Travis County and
the City of Austin

2023

Broadband and Digital Equity Needs Assessment

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1 Introduction

Since the 1990's, the Austin/Travis County area in Texas has been commonly known as a fast-growing tech hub at the top of lists for business and employment growth.

Compared to national and state percentages, Travis County has higher internet subscription and computer ownership rates[1]. Even in our well-connected area, not everyone is able to fully participate in the digital world to access the essential services and resources they need. When looking at different demographics and geographies across Travis County, there are large gaps between those that do and do not have internet access, digital skills, and access to devices.

For this reason, Travis County and the City of Austin embarked on a research initiative with the support from the St. David's Foundation, summarized through this report. The goal was to learn more about the needs of those in our community who experience the highest barriers to connectivity, what barriers they might uniquely face, and how these barriers might most effectively be addressed.

While this research and report is focused on gaps, barriers, and inequities to assess where investment and activity can have the highest impact in the community, it is important to recognize that 1) there are many entities working to improve the digital equity landscape in Central Texas, 2) these entities are doing effective and impactful work, 3) there are many resources already existing in the community to support digital access, and 4) the community itself has found ways to adapt to inequities.

1 American Community Survey 5 year estimate, 2022: Table S2801

2 Background

During COVID-19, many individuals and families in Central Texas were forced to adopt technologies to stay connected, work, receive healthcare, continue their education, and participate in the economy. In many ways, COVID-19 was a global digital event that sped up societal adoption of digital technologies and revealed inequities as the fast-changing technology landscape left communities with fewer resources behind.

Businesses, organizations, and governments were forced to alter their programming and delivery models to incorporate more digital solutions and touchpoints. Businesses, organizations, and governments were forced to alter their programming and delivery models which required people to use more technology to fully participate. With the subsiding of the pandemic, the digital transformation has continued to accelerate, making internet access, device ownership, and the securing of digital skills increasingly important to both survive and thrive.

Multiple complex barriers collectively contribute to internet access, many of which are uncoordinated and systemic ultimately excluding people from participating in the digital world. Lacking consistent access to quality internet can compound existing inequities. As the reliance of the digital economy and society on technology continues to accelerate, we must invest in a variety of quality and accessible solutions that support internet access both inside and outside the home in order to ensure we reduce rather than further widen the gap between those who do and don't have internet access.

In 2021, President Joe Biden signed the Infrastructure Investment and Jobs Act (IIJA) into law which established the Broadband Equity, Access and Deployment (BEAD) Program investing $42.5 billion in federal funding to expand internet availability and fund initiatives that support internet access. The same year, the State of Texas created the Broadband Development Office (BDO) located in the Office of the Comptroller of Public Accounts to award grants, loans, and other incentives to expand internet access. This national and state focus on i nternet availability and access emphasized the need for local research.

3 Approach

In 2022, Travis County Technology and Operations and the City of Austin Office of Telecommunications and Regulatory Affairs, with the support of the St. David's Foundation, partnered to produce a community-engaged needs assessment to better understand the community's digital access challenges and identify recommendations that expand all community members access to affordable, reliable, and high-speed internet, devices, and skills; prioritizing low-income communities, communities of color, and other communities that have faced significant collective and systemic barriers[2]. This study included:

- **In-person survey**
  - An in-person survey was conducted by an outreach team verbally, in English and Spanish, prioritizing geographic areas where internet access challenges were highest according to national data. This survey collected data on internet access challenges and how to address them.

- **Advisory workshops**
  - A series of workshops were conducted with community members with lived experience to provide input to the project design, particularly the portions that follow.

- **Non-profit working group**
  - A group of local non-profits were convened to co-design and implement the community circles.

- **Community circles**
  - A series of focus groups were conducted to bring together community members to discuss internet access challenges and how to address them.

- **Community data co-interpretation and recommendation sessions**
  - To ensure diverse perspectives and ground the findings in the community's perspective, findings and solutions were co-interpreted and co-created with the community.

2 Because the study was designed to use a purposive sampling approach to have a higher likelihood of reaching groups often excluded from past research in disproportionate numbers and are more likely to be disproportionately impacted by digital access challenges, the data in this study is not generalizable across geographies or for any specific demographic population.

In total, the study received **1,382** survey responses from the in-person survey, engaged **44** participants across **3** advisory workshops, collaborated with **19** local nonprofit organizations in a working group, engaged **193** participants across **11** community circles during which **1,106** comments were documented and analyzed, had community data co-interpretation and recommendation sessions at **5** in-person resource events and **2** public online workshops.

To learn more about the methodology of this study including data collection and analysis strategies and techniques, refer to the Methods section of this report.

4 Findings

4.1 Who is and is not connected

4.1.1 Populations that face higher digital barriers

Through 1) conversations with community members and non-profits, 2) this study, and 3) research represented in the Texas Digital Opportunity[3] and the Digital Equity Act[4], the following populations were identified as those that face higher digital barriers:

- Immigrants and refugees
- Individuals with disabilities
- Individuals with low literacy levels
- Justice-impacted individuals
- Low-income individuals
- Older adults
- People with language barriers
- Racial or ethnic minorities
- Rural residents
- Unemployed individuals
- Unhoused individuals
- Veterans and their families

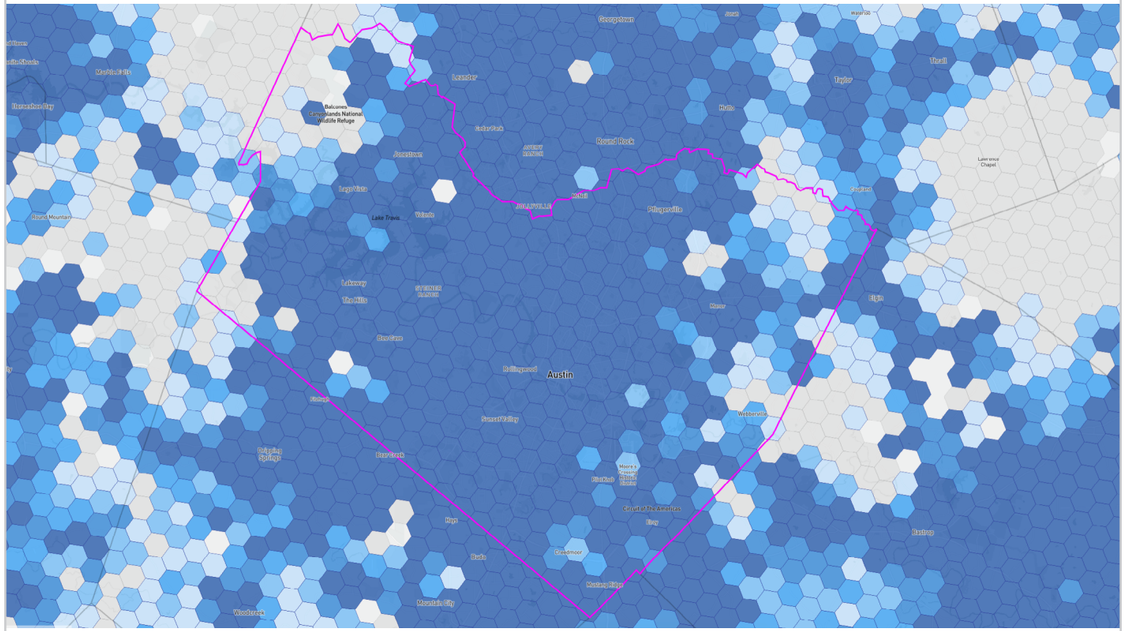
3 Broadband Development Office, 2024: https://comptroller.texas.gov/programs/broadband/funding/digital-opportunity/index.php#step5

