1983 study found that patterns of computer use among small local governments (cities under 50,000 and counties under 100,000) in seven plains and mountains states were not substantially different from the patterns of computing detected in earlier studies of larger governments.<sup>1</sup> The 1983 study also found that, among other things, basic "housekeeping" functions were the most frequently automated activities; that computer adoption was associated with governmental size, form, type, and metropolitan status; and that most governments owned in-house minicomputers.

Nearly a year later, a similar study was conducted among city and county governments in southeastern Nebraska. This study was conducted under contract for a client organization and hence cannot be released. However, the data base from it has been made available for the analysis presented here.

### Surveyed Governments

The governmental organizations surveyed included 26 cities ranging in size from 2,500 to 33,000 and all counties (a total of 33) with populations up to 50,000. Thus, all governments of interest in southeastern Nebraska were covered by the survey.<sup>2</sup>

Additionally, the 33 counties were divided according to their principal elective offices. These included the assessor whose

main functions involve real and personal property assessment and appraisal; the clerk--recording of official documents, budgetary accounting, payroll, and related activities; the register of deeds--official registry of land transaction documents; and the treasurer--tax billing and collection, distribution of tax revenues, and accounting for all county revenues. (See Figure 1.)

Other studies of computing in local governments have examined counties as unitary organizations. For analytical purposes this approach is quite justifiable. However, in most states, counties are really multiheaded organizations with several elected officials of equal status plus an elected legislative body. By dividing counties according to their principal offices, this study sought to identify patterns of computing not only in all governments in the area but also in city and county governments and in the principal county offices.

### Computer Adoption

In 1975, Kraemer, Dutton, and Matthews found that 36 percent of small city governments used computers.<sup>3</sup> Eight years later, Norris reported that 53.3 percent of small city and county governments in the plains and mountain states did so. This included 67.7 percent of the surveyed cities and 36.0 percent of the counties.<sup>4</sup> In southeastern Nebraska, 64.3 percent of the governmental organizations surveyed used computers. (See Figure 2.)

This increase in computer use by small governments can be explained by the increasing availability of the technology, reductions in hardware costs, and improved usability of computers, especially computer software. In addition, although local governments are relatively slow to adopt innovative technologies, increasing workloads and budgetary constraints on the hiring of personnel have resulted in these organizations acquiring computer systems in order to accomplish their work.

Computer adoption has been reported elsewhere to be affected by such variables as size, type of government management, and financial condition.<sup>5</sup> Adoption in southeastern Nebraska was tested against these variables. A clear relationship between computer adoption and size appears to exist. Half of the governmental units with populations under 5,000 used computers compared with 58.1 percent of those from 5,000 to 9,999, and 74.3 percent of governments over 10,000. (See Figure 3.)

City type of government and the existence of professional management also appeared to be positively related to computer adoption. In this regard, 84.6 percent of cities compared with 60.2 percent of county offices used computers. (See Figure 2.) Also, 100 percent of cities with professional managers and 75 percent of these without managers used computers. However, caution is urged in interpreting the data regarding computer adoption and professional management. Although the percentage difference in these figures is sizable, the difference in actual numbers is quite small. (See Figure 3.)

Among county offices, 93.9 percent of treasurers, 72.7 percent of assessors, 51.6 percent of clerks, and 9.4 percent of registers of deeds were automated. Aside from registers of deeds, this indicates a relatively high degree of automation in county governments. One reason for the small percentage among registers of deeds is that Nebraska law prohibits the use of computers for recording land transaction documents in counties under 75,000 population. (See Figure 2.)

Budgetary strength did not appear to be related to computer use. Among computer users, for example, 59.2 percent reported tight budgets, and 66.3 percent reported budgets in relatively good condition. This 7.1 percent difference is relatively minimal. (See Figure 3.)

The vast majority (76.8 percent) of computers used by these governments were in-house systems. The differences between city and county use were minor, with 86.4 percent of cities and 85.7 percent of counties owning them. Most county offices also owned in-house computers. (See Figure 2.)

Almost all of the surveyed governments with systems owned one computer with only eight owning more than one. These included three cities with two systems each, two county treasurers with two, and one county clerk with three. Most of these systems were owned (86.7 percent) as opposed to leased (12.2 percent). None was rented. (See Figure 4.)

An earlier study found that IBM, NCR, and Burroughs accounted for over 70 percent of all owned computers among small local

governments in the plains and mountain states.<sup>6</sup> This finding was repeated in southeastern Nebraska, with these three vendors having 72.4 percent of this installed systems. However, among governments in this area, one of these vendors, Burroughs, had a commanding lead with 50 percent of all installations. Burroughs accounted for 60 percent of all county owned computers and 25 percent of all city systems. No other single vendor came close to Burroughs' penetration of the local government market in southeastern Nebraska. (See Figure 4.)

This finding may reflect nothing more than the relative and possibly shifting regional strength of the marketing forces of particular computer manufacturers. That is, Burroughs is relatively stronger in southeastern Nebraska than its competitors, especially among county governments, while not quite so strong in the plains and mountains states as a whole. However, Burroughs' strength in southeastern Nebraska can also be explained, in part at least, by the existence of a single, highly successful software organization that provides programming to local governments (primarily counties) exclusively on Burroughs hardware. This may be an example of what consultants and technical assistance providers preach: that programming should be a major factor in local government selection of a particular brand of computer hardware.

