



# Technology Trends in Rural Iowa



July 2013

Broadband, or high-speed Internet, has proven to be beneficial to rural communities across the nation. According to United States Department of Agriculture secretary and former Iowa Governor Tom Vilsack, “Broadband offers rural communities greater access to educational, healthcare, business and social services and opens the door to increased global competition.”<sup>1</sup> Connecting rural Iowans to broadband will benefit rural economic development by offering better opportunities for residents and businesses to connect and compete globally.

It is vital for rural communities not only to build broadband infrastructure, but also to make sure that citizens have access to the training where they can learn the skills needed to successfully navigate the Internet. Reforms such as these are critical to a state like Iowa, where more than one in three residents live in rural communities.

Advocating and providing broadband to these Iowans is essential for local economic development, as well as for the state’s long-term success. In 2012, Connect Iowa surveyed 1,200 residents throughout the state to examine technology adoption, usage, and barriers to adoption. This report compares these metrics for rural Iowans with those of urban or suburban Iowans. Furthermore, the report will also look at the prior year’s survey results to determine any changes in technology adoption among these rural Iowans.<sup>2</sup>

## Technology Adoption in Iowa

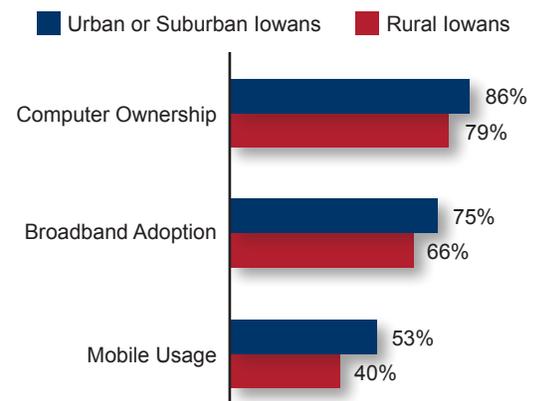
Two-thirds of rural Iowans (66%) subscribe to broadband service at home. This translates to approximately 673,000 adults in rural Iowa who subscribe to home broadband service. This is significantly lower than the state average (71%) and the average for urban or suburban Iowans of 75% (Figure 1). In Iowa, nearly 1.7 million adults across the state subscribe to home broadband service, including approximately 1 million urban or suburban Iowa adults.

The survey results also show that rural Iowans lag in home computer ownership. In fact, 79% of rural households in the state own a computer at home, significantly lower than the computer ownership rate for urban or suburban Iowans (86%). This means that approximately 216,000 Iowans living in remote areas of the state have the disadvantage of being without a home computer. In addition, only about 40% of rural Iowans subscribe to mobile broadband service through a cell phone or a mobile device, significantly lower than the mobile usage rate for urban or suburban Iowans of 53%. Approximately 408,000 rural Iowans take advantage of mobile broadband service (Figure 1).

### Among the findings from this survey:

- **Two-thirds** of adults in rural Iowa (**66%, or approximately 673,000 rural adults**) subscribe to broadband service at home.
- **Two out of five** rural Iowans (**40%**) subscribe to mobile broadband service through a cell phone or a mobile device, significantly lower than the mobile usage rate for urban or suburban Iowans of **53%**.
- Home broadband adoption among rural Iowans has increased by **11 percentage points** since 2011, compared to only **6 percentage points** in urban and suburban portions of the state.
- **More than one-third (36%)** of rural Iowa Internet users use the Internet to take online classes or conduct research for schoolwork.
- Approximately **57,000** rural Iowans work from home using an Internet connection instead of commuting to their usual workplace.
- **Nearly one-third (31%)** of, or approximately **110,000**, rural Iowans without home broadband do not subscribe because they do not feel that home broadband service is relevant or useful to them.

