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INTERNET USE AMONG COMMUNITY LEADERS IN RURAL KANSAS

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

INTERNET USE AMONG COMMUNITY LEADERS IN RURAL KANSAS[1]

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SUMMARY

A mail survey was conducted in fall 1998 to determine the extent and type of Internet use among 684 rural community leaders in Kansas: chamber of commerce directors, city mayors, county commission chairmen, and business executives. The response rate was 81.6% (558 respondents). Nearly 62% of respondents indicated that they used the Internet in one form or another. Internet use was more common in the office than in the home. The primary reason for nonuse was that the respondent had no computer or a computer that could not operate the Internet. One fourth of nonusers stated that they anticipated never using the Internet, but 60.6% of nonusers predicted that they would be using the Internet within 5 years. The most common use of the Internet was finding information, with E-mail a close second. Electronic commerce applications, such as buying or selling over the Internet, ranked relatively low. Internet use was highest among business executives and lowest among city officials. In response to a question about the usefulness of various forms of information delivery, respondents ranked websites and E-mail in the upper middle of all alternatives. However, E-mail and websites ranked near the top within the category of "very useful," which was the highest ranking. This suggests that a subset of respondents are heavy users of the Internet. Other digital technologies, specifically CD-ROM and listservs, were ranked among the least useful. The percentages of cities with websites reported by respondents were 66.7, chambers of commerce directors; 55.6, county officials; and 33.5, city officials. Forty-four percent of businesses indicated that they had websites. As the age of respondents increased, Internet use decreased. Older citizens also represented a high proportion of those who anticipated never using the Internet. In summary, we believe that the Internet represents a significant opportunity for rural Kansas. Agencies and other entities serving rural Kansas should use the Internet more fully and effectively to reach their clientele. The state of Kansas should place additional emphasis on using the Internet for distance learning. Electronic commerce also should be pursued as an opportunity for the state.

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COOPERATIVE EXTENSION SERVICE

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INTRODUCTION

The Internet is a network of networks. It is a cooperatively run, globally distributed, decentralized collection of computer networks that can communicate with each other electronically via telephone lines (Morris, 1996).

Use of the Internet is expanding rapidly worldwide, but is it reaching rural Kansas? The stakes are high (Abbott, 1996). Will the Internet be a savior of rural America by enabling rural residents to electronically bridge the distance gap between remote locations and population centers? Or will rural areas again be bypassed by the information superhighway? And should information providers, such as Extension services and government agencies, use electronic technologies to reach the leaders of these rural communities?

The purpose of this study was to determine the type and extent of Internet use among community leaders in rural Kansas.

BACKGROUND

Origin of the Internet

During the Cold War of the 1950s and early 1960s, the RAND Corporation was considering the grim prospect of how the United States could survive a nuclear holocaust. Specifically, the question was how could U.S. authorities build a communications network that could survive a nuclear war? In 1964, the RAND Corporation made public its answer: a proposed computer network that would use existing trunk lines and operate in a highly decentralized manner (Batty and Barr, 1994). It would have no centrally controlled hub that would be an easy first-strike target. Messages would be broken up and transmitted as separately addressed packets that would wind their individual ways through the network, until they arrived at their intended destination and were reassembled.

This idea of a decentralized, blast-proof, packet-switched network was utilized in the late 1960s by the Pentagon's Advanced Research Projects Agency (ARPA). The ARPA adopted the idea as a way of linking several high-speed supercomputers together for the sake of national research and development efforts. By December 1969, four computers were networked together and ARPANET was born (Ogden, 1994).

During the 1970s and 1980s, ARPANET grew rapidly, providing links between increasingly specialized computer networks. In 1986, the National Science Foundation began its development of NSFNET, which included much faster and larger capacity lines. This was to become the backbone of what we now call the Internet.

In the United States, the Internet is organized by distinct domains. There are six major groups of users whose electronic mail domain is indicated by the three-letter extension to their site address: *gov*ernment, *mil*itary, *edu*cational, *org*anizational, *com*mercial, and *net*work. Globally, an abbreviation of a nation's name is sometimes used as a domain. In 1998, the top 10 domain names worldwide were: .com (commercial), .net (networks), .edu (educational), .mil (military), .jp (Japan), .us (United States), .uk (United Kingdom), .de (Germany), and .au (Australia).

Growth of the World Wide Web (www)

"`Tis true, there's magic in the web of it."
— Shakespeare, *Othello*

A significant reason for the rapid expansion of Internet use is the rise to prominence of the hypertext information system known as the World Wide Web (www, or simply the web). The web is a distributed information system that enables multipurpose graphic interfaces (McLaughlin, 1996). Essentially, this means that the web is an interconnected set of computers that conform to certain network protocols operating within the Internet. These protocols, and thus the basis for the web itself, were created in 1989 by Tim Berners-Lee of CERN, the European high-energy physics laboratory in Geneva, Switzerland (Pavlik, 1998). Any individual or organization with Internet access can create a "home page" or "website" on the web, as long as that individual or organization uses the programming protocols established at CERN. Such websites often have an Internet address that begins with the ubiquitous "www" designation.

The web is the fastest growing online service on the Internet. The www grew from 130 websites, or 0.5% of Internet use, in June 1993 to 23,500 websites, or 23.9% of Internet use, by March 1995. As of June 1996, the www contained approximately 230,000 sites (Gant, 1997). A 1998 study estimated that there were 320 million web pages (Lawrence and Giles, 1998).