When the type and generation of technology were investigated, most systems (43.9 percent) were found to be minicomputers, followed by a surprisingly large number (33.7 percent) of accounting/bookkeeping machines. Microcomputers accounted for



only 14.3 percent of the systems reported. Cities were more up-to-date in their use of the technology than counties, with 46.4 percent of city owned systems being minicomputers, 32.1 percent micros, and 21.4 percent accounting/bookkeeping machines. (See Figure 4.)

Although counties had nearly the same percentage of minicomputers as cities (42.9 percent), counties owned far more older equipment. Over one-third (38.6 percent) of county owned systems were accounting/bookkeeping machines, and only 7.1 percent of their computers were micros. Among county officers, treasurers lagged farthest behind in the use of modern technology with 54.8 percent of their systems being accounting/bookkeeping machines and 25.8 percent minicomputers. County treasurers owned no microcomputers.<sup>7</sup> (See Figure 4.)

Cities were shown to use the most modern technology by yet another measure. Systems were categorized as either current, previous, dated, or antiquated.<sup>8</sup> Most city systems (64.3 percent) were either current or previous models, and only 32.1 percent were dated or antiquated. The majority of county owned systems (60.0 percent), on the other hand, were dated or antiquated, and only 28.6 percent represented current or previous models. (See Figure 4.)

One explanation for county treasurers being relatively far behind in their use of modern technology is that they were probably among the first users of computers in Nebraska counties and are currently the most likely to be computerized. Treasurers

are responsible for preparation and mailing of real and personal property tax statements, for collection of taxes and distribution of receipts, and a variety of accounting functions. With this myriad of responsibilities, their use of computers is understandable. Furthermore, older systems that are functional, even those that by today's hardware standards are antiquated, are far superior in treasurers' offices to manual operation.

The existence of a fairly large number of older computer systems in local governments in southeastern Nebraska means that both hardware maintenance and software support are going to become increasingly difficult to find and afford, and that system breakdowns will be on the increase. Some jurisdictions in the study area report that these are already major concerns.

These factors, combined with the availability at reasonable prices of modern hardware and user-friendly software written for local government users, mean that cities and counties in this area will provide a fertile marketing opportunity to computer hardware and software organizations for the next several years. They also mean a greater need for education, training, and technical assistance for local governments in the acquisition and use of computer systems.

#### Functions Automated

Previous studies have found that the functions automated by local governments can be classified as mainly "housekeeping" activities.<sup>9</sup> This was also the case in southeastern Nebraska.

That is, the vast majority of automated functions had to do primarily with financial management activities.

The most frequently reported automated functions, in order of number of responses, were: accounting (44), payroll (34), tax billing (28), real property records (26), and tax assessment (23). They were followed by budgeting, utility billing, personal property records, and motor vehicle registration (21 each). All of these functions are related in some respects to financial management activities. (See Figure 5.)

In terms of percent of offices reporting automation of a function, a somewhat different picture emerged. Here, tax assessment ranked first (95.8 percent of the affected offices reporting), followed in order by utility billing (95.5 percent), tax billing (90.3 percent), payroll (89.5 percent), personal property records (87.5 percent), real property records (86.7 percent), motor vehicle registration (67.7 percent), accounting (63.8 percent), tax appraisal (62.5 percent),<sup>10</sup> and budgeting (55.3 percent). All others were automated by fewer than 50 percent of the offices that performed the functions. Here again, all listed activities to some extent involved local government financial management.

These lists of automated functions are unremarkable. They are consistent with findings from previous research regarding the automation of "housekeeping" activities and are to be expected, based on the functions that particular offices perform (e.g., cities and utility billing, or county treasurers and tax billing)

and for which computerization has proved to be a useful and effective means of performing a job.

Responding offices were also ranked according to the number of functions automated. The expectation of the research was that clear differences between city and county offices would emerge. The difference was found. Cities were far more extensively automated than county offices. In fact, 31.8 percent of cities with automation had automated seven or more functions, while only 1.4 percent of county offices had done so. Almost all county offices with automation had automated six or fewer functions. (See Figure 7.)

This finding should be interpreted in light of the fact that individual county offices, with the singular exception of the county clerk, had fewer functions eligible for automation. (See Figure 6.) Hence, the lesser extent of automation in county offices may reflect no more than differences in functional activity between county offices and city governments.

#### Future Plans

All respondents, regardless of whether they used a computer in their operations, were asked about their future plans regarding automation. That is, did they plan in the next two years to acquire new or additional computer hardware, software, or services.

Almost one-third (31.8 percent) of all jurisdictions questioned said they had such plans. Cities ranked ahead of

counties (46.2 percent to 28.9 percent) in this regard, and among county offices clerks ranked first (38.7 percent), followed by treasurers (36.4 percent), registers of deeds (29.0 percent), and assessors (12.1 percent). Responses regarding the type of equipment or services these jurisdictions planned to acquire revealed no particular pattern. (See Figure 8.)