**Figure 1.**  
Technology Adoption Among Iowans



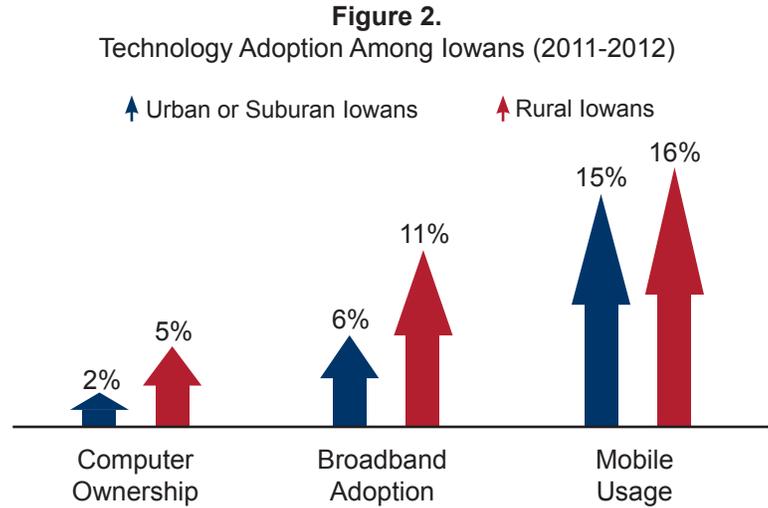
<sup>1</sup> United States Department of Agriculture, <http://www.usda.gov/wps/portal/usda/usdahome?contentid=2013/05/0085.xml&contentidonly=true>

<sup>2</sup> Connect Iowa, <http://www.connectiowa.org/research>

Yet, more than one-third (34%) of rural lowans still do not subscribe to home broadband service, preventing them from accessing various applications that could save them time and money. This translates to nearly 350,000 rural lowans who are without broadband service at home.

## Technology Adoption Trends among Rural lowans

Compared to the prior year, Iowa has seen an increase in technology adoption, with technology usage in rural areas growing faster than the rest of the state (Figure 2). In 2012, home broadband adoption among rural lowans had increased by 11 percentage points since 2011, when the adoption rate was at 55%, whereas adoption in urban or suburban Iowa increased by only 6 percentage points. Similarly, rural lowans' computer ownership rate increased by 5 percentage points since 2011, compared to a mere 2 percentage point increase among urban or suburban lowans. In 2011, only 74% of rural lowans had a computer at home. This suggests that the gap between rural lowans and the rest of the state is closing.



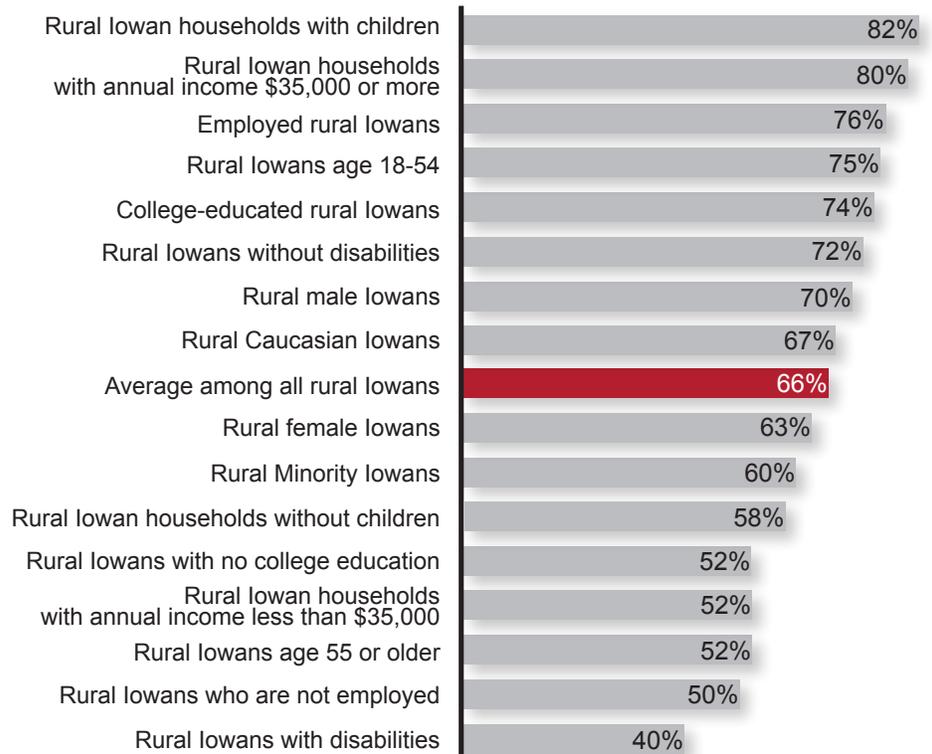
The largest increase in adoption was reported in mobile broadband usage, which saw a significant increase throughout the state, including rural Iowa. In fact, only 24% of rural lowans reported that they access the Internet via a mobile device or a cell phone in 2011 - 16 percentage points lower than the mobile usage rate in 2012. Whereas urban or suburban lowans' mobile usage rate increased by 15 percentage points; slightly less than the increase seen among rural lowans. This is a dramatic change in mobile broadband usage in just one year, and indicates that many lowans, rural and urban or suburban, are adapting to and understanding the impact of this essential technology.