The U.S. government identified a number of examples of Internet growth (Margherio, 1998). According to that report, three million people (mostly in the U.S.) used the Internet in 1994. By 1996, nearly 40 million people around the world were connected to the Internet. By the end of 1997, more than 100 million people (62 million in the U.S.) were using the Internet.

Private sources estimated that, by the end of 1998, users numbered 76.5 million in the U.S. and 153.5 million worldwide (Nua, 1999). Comparing these use estimates to population levels, one can calculate that Internet users comprised 23.2% of the U.S. population in 1997 and 28.1% in 1998. Some experts believe that one billion people may be connected to the Internet by 2005.

Another measure of growth is the number of Internet domain names (such as .net, .org) registered in the domain name system (Figure 1). The number of registered names grew from 26,000 in July 1993 to 1.3 million 4 years later. Business and commercial interests have been significant users. In January 1995, just over 27,000 commercial (.com) names were assigned, and by mid-1997, there were 764,000 (Margherio, 1998). Internet sales have skyrocketed, and overall Internet traffic is estimated to double every 100 days.
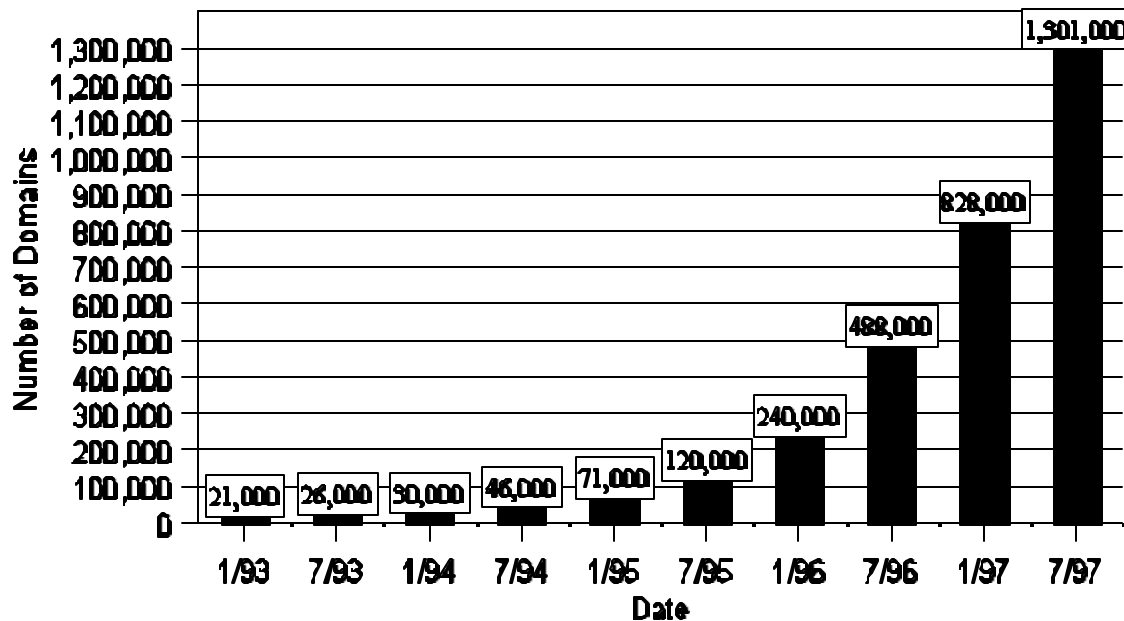
Figure 1. Growth of the Internet: Number of Domains in Domain Name System.
  Source: Margherio (1998).

The Internet's pace of adoption eclipses those of all other technologies that preceded it, although the technologies of earlier times were adopted in a much smaller population base. Radio was in existence for 38 years before 50 million people tuned in. Television took 13 years to reach that benchmark. Sixteen years after the first personal computer kit came out, 50 million people were using personal computers. But when the Internet was opened to public use, it reached the 50 million user mark in only 4 years (Margherio, 1998).

In releasing the report on the digital economy, U.S. Secretary of Commerce William M. Daley (1998) noted that only 50 websites existed at the beginning of the decade of the 1990s. By mid-1998, 65,000 websites were being added every hour. Experts predict that the growth will continue.

Rural America Lags Nation in Internet Use

A report from the U.S. Department of Commerce highlighted a difference between electronic haves and have-nots (McConnaughey, 1998). It noted an increasing disparity in computer ownership and usage among certain societal groups. The groups that are "least connected," in terms of access to telephones, computers, and on-line services, are the rural poor, rural and central city minorities, young households, and female-headed households. Figures 2 through 5 report on-line access as correlated with education level, income, age, and region of the country. Higher income and more education are correlated with high Internet use -- for example, college graduates are 10 times more likely to own a personal computer than someone without any high school education. Rural areas consistently lag behind national, urban, and central city counterparts in each category.