Earlier work had suggested a relationship between current use of computers and plans to acquire automated technology.<sup>11</sup> This finding was expected to be repeated in southeastern Nebraska, and it was. However, only a 10 percent difference was found between governments that used computers and those that did not in their plans to acquire new systems. For example, 44.2 percent of jurisdictions with automation said they planned to acquire new technology while 34.9 percent of these not currently automated had such plans. (See Figure 9.)

The study also attempted to determine if a relationship existed between perceived budget strength or governmental size and plans to acquire new systems. Very little difference was found between those governments with "tight" finances and those in "good" financial condition and their likelihood to have plans to buy automated technology. As Figure 10 shows, only about a 5 percent margin separated the two groups. Hence, budgetary strength does not appear to be related to a unit's likelihood to have plans to acquire new computer systems.

An apparent inverse relationship, however, was found between government size and plans to buy new systems. The smaller the

governmental unit, the more likely it was to have made such plans. For example, 57.6 percent of units with populations of less than 5,000 said they had plans, compared to 42.3 percent of places from 5,000 to 9,999, and only 27.4 percent of places over 10,000. (See Figure 11.)

As reported earlier, this study found that the larger the community, the more likely it was to use automated technology. Thus, smaller jurisdictions, those less likely to be computerized in the first place, would be expected to be the ones with plans to acquire the technology. Furthermore, the recent revolution in computer technology that has brought more user oriented systems onto the market at relatively low prices has meant that computer technology is within the grasp of even small governments today when this would not have been the case a few years ago.

### Summary

A recent study of small local governments in southeastern Nebraska found a rather sizable degree (64.3 percent) of computer use by these governments. This adoption rate is 11.0 percent higher than that reported in a regional survey a year earlier.<sup>12</sup> This difference may be explained by the nature of the two studies. The regional survey was conducted on a random, stratified sample of governments in a sparsely populated region. The southeastern Nebraska survey included all governments in the most densely populated area of a single state in the region. Furthermore, many (33.7 percent) of the "computers" reported by

these governments were accounting/bookkeeping machines, and over half of all systems (52.1 percent) were either dated or antiquated.

By and large, the rest of the findings of this study were highly consistent with earlier research on computer use in local governments. For example, most systems were in-house minicomputers, most governments owned only one computer, most automated functions were related to financial management, and computer adoption was related to government size and type although not necessarily to professional management.

Additional findings of interest were that a single computer manufacturer accounts for half of the installed systems in the area, and plans to acquire new or additional computer technology were found to be related to governmental size but not to existing system ownership or budget strength.

Finally, the number of older systems owned by local governments in southeastern Nebraska suggests that these governments will be fertile ground for marketing efforts by computer system vendors in coming years. This also suggests the need for education and training for these governments in the acquisition and use of computer systems in order to ensure that purchase decisions will be cost-effective.

## FOOTNOTES

<sup>1</sup>Donald F. Norris, "Computers and Small Local Governments: Uses and Users," Public Administration Review (January/February 1984) pp. 70-78. Data concerning computer use by larger governments can be found in the works of Kenneth L. Kraemer and his associates that is based largely on the 1973-75 EPRIS survey conducted at the University of California-Irvine.

<sup>2</sup>The survey also included school districts with 1,000 pupils or more, electric utilities with revenues of \$1 million or more, and all natural resources districts in the study area, but the data from these jurisdictions are not reported here.

<sup>3</sup>See Kenneth L. Kraemer, William H. Dutton, and Joseph R. Matthews, "Municipal Computers: Growth, Usage and Management," Urban Data Service Report (Washington, D.C.: International City Management Association, November 1975), p. 2.

<sup>4</sup>Norris, p. 70.

<sup>5</sup>Ibid.

<sup>6</sup>Norris, p. 74.

<sup>7</sup>Two of the reasons micros may not be more widely used among these governments are (1) lack of software to perform local government functions and (2) lack of multi-user capabilities for most commercially marketed micros.

<sup>8</sup>Current technology is defined as a manufacturer's most recent commercially available system(s) at the time of the survey. Previous systems are those one model removed from current technology. Dated means systems at least one model removed from previous. Antiquated refers to systems one model and more removed from those defined as dated.

<sup>9</sup>Kenneth L. Kraemer and John Leslie King, Computers in Local Government, (New York: Praeger, 1977), Vol. I, pp. 24-25; Vol. II, p. 36, and Norris, p. 74.

<sup>10</sup>Based on knowledge of county governments in Nebraska, the author suspects that such a high number of responses means that appraisal and reappraisal data are electronically recorded. It does not mean, however, that mass appraisals themselves are conducted with the aid of computers.

<sup>11</sup>Norris, p. 75.

<sup>12</sup>Norris, p. 70.



