City of

Minneapolis

Community Technology Survey

Overcoming the Digital Divide

May 2013

Ward 3

Summary of Results and Compilation of Analysis

Central, Northeast and University Communities

Information Technology Department
www.minneapolismn.gov/it
612-673-3190

Introduction and Overview

This summary and compilation includes pieces pulled from the 2013 Minneapolis Community Technology Survey report created by Shannon Hayden, Senior Research Associate with National Research Center Inc., views of the data produced by the City of Minneapolis, and statistical analysis from Alex Kaizer, University of Minnesota graduate student. The source documents from National Research Center and Alex Kaizer are available at www.minneapolismn.gov/it/inclusion or by contacting Elise Ebhardt at elise.ebhardt@minneapolismn.gov, 612-673-3190.

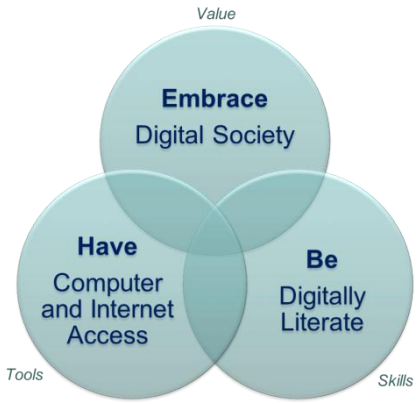
The City of Minneapolis IT Vision includes a component for addressing the digital divide in Minneapolis:

All City residents, institutions and businesses will have the tools, skills and motivation to gain value from the digital society. Our residents and businesses need to be equipped to effectively compete with others around the world—to be smarter, more creative, more knowledgeable, and more innovative. The City becomes stronger the more its residents take advantage of computing and the vast sea of knowledge the Internet offers, to achieve their educational, economic, civic, and social goals. Leveraging technology is a necessary ingredient of success.

Get Involved

The City is taking on a facilitator role to help digital inclusion stakeholders, community members, and the private sector come together to address the digital divide in Minneapolis. This report is intended to generate ideas and actions to make the most of our community resources in light of the survey results.

Priority Principles



Access to Tools: People need affordable and reliable computers and broadband Internet access. Access opens up a world of possibilities and allows full participation in our society.

Digital Literacy: Beyond having access to technology, people need to understand digital technologies and how to use them effectively to achieve their educational, economic, civic, and social goals.

Value: To embrace the digital society, people must see the benefits to their life. The City is stronger, the more its residents take advantage of computing and the vast sea of knowledge the Internet offers.

The purpose of the 2013 Minneapolis Community Technology Survey was to gather data about Minneapolis residents' access to and experiences with computers, mobile devices and the Internet. The results will inform priorities for the City's digital inclusion initiatives, and help engage businesses, neighborhood and community groups, public sector partners, and funders to more effectively address community technology and economic development needs. In addition, the survey provides data to measure changes in the community over time. The 2013 Minneapolis Community Technology Survey is the survey's second year; the survey was first conducted in 2012 with the help of a grant from the Minneapolis Digital Inclusion Fund. The City's Information Technology Department commissioned the surveys and provided the funding for the 2013 survey.

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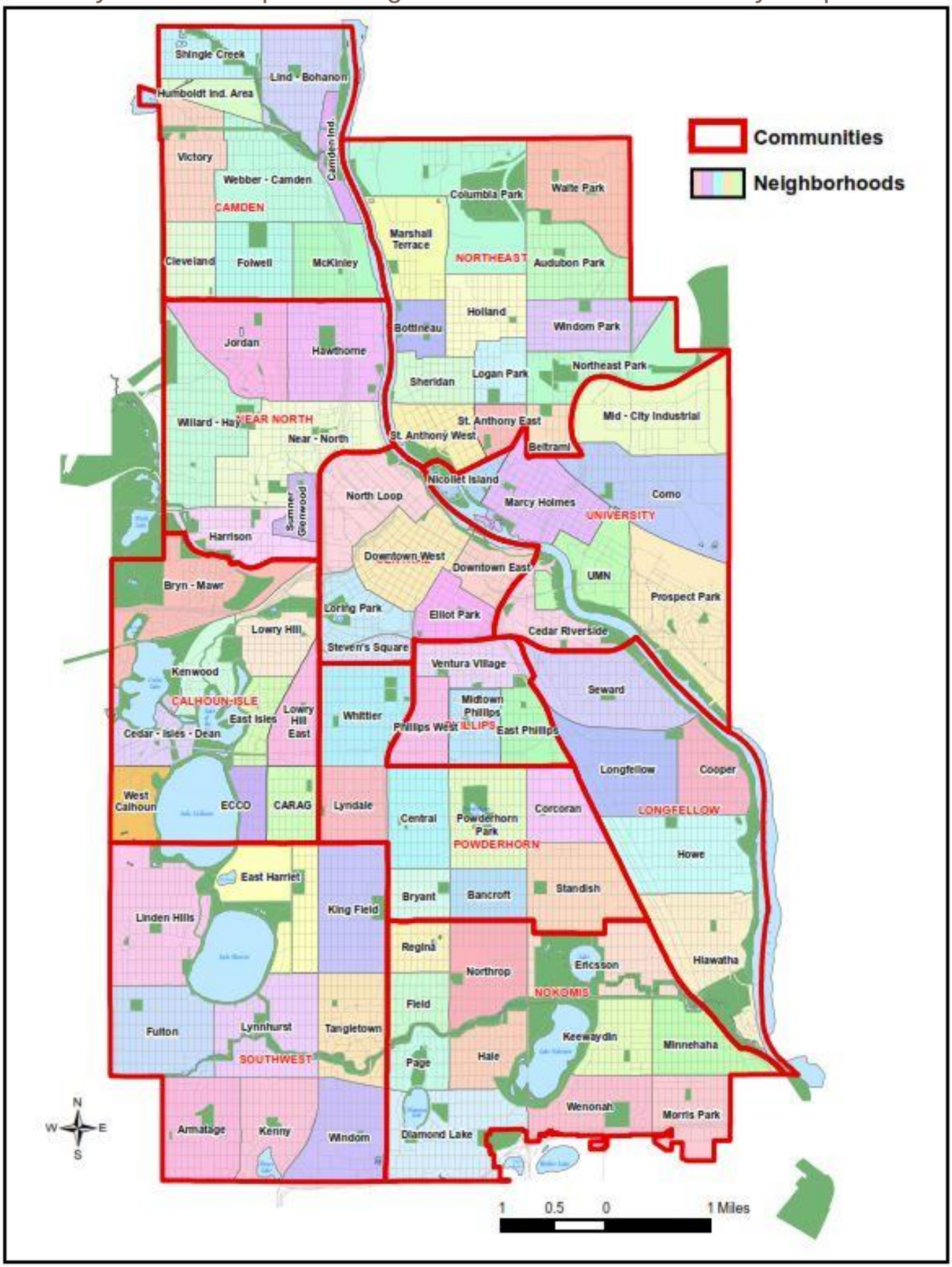
City of Minneapolis Neighborhood and Community Map



Executive Summary - National Research Center, Inc.

Survey Background

The City of Minneapolis Information Technology Department contracted with National Research Center, Inc. to conduct a survey of residents to inform the City's efforts to overcome the "digital divide" – the gap between individuals and groups in their access to and use and knowledge of information and communication technologies. This is the second iteration of the Minneapolis Community Technology Survey; the first was conducted in 2012. Three mailings were sent to a random selection of 12,375 addresses distributed among each of the 11 communities in the city. Mailings included a prenotification postcard and two survey packets, each sent to selected households just under a week apart. The response rate of 27% reflects 3,211 completed surveys, providing an overall margin of error of plus or minus two percentage points. The margin of error for making comparisons between communities rises to plus or minus nine percentage points.

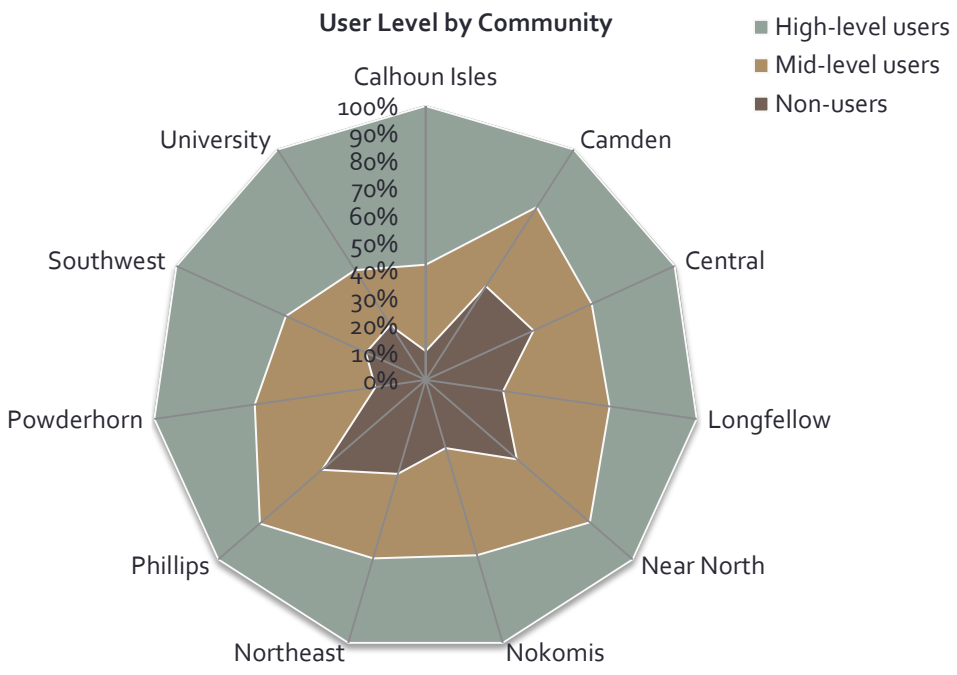
Results Highlights

Minneapolis residents weighed in on the survey regarding technology, access to computers and other devices and access to the Internet. Most Minneapolis residents thought favorably of access to technology in the city. Access to computers and the Internet was widely considered essential and most households had Internet-capable computers and cell phones and used them regularly to go online; ownership of mobile phones with Internet access increased in 2013. Of Minneapolis adults over the age of 45, women were much more likely than men to have cell phones with the ability to access the Internet. While ownership of Internet-enabled computers varied greatly across the City, ownership of Internet-enabled mobile phones was high – even among those households least likely to own a computer. The most frequent online activity by Minneapolis residents occurred at home, predominately via a high-speed connection, or at work. A majority of respondents were at least somewhat aware of the City's WiFi network.

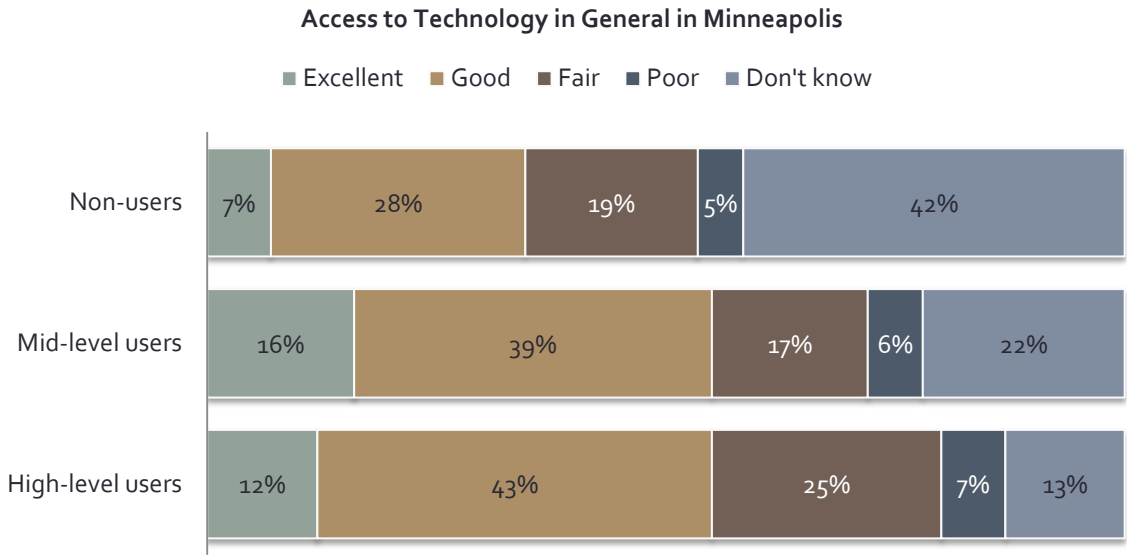
Minneapolis residents frequently conducted various activities online and in large part were comfortable using a computer and accessing the Internet. Residents turned to a variety of resources with their questions and problems about computers and the Internet, including friends or family, but a minority did not have anyone to help them. These factors varied, sometimes considerably, across the city's 11 communities and different sociodemographic characteristics.

User and non-user profiles revealed more information about the digital divide in the city. Forty-seven individual survey items had response categories that related to residents' use of and comfort with technology; for each of these questions, response categories were divided into those that connoted "use" versus "non-use" and then each respondent's total count of "non-use" answers was tallied. A respondent with 31 or more non-use responses was considered a "non-user," 15-30 non-use responses was considered a "mid-level" user and fewer than 15 non-use responses made someone a "high-level" user.