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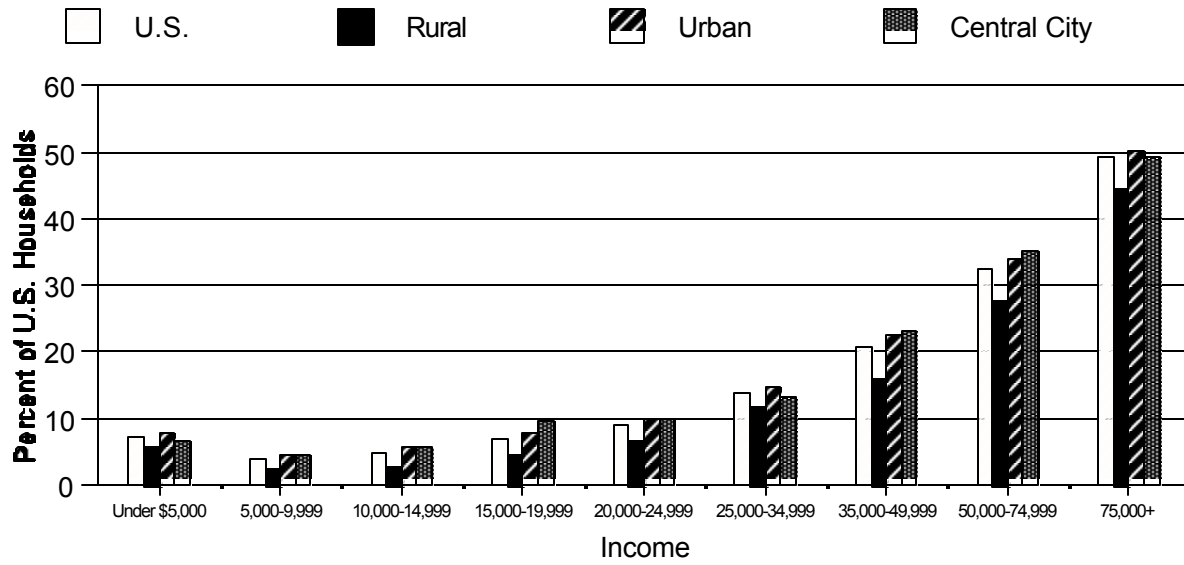
Figure 2. Percent of U.S. Households with Online Service by Income and Area - 1997.
Source: McConnaughey (1998).
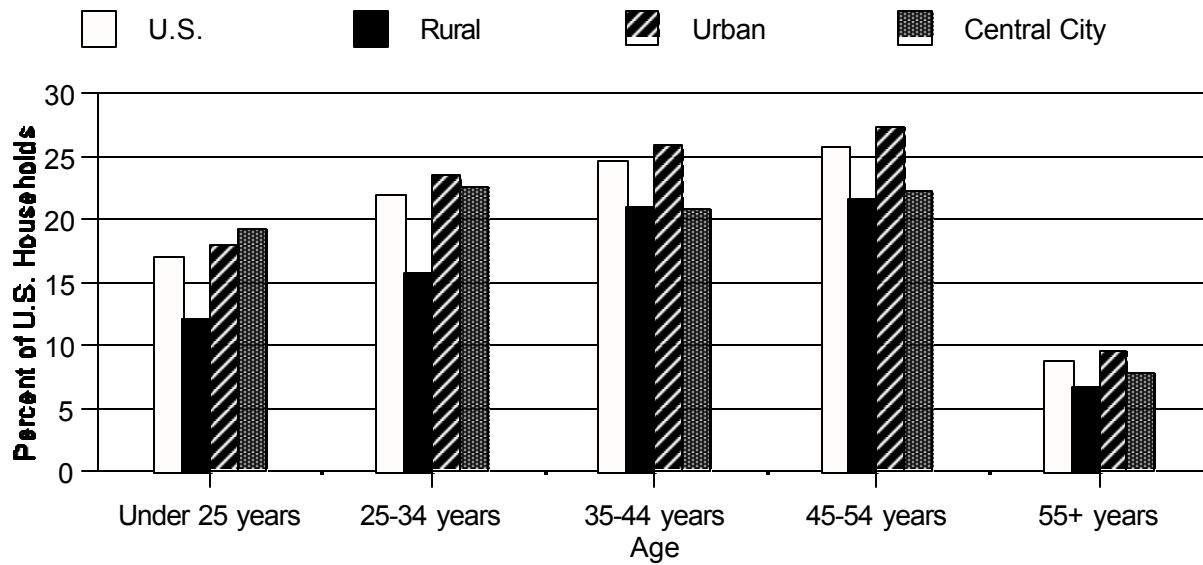
Figure 3. Percent of U.S. Households with Online Service by Age and Area - 1997.
Source: McConnaughey (1998).