FIGURE 1

## JURISDICTIONS SURVEYED

Size	All Jurisdictions	Cities	All County Offices	County Offices			
				Assessors	Clerks	Registers of Deeds	Treasurers
<5,000	22	10	12	3	3	3	3
5,000-9,999	62	9	53	14	13	12	14
10,000+	70	7	63	16	15	16	16
Total	154	26	128	33	31	31	33

FIGURE 2

## COMPUTER USE

	All Jurisdictions		Cities		All County Offices		Assessors		County Offices		Clerks		Registers of Deeds		Treasurers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>A. Automated</b>																
Yes	99	64.3	22	84.6	77	60.2	24	72.7	16	51.6	6	19.4	31	93.9		
No	55	35.7	4	15.4	51	39.8	9	27.3	15	48.4	25	80.6	2	6.1		
Total	154	100.0	26	100.0	128	100.0	33	100.0	31	100.0	31	100.0	33	100.0		
<b>B. Mode</b>																
In-house	76	76.8	17	77.3	59	76.6	15	62.5	14	87.5	5	83.3	25	80.6		
Service bureau	14	14.1	3	13.6	11	14.3	7	29.2	2	12.5	0	0.0	2	6.5		
Both	9	9.1	2	9.1	7	9.1	2	8.3	0	0.0	1	16.7	4	12.9		
Total	99	100.0	22	100.0	77	100.0	24	100.0	16	100.0	6	100.0	31	100.0		

FIGURE 3

## CHARACTERISTICS OF COMPUTER USERS AND NON-USERS

## A. Computer Use and Government Size

Computer Use	< 5,000		Population 5,000-9,999		10,000+		Total	
	No.	%	No.	%	No.	%	No.	%
Yes	11	50.0	36	58.1	52	74.3	99	64.3
No	11	50.0	26	41.9	18	25.7	55	35.7
Total	22	100.0	62	100.0	70	100.0	154	100.0

## B. Computer Use and City Government Form

Computer Use	City Government Form				Total	
	Mayor/Council		Council/Manager		No.	%
Yes	12	75.0	10	100.0	22	84.6
No	4	25.0	0	0.0	4	15.4
Total	16	100.0	10	100.0	26	100.0

## C. Computer Use and Budget Strength

Computer Use	Budget Strength				Total	
	Tight		Good		No.	%
Yes	29	59.2	69	66.3	98	64.1
No	20	40.8	35	33.7	55	35.9
Total	49	100.0	104	100.0	153	100.0

FIGURE 4  
TYPES OF IN-HOUSE SYSTEMS

	All Jurisdictions		Cities		All County Offices		County Offices							
	No.	%	No.	%	No.	%	Assessors		Clerks		Registers of Deeds		Treasurers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<u>Manufacturer</u>														
Burroughs	49	50.0	7	25.0	42	60.0	13	76.5	10	62.5	3	50.0	16	51.6
IBM	12	12.2	8	28.6	4	5.7	0	0.0	3	18.8	0	0.0	1	3.2
Apple	2	2.0	1	3.6	1	1.4	0	0.0	0	0.0	1	16.7	0	0.0
NCR	10	10.2	3	10.7	7	10.0	1	0.0	2	12.5	1	16.7	3	9.7
Radio Shack	4	4.1	4	14.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Others	20	20.4	5	17.8	15	21.4	3	17.6	1	6.3	1	16.7	10	32.3
Don't know	1	1.0	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0	1	3.2
Total	98	100.0	28	100.0	70	99.9	17	100.0	16	100.1	6	100.1	31	100.0
<u>Hardware type</u>														
Mini	43	43.9	13	46.4	30	42.9	10	58.8	9	56.3	3	50.0	8	25.8
Micro	14	14.3	9	32.1	5	7.1	1	5.9	3	18.8	1	16.7	0	0.0
Accounting/ Bookkeeping	33	33.7	6	21.4	27	38.6	5	29.4	4	25.0	1	16.7	17	54.8
Don't know	8	8.2	0	0.0	8	11.4	1	5.9	0	0.0	1	16.7	6	19.4
Total	98	100.1	28	99.9	70	100.0	17	100.0	16	100.1	6	100.1	31	100.0
<u>Age of model</u>														
Current	27	27.6	13	46.4	14	20.0	4	23.5	5	31.3	2	33.3	3	9.7
Previous	11	11.2	5	17.9	6	8.6	1	5.9	3	18.8	1	16.7	1	3.2
Dated	18	18.4	3	10.7	15	21.4	6	35.3	4	25.0	1	16.7	4	12.9
Antiquated	33	33.7	6	21.4	27	38.6	5	29.4	4	25.0	1	16.7	17	54.8
Don't know	9	9.2	1	3.6	8	11.4	1	5.9	0	0.0	1	16.7	0	19.4
Total	98	100.1	28	100.0	70	100.0	17	100.0	16	100.1	6	100.1	31	100.0
<u>Mode of acquisition</u>														
Own	85	86.7	21	75.0	64	91.4	15	88.2	12	75.0	6	100.0	31	100.0
Lease	12	12.2	7	25.0	5	7.1	2	11.8	3	18.8	0	0.0	0	0.0
Don't know	1	1.0	0	0.0	1	1.4	0	0.0	1	6.3	0	0.0	0	0.0
Total	98	99.9	28	100.0	70	99.9	17	100.0	16	100.1	6	100.0	31	100.0
<u>Number of in-house users</u>														
1 system	77	90.6	14	73.6	63	95.5	17	100.0	13	92.9	6	100.0	27	93.1
2 systems	5	5.9	3	15.8	2	3.0	0	0.0	0	0.0	0	0.0	2	16.9
3 systems	1	1.2	0	0.0	1	1.5	0	0.0	1	7.1	0	0.0	0	0.0
4 systems	2	2.4	2	10.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	85	100.1	19	99.9	66	100.0	17	100.0	14	100.0	6	100.0	29	100.0

Note: The data presented here refer to the 98 computer systems owned or leased by 85 jurisdictions reporting in-house systems.

