



# **Driving Productivity Through Broadband**

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# Broadband is a powerful enabling technology

- Broadband can democratize access to essential tools of productivity and citizenship
- But to have that effect, we need to rethink processes in order to take full advantage – and in a way that improves society



# The Costs of Digital Exclusion

- 77% of Fortune 500 companies only allow you to apply online for posted jobs
- 65% of teenagers do homework at home on-line
- 40% of Americans say they get “most” of their news online



# The Information Economy

- Everyone is becoming a knowledge worker
- Critical factor for success is the ***process of knowledge exchange***
- Knowledge exchange is driven by the ***interplay of networks, devices, and applications as utilized by people***

***Democratization of knowledge exchange***  
is the foundation for constant innovation,  
broad economic growth, and healthy  
**communities**



# Widespread use of new technology is not automatic

- It took 40 years for electrification to reach 50% penetration. Why?
  - Sunk Cost of existing factories and plants
  - “Sunk Thought” of processes, expertise
- Major productivity gains were not realized until entire business processes were rethought
- Is a similar pattern emerging for broadband?



# To fully realize economic benefits of broadband....

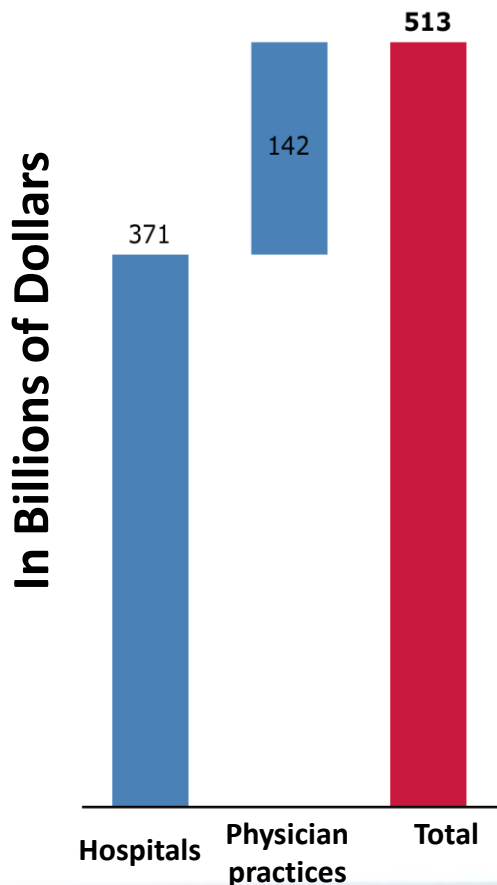
- The right tools need to be broadly distributed to the right places
- Entire economic processes need to be rethought

***We cannot limit ourselves to  
“yesterday’s” policy debate and  
“yesterday’s” questions***

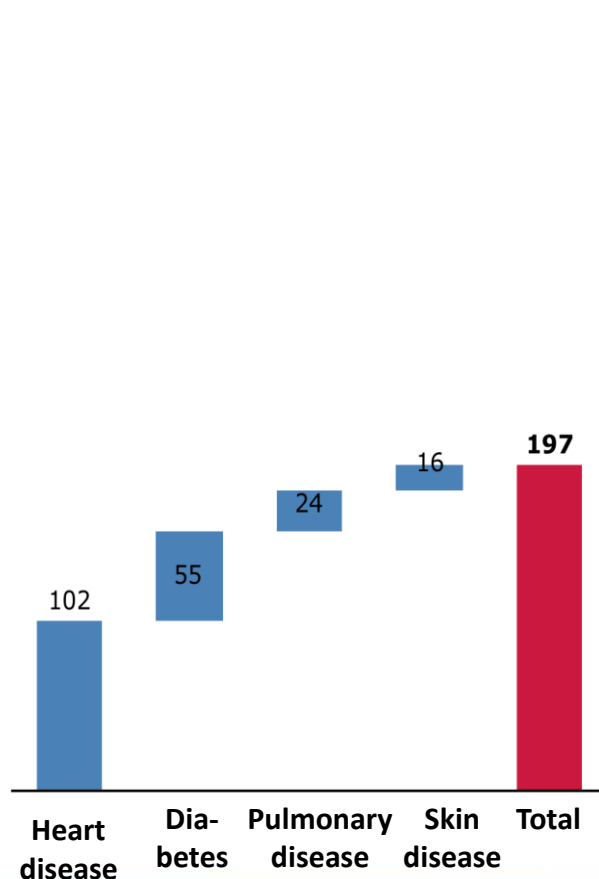


# Opportunities in...Health Care

Possible savings from implementation of electronic health records over 15 years



Possible savings from implementation of remote monitoring over 25 years



**\$700B**  
in  
potential  
net  
savings  
over  
15-25  
years

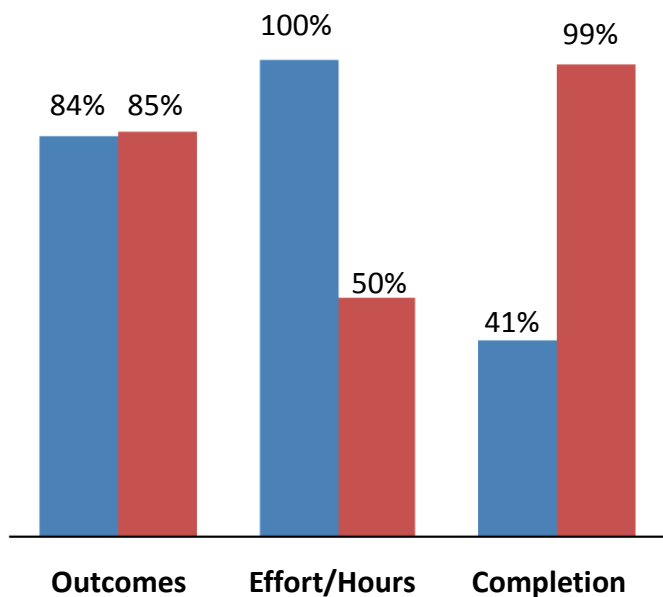
Source: FCC



# ...in Education and Job Training

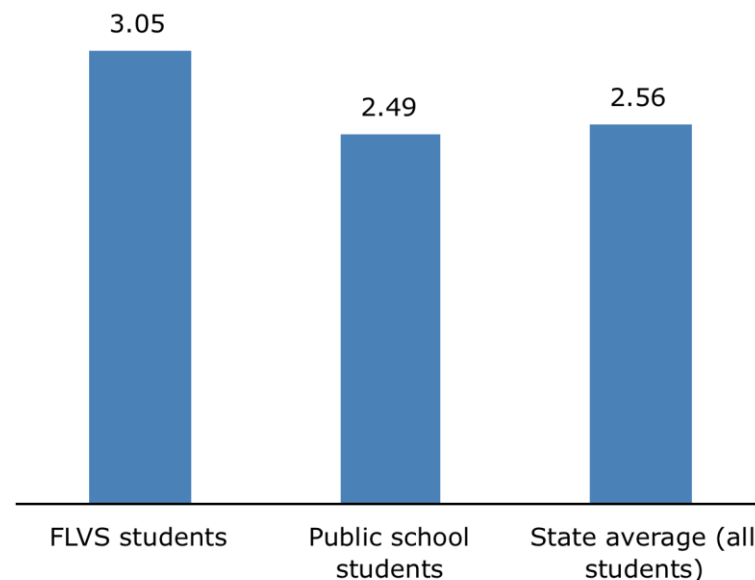
## Comparison of results between traditional and hybrid instruction models (percentage)

■ Traditional  
■ Hybrid



## Comparison of Advanced Placement scores at Florida Virtual School and under traditional instructional models

Advanced Placement scores (scale of 1-5)