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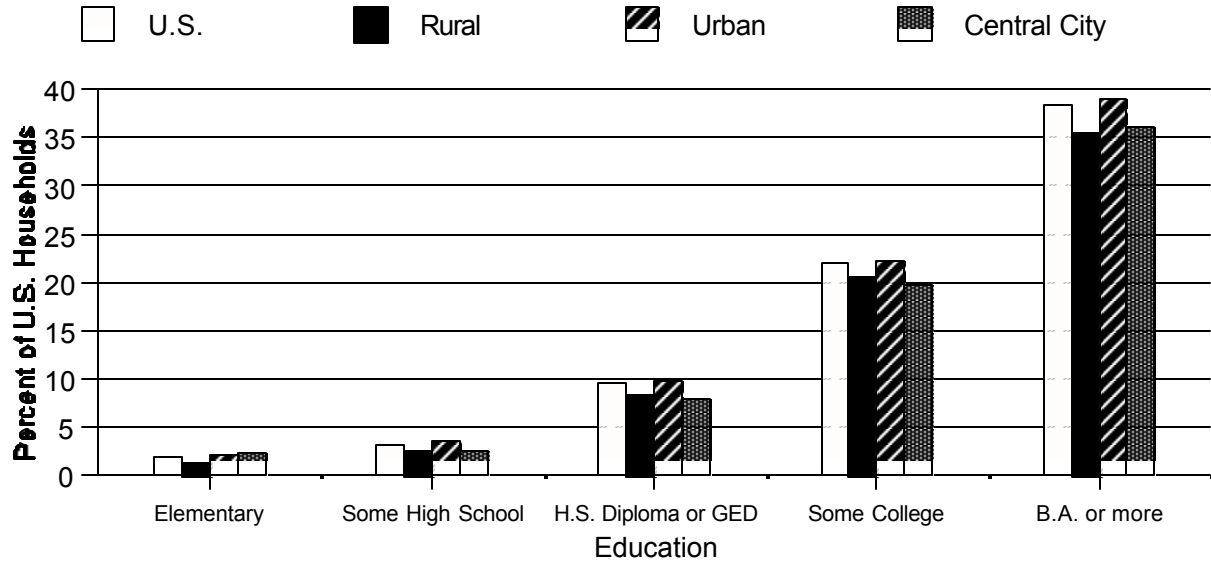
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Source: McConnaughey (1998).
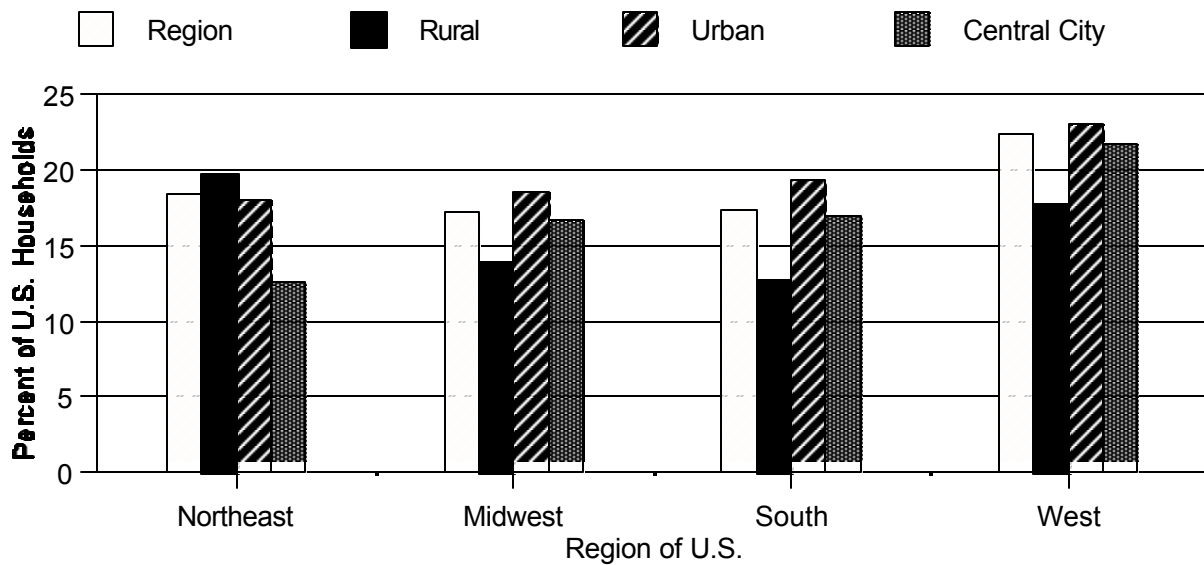
Figure 5. Percent of U.S. Households with Online Service by Region and Area - 1997.
Source: McConnaughey (1998).

A telephone survey conducted under the direction of Princeton Survey Research Associates included interviews with a nationwide sample of 3,184 adults, 18 years of age or older, during the period October 26 to December 1, 1998. The results showed that 41% of adults were using the Internet in 1998, compared to only 14% in 1995 (Pew, 1999).