FIGURE 5

## FUNCTIONS AUTOMATED

Functions	All		Cities		All County		County Offices							
	Jurisdictions				Offices		Assessors		Clerks		Registers of Deeds		Treasurers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Accounting	44	63.8	15	61.7	29	61.7			9	56.3			20	64.5
Payroll	34	89.5	21	95.5	13	81.3			13	81.3				
Budgeting	21	55.3	14	63.6	7	43.8			7	43.8				
Inventory	8	21.1	8	36.4					0	0.0				
Personnel	10	26.3	8	36.4	2	12.5			2	12.5				
Equipment management	6	15.8	6	27.3					0	0.0				
Engineering	3	7.9							3	18.8				
Public works	5	22.7	5	22.7										
Utility billing	21	95.5	21	95.5										
Police/sheriff records	7	18.4	4	18.2					3	18.8				
Court records	4	10.5	1	5.0					3	18.8				
Real property records	26	86.7			26	65.0	23	95.8			3	18.8		
Personal property records	21	87.5			21	87.5	21	87.5						
Property tax appraisal	15	62.5			15	62.5	15	62.5						
Tax assessment	23	95.8			23	95.8	23	95.8						
Tax billing	28	90.3			28	90.3							28	90.3
Motor vehicle registration	21	67.7			21	67.7							21	67.7
Drivers' licenses	9	29.0											9	29.0
Voter registration	7	43.8			7	43.8			7	43.8				
Public health	1	6.3			1	6.3			1	6.3				
Public welfare	1	6.3			1	6.3			1	6.3				
County highway	2	12.5			2	13.3			2	13.3				
Word processing	13	13.1	7	31.8	6	8.5	3	13.6	1	6.3	0	0.0	2	6.5
Other	27	27.3	3	13.6	24	31.2	12	50.0	1	6.3	1	16.7	10	32.2

Note: Figure 6 shows the number of offices that were questioned in each functional area. The percents shown in Figure 5 are obtained by dividing the number of units responding by total number of units questioned.

TABLE 6

## OFFICES QUESTIONED BY FUNCTIONAL AREA

Functions	Total Units Questioned	City	County
Accounting	69	X(22)	C(16), T(31)
Payroll	38	X(22)	C(16)
Budgeting	38	X(22)	C(16)
Inventory	38	X(22)	C(16)
Personnel	38	X(22)	C(16)
Equipment management	38	X(22)	C(16)
Engineering	38	X(22)	C(16)
Public works	22	X(22)	
Utility billing	22	X(22)	
Police/sheriff records	38	X(22)	C(16)
Court records	38	X(22)	C(16)
Real property records	30		X(24), R(16)
Personal property records	24		A(24)
Property tax appraisal	24		A(24)
Tax assessment	24		A(24)
Tax billing	31		T(31)
Motor vehicle registration	31		T(31)
Drivers' licenses	31		T(31)
Voter registration	16		C(16)
Public health	16		C(16)
Public welfare	16		C(16)
County highway	16		C(16)
Word processing	99	X(22)	A(24), C(16), R(6), T(31)
Other	99	X(22)	A(24), C(16), R(6), T(31)

Note: County offices are: A = assessor, C = clerk, R = register of deeds, T = treasurer. Numbers in parenthesis indicate number of offices responding.

FIGURE 7

## NUMBER OF FUNCTIONS AUTOMATED BY OFFICE

Number of Functions Automated	Responding Offices													
							County Offices							
							Assessors		Clerks		Registers of Deeds		Treasurers	
	Total No.	%	City No.	%	County Total No.	%	No.	%	No.	%	No.	%	No.	%
1-3	41	43.6	7	31.8	33	45.8	5	20.8	7	50.0	2	66.7	19	61.3
4-6	45	47.9	8	36.4	38	52.8	19	79.2	6	42.9	1	33.3	12	38.7
7-9	6	6.4	6	27.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10+	2	2.1	1	4.5	1	1.4	0	0.0	1	7.1	0	0.0	0	0.0
Total	94	100.0	22	100.0	72	100.0	24	100.0	14	100.0	3	100.0	31	100.0