4 Broadband USA, 2024: https://broadbandusa.ntia.doc.gov/funding-programs/digital-equity-act-programs

4.1.2 By geography

Compared to urban areas, rural areas tend to have less internet infrastructure and fewer internet service providers (ISPs) options. Laying fiber lines is a capital-intensive process, and for every mile of fiber laid in urban areas, there are more potential revenue sources for the ISPs than there are for laying the same mile of fiber in a rural area due to the differences in population density. Therefore, ISPs may be incentivized to compete in high density areas and build out in lower risk rural areas when competition is less likely. This is shown in the Federal Communications Commission's (FCC) National Broadband Map[5] (Figure 1), which displays where internet services are available on a location-by-location basis across the United States.

Figure 1: Internet service availability in Travis County

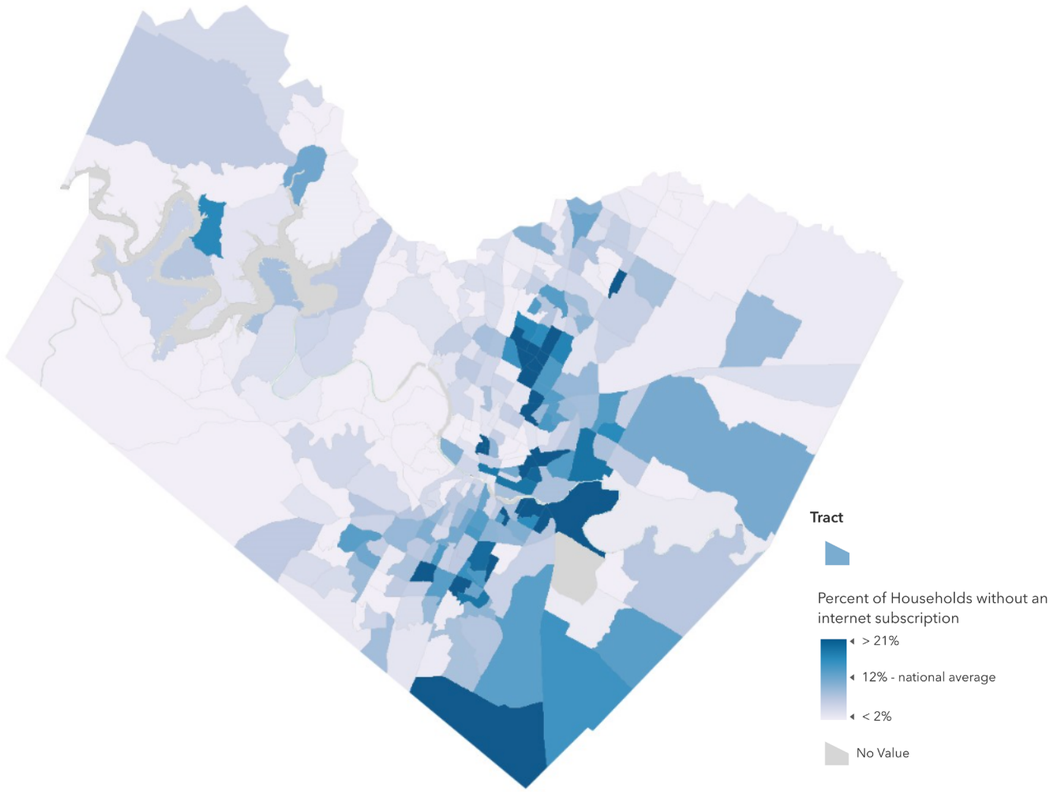


All wired and licensed fixed wireless technologies at speeds more than or equal to 25Mbps download and 3Mbps upload.
Source: Federal Communications Commission National Broadband Map (data as of December 31, 2023)

The map shows internet infrastructure in Travis County with darker shades of blue representing more infrastructure coverage. The City of Austin and the center of Travis County is assessed to have more infrastructure with outlying areas showing less availability.

5 This screenshot captures a zoomed-out view of Travis County. The view changes to show connectivity at individual locations when zoomed in. https://broadbandmap.fcc.gov

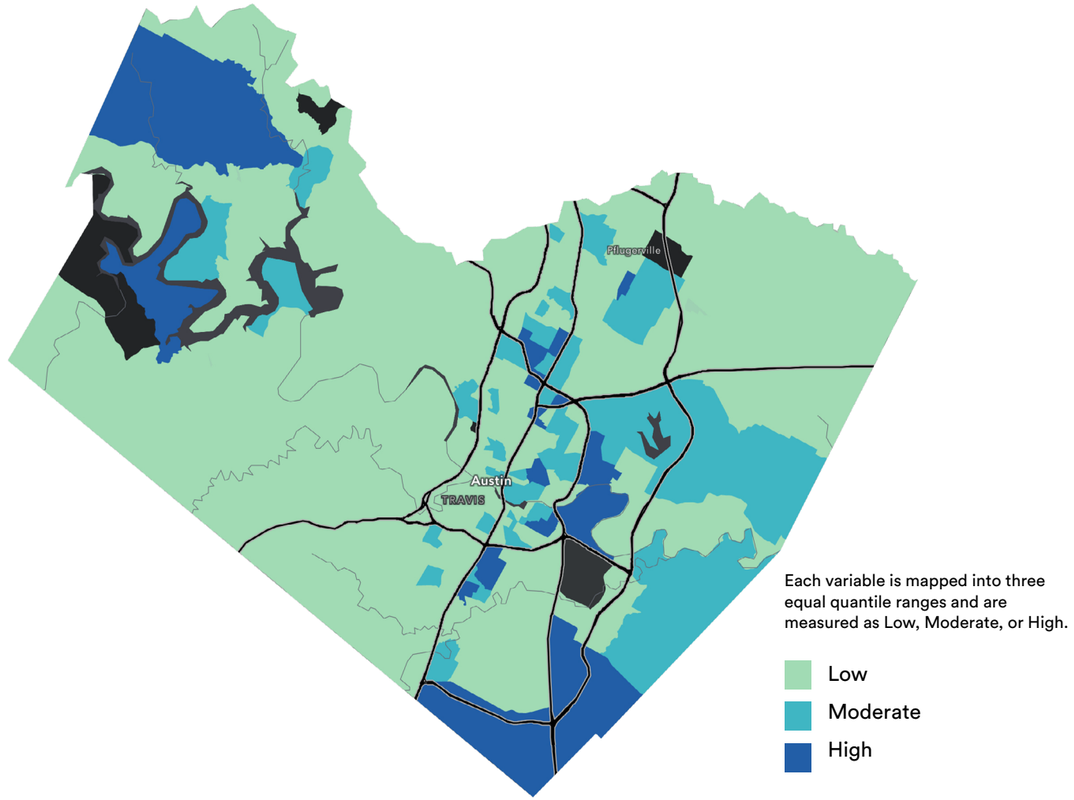
Figure 2: Percentage of Travis County households without an internet subscription