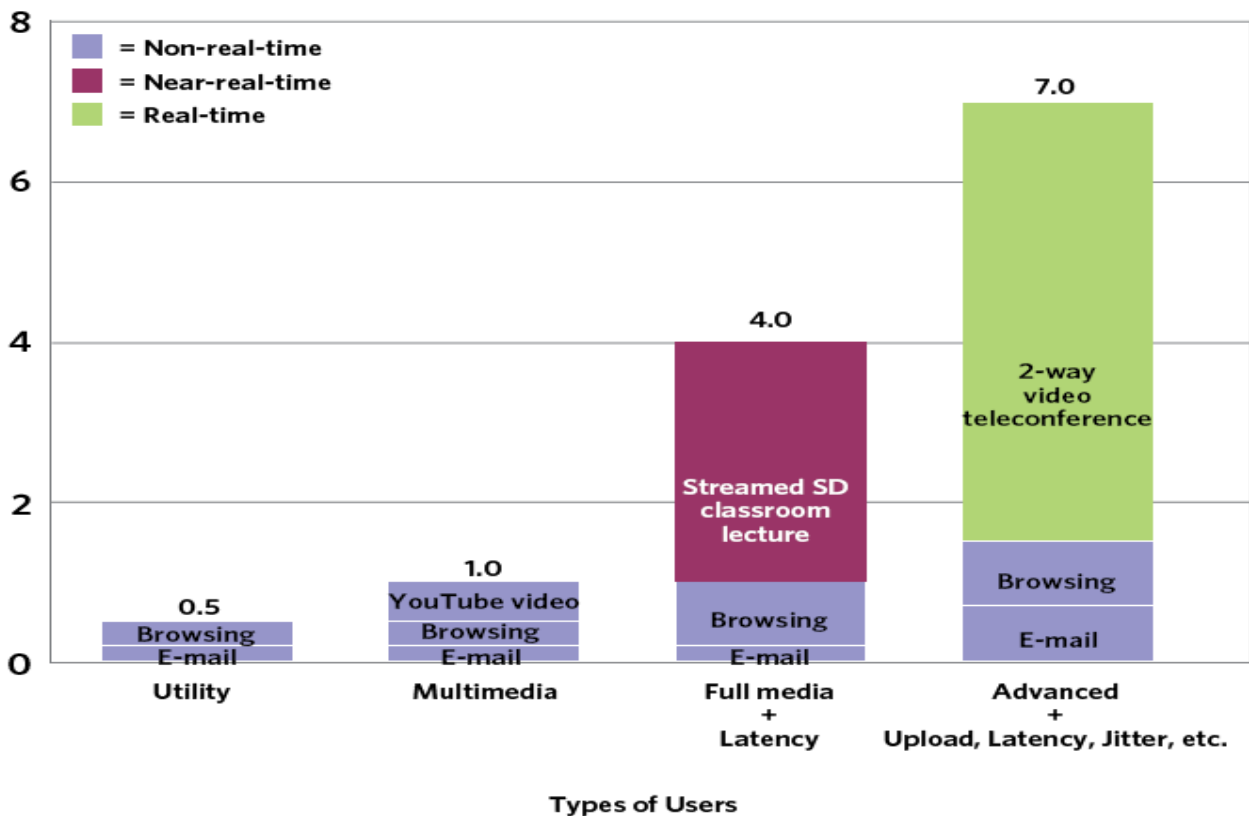


Source: FCC



# Different users have different needs

## Actual Download Speeds Necessary to Run Concurrent Applications (Mbps)

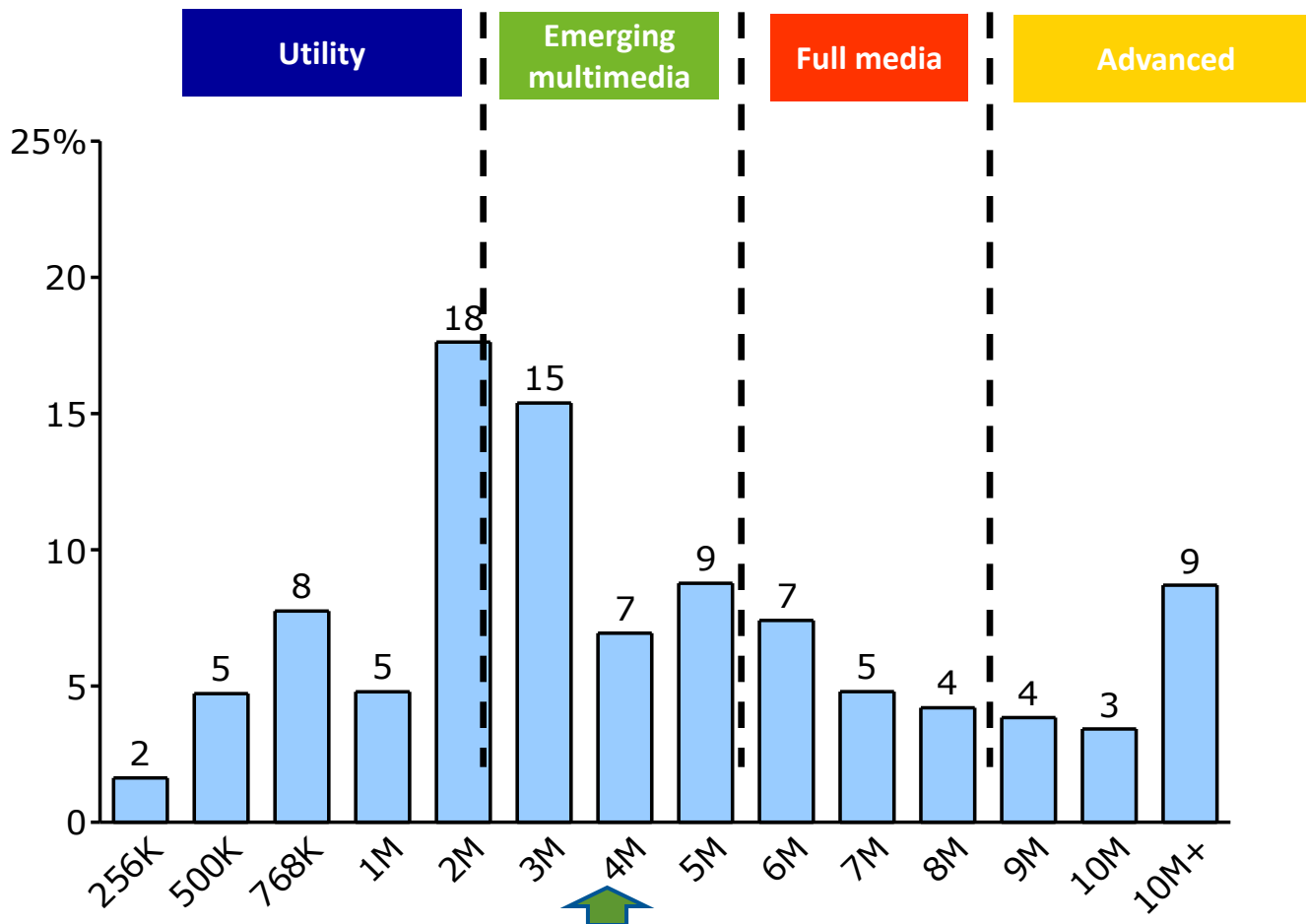


FCC, *Broadband Performance*, Technical Paper No. 4, <http://download.broadband.gov/plan/fcc-omnibus-broadband-initiative-%28obi%29-technical-paper-broadband-performance.pdf>



# Distribution of Residential Consumption Today

Percent of subscribers by actual download speed received



~50% of U.S. consumers receive less than 3.0 Mbps

Source: FCC



# Right Tools to Right Places

Our focus cannot only be on broadband download speed, but also (and perhaps more critically) focus on...