FIGURE 8

## PLANS TO ACQUIRE

	All Jurisdictions						County Offices							
			Cities		All County Offices		Assessors		Clerks		Registers of Deeds		Treasurers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<u>Plan to acquire</u>														
Yes	49	31.8	12	46.2	37	28.9	4	12.1	12	38.7	9	29.0	12	36.4
Unsure	29	18.8	3	11.5	26	20.3	12	36.4	3	9.7	4	12.9	7	21.2
No	76	49.4	11	42.3	65	50.8	17	51.5	16	51.6	18	58.1	14	42.4
Total	154	100.0	26	100.0	128	100.0	33	100.0	31	100.0	31	100.0	33	100.0
<u>Equipment, etc.</u>														
<u>New</u>														
In-house	5	8.9	0	0.0	5	12.8	2	50.0	1	8.3	0	0.0	2	13.3
Personal	5	8.9	2	11.8	3	7.7	0	0.0	0	0.0	0	0.0	3	20.0
Service bureau	5	8.9	0	0.0	5	12.8	1	25.0	0	0.0	0	0.0	4	26.7
<u>Expansion</u>														
Additional equipment	4	7.1	0	0.0	4	10.3	1	25.0	2	16.7	1	10.0	0	0.0
Additional programmers	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Word processor	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	31	55.4	11	64.7	20	51.3	0	0.0	8	66.7	8	80.0	4	26.7
Two or more of above	6	10.7	4	23.5	2	5.1	0	0.0	1	8.3	1	10.0	2	13.3
Total	56	99.9	17	100.0	39	100.0	4	100.0	12	100.0	10	100.0	15	100.0

FIGURE 9

## CURRENT AUTOMATION AND PLANS TO AUTOMATE

Plan to Automate	Automated					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Yes	69	44.2	22	34.5	91	41.6
No/don't know	87	55.8	41	65.1	128	58.4
Total	156	100.0	63	100.0	219	100.0

FIGURE 10

## PLANS TO ACQUIRE AND PERCEIVED BUDGET STRENGTH

Plan to Acquire	Budget Strength					
	Tight		Good		Total	
	No.	%	No.	%	No.	%
Yes	28	38.4	63	43.4	91	41.7
No/don't know	45	61.6	82	56.6	127	58.3
Total	73	100.0	145	100.0	218	100.0

FIGURE 11

## PLANS TO ACQUIRE AND GOVERNMENT SIZE

Plan to Acquire	Government Size							
	<5,000		5,000-9,999		10,000+		Total	
	No.	%	No.	%	No.	%	No.	%
Yes	38	57.6	30	42.3	20	27.4	88	41.9
No/don't know	28	42.4	41	57.7	53	72.6	122	58.1
Total	66	100.0	71	100.0	73	100.0	210	100.0

TABLE 1  
JURISDICTIONS SURVEYED

Size	All Jurisdictions	Cities	All County Offices	County Offices			
				Assessors	Clerks	Registers of Deeds	Treasurers
<5,000	22	10	12	3	3	3	3
5,000-9,999	62	9	53	14	13	12	14
10,000+	70	7	63	16	15	16	16
Total	154	26	128	33	31	31	33

TABLE 2  
COMPUTER USE

	All Jurisdictions		Cities		All County Offices		Assessors		County Offices		Clerks		Registers of Deeds		Treasurers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>A. Automated</b>																
Yes	99	64.3	22	84.6	77	60.2	24	72.7	16	51.6	6	19.4	31	93.9		
No	55	35.7	4	15.4	51	39.8	9	27.3	15	48.4	25	80.6	2	6.1		
Total	154	100.0	26	100.0	128	100.0	33	100.0	31	100.0	31	100.0	33	100.0		
<b>B. Mode</b>																
In-house	76	76.8	17	77.3	59	76.6	15	62.5	14	87.5	5	83.3	25	80.6		
Service bureau	14	14.1	3	13.6	11	14.3	7	29.2	2	12.5	0	0.0	2	6.5		
Both	9	9.1	2	9.1	7	9.1	2	8.3	0	0.0	1	16.7	4	12.9		
Total	99	100.0	22	100.0	77	100.0	24	100.0	16	100.0	6	100.0	31	100.0		



TABLE 3

## CHARACTERISTICS OF COMPUTER USERS AND NON-USERS

## A. Computer Use and Government Size

Computer Use	< 5,000		Population 5,000-9,999		10,000+		Total	
	No.	%	No.	%	No.	%	No.	%
Yes	11	50.0	36	58.1	52	74.3	99	64.3
No	11	50.0	26	41.9	18	25.7	55	35.7
Total	22	100.0	62	100.0	70	100.0	154	100.0

## B. Computer Use and City Government Form

Computer Use	City Government Form				Total	
	Mayor/Council		Council/Manager		No.	%
Yes	12	75.0	10	100.0	22	84.6
No	4	25.0	0	0.0	4	15.4
Total	16	100.0	10	100.0	26	100.0

## C. Computer Use and Budget Strength

Computer Use	Budget Strength				Total	
	Tight		Good		No.	%
Yes	29	59.2	69	66.3	98	64.1
No	20	40.8	35	33.7	55	35.9
Total	49	100.0	104	100.0	153	100.0