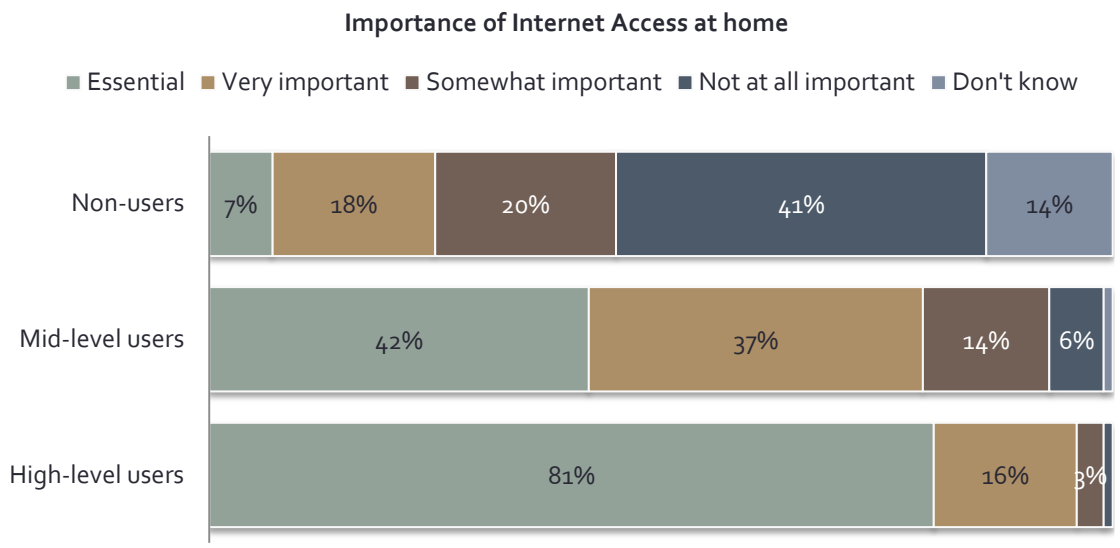
Looking at the distribution of high-level users across communities, Calhoun Isles, Southwest and University had the most high-level users, while Near North, Phillips, Camden and Central had the most non-users.



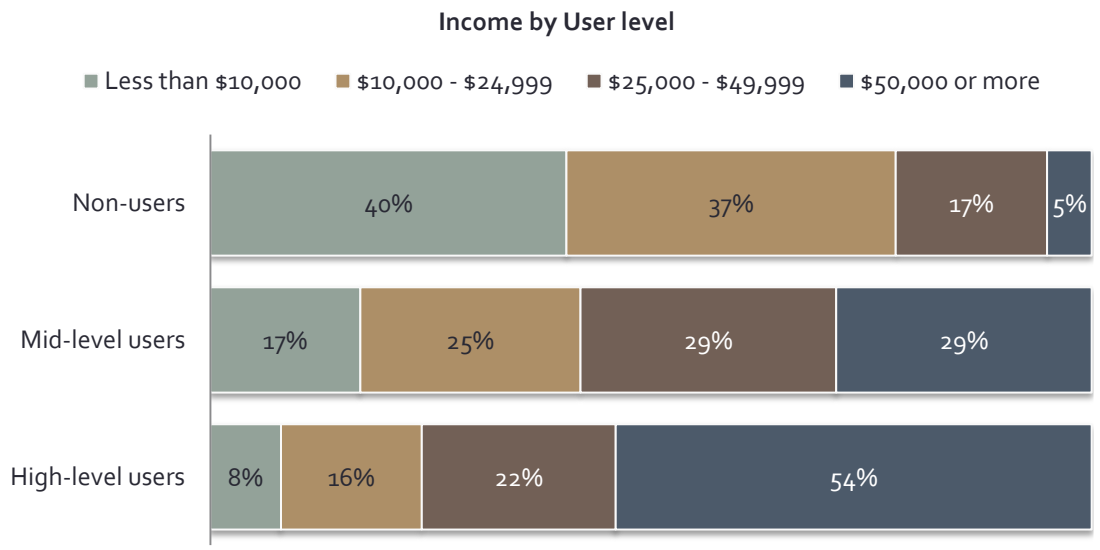
Positive ratings for overall access to technology in the city were most often given by high- and mid-level users; non-users were most likely to express a lack of knowledge about technology access in the city.



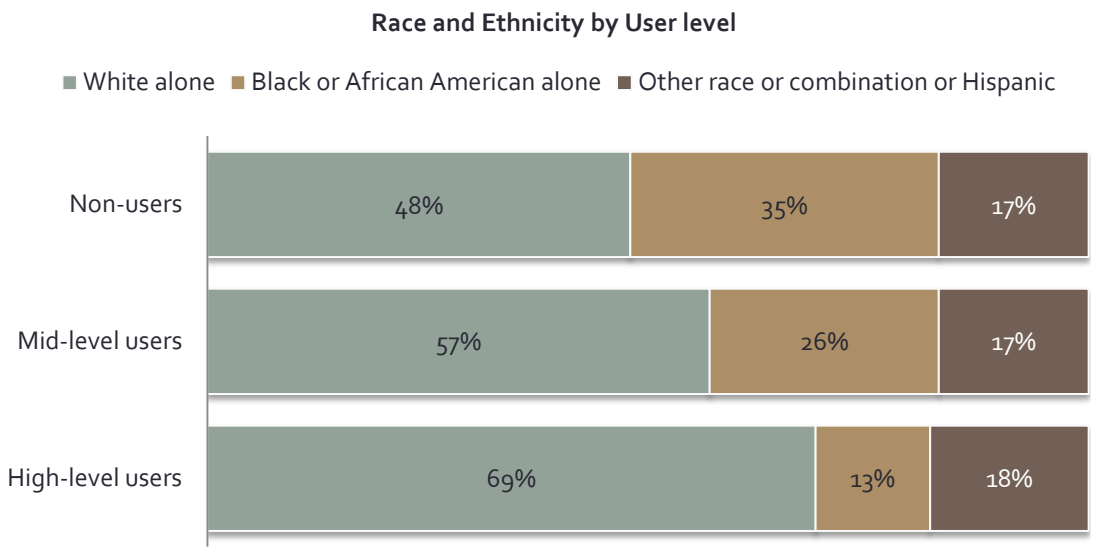
The importance of home Internet access varied dramatically by user level; virtually all high-level users described it as essential or very important, compared to non-users who were most likely to say that home Internet access was not at all important.



Higher incomes were associated with high-level use. While a majority of high-level users had annual household incomes of $50,000 or more, most non-users reported incomes of less than $25,000 per year.

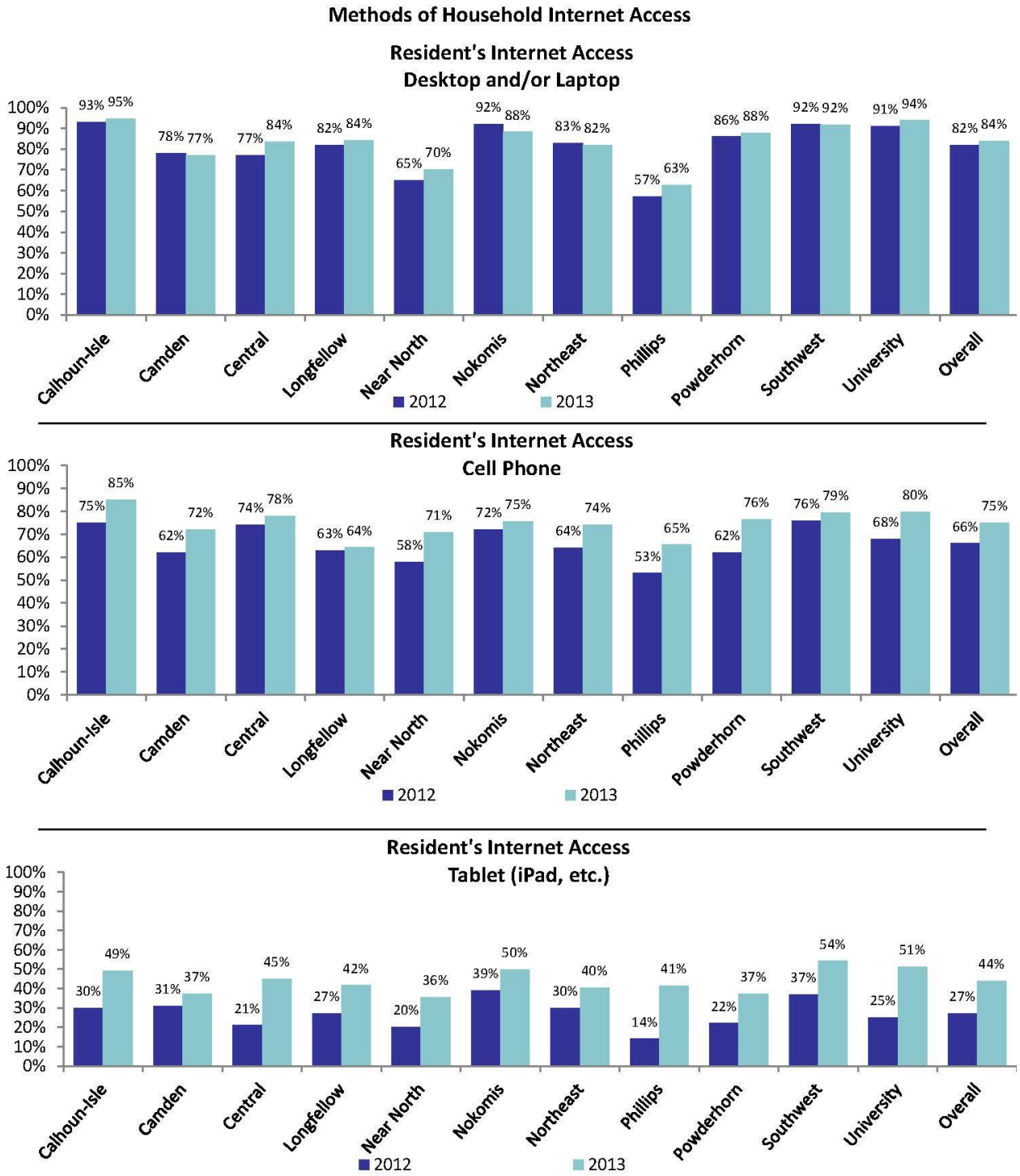


User levels differed by race and ethnicity, specifically between Black/African American and White, non-Hispanic residents. Black/African American respondents made up around one-third of non-users but only 13% of high-level users. White, non-Hispanic residents made up around two-thirds of high-level users and only half of non-users.


Race and Ethnicity by User level
White alone
Black or African American alone
Other race or combination or Hispanic
Non-users
48%
35%
17%
Mid-level users
57%
26%
17%
High-level users
69%
13%
18%

Selected Results

Methods of Household Internet Access 2012 - 2013

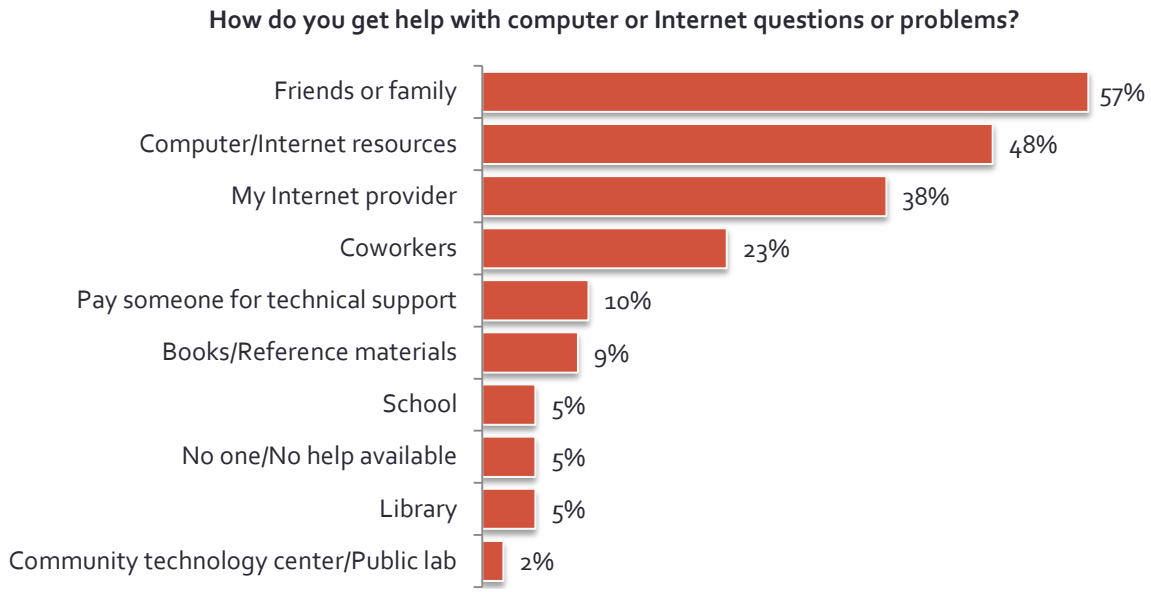


Note: The question asked, "Please indicate whether you have each of the following in your household."