- Enabling applications
- Quality of service
- Diffusion and use of innovative devices
- Training and ability to use these tools



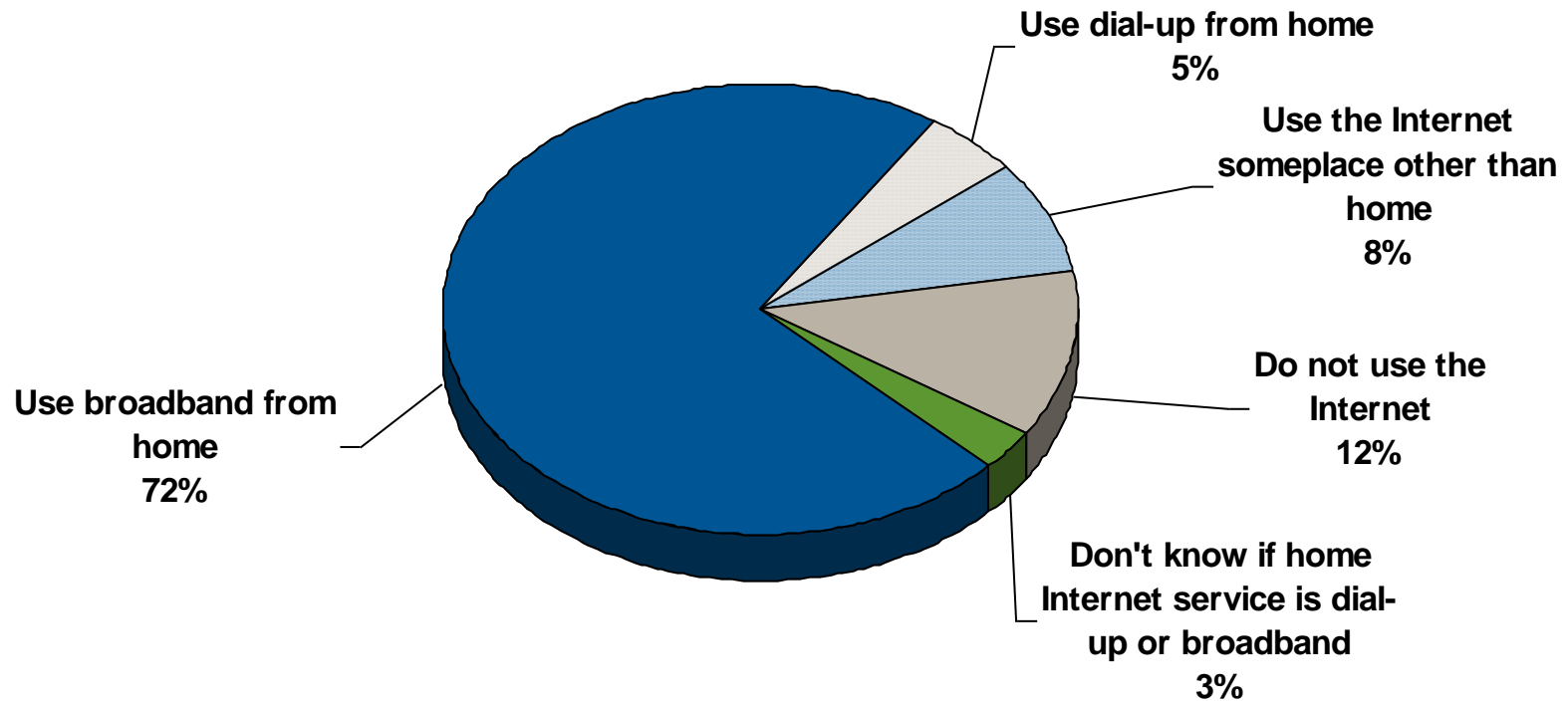
# So where does Kansas stand?

- Residential Technology Assessment
  - Telephone survey of 1,200 Kansas households conducted in March 2010
- Business Technology Assessment
  - Completed, analysis in process



# Kansas Technology Adoption Summary

## Percent of all Kansas residents

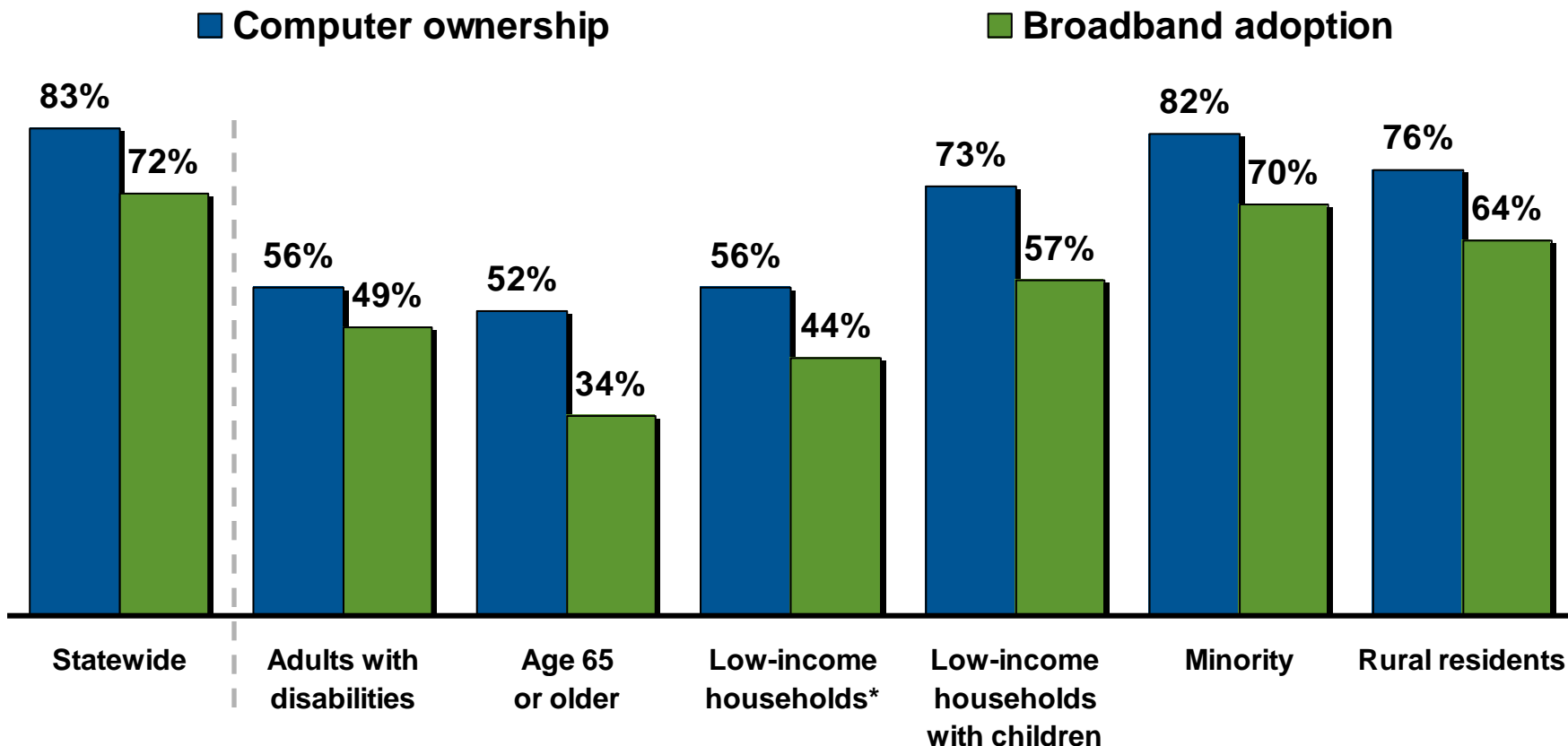


Q: Do you have an Internet connection at home?,  
Q: Do you have access to the Internet from any locations outside of your own home?, and  
Q: Which of the following describe the type of Internet service you have at home?  
(n=1,200 KS residents)

Source: 2010 Connect Kansas  
Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)



# Technology Adoption by Demographic



\*Low-income=household income less than \$25,000

Q: Does your household have a computer? and

Q: Which of the following describe the type of Internet service you have at home?