Source: U.S. Census Bureau's 2018 - 2022 American Community Survey (ACS) 5-year estimates, Table B28004

However, there are significant portions of the Austin/Travis County region (largely, though not completely urban) that have relatively lower internet subscription rates according to the 2021 American Community Survey (ACS 5-year estimate) as shown in Figure 2. These tend to align with patterns of where low-income households are, which is discussed in Section 4.1.4.

Figure 3: Digital Divide Index in Travis County



Source: Gallardo, R. (2022), Digital Divide Index (DDI). Purdue Center for Regional Development, http://pcrd.purdue.edu/ddi

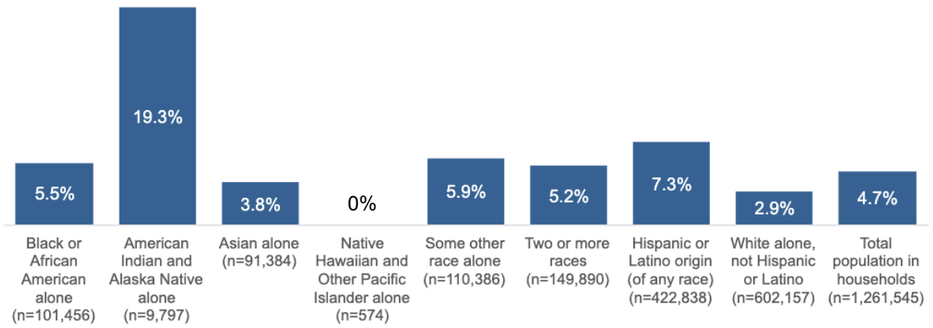
Similar geographic patterns of digital challenges emerge in other data sources that were also reviewed as a part of this research. For instance, the above map (Figure 3) is drawn from the Digital Divide Index (DDI)[6], which shows higher digital divide areas in darker blues.

6 The Digital Divide Index or DDI ranges in value from 0 to 100, where 100 indicates the highest digital divide. It is composed of two scores, also ranging from 0 to 100: the infrastructure/adoption (INFA) score and the socioeconomic (SE) score. The INFA score groups five variables related to broadband infrastructure and adoption: (1) percentage of total 2019 population without access to fixed broadband of at least 100 Mbps download and 20 Mbps upload as of December 2019; (2) percent of homes without a computing device (desktops, laptops, smartphones, tablets, etc.); (3) percent of homes with no internet access (have no internet subscription, including cellular data plans or dial-up); (4) median maximum advertised download speeds; and (5) median maximum advertised upload speeds. The SE score groups five variables known to impact technology adoption: (1) percent population ages 65 and over; (2) percent population 25 and over with less than high school; (3) individual poverty rate; (4) percent of noninstitutionalized civilian population with a disability: and (5) a brand new digital inequality or internet income ratio measure (IIR). In other words, these variables indirectly measure adoption since they are potential predictors of lagging technology adoption or reinforcing existing inequalities that also affect adoption. These two scores are combined to calculate the overall DDI score. If a particular county or census tract has a higher INFA score versus a SE score, efforts should be made to improve broadband infrastructure. If on the other hand, a particular geography has a higher SE score versus an INFA score, efforts should be made to increase digital literacy and exposure to the technology's benefits. The DDI measures primarily physical access/adoption and socioeconomic characteristics that may limit motivation, skills, and usage. Due to data limitations it was designed as a descriptive and pragmatic tool and is not intended to be comprehensive. Rather, it should help initiate important discussions among community leaders and residents.

https://pcrd.purdue.edu/ruralindianastats/broadband/ddi.php?variable=ddi-overview&county=Adams#:~:text=If%20on%20the%20other%20hand,among%20community%20leaders%20and%20residents.

4.1.3 By race/ethnicity

Figure 4: Percentage of Travis County population without internet subscriptions, by race/ethnicity



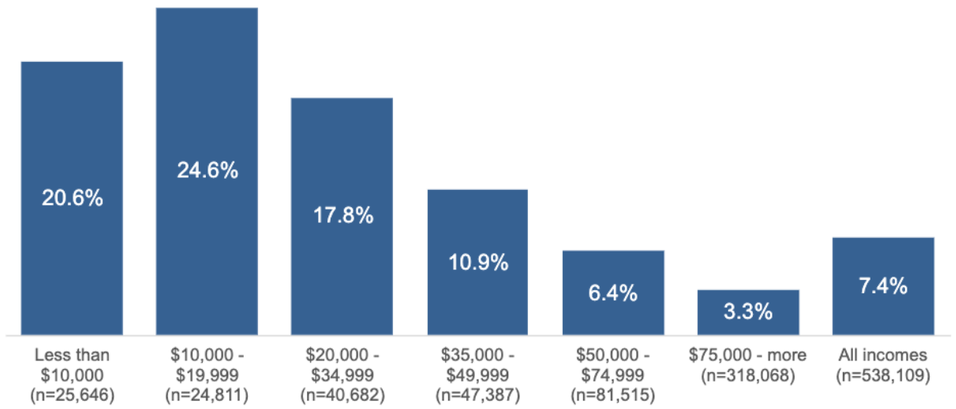
Source: U.S. Census Bureau's 2018 - 2022 American Community Survey (ACS) 5-year estimates, Table S2802. See ACS data for additional details about margins of error[7].

Census data shown in graph 4.1.3 indicates different rates of internet subscriptions between groups based on race and ethnicity. While 2.9% of White respondents did not have an internet subscription, 5.5% of Black respondents and 7.3% of Hispanic respondents did not have internet subscriptions.

4.1.4 By income

This research and national data shown below indicates lower income populations tend to be less digitally connected compared to higher income populations.