## Key Demographics: Rural lowans

Who in rural Iowa is using and benefiting from broadband technology? Figure 3 shows the large disparities among groups in each demographic category in rural Iowa when it comes to adopting broadband service at home.

Rural adults age 55 or older, those living in households with annual incomes below \$35,000, those who are not employed, minorities, adults with no college education, women, households without children, and adults with disabilities are all less likely to subscribe to home broadband service. In contrast, rural adults age 54 or younger, living in households with annual incomes greater than \$35,000, employed adults, Caucasians, adults with college educations, men, households with children, and adults without disabilities are all more likely to subscribe to home broadband service in rural areas.

**Figure 3.**  
Rural Iowa Broadband Adopters by Demographic Groups



## How do Iowans Utilize the Internet?

The Internet provides many features that can assist with day-to-day activities. Work that used to take hours and days to complete can now be accomplished in minutes without leaving home. This is very important to isolated rural communities where these benefits could be crucial to accomplishing tasks in a more effective and efficient manner. Connect Iowa's assessment shows that many rural Iowa Internet users are utilizing these functions effectively, but still not as much as urban or suburban Iowan Internet users (Table 1).

**Table 1.**  
Online Activities Among Iowa Internet Users

| Online Activities  | Urban or Suburban Iowans | Rural Iowans |
|--|--------------------------|--------------|
| Communicating through e-mail or other ways of sending messages   | 90%                      | 84%          |
| Researching or purchasing goods or services  | 79%                      | 73%          |
| Exploring or participating in hobbies or personal interests  | 74%                      | 69%          |
| Using social networking sites like Facebook  | 65%                      | 68%          |
| Online banking or paying bills   | 67%                      | 57%          |
| Reading online newspapers or other news sources  | 66%                      | 56%          |
| Searching for medical information or communicating with healthcare professionals like doctors or insurance offices | 50%                      | 45%          |
| Taking online classes or conducting research for schoolwork  | 34%                      | 36%          |
| Searching or applying for jobs   | 39%                      | 25%          |
| Interacting with government offices or elected officials   | 25%                      | 23%          |

More than eight out of ten rural Iowa Internet users (84%) communicate through e-mail or other ways of sending messages, while nearly three-fourths (73%) research or purchase goods or services online. However, these usage rates are significantly lower than among urban or suburban Iowan Internet users. Similarly, rural Iowa Internet users use online banking, read online news or other information, and search or apply for jobs significantly less than urban or suburban Iowa Internet users. More than one-third (36%) of rural Iowa Internet users use the Internet to take online classes or conduct research for schoolwork, a slightly higher percentage than the 34% of urban or suburban Iowa Internet users who go online for this purpose. Rural Iowa Internet users also use social networking sites at a higher rate than urban or suburban Iowa Internet users. It is also essential to note that almost one-half (45%) of rural Iowan Internet users search for medical information or communicate with healthcare professionals online, as accessing e-health information could be crucial to many small communities throughout the state.<sup>3,4</sup>

*“We love having Internet connection at home! We’re very blessed to have our own local telephone company that provides some of the best services in the state. I think we have better Internet connection than most larger cities. Broadband helps us stay connected with family overseas and business colleagues. It’s a service that’s worth every penny.”*