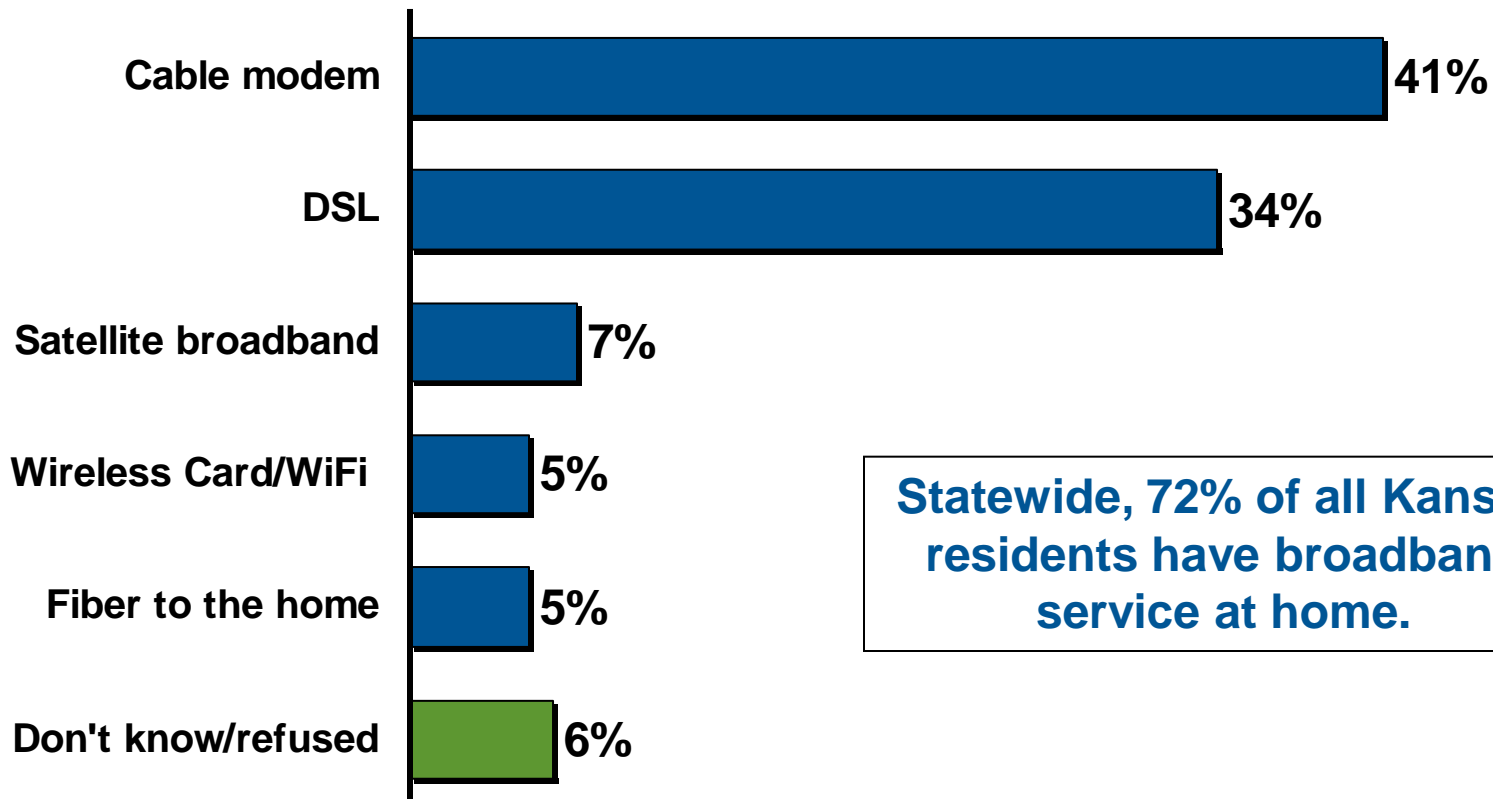
(n=1,200 KS residents)

Source: 2010 Connect Kansas Residential Technology Assessment  
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# Types of Broadband Service That Kansas Residents Use

Percent of all Kansas broadband subscribers\*



**Statewide, 72% of all Kansas residents have broadband service at home.**

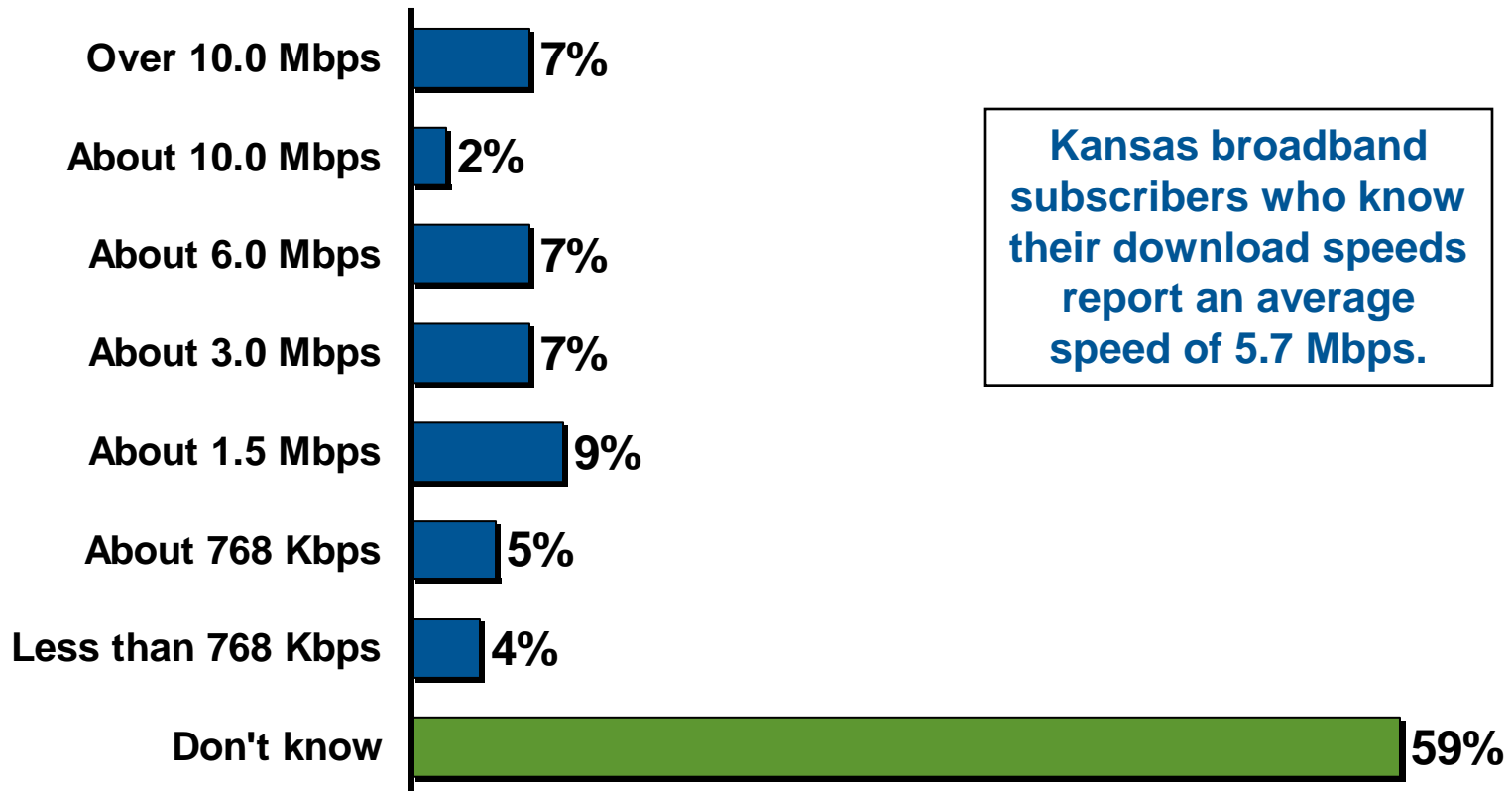
\*Percentages do not add up to 100% because individuals could give multiple responses.  
Q: Which of the following describes the broadband service you have at home?  
(n=852 KS residents with home broadband service)