Another comparison is available from the Kansas Technology Enterprise Corporation (1998), which measured Internet connectivity based on the number of Internet hosts. An Internet host is any computer system physically connected to the Internet. Hosts per 1,000 people indicate the extent to which businesses, schools, other institutions, and individuals are connected to the Internet. By this measure, Kansas lags the nation in Internet connectivity by a very wide margin (Figure 6). At 37 hosts per 1,000 people, Kansas is connected to the Internet at about half the rate for the entire U.S. Kansas ranks 32 nd out of the 50 states. Regionally, Kansas ranks in the middle of six other states and lags behind Colorado and Nebraska by significant margins.
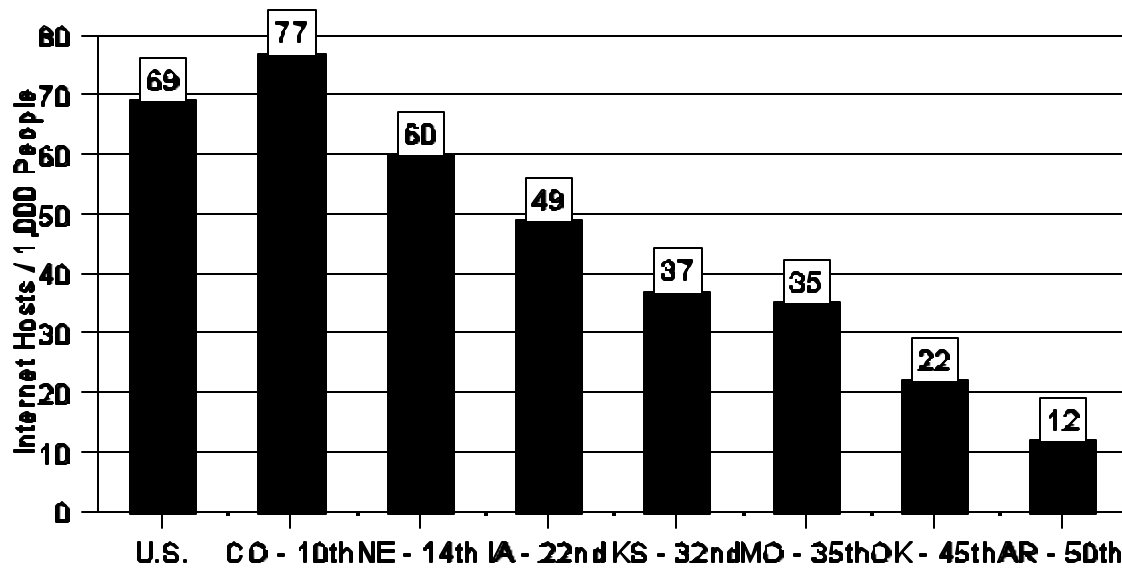
State Ranking Compared to National Rate

Figure 6. Internet Connectivity: Internet Hosts per 1,000 People.
Source: Kansas Technology Enterprise Corporation (1998).

Applications of the Internet vary. For rural chambers of commerce, the Internet offers an electronic means to market their communities worldwide. For city and county governments, the Internet offers a unique means of communicating with constituents and external resources. For individual businesses, the Internet offers opportunities for electronic commerce, identifying possible sources of inputs for the business, seeking employees, and marketing products.

One recent survey (Ernst & Young/National Retailers Federation, 1999) suggested that rural Internet users are significant Internet shoppers. It showed that a majority of online buyers lived in small cities and towns (with populations less than 50,000) and only 2% in major metropolitan areas (Figure 7).
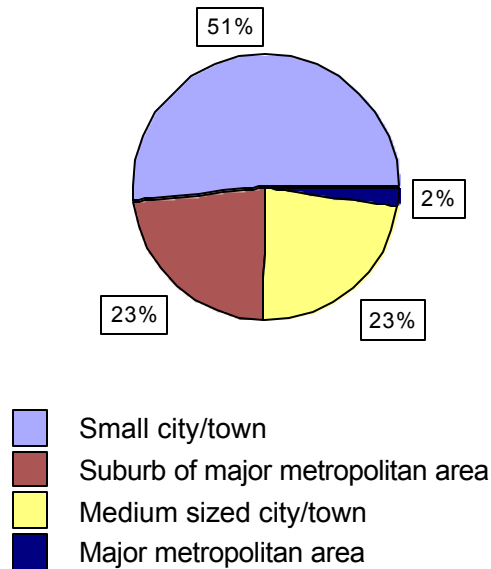
Figure 7. Locations of Online Buyers.
Source: Ernst & Young/National Retailers Federation (1999).

Blue Skyways

In 1995, the Library Network Board of the Kansas State Library, in conjunction with the University of Kansas Medical School, initiated a program called Blue Skyways. This is a state-sponsored World Wide Web service that provides more than 5,000 pages of information about Kansas towns, education, government, and libraries. Its Internet address is http://skyways.lib.ks.us/kansas/index.html. In 1996, the Boeing Company agreed to provide a computer specialist, John Howell, from its Wichita office as an "executive on loan" to help Kansas communities develop their websites. Howell and his wife Susan work as a team to consult with communities, describe how their site would be designed, and help the community set goals and plan the site. The community then gathers the information about itself and provides it to the Howells, who do the technical work of putting it into electronic form to go on the Web. The Howells build the site at no cost to the community, but the site then is maintained and updated by the community. John Howell estimates that they had developed 150 sites for Kansas communities by year-end 1998 (Wilson, 1998).

SURVEY METHODOLOGY

The two key terms to be defined and operationalized were "leaders" and "rural." For purposes of this study, "leaders" was defined as those in leadership positions in individual businesses, chambers of commerce, county government, and city government.

"Rural" was defined using two criteria. The first criterion was the county in which the community is located. The U.S. Bureau of the Census places counties in two categories: metropolitan (metro) and nonmetropolitan. For this study, any community in a nonmetro county was considered rural and was included in the survey; 96 counties in Kansas fit in this category. The second criterion, for those communities located in metro counties, was to determine if they were greater or less than 10,000 in population. According to the Census Bureau, Kansas has nine metro counties: Butler, Douglas, Harvey, Johnson, Leavenworth, Miami, Sedgwick, Shawnee, and Wyandotte. They are clustered in two groups: one around Wichita, and the other around Kansas City/Lawrence/Topeka. These counties include a number of towns with populations less than 10,000 that qualified for the survey.