Points of Note

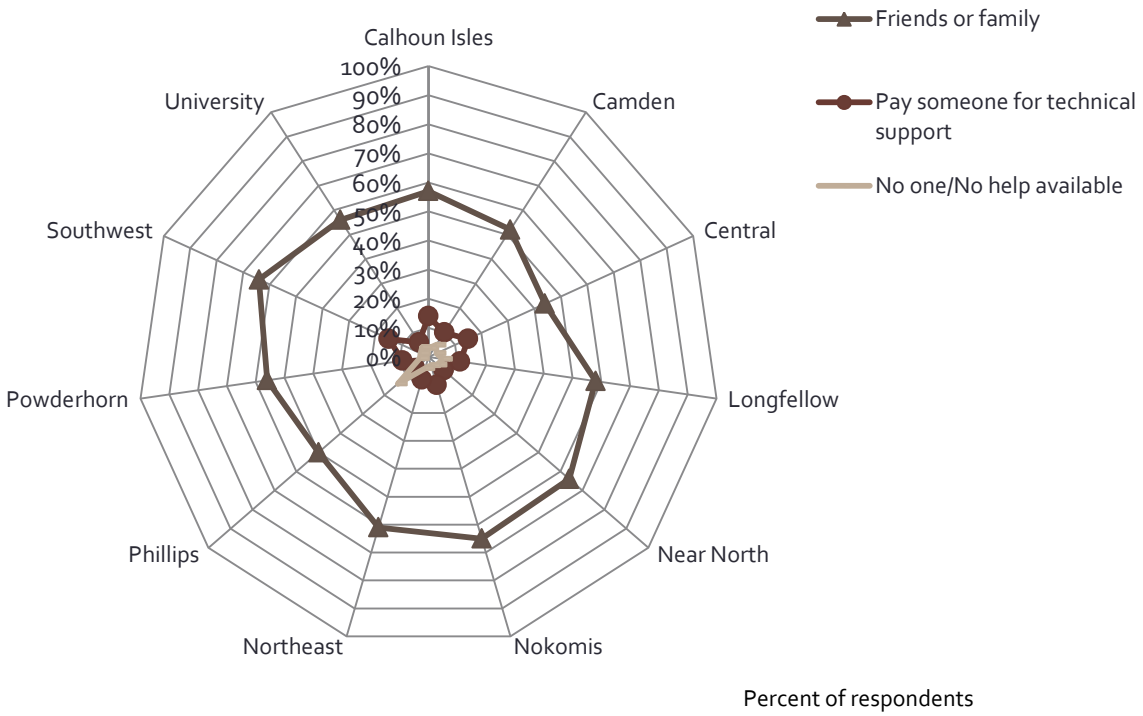
- Most Minneapolis residents thought favorably of access to technology in the city. Access to computers and the Internet was widely considered essential. Residents frequently conducted various activities online and in large part were comfortable using a computer and accessing the Internet.
- Overall, 84% of households have computers with Internet access at home (an increase from 82% in 2012), yet differences in access at home and comfort level varied, sometimes considerably, across the city's 11 communities and different sociodemographic characteristics.
- **More mobile access is the biggest change between 2012 and 2013:** While ownership of Internet-enabled computers varied greatly across the City, ownership of Internet-enabled mobile phones is higher in 2013 – even among those households least likely to own a computer.
- Of Minneapolis adults over the age of 45, women were much more likely than men to have cell phones with the ability to access the Internet.
- Overall, nearly 88% of respondents reported that having a computer and Internet at home was essential or very important. Importance was ranked lowest among residents in Camden and Phillips, and respondents who had lived in Minneapolis for less than six years were more likely to view having a computer and Internet access in their home as essential.
- Only 65% of Black/African American respondents have a computer with Internet at home, compared to 90% of whites and 81% of other racial/ethnic groups.
- 40% of unemployed respondents looking for work don't have a computer with Internet at home.
- Residents of households with children were more likely to evaluate having computers and Internet access at home as essential or very important. Among the 18.5% of respondents with children under 18 in their household, whites are far more likely to have access at home (95%) compared to people of color (73%).
- Looking at the distribution of high-level users across communities, Calhoun Isles, Southwest and University had the most high-level users, while Near North, Phillips, Camden and Central had the most non-users.
- Overall people appear to be becoming more familiar and comfortable with social media, smartphones, online tutorials/education programs, writing/publishing information on the Internet, creating a website/blog, or coding their own software.
- Residents who had resided in the city for ten or more years were less likely than others to be "very comfortable" with different types of technology, including using a computer, going online and using email, and less likely to go online daily.
- Attending online classes or trainings online was never done by 42% of respondents and 47% of respondents never advertised or sold goods and services online.

Question 8, Minneapolis Overall



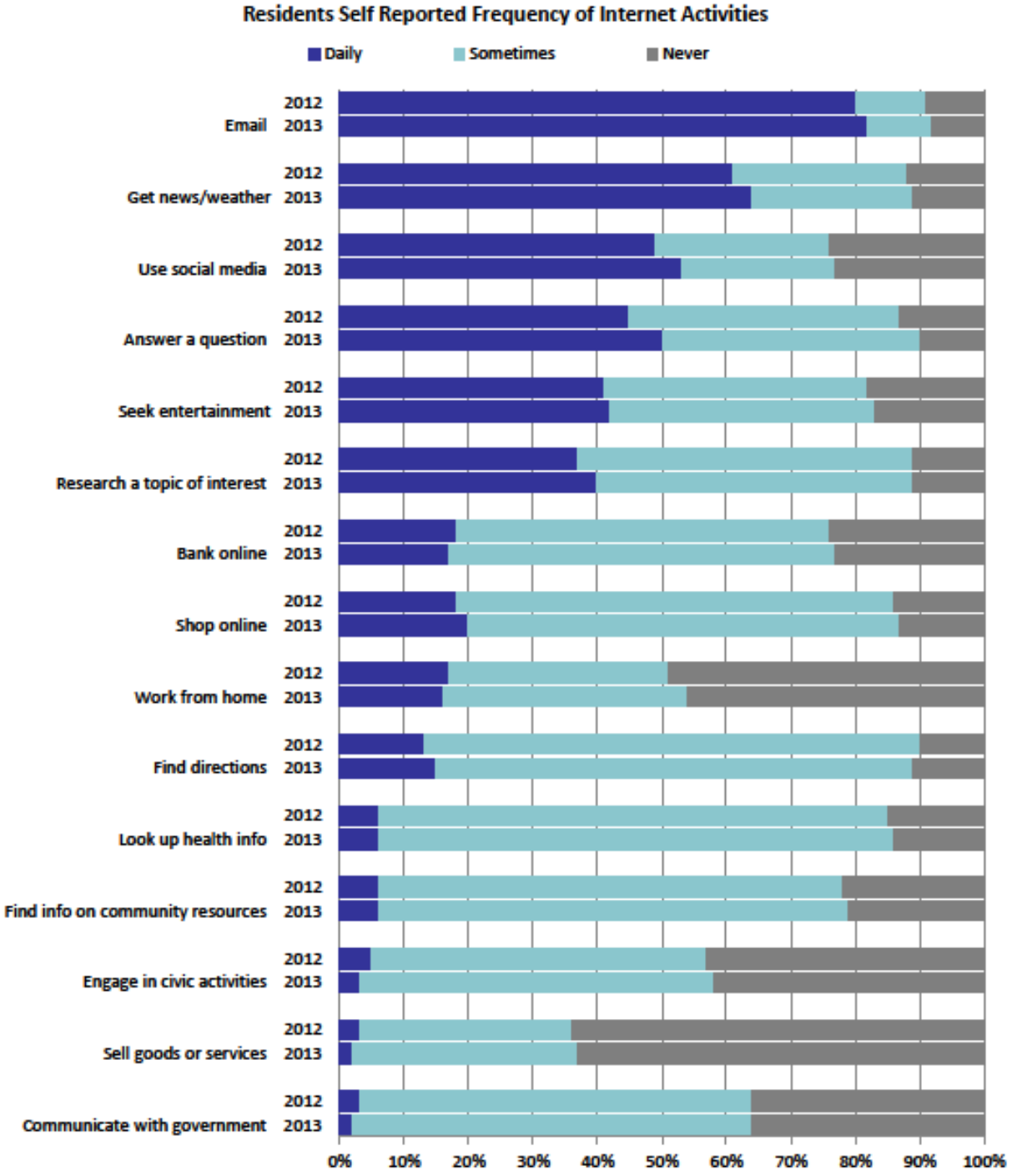
Totals exceed 100% as respondents could select more than one category.

Question 8 by Community



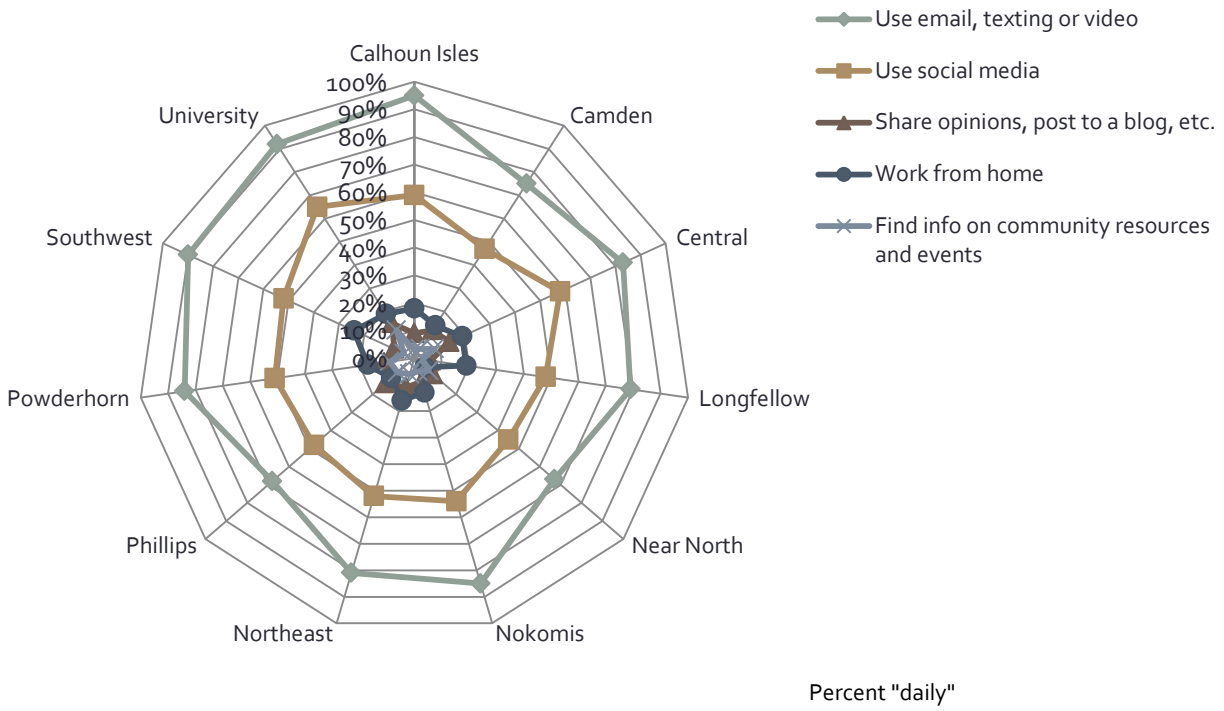
Frequency of Internet Activities

Respondents identified how frequently they engaged in a variety of online activities. The most common daily activities were using email, texting or video (82%), getting the news or weather (64%) and using social media (53%). Forty-five percent of residents reported working from home at least once a month. Attending online classes or trainings online was never done by 42% of respondents and 47% of respondents never advertised or sold goods and services online.



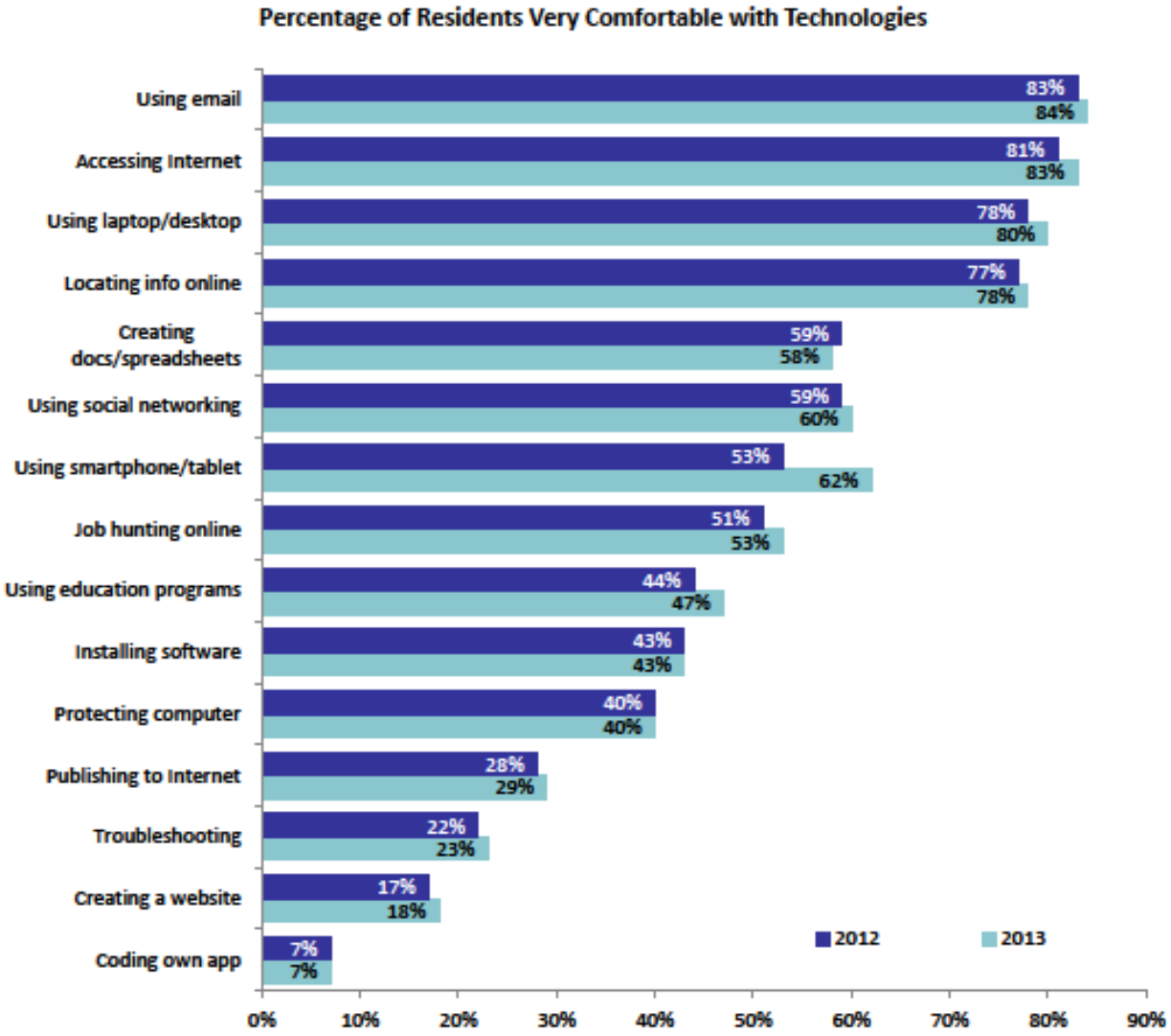
Note: The question asked: "How frequently, if ever, do you do each of the following things on the Internet (using any device)? "