Source: 2010 Connect Kansas Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)



# Broadband Download Speeds

Download speeds among Kansas broadband subscribers



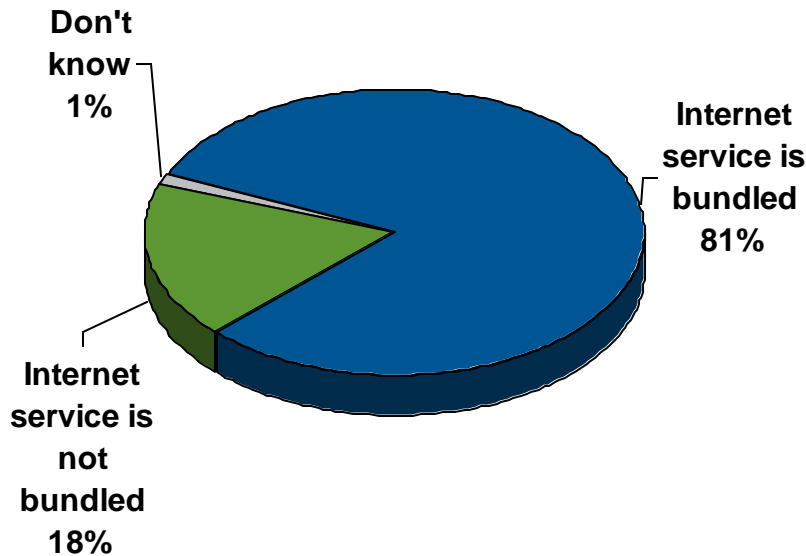
Q: To the best of your knowledge, what is the approximate download speed or bandwidth provided by your Internet service provider?  
(n=852 KS residents with home broadband service)

Source: 2010 Connect Kansas Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)

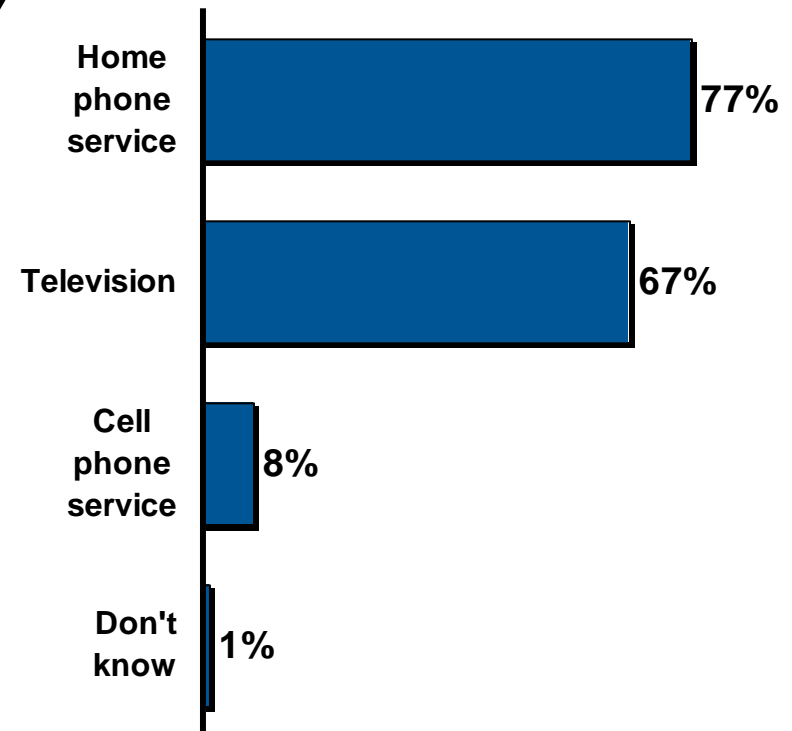


# Bundling Services Offered by Internet Providers

Among Kansas residents with Internet service at home



Other services bundled with home Internet service



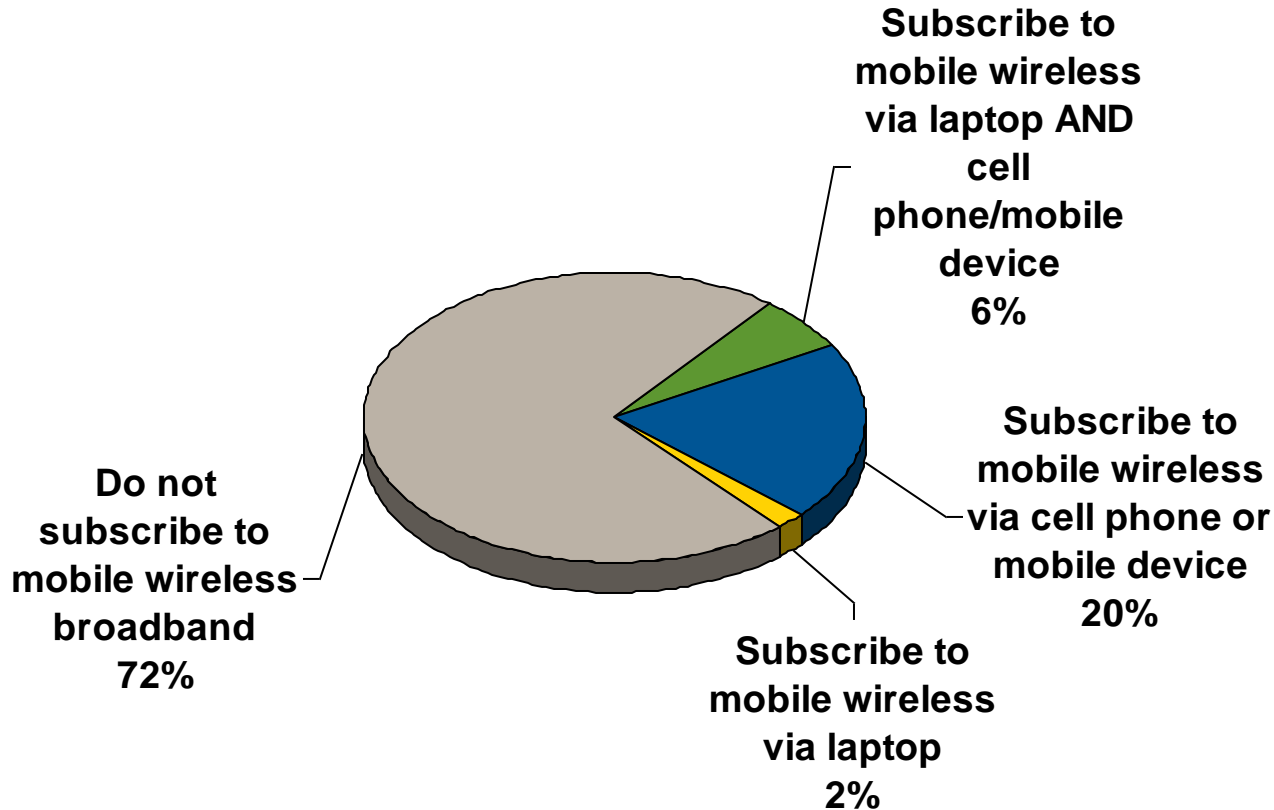
Q: Does your Internet provider also provide your home with other service, such as our telephone, cell phone service, or television? This is often called "bundling"? (n=948 KS residents with Internet service at home) and Q: What other services are bundled with your home Internet service? (n=770 KS residents with bundled Internet access)

Source: 2010 Connect Kansas Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)



# Mobile Wireless Broadband Adoption

Percent of all Kansas residents



Although one-half of Kansas residents own a laptop computer, and more than four out of five residents own a cellular phone, the vast majority of Kansas residents (72%) do not subscribe to mobile wireless broadband.