TABLE 4  
TYPES OF IN-HOUSE SYSTEMS

	All Jurisdictions		Cities		All County Offices		County Offices							
	No.	%	No.	%	No.	%	Assessors	Clerks	Registers of Deeds	Treasurers	No.	%	No.	%
<u>Manufacturer</u>														
Burroughs	49	50.0	7	25.0	42	60.0	13	76.5	10	62.5	3	50.0	16	51.6
IBM	12	12.2	8	28.6	4	5.7	0	0.0	3	18.8	0	0.0	1	3.2
Apple	2	2.0	1	3.6	1	1.4	0	0.0	0	0.0	1	16.7	0	0.0
NCR	10	10.2	3	10.7	7	10.0	1	0.0	2	12.5	1	16.7	3	9.7
Radio Shack	4	4.1	4	14.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Others	20	20.4	5	17.8	15	21.4	3	17.6	1	6.3	1	16.7	10	32.3
Don't know	1	1.0	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0	1	3.2
Total	98	100.0	28	100.0	70	99.9	17	100.0	16	100.1	6	100.1	31	100.0
<u>Hardware type</u>														
Mini	43	43.9	13	46.4	30	42.9	10	58.8	9	56.3	3	50.0	8	25.8
Micro	14	14.3	9	32.1	5	7.1	1	5.9	3	18.8	1	16.7	0	0.0
Accounting/Bookkeeping	33	33.7	6	21.4	27	38.6	5	29.4	4	25.0	1	16.7	17	54.8
Don't know	8	8.2	0	0.0	8	11.4	1	5.9	0	0.0	1	16.7	6	19.4
Total	98	100.1	28	99.9	70	100.0	17	100.0	16	100.1	6	100.1	31	100.0
<u>Age of model</u>														
Current	27	27.6	13	46.4	14	20.0	4	23.5	5	31.3	2	33.3	3	9.7
Previous	11	11.2	5	17.9	6	8.6	1	5.9	3	18.8	1	16.7	1	3.2
Dated	18	18.4	3	10.7	15	21.4	6	35.3	4	25.0	1	16.7	4	12.9
Antiquated	33	33.7	6	21.4	27	38.6	5	29.4	4	25.0	1	16.7	17	54.8
Don't know	9	9.2	1	3.6	8	11.4	1	5.9	0	0.0	1	16.7	0	19.4
Total	98	100.1	28	100.0	70	100.0	17	100.0	16	100.1	6	100.1	31	100.0
<u>Mode of acquisition</u>														
Own	85	86.7	21	75.0	64	91.4	15	88.2	12	75.0	6	100.0	31	100.0
Lease	12	12.2	7	25.0	5	7.1	2	11.8	3	18.8	0	0.0	0	0.0
Don't know	1	1.0	0	0.0	1	1.4	0	0.0	1	6.3	0	0.0	0	0.0
Total	98	99.9	28	100.0	70	99.9	17	100.0	16	100.1	6	100.0	31	100.0
<u>Number of in-house users</u>														
1 system	77	90.6	14	73.6	63	95.5	17	100.0	13	92.9	6	100.0	27	93.1
2 systems	5	5.9	3	15.8	2	3.0	0	0.0	0	0.0	0	0.0	2	16.9
3 systems	1	1.2	0	0.0	1	1.5	0	0.0	1	7.1	0	0.0	0	0.0
4 systems	2	2.4	2	10.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	85	100.1	19	99.9	66	100.0	17	100.0	14	100.0	6	100.0	29	100.0

Note: The data presented here refer to the 98 computer systems owned or leased by 85 jurisdictions reporting in-house systems.

TABLE 5  
FUNCTIONS AUTOMATED

Functions	All Jurisdictions		Cities		All County Offices		County Offices							
	No.	%	No.	%	No.	%	Assessors	Clerks	Registers of Deeds	Treasurers				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Accounting	44	63.8	15	61.7	29	61.7		9	56.3		20	64.5		
Payroll	34	89.5	21	95.5	13	81.3		13	81.3					
Budgeting	21	55.3	14	63.6	7	43.8		7	43.8					
Inventory	8	21.1	8	36.4				0	0.0					
Personnel	10	26.3	8	36.4	2	12.5		2	12.5					
Equipment management	6	15.8	6	27.3				0	0.0					
Engineering	3	7.9						3	18.8					
Public works	5	22.7	5	22.7										
Utility billing	21	95.5	21	95.5										
Police/sheriff records	7	18.4	4	18.2				3	18.8					
Court records	4	10.5	1	5.0				3	18.8					
Real property records	26	86.7			26	65.0	23	95.8		3	18.8			
Personal property records	21	87.5			21	87.5	21	87.5						
Property tax appraisal	15	62.5			15	62.5	15	62.5						
Tax assessment	23	95.8			23	95.8	23	95.8						
Tax billing	28	90.3			28	90.3					28	90.3		
Motor vehicle registration	21	67.7			21	67.7					21	67.7		
Drivers' licenses	9	29.0									9	29.0		
Voter registration	7	43.8			7	43.8		7	43.8					
Public health	1	6.3			1	6.3		1	6.3					
Public welfare	1	6.3			1	6.3		1	6.3					
County highway	2	12.5			2	13.3		2	13.3					
Word processing	13	13.1	7	31.8	6	8.5	3	13.6	1	6.3	0	0.0	2	6.5
Other	27	27.3	3	13.6	24	31.2	12	50.0	1	6.3	1	16.7	10	32.2

Note: Figure 6 shows the number of offices that were questioned in each functional area. The percents shown in Figure 5 are obtained by dividing the number of units responding by total number of units questioned.