Lisa Riggs  
Elk Horn Resident

<sup>3</sup> Iowa e-Health, <http://www.iowahealth.org/>

<sup>4</sup> Connect Iowa e-Health Report, [http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia\\_ehealth\\_final.pdf](http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia_ehealth_final.pdf)

## Teleworking among Rural Iowans

One of the key benefits that broadband technology has provided in the marketplace is the ability to telework, an option which is soaring in popularity among many businesses and employees. This benefit is important to rural residents who often have to choose between their dream job and their hometown. Statewide, approximately 220,000 Iowans work from home using an Internet connection instead of commuting to their usual workplace, including 57,000 employed rural Iowans. That is 9% of employed rural Iowans who are able to work from their homes instead of commuting to work. However, this is significantly lower than the percentage of employed urban or suburban Iowans who telework (20%).

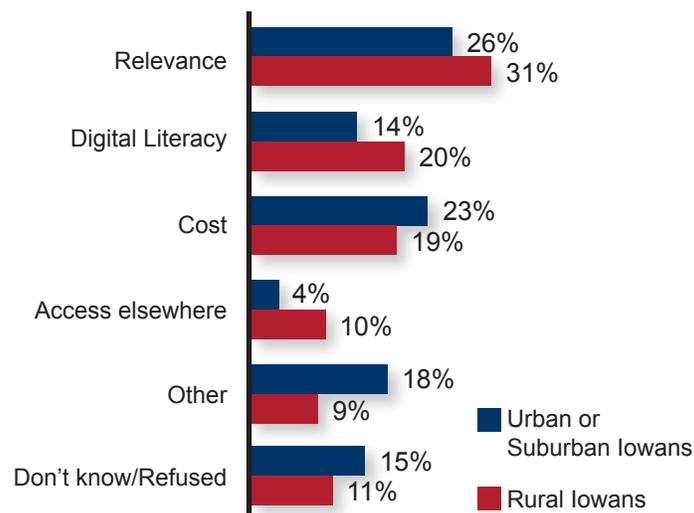
**Statewide, Iowa teleworkers could save the state an estimated 505 million in commuting miles, \$99 million in automobile operating costs, and 453 million pounds of CO<sub>2</sub>.**

Teleworking allows these Iowa residents to save time and money by working from their homes.<sup>5,6</sup> It is also beneficial to the environment by cutting down on carbon dioxide emissions from automobile commuting.<sup>7</sup> On average, it takes rural adults in Iowa 21.5 minutes each way to commute to their workplace, compared to 16.6 minutes for urban or suburban residents.<sup>8</sup> Iowa teleworkers throughout the state (including rural and urban or suburban Iowans) could save the state an estimated 505 million in commuting miles, \$99 million in automobile operating costs, and 453 million pounds of CO<sub>2</sub>.<sup>9</sup>

## Barriers to Broadband Adoption in Rural Iowa

What is preventing almost 350,000 rural Iowans from subscribing to home broadband service? There are two major barriers that prevent rural Iowans without broadband service from subscribing: a perceived lack of relevance (in other words, they do not think having home broadband service is beneficial, important, or relevant to them) and a lack of digital literacy skills. Nearly one-third (31%) or approximately 110,000 rural Iowans report that they do not think home broadband service is relevant to them, and they do not believe that they would benefit from having broadband service available to them at home (Figure 4). In addition, one-fifth (20%) or nearly 70,000 rural adults, cite a lack of digital literacy skills as their biggest barrier. This means that more than one-half of non-adopters in rural Iowa believe they are not skilled or interested enough to get broadband at home.