Figure 5: Percentage of Travis County households without internet subscriptions, by annual household income



Source: U.S. Census Bureau's 2018 - 2022 American Community Survey (ACS) 5-year estimates, Table B28004

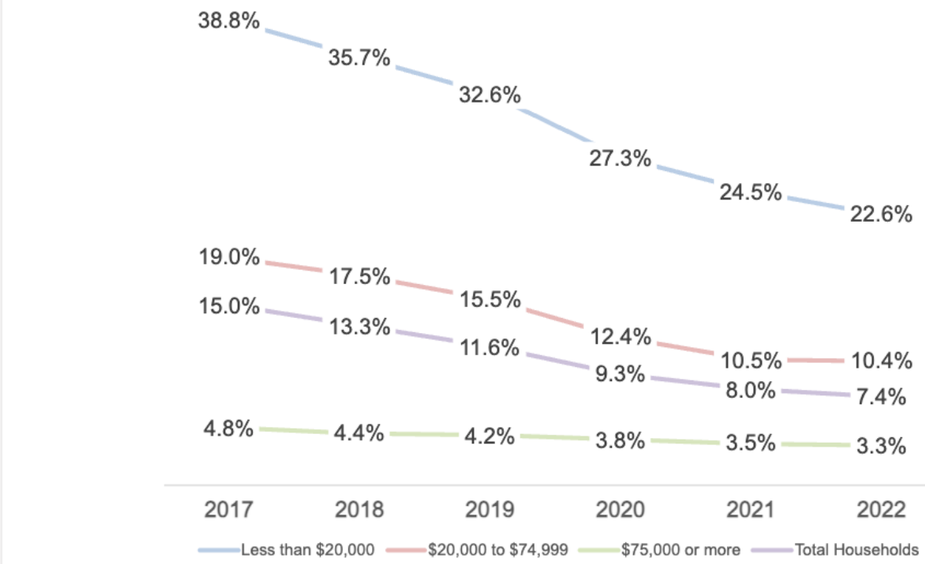
7 See ACS Table S2802 for additional details. Reported margins of error: Black or African American alone ±1.1, American Indian and Alaska Native alone ±7.9, Asian alone ±0.9, Native Hawaiian and Other Pacific Islander alone ±8.3, Some other race alone ±1.1, Two or more races ±1.4, Hispanic or Latino origin (of any race) ±1.0, White alone, not Hispanic or Latino ±0.3, Total population in households ±0.4

As the graph shows in Figure 5, a higher proportion of households with lower incomes are without internet subscriptions.

According to this data, there are an estimated 138,526 households in Travis County with incomes less than $50,000, of which 17% do not have internet subscriptions[8]. There is not data to know what percentage of those households with internet have had trouble paying for internet services.

Disproportionate adoption

Figure 6: Percentage of Travis County households without internet subscriptions, by household income, 2017 - 2022



Source: U.S. Census Bureau's 2017-2022 American Community Survey (ACS) 5-year estimates, Table S2801

As shown in Figure 6, while the highest income households have had internet subscriptions steadily for many years, the lower income households have experienced a disproportionate decrease in households without internet subscriptions over the same time period.

From 2017 to 2022, for households earning less than $20,000, the proportion of households without an internet subscription decreased from 38.8% to 22.6% compared to households earning more than $75,000, which held steadier, decreasing from an already low number of 4.8% to 3.3%. For all years represented, the $75,000+ category is proportionally the largest.

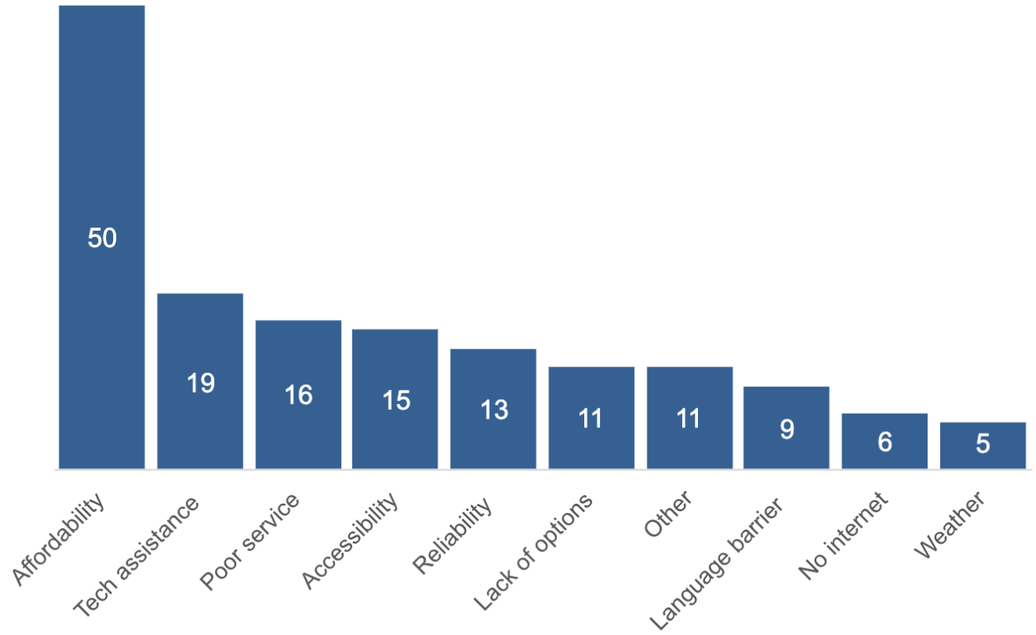
8 American Community Survey 5 year estimate, 2022: Table B28004

Insights from our own data collection reinforced the challenges of affording the internet and its impact. During community circles, when individuals and families cut spending from their budget, community members expressed the "internet is the first to go[9]." Compounding the problem, losing the internet can lead to loss in revenue opportunities, time, access to jobs and resources, and services.

4.2 The cost of connecting

In the survey and community circles, the top challenge to accessing and using the internet was the ability to afford it. For example, in the survey, a question asking about the top challenge in an open-ended responses, affordability was the most frequently referenced challenge, as shown in Figure 7. In a separate question, as shown in Figure 8, for those who did not have internet at home, survey respondents indicated that price was the most common barrier to getting internet at home.

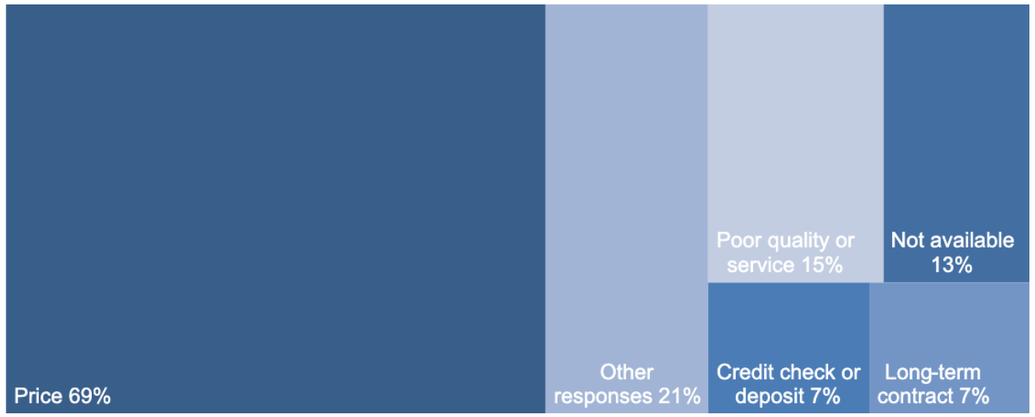
Figure 7: Biggest challenges to accessing or using the internet, by topic



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

9 The ALICE 2021 single adult survival budget estimate for Texas is $24,528 annually which includes a low-cost cell phone plan (ALICE, 2023 "COVID and Financial Hardship in Texas" Report). The federal poverty guidelines used to determine eligibility for certain programs, including ACP, at 200% poverty guidelines for a single person household in 2023 is $29,160 (REF HHS https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines).https://www.unitedforalice.org/state-reports-mobile). The federal poverty guidelines used to determine eligibility for certain programs, including ACP, at 200% poverty guidelines for a single person household in 2023 is $29,160 (U.S. Department of Health and Human Services, 2024: https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines).