Q: On your laptop computer, do you subscribe to mobile wireless service that allows you to access the Internet through a cellular network? and  
Q: Do you access the Internet through a cellular phone or mobile device?  
(n=1,200 KS residents)

Source: 2010 Connect Kansas  
Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)

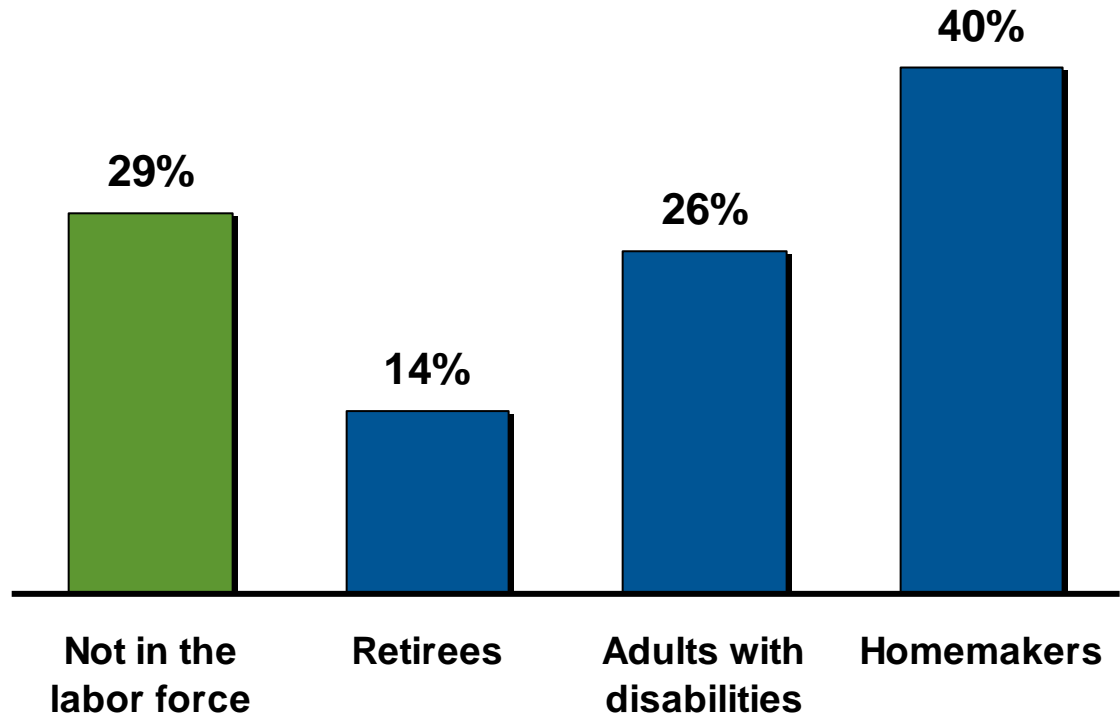


# The Potential Impact of Telework on the Labor force

Teleworking could provide an additional boost to the state's workforce, as over one-fourth of Kansas residents who are not currently employed say they would likely telework if empowered to do so.

This includes 14% of retirees, over one-fourth of adults with disabilities, and two out of five homemakers who say they would telework if empowered to do so.

Kansas residents who do not currently work and are "very likely" or "somewhat likely" to work outside the home if allowed to telework



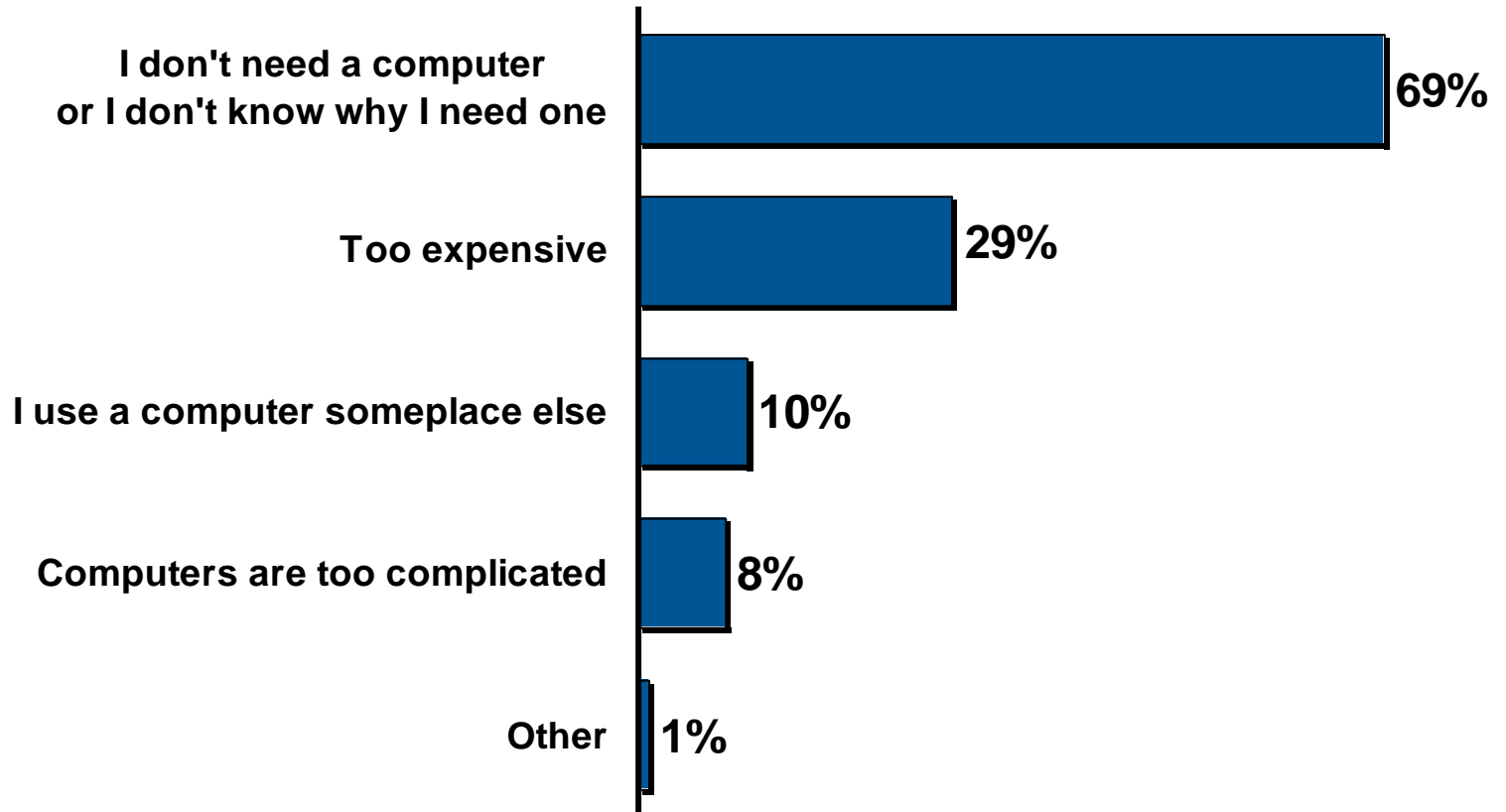
Q: If you were able to work from home through a broadband connection - commonly known as teleworking - how likely is it that you would work outside the home? (n=425 KS residents not employed full-time or part-time)