Question 9 by Community



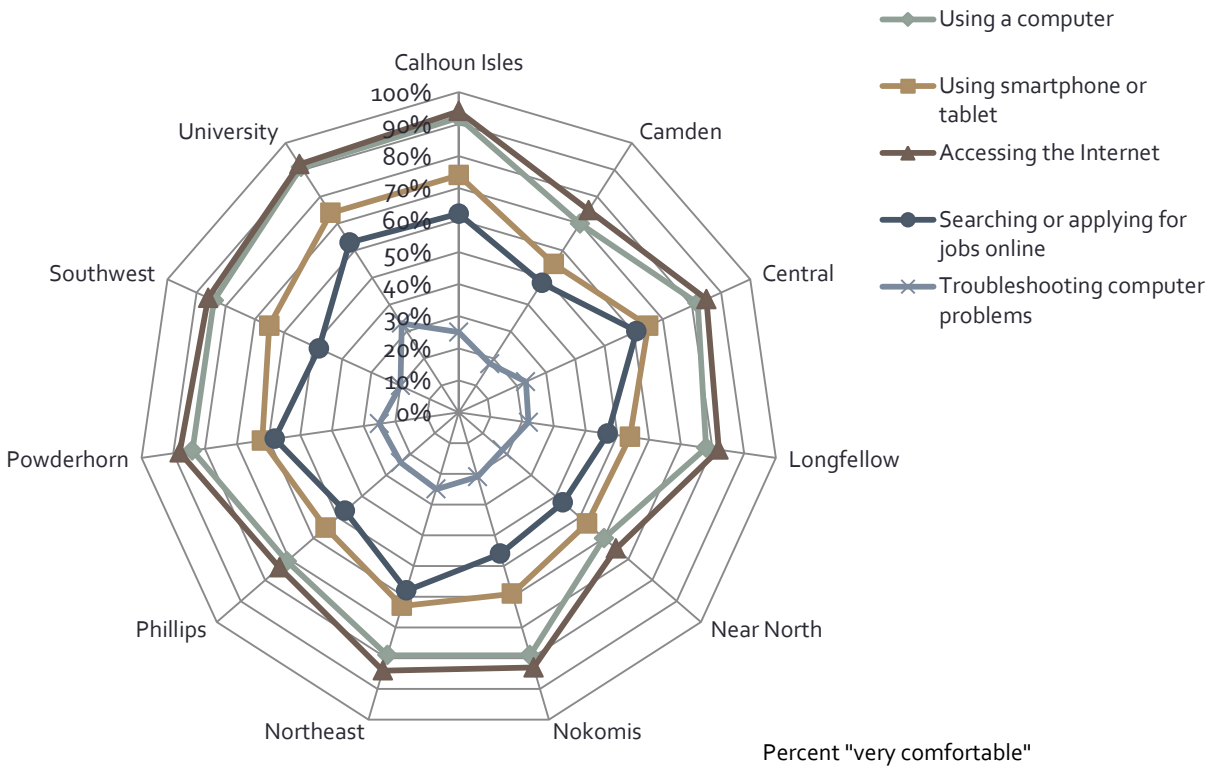
Comfort with Computer Activities

Respondents evaluated their comfort level with a variety of computer-based activities.



Note: The question asked, "How comfortable, if at all, are you at each of the following?"

QUESTION 10 BY COMMUNITY



A Deeper Look – Statistical Analysis

The City's IT Department hired Alex Kaizer, a graduate student, to take a deeper look into the 2012 and 2013 Community Technology Survey data. Mr. Kaizer graduated from Truman State University in Kirksville, Missouri, with a Bachelor of Science in Demographic Analysis. He is currently pursuing his Ph.D. in Biostatistics at the University of Minnesota. Enclosed are excerpts from Mr. Kaizer's report, which uses various statistical techniques to attempt to draw out more information about the digital divide in Minneapolis from the surveys while providing some statistical evidence of certain changes.

Kruskal-Wallis Comparison of 2012 and 2013 Survey Results

This section contains an overall look of the significant results from the 2012-2013 comparisons for the entire city and breakdown within each community. Visit the corresponding appendix sections D through O for the city or community to see all the results beyond the significant ones. See the end of this section to see the overall conclusion. The Kruskal-Wallis test was used to detect any significant changes between 2012 and 2013.

Note that for question 9, the never/not applicable categories were combined again for the 2013 survey in order to make a valid comparison between 2012 and 2013.

General Conclusions for 2012-2013 Kruskal-Wallis Comparison

Some major conclusions can be drawn from comparing 2012 to 2013. One of the significant conclusions is that the use of tablet computers increased both citywide and within each community by a statistically significant amount. This may indicate that there is a shift occurring amongst ways residents access technology. However with only 2 years of data this cannot be a definite conclusion. It certainly shows that in the present the popularity of tablets continues to increase with more residents saying they have one in their household when compared to years past.

Another interesting thing to note from the citywide data is that the number of people reporting no Internet access or slower dial-up access both decreased while all other forms of high speed access, besides WiFi, increased. This may indicate that the access portion of the digital divide may be decreasing with people realizing the value of having higher speed Internet to do the myriad of activities available to them on computers, tablets, cell phones, game consoles, DVD players, etc. Of these increases the largest occurred in the cellular category, which may indicate the further investigation is needed to determine if these respondents are primarily accessing the Internet via cellular device or if they also use computers, tablets, etc. or if maybe they are people who access Internet via a cellular company for their cell phones and also via some other method (like cable or DSL) for their computers.

Overall people appear to be becoming more familiar and comfortable with social media, smartphones, online tutorials/education programs, writing/publishing information on the Internet, creating a website/blog, or coding their own software. This result, as we can see in the average response, does not indicate that people are necessarily completely comfortable, but that their level of discomfort decreased from 2012 to 2013. For example, people still are fairly uncomfortable with coding their own software (2013 mean response was 3.5), but they are slowly becoming more comfortable. It should also be noted that the other questions did not have a significant difference, which indicates a small change in the frequency of use or level of comfort from 2012 to 2013. If additional surveys are conducted in future years there will more likely be a significant difference as people become more comfortable with

technology in general, but it may also point to a need for more resources or a stronger emphasis placed on these skills by digital literacy programs, libraries, or other digital divide initiatives. Once again, having only 2 years of data does not indicate a strong trend, but it establishes some idea for where things might be heading.

Some interesting community results may be interesting to pull out from the sub-analysis that was stratified by each community from the overall data set. It should be noted that some of these results may be false positives. In running so many tests there is a chance of encountering something called "Type 1 Error." This occurs when you suggest there is a significant difference when one really doesn't exist. There is no good way to determine that this has occurred, but it is a good idea to think through the differences that are significant to determine if they actually make sense for what would be expected or observed.

In Camden, which had the 3rd worst rate for a community in 2012 of residents having access to a computer at home (15.7%), people felt more comfortable applying for jobs or searching for them online.

In Phillips, which had the worst rate for computer access in a household by community in 2012 (24.8%), more people felt it was essential to have a computer in 2013 than in 2012. This may indicate a shift towards having more equal rates of computer access by each community, however this will require further follow-up testing to determine if this has occurred. People in Phillips were also more likely to have a game console in 2013 than they were in 2012. Overall comfort also increased for residents wanting to protect their computers or search/apply for jobs in 2013 when compared to 2012.
In Powderhorn, residents felt even more comfortable using the Internet to search for the answers to their questions in 2013 when compared to 2012 responses.

It should be noted again that drawing conclusions about trends or other patterns is somewhat dangerous with only 2 years of data, but this can still reinforce some trends we expect to occur or that we appear to see right now (like tablet computers becoming more popular).

Comparison of Respondents Stratified by Annual Income and Race

Two factors that appear to be significantly affecting where you fall in the digital divide are race and annual income. It is also tricky to determine if one may contribute more to the cause of the digital divide than the other. To see if race is still a significant factor we stratified the annual income into three groups: under $25,000, $25,000-$100,000, and over $100,000. These three groups all had Kruskal-Wallis tests conducted on them with racial group as the grouping variable. A summary of the results listed below shows that at higher income ranges there are fewer differences by race, and at lower income ranges there are more differences by race. The full analysis of all three groups can be found in the appendix.

General Conclusions

The purpose of this analysis was to see if there were still differences among the six racial groups (American Indian/Alaskan Native, Asian/Asian Indian/Pacific Islander, Black/African American, White, Other, Multiracial) when stratified among three annual income ranges (under $25,000, $25,000-$100,000, and above $100,000. There are definitely differences at each range between races, but the number of significant statistical differences decreases as you increase the income range. This can be seen in that there are 58 statistically significant ($p<0.05$) differences among racial groups for the under $25,000 income range, 31 statistically significant differences in the middle income range, and only 14 statistically significant differences for above $100,000. These results may point to the fact that race is a more important factor to where you fall in the digital divide if you have less income, and may be less important as your annual income increases. All the interpretations can be read in their respective tables, but below some highlights will be drawn out from these three stratified groups that seem especially interesting among the 2013 data broken down by the three annual income ranges:

<u>Under $25,000</u>

- Black/African American and Multiracial respondents rated the City of Minneapolis higher than any other racial group for opportunities to participate in community matters. (q1a)
- Black/African American respondents to the survey rated the City of Minneapolis' use of technology as good, better than any other group, whereas American Indian/Alaskan Native respondents rated the city poorly. (q1b)
- White and American Indian/Alaskan Native respondents were less likely to have a cell phone with Internet access in their home than any other group. (q4c)
- Black/African American and White respondents had nearly equal rates of dial-up access within their homes. (q7b)
- Black/African American and Other respondents were more likely than other groups to use the library to find assistance for computer/technology problems. (q8d)
- American Indian/Alaskan Native respondents utilized community technology centers/public labs more than any other group at a rate of 15.8%. (q8e)
- Asian/Asian Indian/Pacific Islander respondents tended to be younger than any other racial group on average (25-34 years versus 45-54 years). (D8)

<u>$25,000-$100,000</u>

- Black/African American and Multiracial respondents were slightly less likely to indicate they had a computer with Internet access in the household than other groups. (q4a)
- Like with the under $25,000 group, White and Multiracial respondents were less likely to indicate that they had a cellular device with Internet in their household. (q4c)

- American Indian/Alaskan Native respondents reported accessing the Internet using a computer most frequently, whereas Black/African American respondents reported access to the Internet with a computer least frequently. However, all groups had an average response between daily and weekly for frequency of access. (q5a)
- Black/African American and Asian/Asian Indian/Pacific Islander respondents were more likely to seek assistance for computer or Internet problems from the library than other racial groups at rates of 10.0% and 7.5% respectively. (q8d)
- There is no significant difference between racial group for utilizing community technology center/public labs to get help with computer or Internet problems or questions. In fact, the only group above 1% was Asian/Asian Indian/Pacific Islander at 2.5%. This points out that this service is probably primarily utilized by residents with annual income under $25,000, and that if there is interest in expanding to other income ranges a push will need to be made. However, even rates among those in the under $25,000 are all fairly low. (q8e)
- Within this income range, Asian/Asian Indian/Pacific Islander respondents were, on average, younger than any other racial group (at 25-34 years versus 35-54 years). (D8)

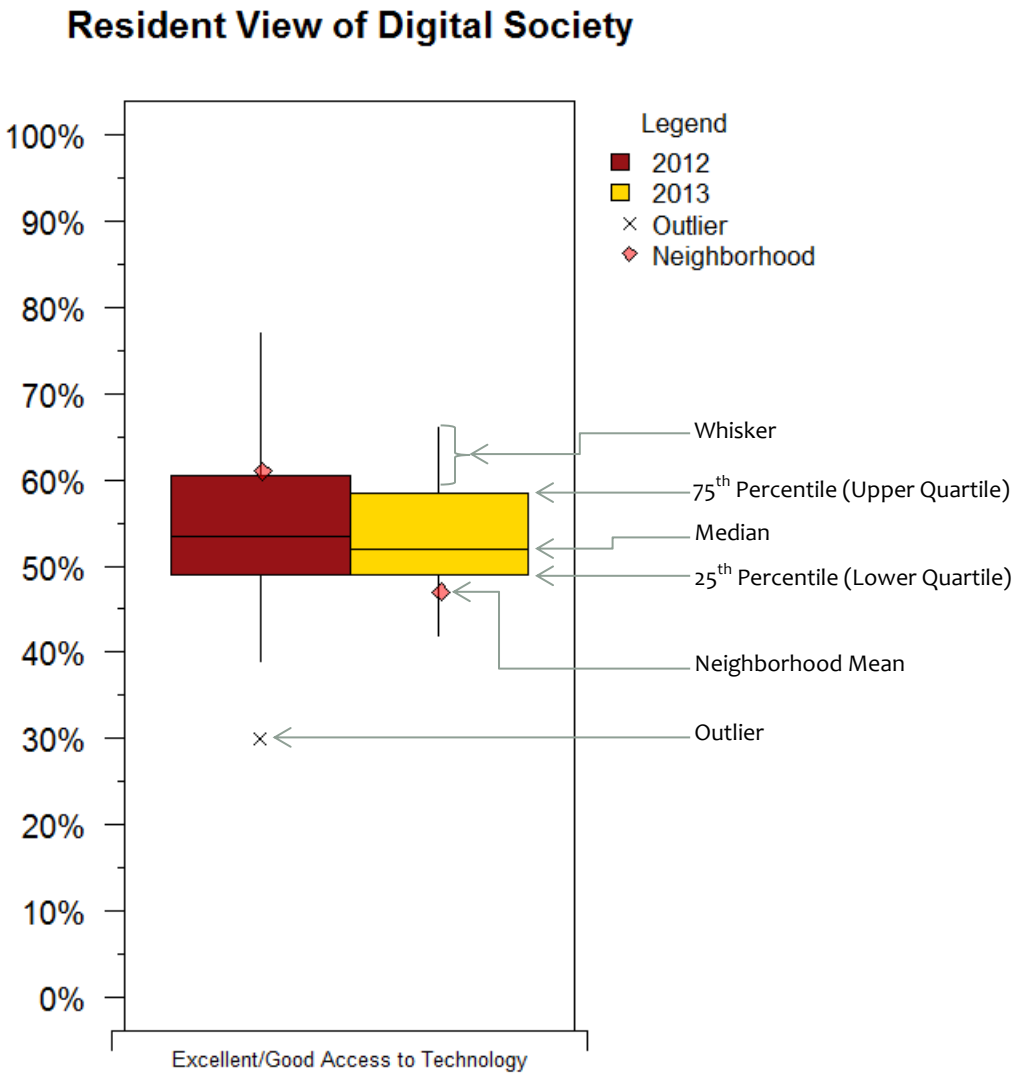
Above $100,000

- Everyone with an income above $100,000 reports having some form of Internet access in their home. (q7a)

Comparisons between 2012-2013 Using Box Plots

How to Read and Interpret the Boxplot

Boxplots, also known as box-and-whisker plots or diagrams, are an extremely useful way of displaying a summary of the data in a meaningful, yet concise, manner. Included below is a sample of what you will see for the boxplots comparing 2012 and 2013 data for a same question with the different parts of the graph labeled and explained after the boxplot.