TABLE 6  
OFFICES QUESTIONED BY FUNCTIONAL AREA

Functions	Total Units Questioned	City	County
Accounting	69	X(22)	C(16), T(31)
Payroll	38	X(22)	C(16)
Budgeting	38	X(22)	C(16)
Inventory	38	X(22)	C(16)
Personnel	38	X(22)	C(16)
Equipment management	38	X(22)	C(16)
Engineering	38	X(22)	C(16)
Public works	22	X(22)	
Utility billing	22	X(22)	
Police/sheriff records	38	X(22)	C(16)
Court records	38	X(22)	C(16)
Real property records	30		X(24), R(16)
Personal property records	24		A(24)
Property tax appraisal	24		A(24)
Tax assessment	24		A(24)
Tax billing	31		T(31)
Motor vehicle registration	31		T(31)
Drivers' licenses	31		T(31)
Voter registration	16		C(16)
Public health	16		C(16)
Public welfare	16		C(16)
County highway	16		C(16)
Word processing	99	X(22)	A(24), C(16), R(6), T(31)
Other	99	X(22)	A(24), C(16), R(6), T(31)

Note: County offices are: A = assessor, C = clerk, R = register of deeds, T = treasurer. Numbers in parenthesis indicate number of offices responding.

TABLE 7  
NUMBER OF FUNCTIONS AUTOMATED BY OFFICE

Number of Functions Automated	Responding Offices													
							County Offices							
	Total		City		County Total		Assessors		Clerks		Registers of Deeds		Treasurers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1-3	41	43.6	7	31.8	33	45.8	5	20.8	7	50.0	2	66.7	19	61.3
4-6	45	47.9	8	36.4	38	52.8	19	79.2	6	42.9	1	33.3	12	38.7
7-9	6	6.4	6	27.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10+	2	2.1	1	4.5	1	1.4	0	0.0	1	7.1	0	0.0	0	0.0
Total	94	100.0	22	100.0	72	100.0	24	100.0	14	100.0	3	100.0	31	100.0

TABLE 8  
PLANS TO ACQUIRE

	All Jurisdictions						County Offices							
	No.	%	Cities No.	%	All County Offices No.	%	Assessors No.	%	Clerks No.	%	Registers of Deeds No.	%	Treasurers No.	%
<u>Plan to acquire</u>														
Yes	49	31.8	12	46.2	37	28.9	4	12.1	12	38.7	9	29.0	12	36.4
Unsure	29	18.8	3	11.5	26	20.3	12	36.4	3	9.7	4	12.9	7	21.2
No	76	49.4	11	42.3	65	50.8	17	51.5	16	51.6	18	58.1	14	42.4
Total	154	100.0	26	100.0	128	100.0	33	100.0	31	100.0	31	100.0	33	100.0
<u>Equipment, etc.</u>														
<u>New</u>														
In-house	5	8.9	0	0.0	5	12.8	2	50.0	1	8.3	0	0.0	2	13.3
Personal	5	8.9	2	11.8	3	7.7	0	0.0	0	0.0	0	0.0	3	20.0
Service bureau	5	8.9	0	0.0	5	12.8	1	25.0	0	0.0	0	0.0	4	26.7
<u>Expansion</u>														
Additional equipment	4	7.1	0	0.0	4	10.3	1	25.0	2	16.7	1	10.0	0	0.0
Additional programmers	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Word processor	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	31	55.4	11	64.7	20	51.3	0	0.0	8	66.7	8	80.0	4	26.7
Two or more of above	6	10.7	4	23.5	2	5.1	0	0.0	1	8.3	1	10.0	2	13.3
Total	56	99.9	17	100.0	39	100.0	4	100.0	12	100.0	10	100.0	15	100.0

TABLE 9

## CURRENT AUTOMATION AND PLANS TO AUTOMATE

Plan to Automate	Automated					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Yes	69	44.2	22	34.5	91	41.6
No/don't know	87	55.8	41	65.1	128	58.4
Total	156	100.0	63	100.0	219	100.0

TABLE 10

## PLANS TO ACQUIRE AND PERCEIVED BUDGET STRENGTH

Plan to Acquire	Budget Strength					
	Tight		Good		Total	
	No.	%	No.	%	No.	%
Yes	28	38.4	63	43.4	91	41.7
No/don't know	45	61.6	82	56.6	127	58.3
Total	73	100.0	145	100.0	218	100.0

TABLE 11

## PLANS TO ACQUIRE AND GOVERNMENT SIZE

Plan to Acquire	Government Size							
	<5,000		5,000-9,999		10,000+		Total	
	No.	%	No.	%	No.	%	No.	%
Yes	38	57.6	30	42.3	20	27.4	88	41.9
No/don't know	28	42.4	41	57.7	53	72.6	122	58.1
Total	66	100.0	71	100.0	73	100.0	210	100.0