Surveys regarding Internet use were conducted among four groups in Kansas: (1) chamber of commerce directors, (2) county commission chairmen, (3) city mayors, and (4) business executives. The 169 chambers of commerce in nonmetro counties and another 19 chambers representing towns of less than 10,000 in metro counties provided a total of 188 directors for the survey. The county commission chairman in every one of the 96 nonmetro counties was included. A systematic random sample of 200 mayors was chosen from the 627 Kansas communities that met the criteria for rural. A systematic random sample of 200 Kansas business executives was chosen from communities that met the criteria for rural. The businesses were members of the state Chamber of Commerce.

Questionnaires were printed on different colored paper by category: green for city officials, yellow for county officials, blue for chamber of commerce directors, and purple for business executives. A number was handwritten on a corner of each questionnaire for tracking purposes. A different set of numbers was used for each of the four surveys, 100s for cities, 300s for businesses, 500s for chambers of commerce, and 700s for counties. A total of 684 questionnaires was mailed simultaneously in fall 1998.

The survey process followed recommended procedures (Dillman, 1978). Ten days after the questionnaire and cover letter were mailed, a reminder card was sent to all nonrespondents. Ten days later, a second questionnaire with a cover letter was mailed to nonrespondents. A final reminder card was sent to nonrespondents 10 days after that.

We received 558 responses for a rate of 81.6%. Data were analyzed using the Statistical Package for Social Sciences (SPSS) in the Department of Statistics at Kansas State University.

RESULTS

Survey results indicated that the Internet is used by 61.6% of respondents in the home, the workplace, or both (Table 1). Respondents were asked about home and office use in separate questions. Apparently, many respondents used the Internet in either the home or the office but not both, because neither home nor office use by itself was above 50%. Workplace use was considerably greater than home use. Approximately one-third of respondents had children in their homes also using the Internet.

Table 1. Percent of Kansas Rural Leaders Using the Internet

Response	Frequency	Percent
No	214	38.4
Yes	344	61.6
Use at home	210	38.0
Use at office	271	48.8

Among the four categories of respondents, Internet use was highest for business executives, as expected; 69.8% indicated that they use the Internet. Reported use was lowest among city officials (Table 2).

Table 2. Internet Use by Type of Rural Leader

Type	Percent
Business executives	69.8
Chamber of commerce directors	53.1
County officials	46.6
City officials	26.1

The most common use of the Internet was for finding information, which was cited by 95% of respondents (Table 3). Sending and receiving electronic mail was a close second at 90.7%. Other categories such as communicating with peers and promoting your community were ranked considerably lower. Buying items or services ranked seventh in order of use, and selling items or services was the lowest ranked of all the alternatives.

Table 3. Ways Respondents Used the Internet

Use	Frequency	Percent
Finding information	339	95.0
Sending and receiving electronic mail	233	90.7
Getting news	247	69.4
Communicating with peers	199	55.7
Promoting your community	147	41.2
Interacting with others	111	31.1
Buying items or services	101	28.3
Finding entertainment	88	24.6
Selling items or services	38	10.6
Note: Multiple responses are allowed	N = 357	

The primary reason given for not using the Internet was that the respondent had no computer or had a computer that could not operate the Internet (Table 4). As noted earlier, 214 respondents indicated that they did not use the Internet in either home or office. Respondents were allowed to mark all of the reasons that applied for not using the Internet. The proportion of respondents citing the lack of a computer that could operate the Internet was 49.1%, nearly double that of the next most frequent reason given for not using the Internet. Unfamiliarity with the Internet and lack of training were secondary reasons. Cost-related issues were ranked lower. Concern about the content of the Internet was indicated by only 14.5% of respondents. Interestingly, the lowest-ranking category of reason for nonuse was that the Internet was not available in the respondent's community.

Table 4. Reasons for Not Utilizing the Internet

Reason	Frequency	Percent
No computer / Computer cannot operate Internet	105	49.1
Unfamiliar with Internet	56	26.2
Have no training on how to operate computer to use Internet	55	25.7
Cost of Internet	53	24.7
Cost of long distance call required to access Internet	45	21.0
Concerned about content of Internet	31	14.5
Internet is not available in our community	13	6.1
Note: Multiple responses are allowed	N = 214	

Business executives were asked if their businesses had websites. Respondents in the other three categories (cities, counties, and chambers of commerce) were asked if their communities had websites (Table 5). The executives indicated that 44% of their businesses had websites. This incidence of websites among individual businesses differed from incidences among communities, which ranged from 66.7% to 33.5%. The data collections among chambers of commerce directors and county officials were essentially censuses, because all those meeting the "rural" definition were included. However, the surveys of city officials and business executives included samples, because the total target audiences were so large.

Table 5. Percent of Communities with Websites

Respondent	Percent
Chamber of commerce directors	66.7
County officials	55.6
City officials	33.5

Among those not currently using the Internet, 60.6% expected to be using it within 5 years, and nearly 30% expected to be using it within 1 year (Table 6). However, one-fourth of these Internet nonusers stated that they expected never to use it. Nineteen of the 214 Internet nonusers did not answer this question.

Table 6. Anticipated Future Use of the Internet among Nonusers

Future Use	Frequency	Percent
Never	50	25.6
Within 6 months	28	14.4
6 months to 1 year	30	15.4
1 to 5 years	60	30.8
Beyond 5 years	27	13.8
Mode = 1 to 5 years	N = 195	

Respondents were asked to rate, on a Likert scale, the usefulness of various means of communication as ways of acquiring information about community and economic development information (Table 7). Contact with peers was considered the most useful source of such information. It was ranked as useful, quite useful, or very useful by a combined 88% of respondents. This category was also the only one for which the mode value was higher than useful. Some traditional sources of information such as newsletters, association meetings, and conferences and conventions ranked higher than websites and electronic mail. Magazines and more traditional sources were below websites and E-mail in the rankings. CD-ROM and listservs were among the lowest ranked of all the alternatives.