Interpretation:

Legend: The legend is your guide to help determine what the symbols or colors in the boxplot represent.

Whisker: Helps see the spread of the data beyond the 25th-75th quartile range. The whisker length is up to 1.5 times the width between the 25th and 75th quartile (also called the interquartile range, or IQR) or less if the largest of smallest observation is within the whisker. If there are observations outside this 1.5*IQR they are extreme observations for the given dataset and are called outliers.

75th Percentile (Upper Quartile): Approximately 75% of neighborhood clusters are below this line, with 25% being above.

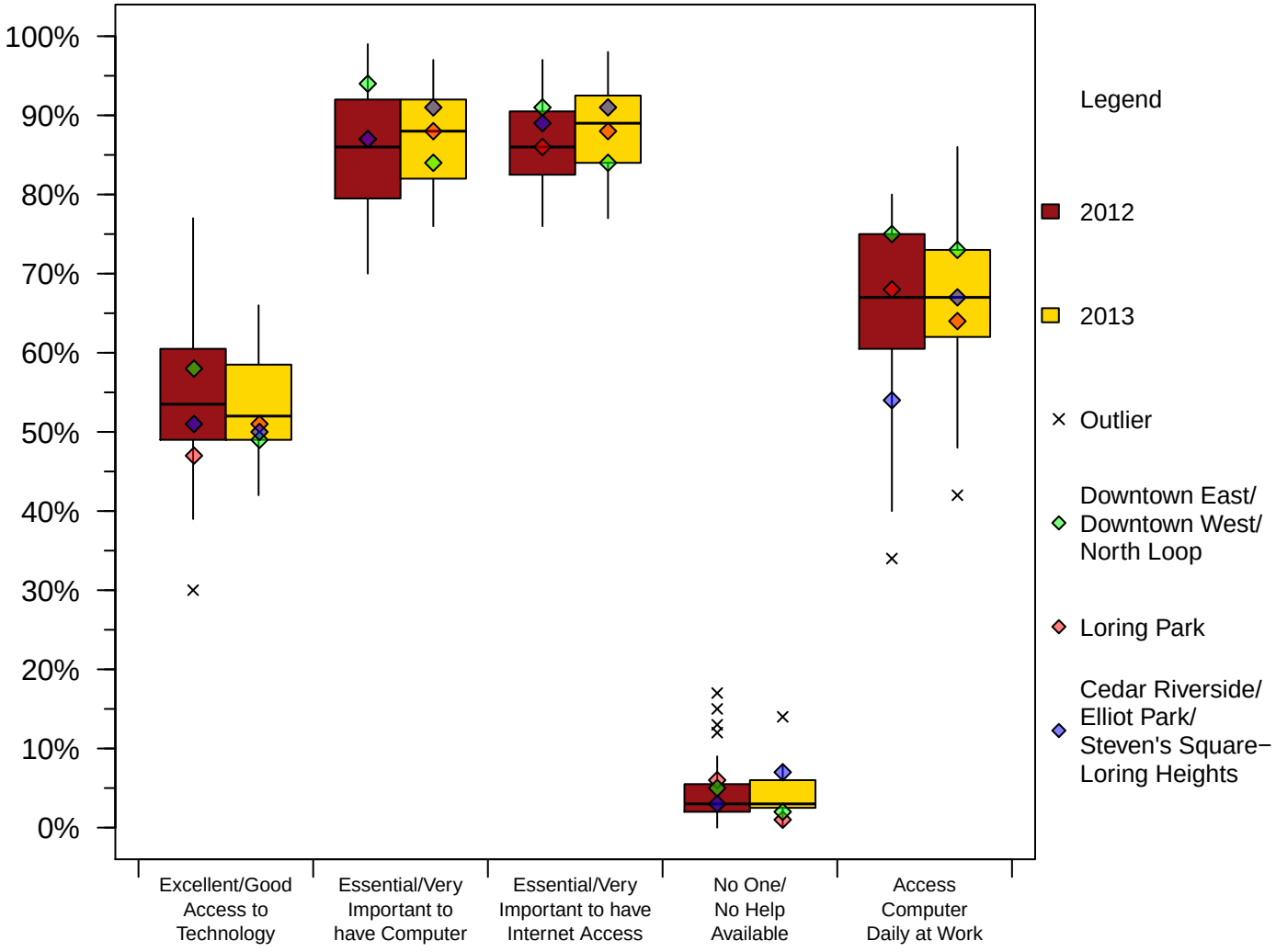
Median: Approximately 50% of neighborhood clusters are below, with 50% being above (the middle value of the dataset).

25th Percentile (Lower Quartile): Approximately 25% of neighborhood clusters are below this line, with 75% being above.

Neighborhood Mean: Most plots will have different colored diamonds marking where a neighborhood cluster has its average value and where it falls within the boxplot. This can help create a picture of where the neighborhood clusters stands relative to its fellow neighborhood clusters.
Outlier: These values are from neighborhood clusters that seem extreme in relation to the other data for neighborhood clusters.