**Figure 4.**  
Main Barriers to Broadband Adoption in Iowa



5 Global Workplace Analytics, <http://www.teleworkresearchnetwork.com/cut-oil>

6 U.S. Department of Transportation, <http://nhts.ornl.gov/2009/pub/stt.pdf>

7 U.S. Department of Energy, [http://www1.eere.energy.gov/vehiclesandfuels/facts/2009\\_fotw576.html](http://www1.eere.energy.gov/vehiclesandfuels/facts/2009_fotw576.html)

8 U.S. Census Bureau, 2007-2011 American Community Survey, <http://factfinder2.census.gov>

9 Based on an average daily round-trip commute of 24.18 miles (<http://nhts.ornl.gov/2009/pub/stt.pdf>) and 116 work days during the year, 24.18 miles round trip commute, with an average automobile operating cost of 19.64 cents per mile ([http://www.commutessmart.info/download/AAA\\_DrivingCosts2011.pdf](http://www.commutessmart.info/download/AAA_DrivingCosts2011.pdf)), and an average automobile efficiency of 21.6 mpg (<http://www.epa.gov/cleanenergy/energy-resources/refs.html>) producing 19.4lbs. of CO<sub>2</sub> emissions per gallon of fuel consumed ([http://www1.eere.energy.gov/vehiclesandfuels/facts/2009\\_fotw576.html](http://www1.eere.energy.gov/vehiclesandfuels/facts/2009_fotw576.html)). Based on each teleworker in Iowa commuting 21.5 minutes to and from work (43 minutes total), 116 days per year (U.S. Census, Means of Transportation to Work by Selected Characteristics, 2007-2011 American Community Survey 5-Year Estimates <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>)

This is even more interesting since relevance and digital literacy were only the second and third most reported barriers to broadband adoption in the previous year's (2011) Connect Iowa survey, at 26% and 19%, respectively. In 2011, the most commonly cited reason by non-adopters in rural Iowa was cost; almost one-third (32% or 144,000 rural Iowans) of non-adopters in rural Iowa reported the high cost of service as their main reason for not adopting. In the 2012 report, cost was only the third most reported barrier among non-adopters in rural Iowa. Nearly one-fifth (19%) or approximately 66,000 non-adopters in rural Iowa cited higher cost as their biggest reason for not subscribing to the service.

One other common reason reported by non-adopters in rural Iowa was the fact that they can get Internet access somewhere other than home. In fact, 10% of the non-adopters in rural Iowa reported this as their main barrier, significantly higher than the 4% of urban or suburban Iowa non-adopters.

## Conclusion

Broadband offers numerous benefits for rural Iowans, especially in critical areas like education and healthcare.<sup>10</sup> Based on Connect Iowa's survey assessment, rural Iowans have taken a step forward in technology adoption in the past year; however, adoption rates are still significantly lower compared to those of urban or suburban Iowans. Even more notable is how rural Iowans are utilizing these technologies; rural Iowa Internet users lag behind in the use of many online applications compared to urban or suburban Iowan Internet users.

Nearly 350,000 rural Iowans still do not subscribe to broadband service, and more than one-half cite as their main barrier that either the technology is irrelevant to them or they do not have the digital skills needed to use it. Broadband is a sound investment that will be beneficial for every resident in the state. Promoting broadband awareness and providing digital literacy classes may improve the lives of many rural Iowans who are disconnected from the various applications that broadband provides.



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<sup>10</sup> Iowa Farmer Today, [http://www.iowafarmertoday.com/news/opinion/broadband-service-can-help-farm-economy-slow-rural-outmigration/article\\_f33bd8ba-b422-11e2-af4b-0019bb2963f4.html](http://www.iowafarmertoday.com/news/opinion/broadband-service-can-help-farm-economy-slow-rural-outmigration/article_f33bd8ba-b422-11e2-af4b-0019bb2963f4.html)

## Methodology and Definitions

Between September 26 and October 17, 2012, Connect Iowa conducted a random digit dial telephone survey of 1,200 adult heads of households across the state. Phone numbers were chosen randomly, with area codes and telephone prefixes determined by geography per the North America Numbering Plan (NANP), with the last four digits of the telephone numbers randomly selected. Of the 1,200 respondents randomly contacted statewide, 201 were called on their cellular phones, and 999 were contacted via landline telephone.

The results of this survey have been compared to similar surveys that Connected Nation conducted across eight states in 2012 (Iowa, Michigan, Minnesota, Nevada, Ohio, South Carolina, Tennessee, and Texas). Altogether, Connected Nation surveyed 9,607 residents across these eight states in 2012 for this study. In addition, the 2012 residential survey in Iowa was also compared to the 2011 survey among 1,200 Iowans as well.