Figure 8: Percentage of survey respondents without internet at home who indicate specific barriers to getting internet at home, by topic[10]



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

A national study conducted by Pew Research Center found that 34% of households with incomes less than $30,000 and 25% of households with incomes between $30,000-$49,999 had trouble paying for internet services during the pandemic, compared to only 8% of those with incomes of $50,000-$74,000 and 4% of those with incomes of $75,000 or more[11].

Affordability - More than just a monthly subscription bill

Affording the internet has multiple layers, including the dollar investment and the time/ energy cost of securing and maintaining a connection.

The actual dollar investment of connecting to the internet can be divided into upfront and ongoing costs. Upfront costs are costs that occur before the internet connection can be utilized. First, a device must be purchased. If the device is a desktop computer, a space with a desk and a chair is needed. A Wi-Fi router may also need to be purchased. When selecting an internet plan, there can also be upfront fees and charges, some of which come as a surprise to the buyers. Ongoing costs include device maintenance and internet subscription costs, or the costs of transportation to a connected site such as a computer lab or library if there is a need to connect to the internet outside of the home.

10 The survey question asked "What is a barrier for you to get internet at home?"
11 Pew Research Center, 2021: https://www.pewresearch.org/fact-tank/2021/06/03/34-of-lower-income-home-broadband-users-have-had-trouble-paying-for-their-service-amid-covid-19/)

There are also costs of connecting to the internet that are not *dollar* costs, but *time and energy costs*. Selecting hardware, software, and an internet plan that meet your needs can be difficult choices that involve research and comparison shopping. Finding and creating a space for the device to live in-home can require time and effort to plan. For many families, having a computer and an internet connection requires a whole set of decisions to be made about what software will be utilized, who can use the device (and for what purpose), and how to mitigate any risks (real or perceived) of utilizing the technology. Add to these the cost of disruption of service once the technology becomes relied upon, and it becomes clear that acquiring and maintaining an internet connection requires a significant investment of dollars, time, and attention.

While these challenges are experienced by everyone, lower-income populations have to navigate this process with fewer resources.

Connectivity and the "Poverty Premium"

In 2023, a UK-based study found the lack of internet access disproportionately affects low-income populations because it leads to "poverty premiums" which is the extra costs for goods and services that low-income populations pay compared to those with higher incomes[12]. The study estimates nearly seven million people in Great Britian pay poverty premiums costing them nearly £500 ($630.61) extra every year and up to 25% more for essential goods and services. The UK based study tied digital access to the poverty premium, stating:

> Our research found that any form of digital exclusion prevented access to the online marketplace and became a significant factor contributing to poverty premiums. Without knowledge of the range of providers, and the services they provide, consumers cannot explore the market and purchase the best deals for them.

For example, a person who lacks internet access may pay a higher price for goods sold in-person than online. In-person, consumers only have the options presented at the time and place of purchase. Online, consumers can compare prices and options of multiple providers and search for discounts.

12 The Centre for Social Justice, 2023: https://www.centreforsocialjustice.org.uk/library/left-out)

4.3 Lack of digital skills

Lack of adequate digital skills were identified as a top challenge in our study, particularly among populations who are already otherwise disadvantaged.

Basic digital skills are the minimum skills necessary for an individual to safely use and access the internet, devices, and related technology. Examples include the ability to use digital devices such as a computer and smartphone, communicate using email and social media, understand how to be safe and responsible online, and accomplish tasks such as applying for a job online or accessing medical records through an online portal.

Most jobs today require at least one digital skill

A 2023 national study analyzed 43 million "help wanted" ads posted in 2021 and found 92% of all jobs require digital skills across all industries and business sizes[13]. This includes entry-level jobs that required zero to two years of experience or a high school diploma.

Even jobs that have not traditionally required or involved technology are increasingly requiring digital skills. For example, home health aides are using tablets to report patient information and retail associates are using smartphone applications to process returned items[14].

With higher digital skills, individuals can save time and money

A 2018 economic study (notably before the digital transformation escalated by COVID-19) from the Good Things Foundation in the United Kingdom (U.K.) estimated considerable annual time savings and financial savings for individuals who converted in-person activities to digital activities[15]. Specifically, they estimated 1) that individuals could save roughly 30 minutes when performing a transaction with the government online rather than in person, and 2) there are 55 of these transactions per year per person combined with other research, which led to an estimated 30 hours of time savings per person per year. In the U.K., they estimated the value of these 30 hours at £1.1 billion ($1.4 billion) cumulatively for the 10-year period of 2018-2028 for 6.9 million people who lacked basic digital skills and are therefore reliant on in-person activities. Additional local research would be needed to translate these estimates into local calculations[16], but this study does provide an interesting look at the possibility of time and money savings for folks who receive needed basic digital skills.

13 National Skills Coalition, 2023: https://nationalskillscoalition.org/wp-content/uploads/2023/02/NSC-DigitalDivide_report_Feb2023.pdf
14 National Skills Coalition, 2020: https://nationalskillscoalition.org/wp-content/uploads/2020/12/Digital-Skills-Racial-Equity-Final.pdf
15 Good Things Institute, 2018: https://www.goodthingsfoundation.org/insights/economic-impact-digital-inclusion
16 Some key difficulties with making comparisons: 1) estimates from this study are based in the UK, 2) there are two relevant currency conversions (time and pound/dollar), 3) only government and financial transactions are included in this study, and 4) patterns in how consumers interact with government and finances and at what frequency may be very different compared to the UK

A 2023 survey found individuals with higher confidence in their digital skills were nearly twice as likely to have successfully signed up for Affordable Connectivity Program (ACP), a federal internet subsidy for low-income households, than those with less confidence[17]. Therefore, the potential consequence of having lower digital skills and no internet could cost an individual time and savings.

Higher digital skills can also lead to higher earning potential

The 2023 National Skills Coalition study also found individuals who qualify for jobs that require at least one digital skill can earn an average of 23% more than jobs requiring no digital skills which equals to a yearly increase of $8,000 for an individual.