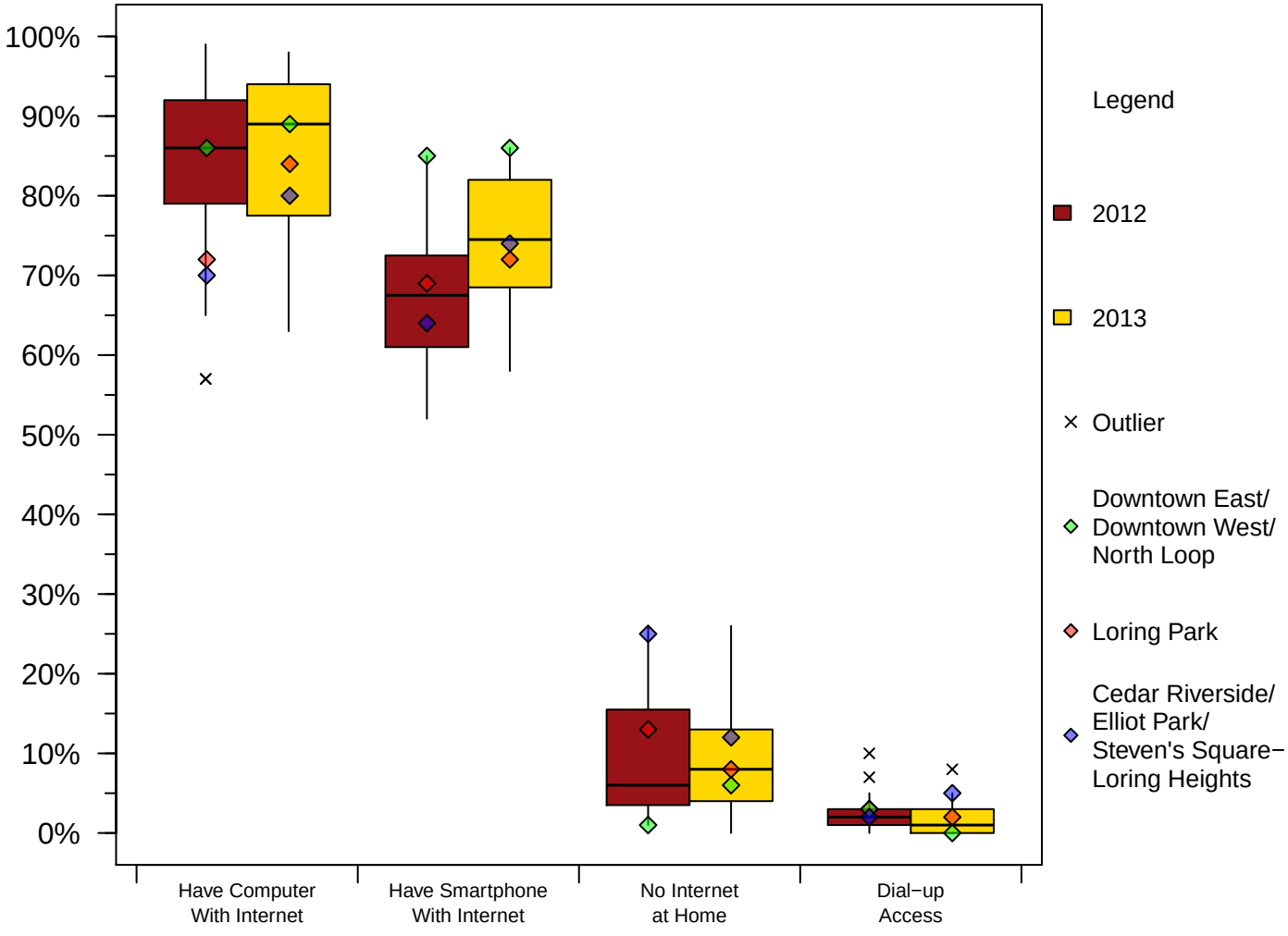
Resident View of Digital Society

Central Community



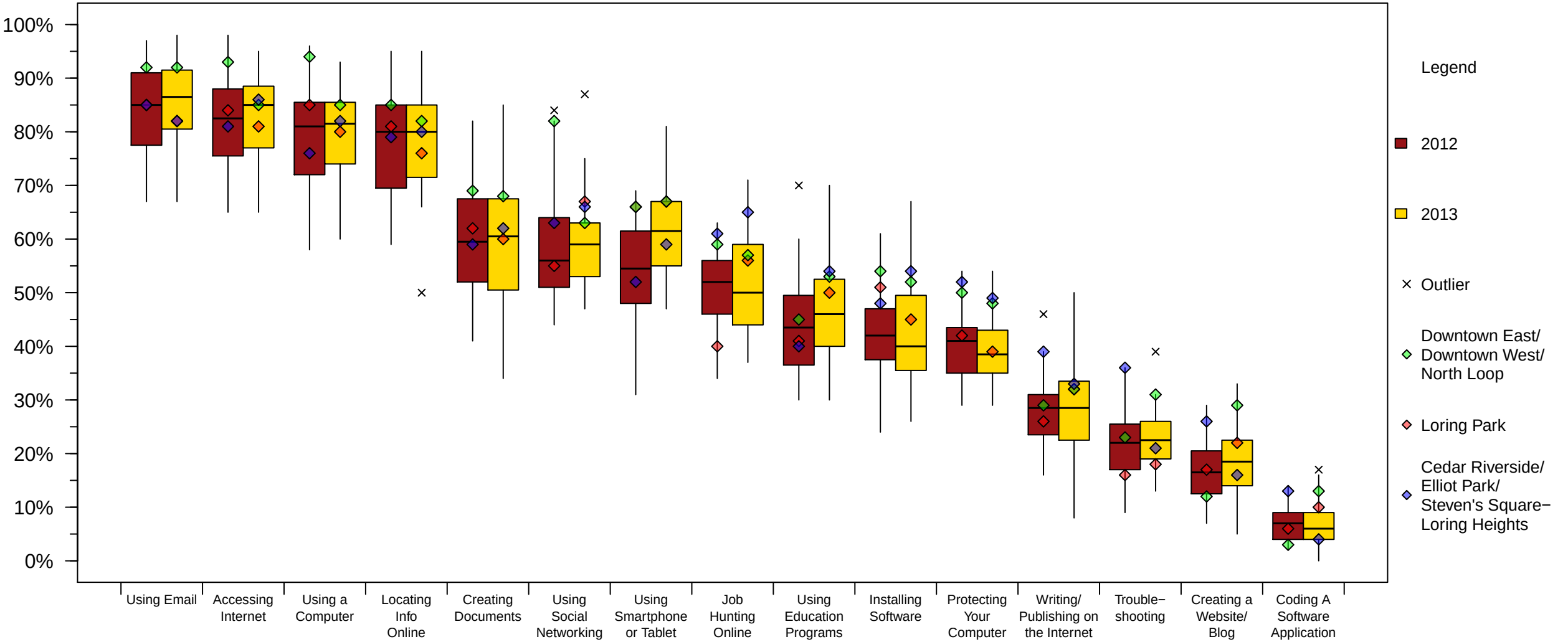
City Resident's Digital Tools

Central Community



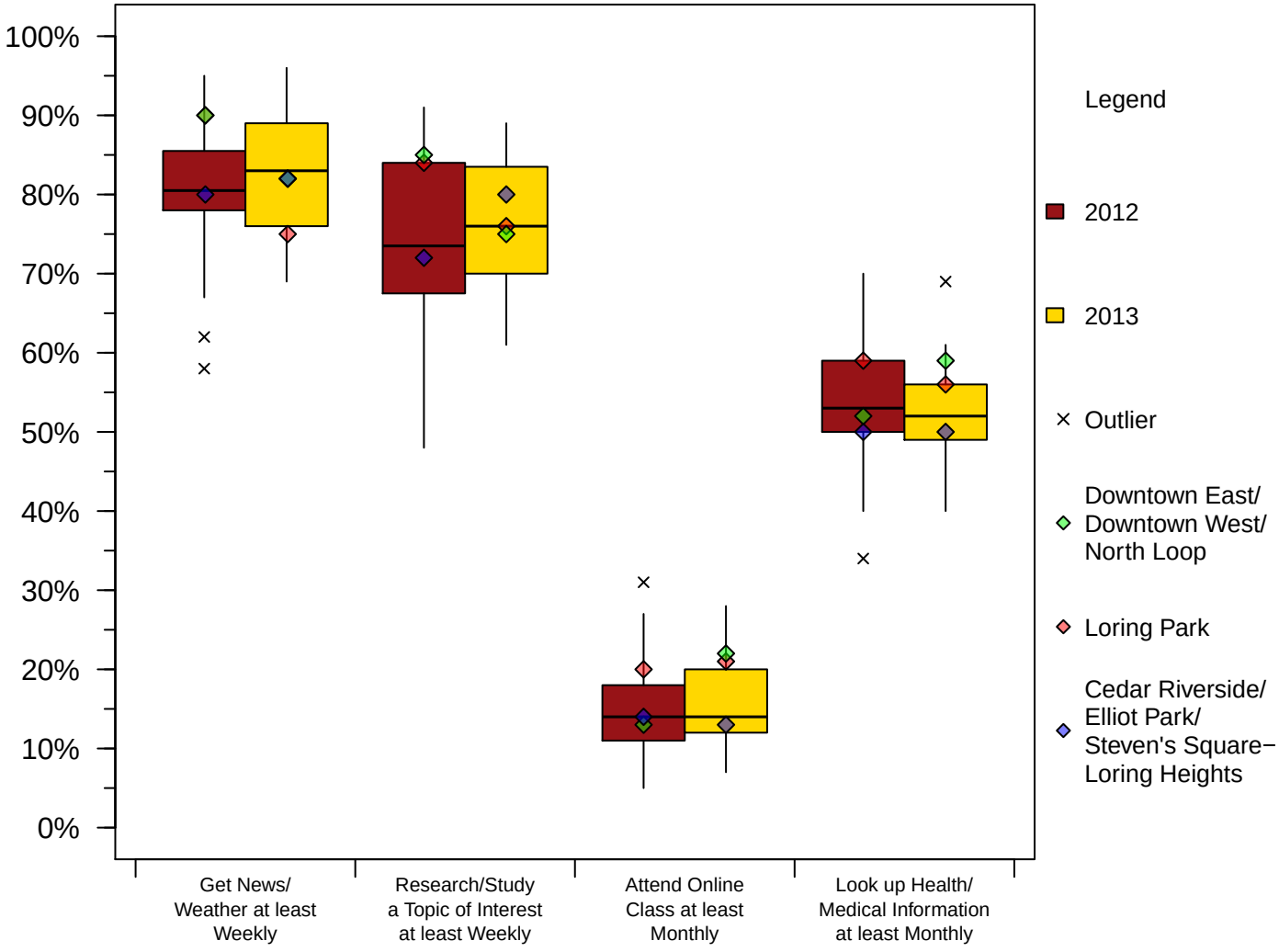
Level of Digital Literacy

Central Community



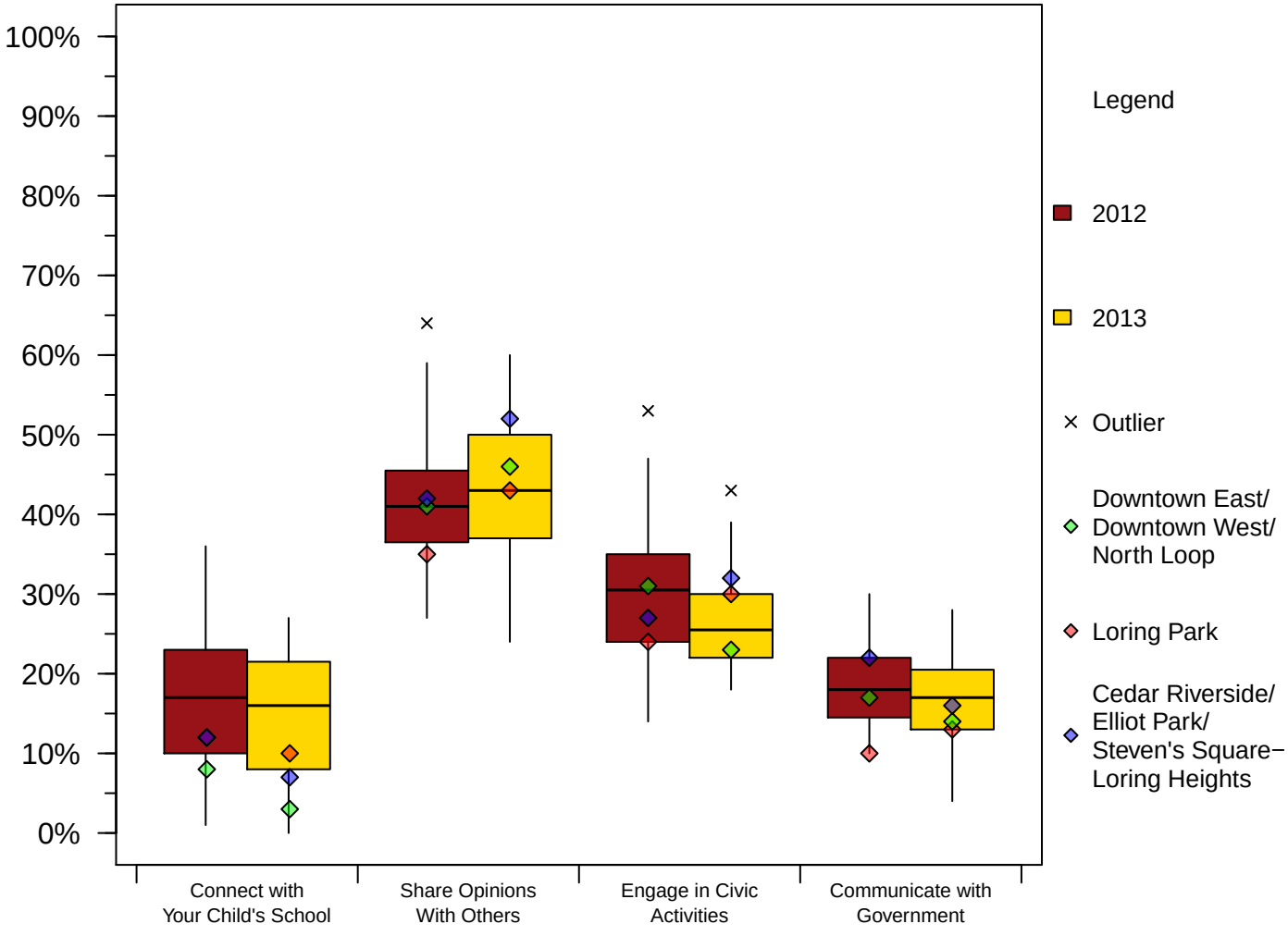
Resident Information Consumption

Central Community



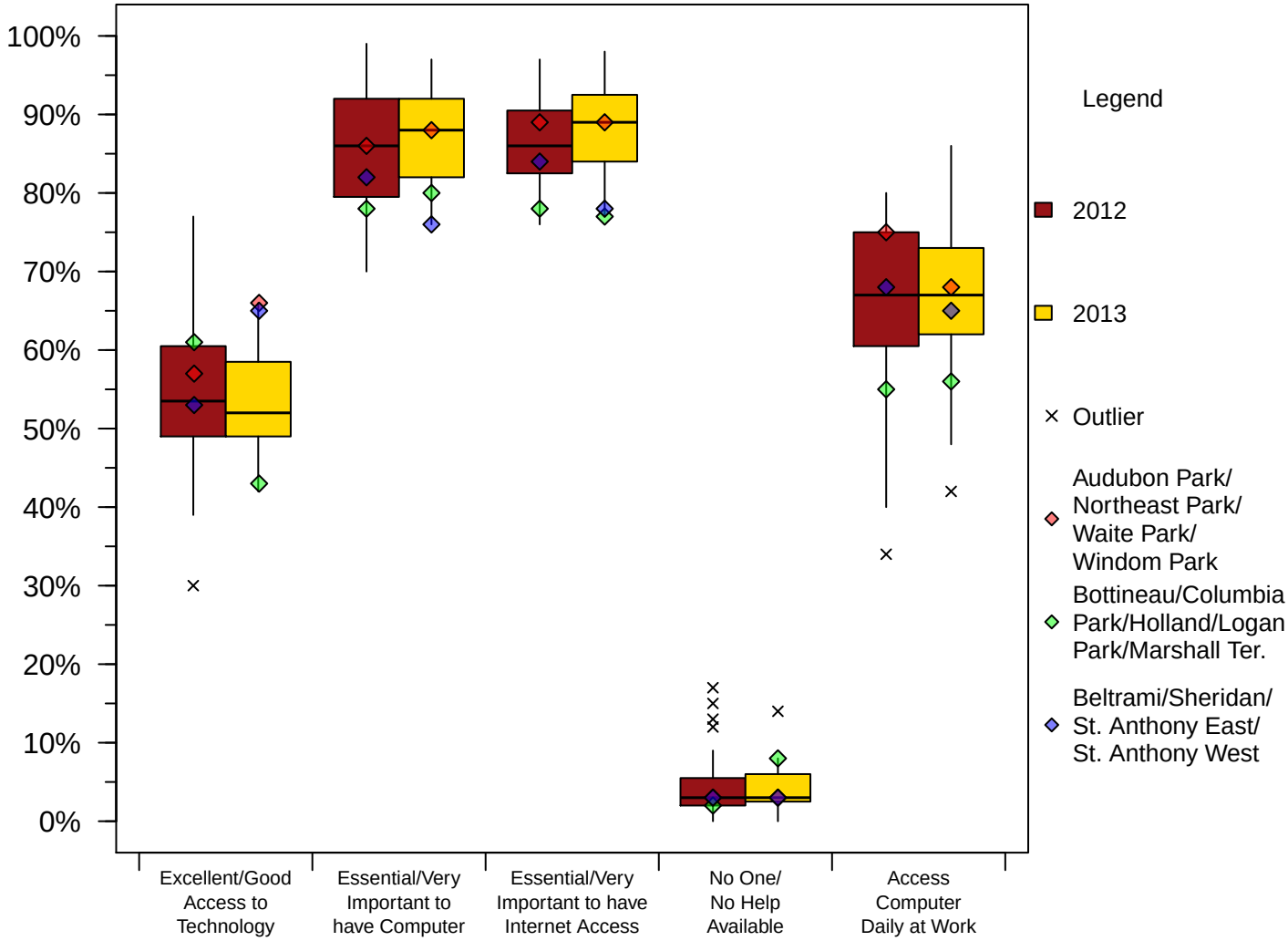
Resident Engagement via the Internet

Central Community