Source: 2010 Connect Kansas Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)



# Barriers to Computer Ownership

Percent of Kansas residents with no computer at home\*

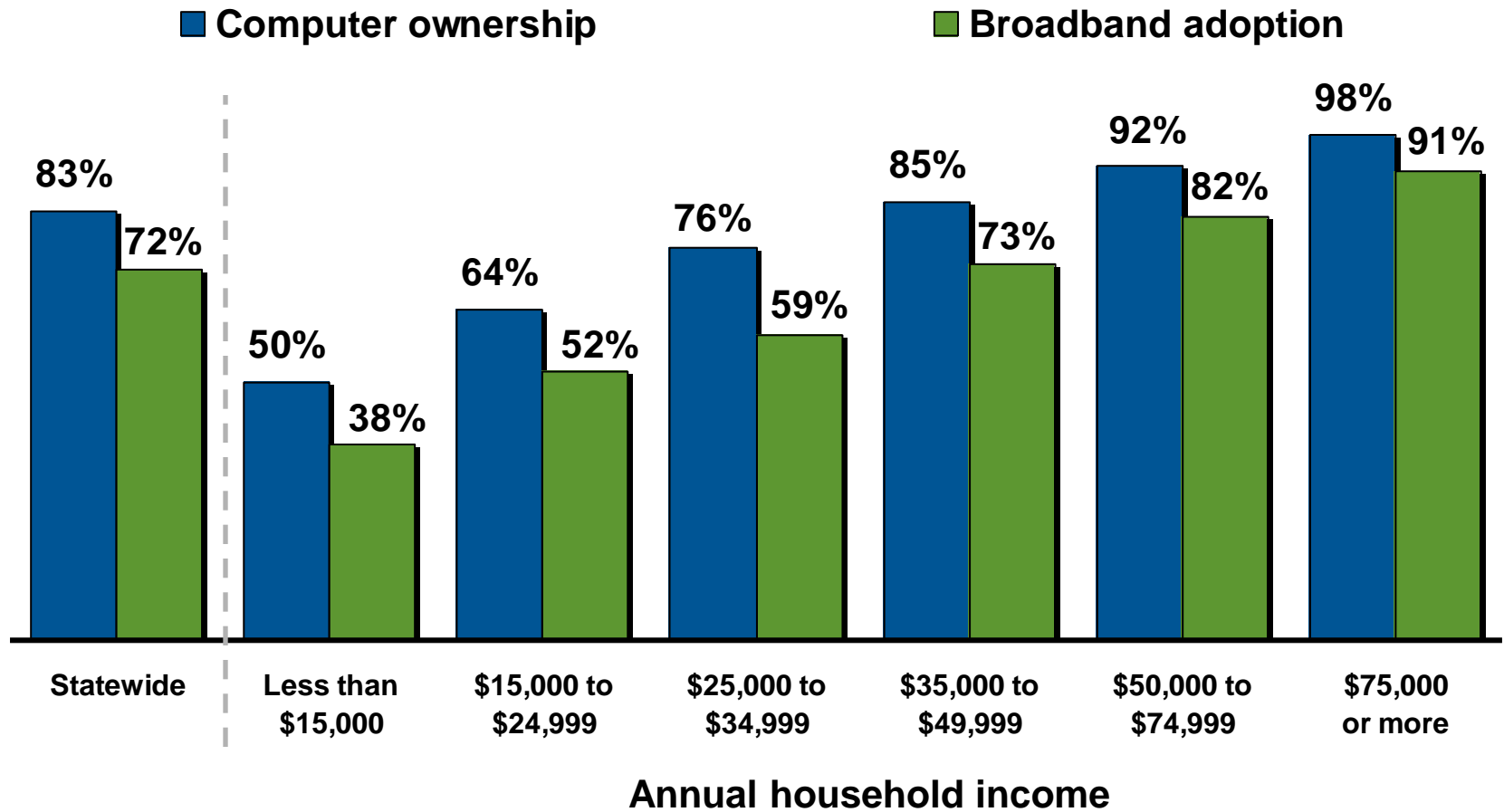


\*Percentages do not add up to 100% because individuals could give multiple responses.  
Q: Why don't you have a computer at home?  
(n=210 KS residents with no home computer)

Source: 2010 Connect Kansas  
Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)



# Technology Adoption by Income



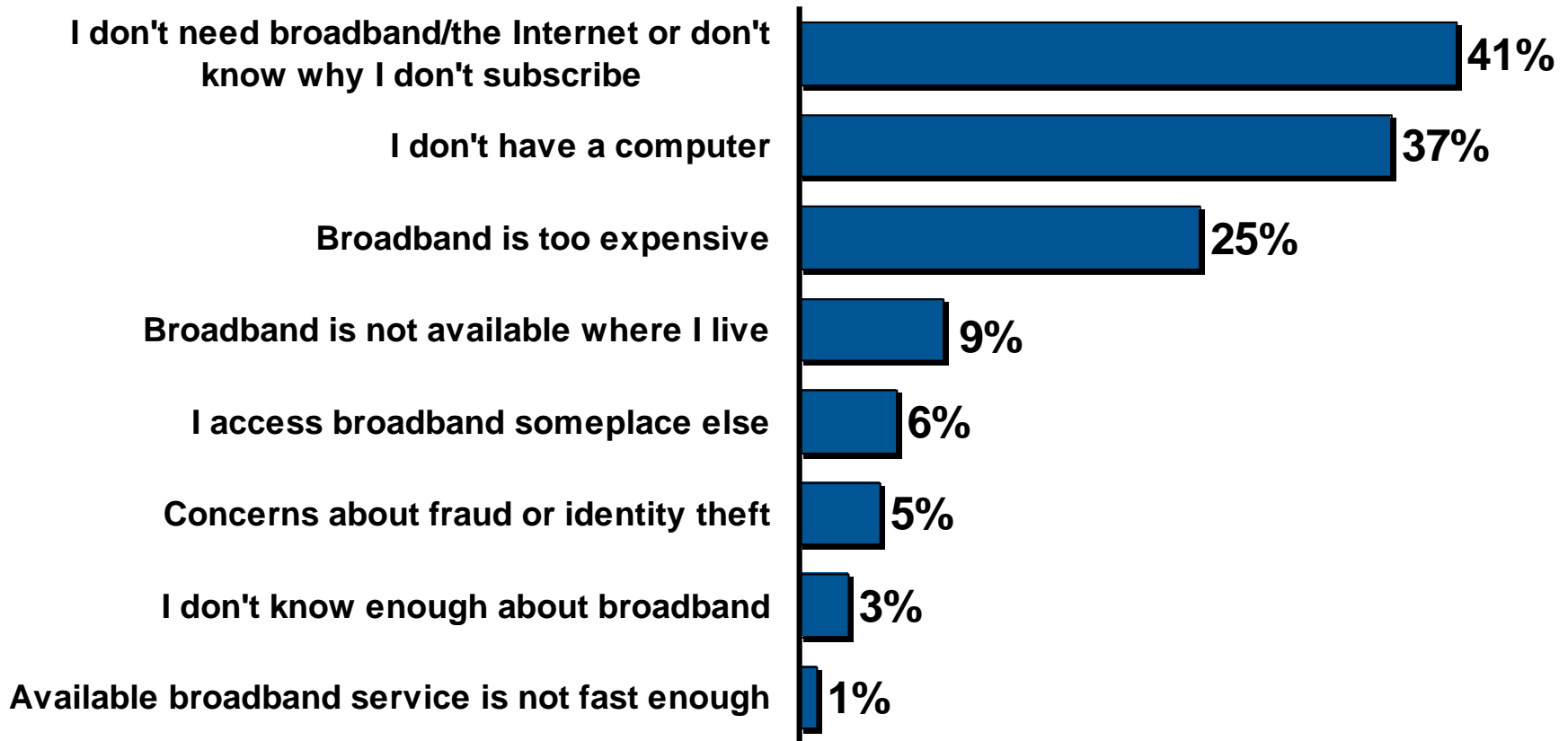
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Q: Which of the following describe the type of Internet service you have at home?  
(n=1,200 KS residents)