Key findings of this research related to digital skills that are discussed in the following sections are:

- There are interesting patterns around digital skills and breaks in workforce or educational participation.
- There are differences in self-reported digital skills amongst different demographic groups.
- There is broad interest in digital skills training.
- There is broad interest in a variety of digital skills topics.

4.3.1 Digital skills and breaks in in workforce or educational participation

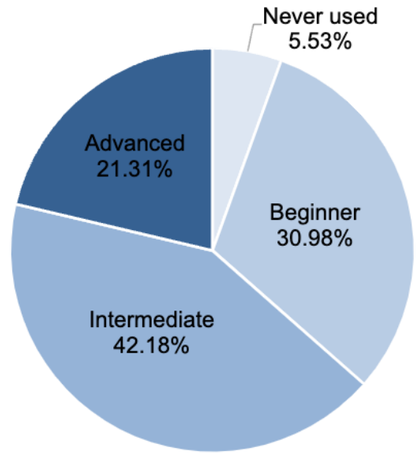
Workforce participation and formal education are key factors in developing and maintaining digital skills. To be out of a job and the education system for significant lengths of time could have large impacts on a person's digital skills development opportunities.

For example, for some older adult participants in the study, their experience in the workforce did not include interfacing with technologies (such as the internet and computers) that are more commonplace today. They may have learned typing skills, but they did not learn how to use the internet through work or school. This may be a contributing factor to why older adults have lower self-reported digital skills. A similar challenge was described by community members with long experiences of incarceration. Being in the criminal justice system with limited access to technology, outside of the workforce, and with fewer educational opportunities leaves justice-impacted individuals with limited opportunities to keep up with the quickly changing digital skills landscape. These individuals come home to a digital world that they might not have the skills to navigate and participate in. Furthermore, this inability to participate in the digital world may limit opportunities to develop digital skills, which may further limit opportunities to participate in the digital world, creating a self-reinforcing cycle.

17 Benton Institute, 2023: https://www.benton.org/blog/half-acp-eligible-households-still-unaware-program

4.3.2 Differences in self-reported digital skills

Figure 9: Self-reported technology and computer skills (n=1375)



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

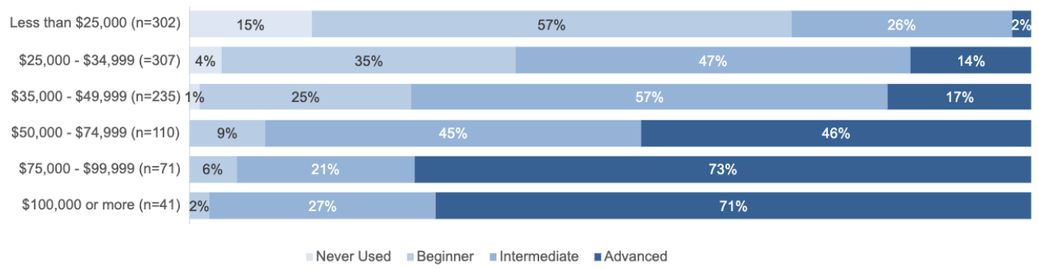
As shown in Figure 9, 63.49% of survey respondents self-reported their digital skills as "intermediate" or "advanced," while 36.51% of respondents self-reported digital skills as "beginner" or "never used."

When disaggregating survey results by demographic factors, there were notably different results between demographic groups, including income, education level, age, and race. To learn more about how we disaggregated data, refer to the "Sample Demographic Data" portion of the Methods section in the Appendix.

Self-reported digital skills by individual annual earnings

When disaggregating survey results on self-reported digital skills by demographic factors, a higher percentage of those with lower individual annual earnings self-identified with lower digital skills, compared to those with higher earnings in our sample (Figure 10).

Figure 10: Self-reported technology and computer skill level, by annual individual earnings



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

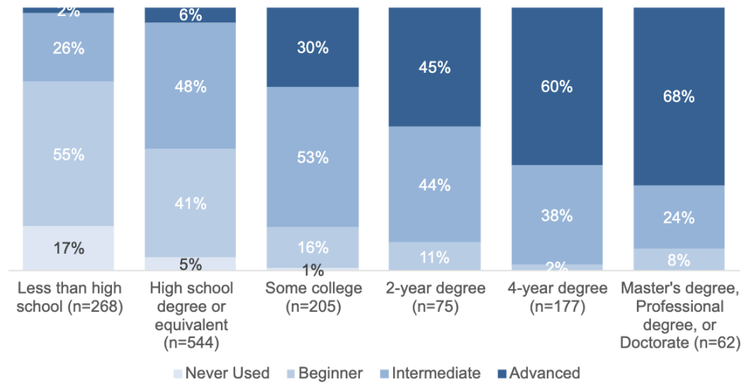
No one in our sample with annual earnings over $50K reported that they "Never Used" digital skills, while 15% of respondents with earnings lower than $25K reported the same. In sharp contrast, 71% of respondents earning $100K or more annually and 73% of respondents earning between $75K and $100K annually reported having "Advanced" digital skills while only 2% of those earning less than $25K and 14% of those earning between $25K and $40K reported the same. This shows that, for our sample, advanced digital skills were concentrated in higher earning populations and lower digital skills were more prevalent in lower-earning populations.

Those with lower digital skills in lower-earning populations may face higher barriers to upward mobility, with one study indicating that 92% of jobs today require some digital skills[18]. This study additionally found that jobs requiring more digital skills receive higher compensation.

Self-reported digital skills by education level

A similar pattern emerges when disaggregating by education level. Those with lower formal education attainment reported lower digital skill levels, as shown in Figure 11.

Figure 11: Self-reported technology and computer skill level, by education level



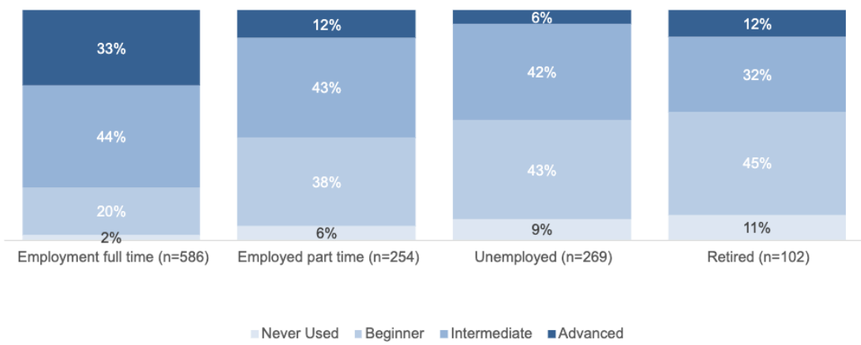
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

No respondents with a 2-year degree or more responded that they have "Never Used" digital skills, while 17% of those with less than a high school degree responded so. Conversely, 68% of respondents with a Master's degree or higher reported that they had "Advanced" digital skills, while only 2% of those with less than a high-school degree responded the same way.

Self-reported digital skills by employment status

When disaggregating self-reported digital skills by employment status, self-reported digital skills were highest for respondents with full-time employment, shown below in Figure 12.