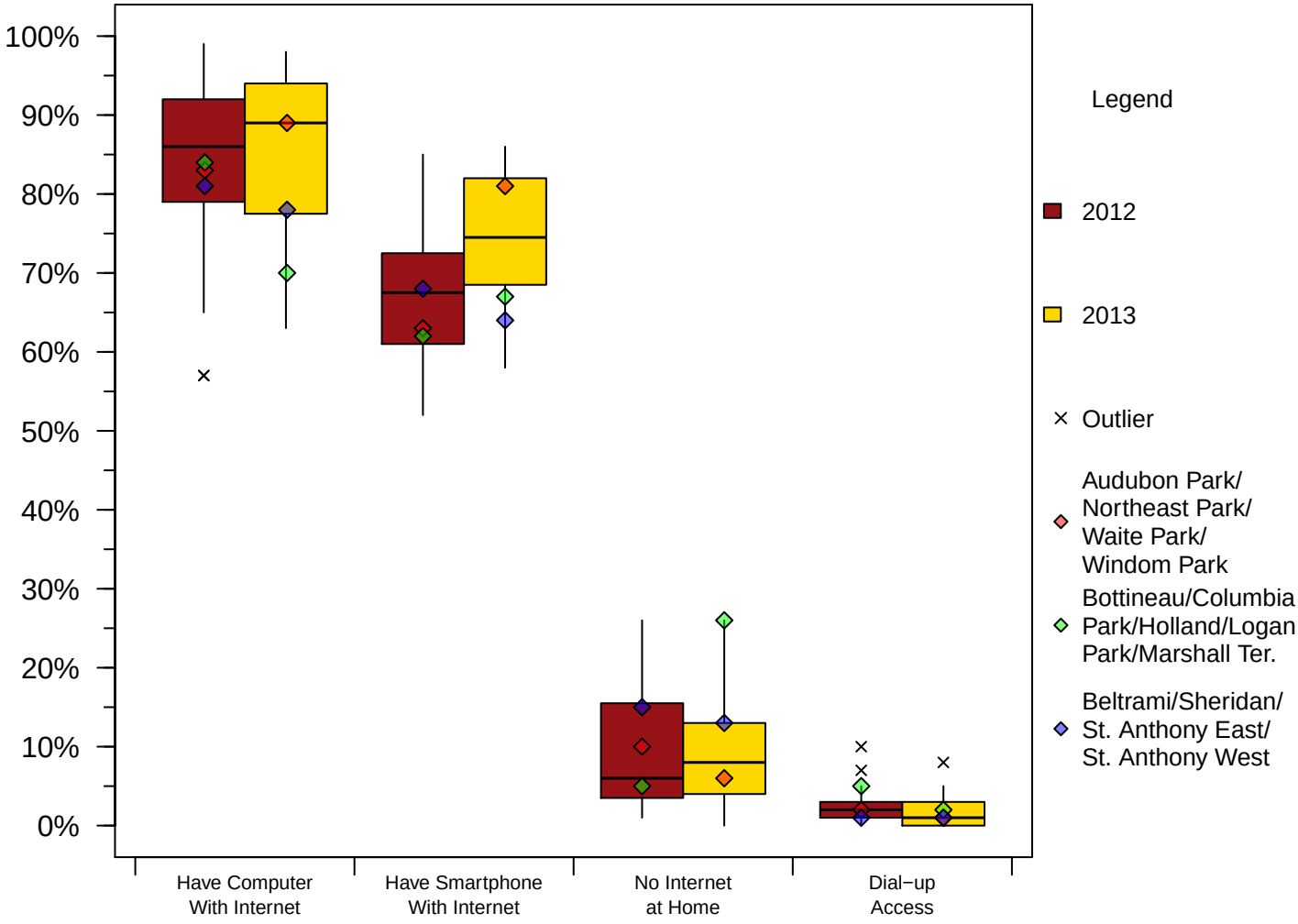
Resident View of Digital Society

Northeast Community



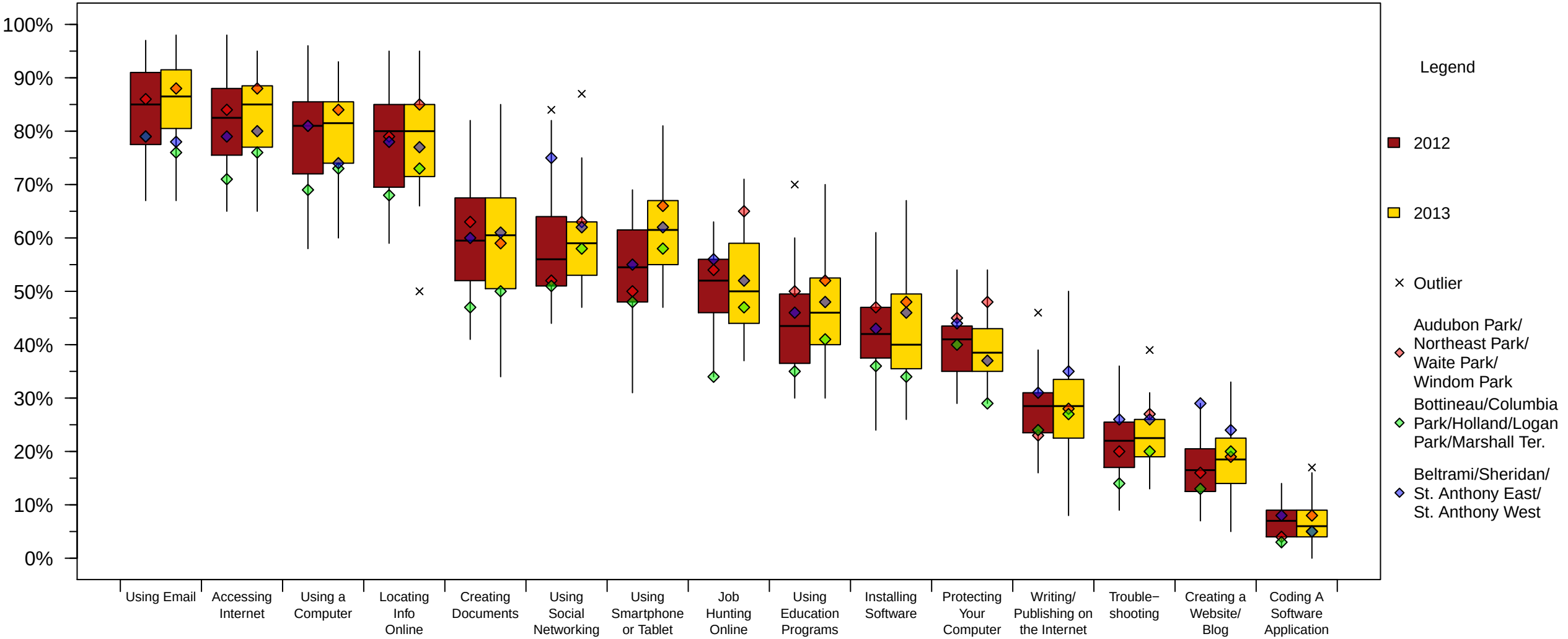
City Resident's Digital Tools

Northeast Community



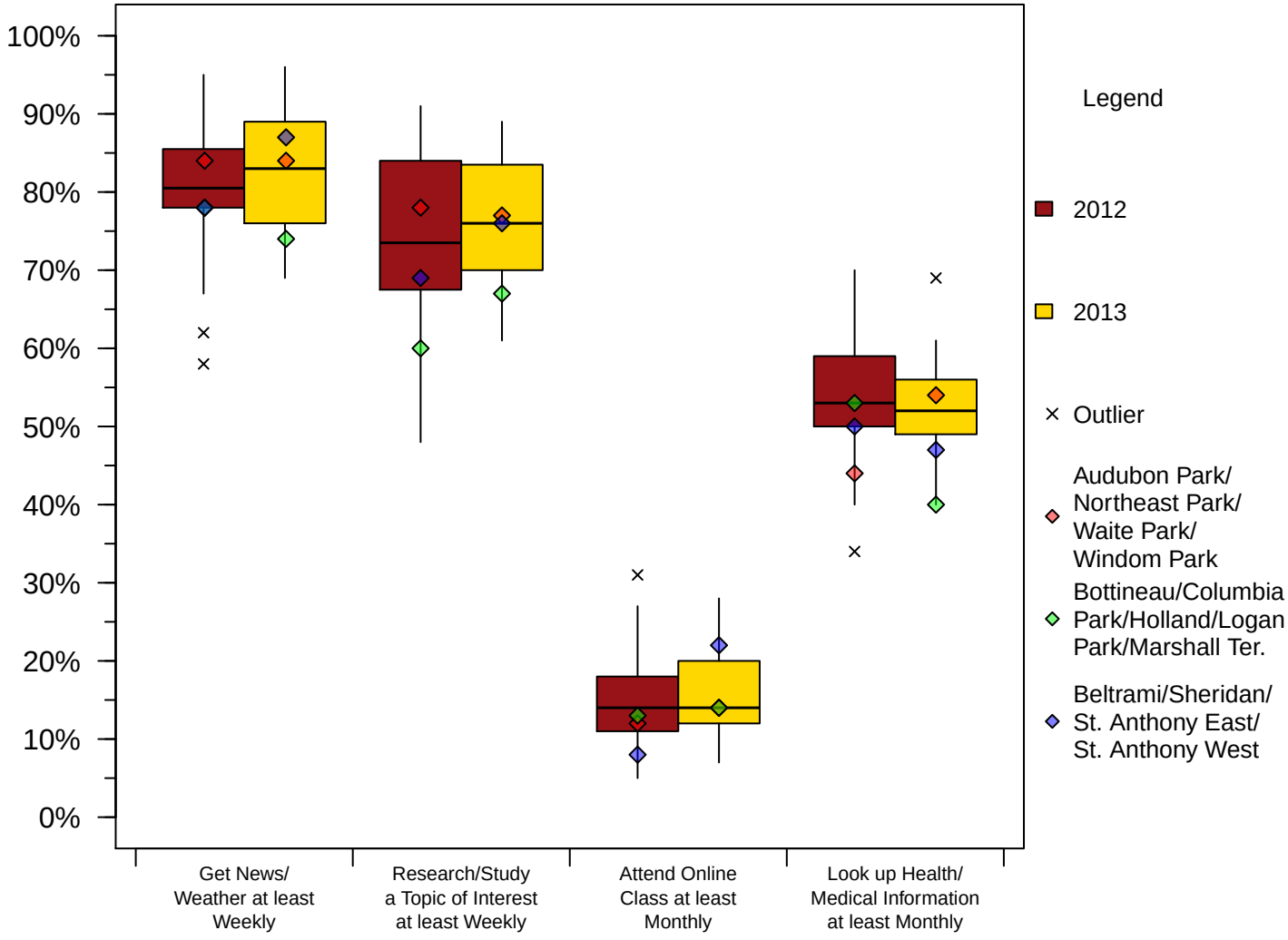
Level of Digital Literacy

Northeast Community



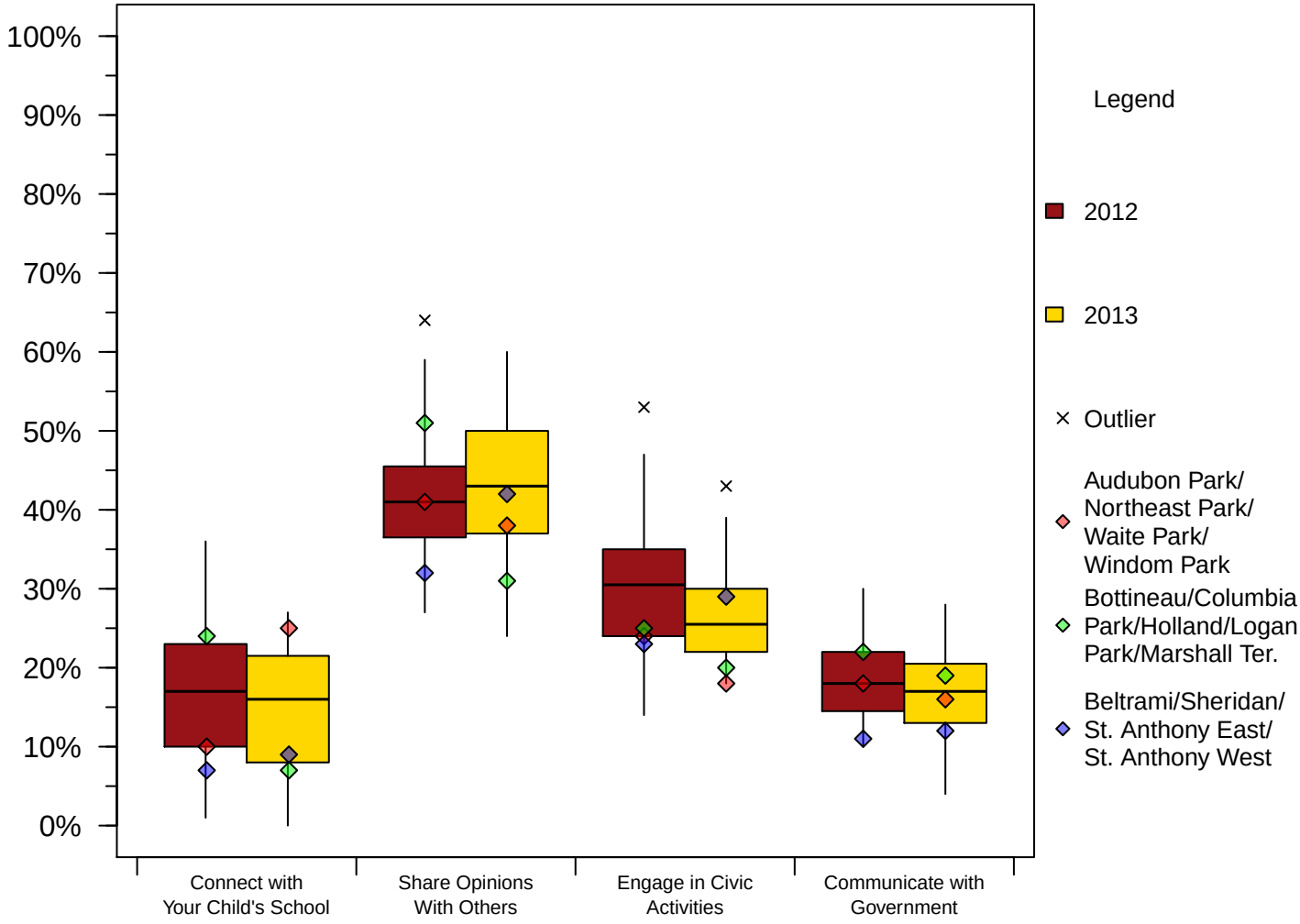
Resident Information Consumption

Northeast Community



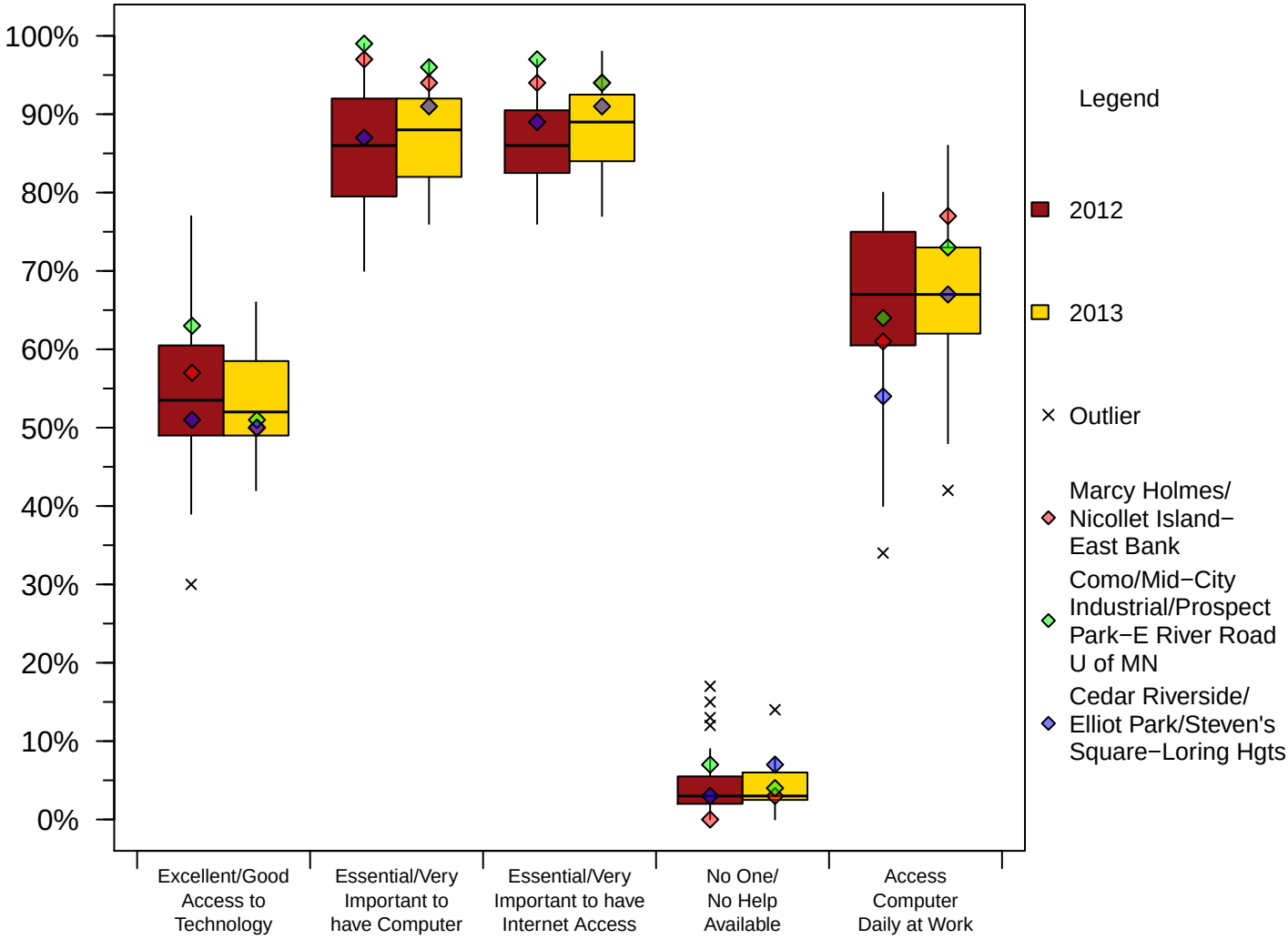
Resident Engagement via the Internet