However, results indicated a subset of respondents for whom websites and E-mail were extremely important. They were second and third, respectively, within the category of "very useful," which was the highest ranking. Those who ranked websites and E-mail very high also ranked CD-ROM and listservs relatively higher. This requires some explanation of how this portion of the survey data was reported. Respondents were asked to rate the usefulness of various sources on a Likert scale. In the data reporting, a ranking of no use at all was valued at 1 and very useful (the highest category) was valued at 5. Results showed that the mean value of CD-ROM as a source of information was 2.68 among all respondents, but 3.8 among those who ranked websites and E-mail highest. The mean value of listservs was 1.95 among all respondents, but 2.67 among those who ranked websites and E-mail highest. Fifty nine respondents ranked both websites and E-mail in the highest category of usefulness, and apparently, they also considered CD-ROM and listservs as more useful than did the total population of respondents.

Table 7. Usefulness of Sources for Community and Economic Development Information

| | Percent | | | | | |
Source	No Use At All	Little Use	Useful	Quite Useful	Very Useful	Combined Useful/ Quite/Very Useful
Contact with peers	4.5	6.7	26.8	32.0*	29.2	88.0
Newsletters	3.6	10.2	43.4*	28.6	14.2	86.2
Association meetings	8.2	14.7	35.7*	27.7	13.6	77.0
Conferences/ Conventions	8.2	15.0	38.8*	23.6	14.3	76.7
Websites	17.9	9.5	30.0*	23.6	19.0	72.6
Magazines	8.9	18.0	48.1*	18.8	5.2	72.1
E-mail	19.4	10.9	28.8*	18.1	22.7	69.6
Trade shows	10.4	21.5	40.0*	20.8	7.3	68.1
Books	12.2	22.5	42.1*	16.2	7.0	65.3
Videotapes	11.7	25.2	37.8*	20.6	4.6	63.0
Television	13.2	28.9	35.7*	16.1	6.2	58.0
CD-ROM	22.9	19.9	33.2*	14.4	9.6	57.2
Radio	15.6	32.0	33.1*	14.3	5.0	52.4
Listservs	40.5*	31.6	22.2	3.5	2.1	27.8

* mode

Finally, all respondents were grouped by age into quartiles, from youngest to oldest. The results indicated that Internet use decreased as age increased (Table 8). Only 42% of those in the oldest quartile were using the Internet, compared to 72.3% of the youngest quartile of respondents.

Table 8. Use of Internet by Age Groups

Age	Number	Percent Using Internet	Mode
19 - 38	130	72.3	37
39 - 45	124	69.4	43
46 - 55	131	60.0	46
56 - 81	130	42.2	56

Another way of evaluating the question of age and Internet use is to identify the age of those respondents who indicated that they anticipated never using the Internet (Table 9). The proportion of respondents who indicated that they would never use the Internet was weighted heavily toward the upper age group. Only 4% of those who anticipate never using the Internet were in the youngest age quartile. Those in the older two quartiles of age represented 82% of those who expected never to use the Internet, and those in the oldest quartile represented nearly half.

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Table 9. Age of Respondents Who Anticipated Never Using the Internet

Age	Number	Percent
19 - 41	2	4
42 - 48	7	14
49 - 58	18	36
59 - 81	23	46

N = 50

Chi square analysis and multivariate analysis of variance were performed to compare results for those who sent back the survey promptly with results for those who returned the survey later in the process, in an effort to determine nonresponse error (Miller and Smith, 1983). Few significant differences were found between early and late respondents, leading us to conclude that nonresponse error was negligible for all but a few areas. However, early respondents showed a greater Internet use in the office than late respondents, and early respondents ranked E-mail, websites, and newsletters as more useful than did late respondents.

DISCUSSION

The Internet represents an important, relatively new, and rapidly expanding way of delivering information to rural community leaders. More than 60% of survey respondents indicated that they use the Internet in the home and/or at work. This suggests that Internet use among Kansas community leaders is higher than that of the U.S. population at large, in which Internet use is estimated at 41%. Furthermore, 29.8% of nonusers anticipated that they would be using the Internet within 1 year, and 60.6% expected to be using it within 5 years.

However, the Internet is not universal. A fourth of the respondents not now using the Internet indicated that they expected never to use it. This appeared to be correlated with the age of respondents. The incidence of Internet use declined as the age of the respondents increased. In fact, nearly half of those who anticipated never using the Internet were age 58 or above.

In contrast to the concerns of the U.S. Department of Commerce and others, not having Internet access in their communities appeared to be a relatively minor obstacle among these respondents in rural Kansas. Only 6.1% of nonusers indicated that as a reason for nonuse of the Internet. However, this may mean that the same people (e.g., rural poor, minorities) who are least likely to be connected to the Internet are also least likely to play leadership roles in their communities.

Among those who did not use the Internet, the primary reason was that the respondent had no computer or had a computer that could not operate the Internet. This also may be related to income. The fundamental issue of inadequate computer hardware is a basic barrier to reaching that population. Other issues such as the cost of long distance calls to access the Internet are secondary, if no computer is available to operate the Internet. Even so, most of the nonusers indicated that they expected to be using the Internet within 5 years.