Figure 12: Self-reported technology and computer skill level, by employment status



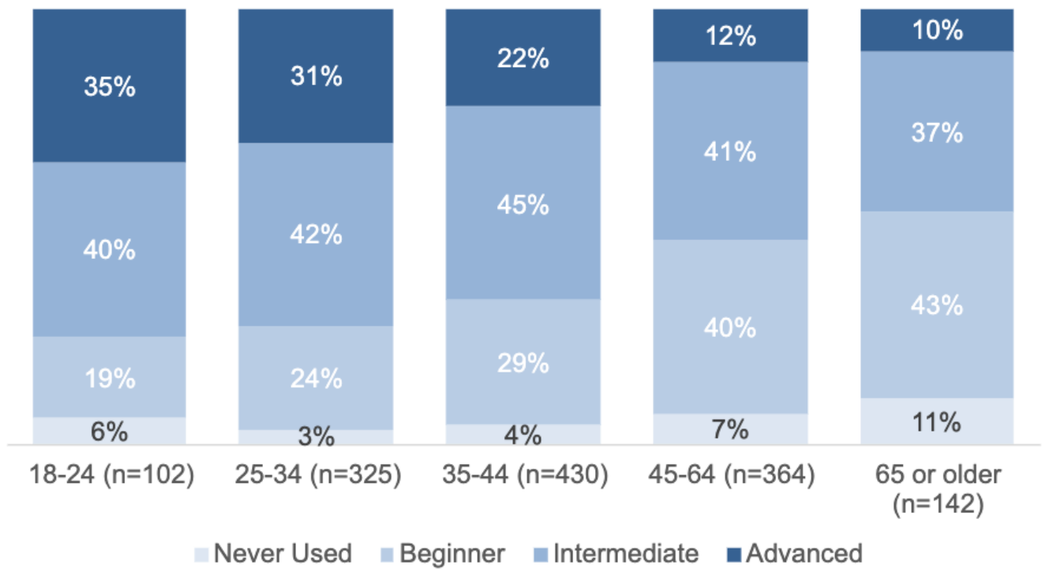
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

18 National Skills Coalition, 2023: https://nationalskillscoalition.org/wp-content/uploads/2023/02/NSC-DigitalDivide_report_Feb2023.pdf

Self-reported digital skills by age

The research also showed older age groups self-reporting lower levels of digital skills (Figure 13).

Figure 13: Self-reported technology and computer skill level, by age



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

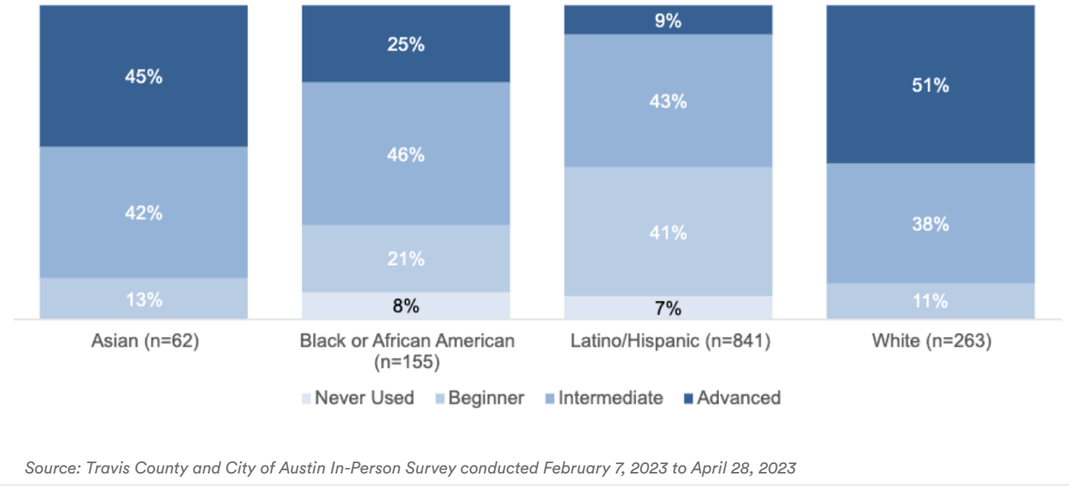
While 54% of respondents 65 or older self-reported as having "Never Used" or "Beginner" digital skills, only 25% of those 18-24 reported the same. Likewise, only 10% of respondents 65 or older reported having "Advanced" digital skills, while 35% of respondents 18-24 reported the same.

Community members also highlighted that varied training mechanisms may be beneficial for the older adult population. Some older adults expressed struggling with memory loss and prefer "cheat sheets" with important information. Others have had limited exposure to technology and would prefer full-scope training that covers everything from basic digital skills to understanding what is behind the tech (what is the internet, how is data transmitted, etc.).

Self-reported digital skills by race/ethnicity

When disaggregating survey results on race and ethnicity, there are differences in self-reported digital skill level between groups (Figure 14).

Figure 14: Self-reported technology and computer skill level, by race/ethnicity



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

High proportions of those identifying as White alone and Asian alone self-reported as having advanced digital skills with much smaller proportions reporting "never used" or "beginner" skill levels. Low proportions of those identifying as Black or African American and Latino/Hispanic self-reported as having advanced digital skills. A high proportion, nearly half, of those identifying as Latino/Hispanic reported either "never used" or "beginner" digital skill levels. A high proportion of those identifying as Black or African American also reported "never used" or "beginner" digital skill levels.

This pattern is similar to another study which found "workers of color are disproportionately affected by digital skills gaps compared to their white peers"[19].

19 National Skills Coalition, 2020: https://nationalskillscoalition.org/wp-content/uploads/2020/12/Digital-Skills-Racial-Equity-Final.pdf

4.3.3 Who is interested in digital skills training

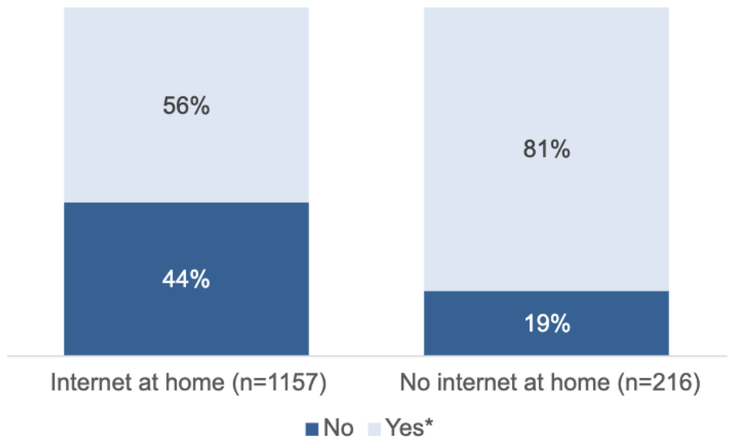
Over 59% of survey respondents indicated they would be interested in basic technology skills training for themselves or someone in their household[20], but only if it were free. Within that survey sample, when disaggregating results, groups with 60% or more respondents indicating interest were participants:

- With no internet at home
- With self-reported "never used", "beginner", or "intermediate" digital skills
- Employed part time or unemployed
- Aged 35 - 64
- Identifying as Latino/Hispanic
- Identifying as female
- Those with "high school degree or equivalent" or "less than high school"

Interest in technology skills training for those with and without home internet

For those without internet at home, a large majority of survey respondents (81%) indicated interest in free basic technology skills training, as shown in Figure 15. A majority of those with internet at home also indicated interest.