Northeast Community



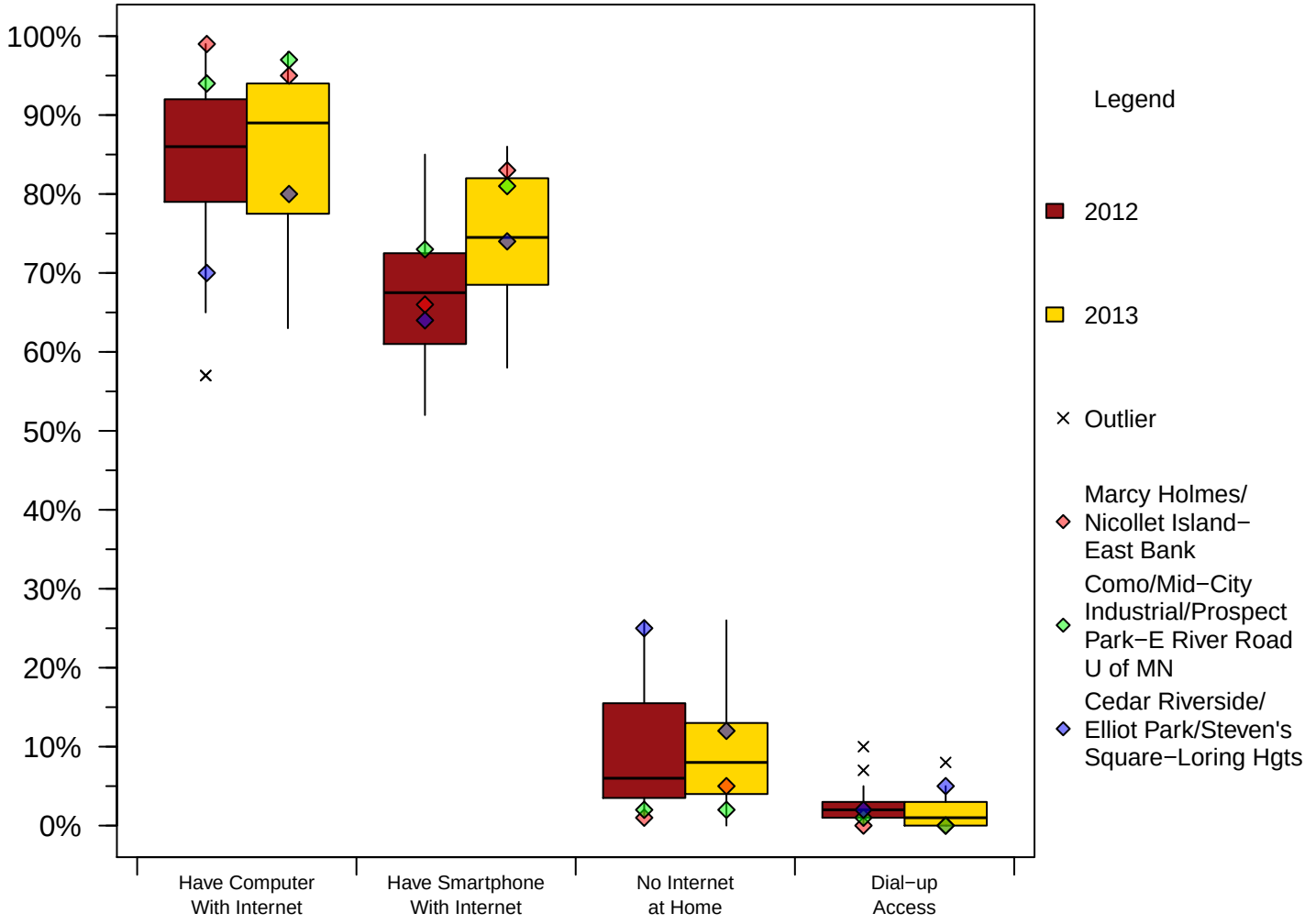
Resident View of Digital Society

University Community



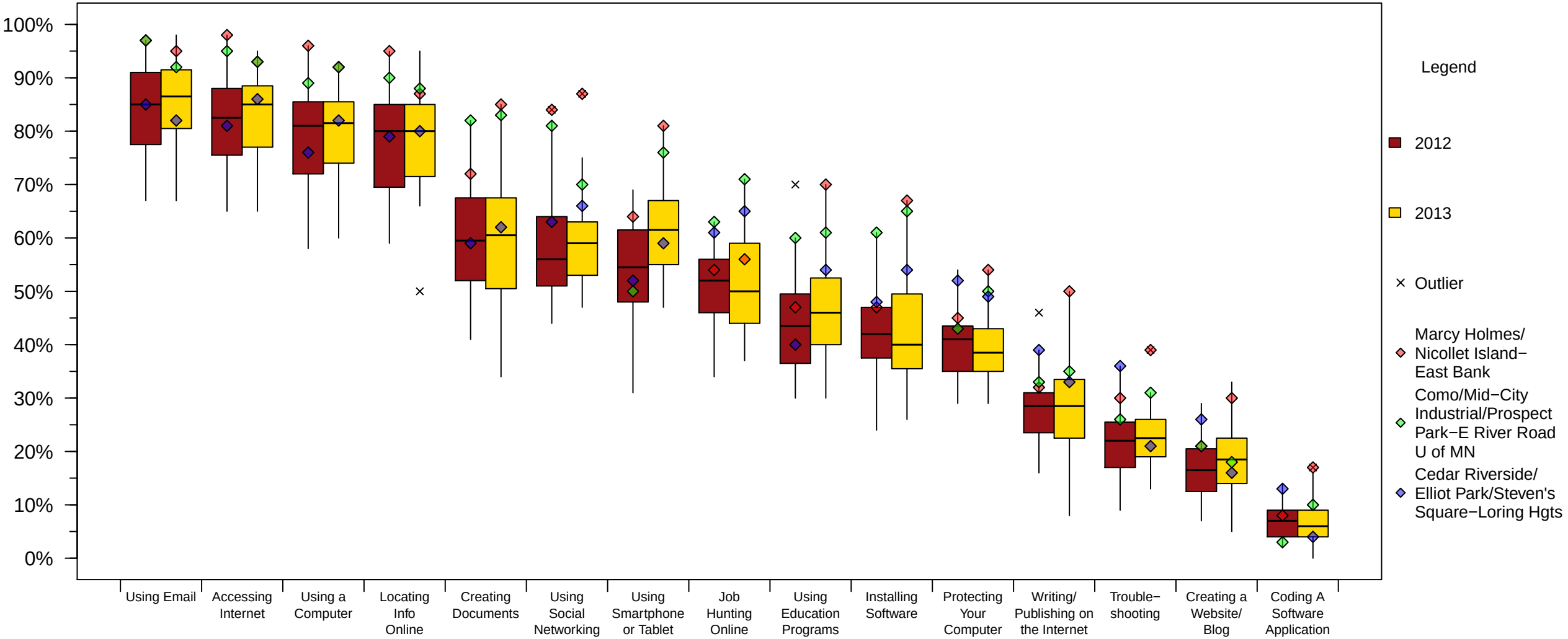
City Resident's Digital Tools

University Community



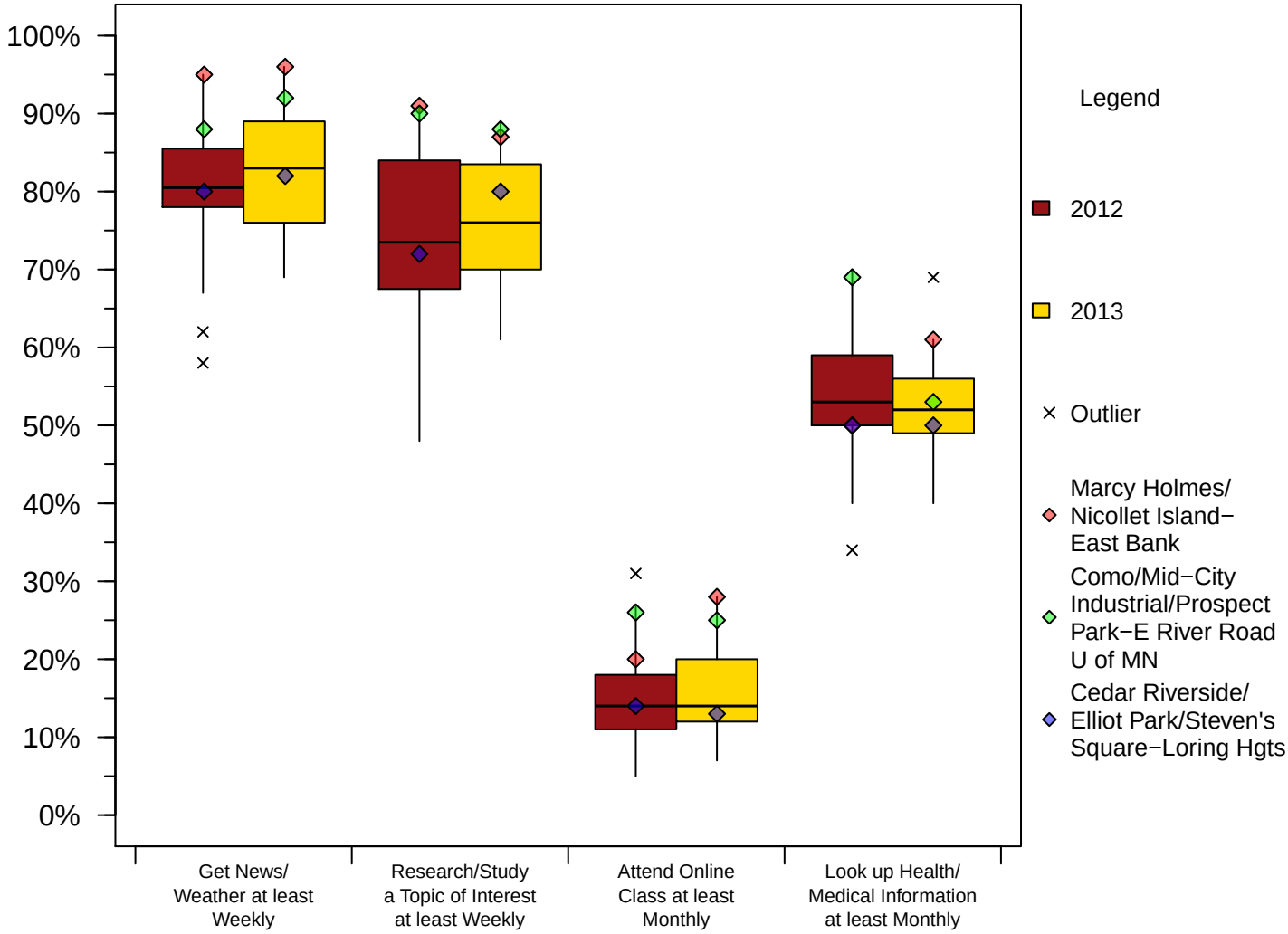
Level of Digital Literacy

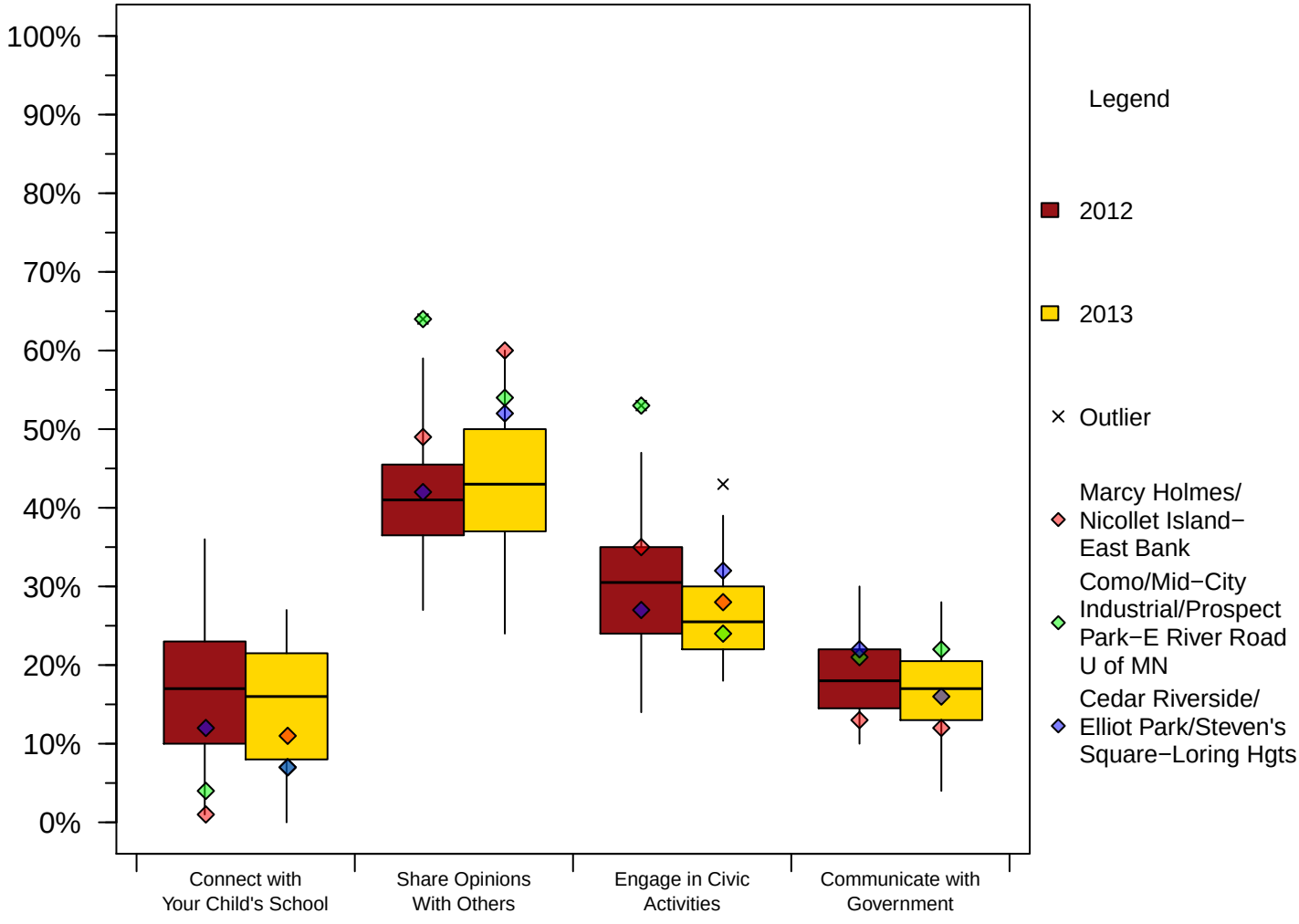
University Community



Resident Information Consumption

University Community



Resident Engagement via the Internet

University Community