“Technology Adoption” is defined as follows:

1. Broadband adopters are defined as respondents who answered “yes” when asked, “Do you subscribe to the Internet at home?” and answered “broadband or high speed Internet service” when asked, “Which of the following describe the type of Internet service you have at home?”
2. Computer owners are defined as respondents who answered “yes” when asked, “Does your household have a computer?”
3. Mobile broadband users are defined as respondents who met any of the following criteria:
  - Responded that they use a cell phone to access the Internet while at home when asked, “When you are at your home, which of the following devices do you use to access the Internet?” or
  - When asked, “At what locations outside of your own home do you use the Internet?” responded “Through a cell phone or handheld device” or
  - Responded “yes” when asked, “On your laptop or tablet computer, do you subscribe to a mobile wireless service that allows you to access the Internet through a cellular network?” or
  - Responded “yes” when asked, “On your cell phone, do you subscribe to a plan that allows you to access the Internet?” and reported that they access the Internet via their cell phone when asked, “How often, if ever, do you go online using your cell phone?”

Multiple attempts were made to each working telephone number on different days of the week and at different times of the day to increase the likelihood of contacting a potential respondent. To ensure a representative sample, quotas were set by age, gender, and census area of residence (rural or urban or suburban), and the results were weighted to coincide with 2010 United States Census population figures. For the purpose of setting quotas and weighting, “rural” respondents are defined as living in a census area that is not a part of a Metropolitan Statistical Area (MSA), as designated by the United States Office of Management and Budget. Weighting and design consultation were provided by Lucidity Research.

Surveys were conducted by Thoroughbred Research Group. On average, the survey took approximately 10 minutes to complete after the respondent agreed to participate. Based on the effective sample size, the margin of error =  $\pm 3.15\%$  at a 95% level of confidence for the statewide survey of 2012; while the margin of error was  $\pm 3.21\%$  at a 95% level of confidence in 2011. As with any survey, question wording and the practical challenges of data collection may introduce an element of error or bias that is not reflected in this margin of error.

This residential survey was conducted as part of the State Broadband Initiative (SBI) grant program, funded by the National Telecommunications and Information Administration (NTIA). The SBI grant program was created by the Broadband Data Improvement Act (BDIA), unanimously passed by Congress in 2008 and funded by the American Recovery and Reinvestment Act (ARRA) in 2009. To learn more about Connect Iowa and its programs please visit [www.connectiowa.org](http://www.connectiowa.org) or e-mail us at [info@connectiowa.org](mailto:info@connectiowa.org).

## APPENDIX A:

### Select Sample Sizes

| Connect Iowa Residential Assessments | 2011 Iowa | 2012 Iowa |
|--------------------------------------|-----------|-----------|
| Statewide                            | 1,200     | 1,200     |
| Rural Adults                         | 400       | 524       |
| Urban or suburban Adults             | 800       | 676       |

### Demographic Categories

| 2012 Connect Iowa Residential Assessment | Rural Iowa | Urban or suburban Iowa |
|--|------------|------------------------|
| Statewide                                | 524        | 676                    |
| Internet Users                           | 412        | 582                    |
| Broadband Subscribers                    | 342        | 507                    |
| Non-Broadband Subscribers                | 182        | 169                    |

| Demographic Sample Size (2012)             | Rural Iowa |
|--|------------|
| Male                                       | 247        |
| Female                                     | 277        |
| Annual Household Income Less than \$35,000 | 157        |
| Annual Household Income More than \$35,000 | 273        |
| Caucasian                                  | 488        |
| Minorities                                 | 32         |
| Households with Children                   | 151        |
| Households without Children                | 361        |
| With College Education                     | 306        |
| Without College Education                  | 210        |
| Employed Adults                            | 316        |
| Unemployed Adults                          | 199        |
| Age 18 to 54                               | 273        |
| Age 55 or Older                            | 251        |
| Adults with Disabilities                   | 106        |
| Adults without Disabilities                | 400        |