Source: 2010 Connect Kansas  
Residential Technology Assessment  
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# Barriers to Broadband Adoption

Percent of Kansas residents with no home broadband service\*



\*Percentages do not add up to 100% because individuals could give multiple responses.  
Q: Why don't you subscribe to broadband at home?  
(n=348 KS residents who do not have home broadband service)

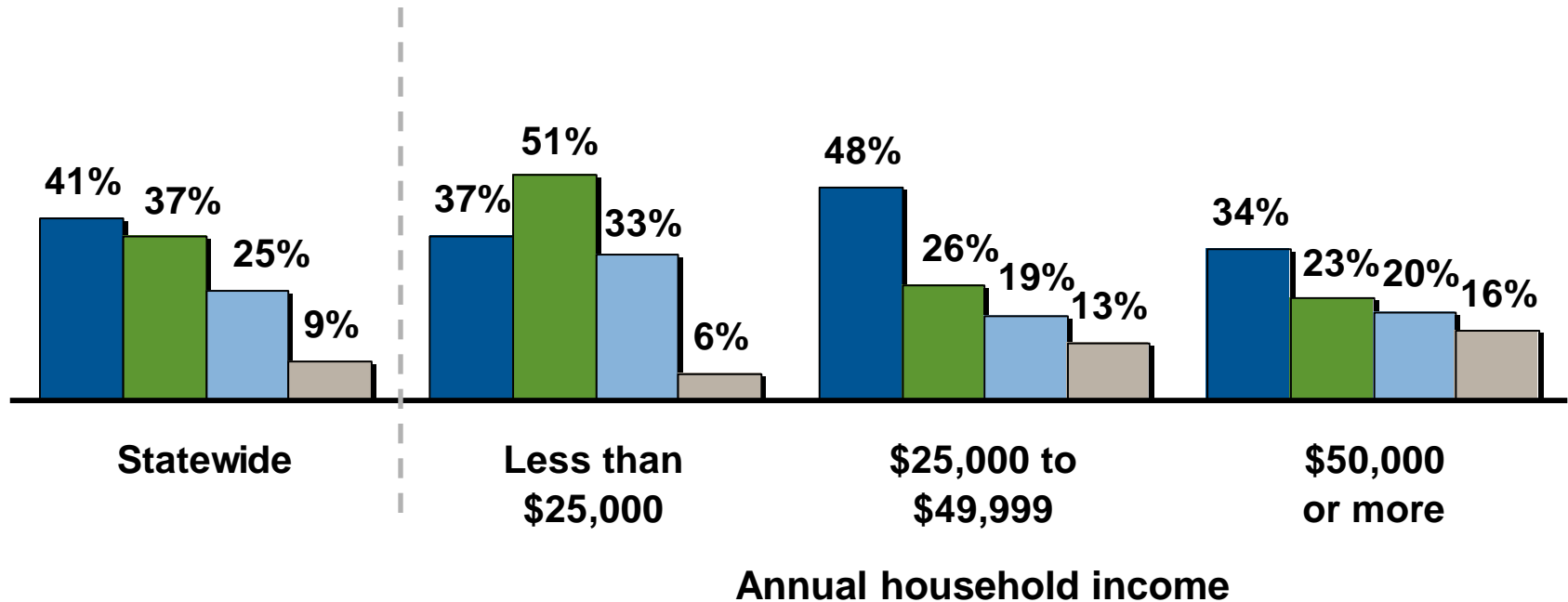
Source: 2010 Connect Kansas Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)



# Top Barriers to Broadband Adoption

## Percent of Kansas residents without home broadband service

- I don't need broadband or I don't know why I don't subscribe
- No computer
- Broadband is too expensive
- Broadband is not available in my area



Q: Why don't you subscribe to broadband at home?  
(n=348 KS residents who do not subscribe to broadband)

Source: 2010 Connect Kansas  
Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)



# Searching for Information Online

## Percent of Kansas Internet users who search for the following types of information online

Percentage is significantly* <i>higher</i> than the state average: Percentage is significantly* <i>lower</i> than the state average:	Less than \$15,000	\$15,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	\$75,000 or more
<span style="display: inline-block; width: 15px; height: 15px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> Percentage is significantly* <i>higher</i> than the state average: <span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> Percentage is significantly* <i>lower</i> than the state average:						
<b>Product or service information</b>	64%	64%	64%	77%	88%	89%
<b>Community events</b>	42%	45%	48%	60%	68%	66%
<b>Health or medical information</b>	59%	53%	61%	69%	79%	75%
<b>Government services</b>	41%	43%	34%	48%	52%	55%
<b>Research for schoolwork</b>	44%	37%	37%	48%	49%	53%
<b>Jobs or employment</b>	48%	38%	41%	39%	42%	42%

\*Significance measured at a 95% confidence level



Q: Which of the following types of information do you use the Internet to look for online?  
(n=1,052 KS Internet users)

Source: 2010 Connect Kansas Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)



# Searching for Information Online

## Percent of Kansas Internet users who search for the following types of information online

Percentage is significantly* <i>higher</i> than the state average:  Percentage is significantly* <i>lower</i> than the state average: 	Urban	Suburban	Rural
<b>Product or service information</b>	78%	84%	76%
<b>Community events</b>	63%	64%	52%
<b>Health or medical information</b>	69%	71%	68%
<b>Government services</b>	47%	53%	43%
<b>Research for schoolwork</b>	48%	51%	40%
<b>Jobs or employment</b>	41%	47%	33%

\*Significance measured at a 95% confidence level  
 Q: Which of the following types of information do you use the Internet to look for online?  
 (n=1,052 KS Internet users)

Source: 2010 Connect Kansas  
 Residential Technology Assessment  
[www.connectkansas.org](http://www.connectkansas.org)



# Online Activities

## Percent of Kansas Internet users who conduct the following activities online

Percentage is significantly* <i>higher</i> than the state average: <span style="color: #ADD8E6;">■</span> Percentage is significantly* <i>lower</i> than the state average: <span style="color: #FFD700;">■</span>	Urban	Suburban	Rural
<b>Using a search engine</b>	83%	89%	78%
<b>Sending or receiving photos</b>	70%	79%	69%
<b>Reading newspapers or other news sources</b>	76%	74%	67%
<b>Playing games online</b>	55%	51%	50%
<b>Downloading music</b>	53%	56%	40%
<b>Watching videos, movies, or TV shows</b>	50%	57%	41%
<b>Working from home</b>	30%	43%	29%
<b>Reading blogs</b>	28%	35%	27%
<b>Taking online classes</b>	22%	27%	21%

\*Significance measured at a 95% confidence level  
 Q: Which of the following activities do you conduct online?  
 (n=1,052 KS Internet users)

Source: 2010 Connect Kansas  
 Residential Technology Assessment  
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# Thoughts for Maximizing the Economic Impact of Broadband

- Right Tools to the Right Places
  - Tools, not simply download speed
  - Mobility, not simply fixed locations
  - Community anchor institution connections, not simply households
- Adoption, Utilization and Diffusion matters
  - Adoption programs and awareness
  - Training and Digital Literacy
  - Explore across economic sectors
- Set Diverse Array of Goals and Benchmarks
- Examine Government's Role in the Entire Broadband Ecosystem
  - Government as User and Purchaser
  - Government as Controlling Key Inputs (ROW, infrastructure policies)
  - Government as Enabler or Facilitator



# Contact Information

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