Respondents ranked websites and electronic mail fifth and sixth on the list of 15 alternatives for acquiring information on economic and community development. However, E-

mail and websites ranked second and third within the category of "very useful," which was the highest ranking. This suggests a subset of respondents who are heavy Internet users and could be leaders in increasing information transfer via the Internet. This same population also ranked CD-ROM and listservs relatively higher than did other respondents. These results suggest that the use of websites and E-mail would be most productive for providing information to the public at large, whereas CD-ROM would be best targeted to those particularly versed in technology.

Elements of E-commerce, namely buying or selling over the net, were among the least common uses. The 28.3% of Kansas community leaders who used the Internet for buying items or services appeared to be slightly behind the national trend. A 1999 report suggested that the proportion of users nationally that has shopped on the Internet went from 8% in 1995 to 32% in 1998. E-commerce may represent an element of opportunity for rural communities.

Early respondents to the survey reported greater Internet use in the office and higher rankings for usefulness of E-mail and websites. One possible explanation is that those who use the Internet (including E-mail and websites) had more enthusiasm for and interest in the Internet and, thus, were more likely to respond promptly to a survey about the Internet.

Business executives were most likely to use the Internet, as had been anticipated. Their use was considerably higher than the total of the combined groups; 69.8% of business executives indicated that they used the Internet at work, and 53.2% indicated Internet use at home. However, they were relatively less likely to have websites for their businesses compared to percentages of communities with websites. This apparent contradiction needs further study. Perhaps it is consistent with the finding that more respondents are buying than selling items over the Internet.

Chamber of commerce directors reported the second highest incidence of Internet use, which exceeded expectations. Their office use and home use of the Internet were slightly higher than those of all the groups combined. Promoting your community, as might be expected, was one of the most frequently identified ways that chamber directors use the Internet (81%). Chamber directors ranked highest in terms of E-mail usage, which may mean that chambers of commerce are using E-mail to communicate with their members and others. They also reported more community websites than did county and city officials.

County officials reported the third highest level of Internet use, which also exceeded our expectations. However, home use among these officials lagged behind the total group percentage. County officials were relatively more likely to indicate that a reason for nonuse of the Internet was a lack of a computer that could operate the Internet (54.5% compared to 50% of the combined group). They reported the second biggest percentage of community websites, which may reflect the fact that their communities are likely to be county seats.

City officials reported the lowest level of Internet use among the categories of community leaders, which was below expectations. As with county leaders, city officials were more likely to indicate that nonuse of the Internet was attributable to lack of a computer that could operate the Internet (55.7 compared to 50% of the combined group). Only about a third of the city leaders indicated that their communities had websites. These results may be attributed to the large number of very small, rural communities in the state. A great deal of additional study is needed in connection with this emerging phenomenon of electronic, digital communications.

RECOMMENDATIONS AND CONCLUSION

The policy implications of this study should be considered by state and national leaders. It is vital to the future of rural America that policy makers be sensitive to rural needs and the potential for the Internet to bridge the distance gap. Federal and state agencies should work to enhance rural Internet access. The state of Kansas should invest in upgrading and extending the telecommunications infrastructure. Given the rapidly changing nature of digital communications, the state should take steps to provide access to high bandwidth tele-communications for a variety of applications in education and business.

State and rural leaders should pursue avenues of electronic commerce. By its very nature, E-commerce is not place-bound. Businesses could be located in a rural setting in the center of the country and be positioned centrally to ship products to both coasts, while marketing globally over the Internet. Development of E-commerce should be a priority for the state.

Additional study is needed in connection with this emerging phenomenon of electronic, digital communications. This survey was targeted intentionally to business and governmental community leaders, but Internet use should be compared among other leaders such as those in community newspapers, service organizations, or church leadership positions. Furthermore, although this study demonstrated a higher than expected level of Internet use among community leaders, what about use among the citizens at large? Both state and federal reports indicate that Internet use among the rural citizenry at large is lagging, so this topic needs further exploration.

In regard to the finding that the primary obstacle to Internet use is the lack of computers that can operate the Internet, further study would be useful. A survey similar to this one could explore computer use and ownership and determine if the lack of computers is due to cost, limited access to vendors, lack of service, lack of training, or other factors.

A longitudinal study of the same target audience reached by this survey would be valuable because of the rapid growth of the Internet. Interesting questions also are raised by findings related to subsets of the target audience, such as those who believe that they will never use the Internet and, on the other extreme, those who ranked websites and E-mail among the most useful applications of the Internet. Research on the attributes of frequent Internet users would likely have market value. Future studies also might address regional differences within the state, as well as socioeconomic groupings of communities.

Finally, Extension services and other information providers should expand their reach into the electronic realm for communicating with and serving clientele. Higher priority should be placed on videoconferencing, on-line education, and other means of using technology to reach rural residents. Community leaders have demonstrated that they can and will use the Internet. With Internet use continuing to expand, E-mail and websites should be utilized to reach these citizens, while Extension continues to use other means as well.

Rural community leaders should pursue every possibility to assure that their communities can be on-ramps to the information superhighway. State and federal policy makers should encourage enhancement of the telecommunications infrastructure for E-commerce and education. Information providers should pursue use of the Internet, including websites and E-mail, as a significant way of delivering information to community leaders in the next century.

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