Figure 15: Interest in basic technology skills training for respondents or someone in their household, for those with and without home internet



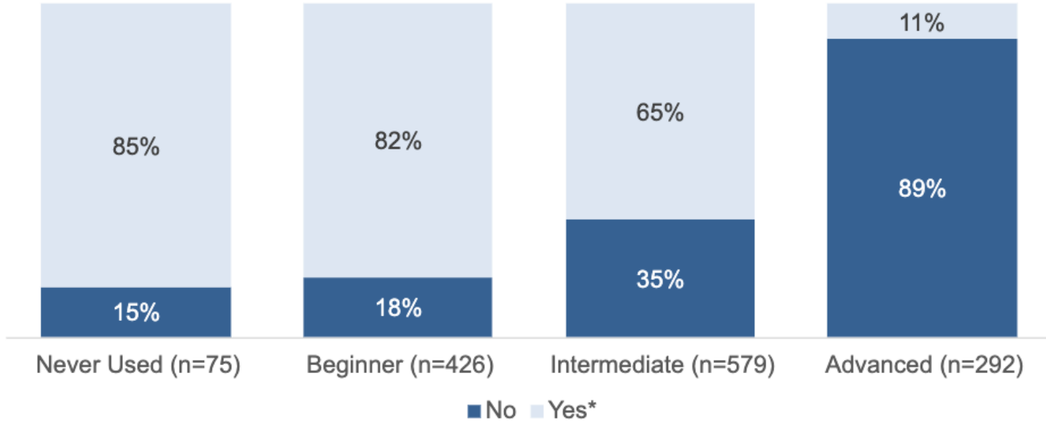
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

20 The survey question was "Would you be interested in basic technology skills training for you or someone in your household?" to allow participants to respond more genuinely without feeling embarrassed or uncomfortable for wanting free basic technology skills training for themselves. The consequence of this wording is that it confounds the ability to compare the data across demographic categories.

Interest in technology skills training by self-reported digital skill level

Additionally, a higher proportion of individuals with lower reported digital skill levels were interested in free digital skills training (Figure 16).

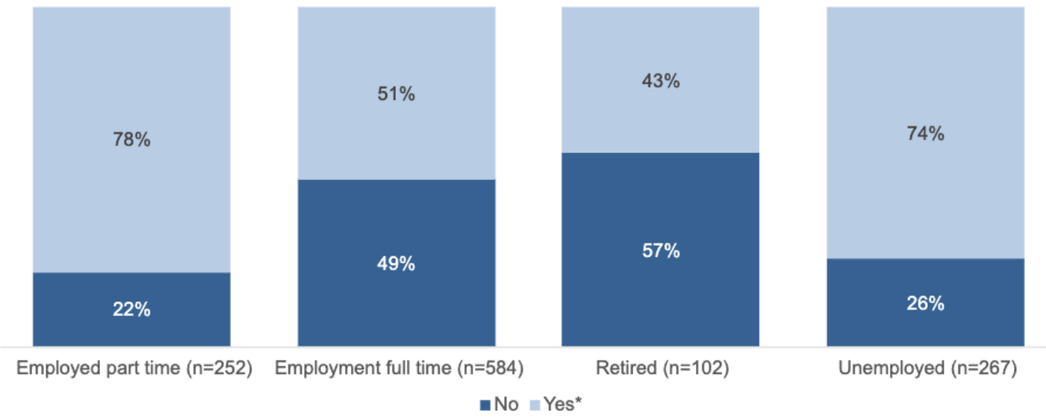
Figure 16: Interest in basic technology skills training for respondents or someone in their household, by self-reported technology and computer skill level



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

When considering employment status, the group who expressed the lowest interest in digital skills training (for themselves or others in their household) was the retired population, with only 43% reporting interest in free training (Figure 17). The group with the highest interest was those employed part time, with 78% reporting interest.

Figure 17: Interest in basic technology skills training for respondents or someone in their household, by employment status



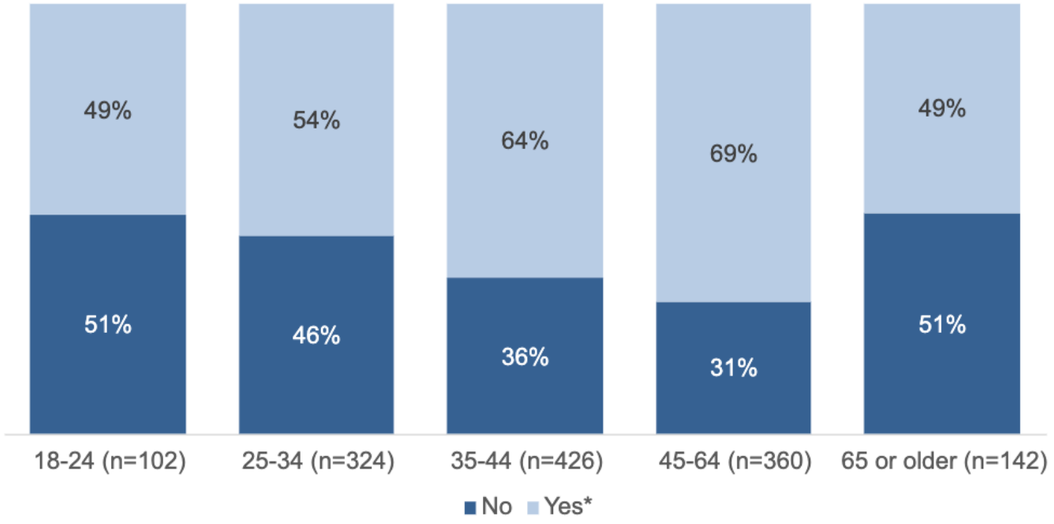
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Interest in technology skills training by age

A higher proportion of respondents between the ages of 35-64 were interested in basic technology skills training, compared to other age groups (Figure 18). However, nearly half or more of all age groups were interested in training.

Interestingly, one of the two groups with the lowest interest in digital skills training was the 65 or older population, with only 49% reporting interest. This is an important contrast to earlier findings that showed the 65 or older population had the lowest self-reported digital skills (54% having "Never Used" or "Beginner" digital skills). While this may be interesting to explore in future research, our sample is not large enough to explore this intersection further (and it is not randomly selected).

Figure 18: Interest in basic technology skills training for respondents or someone in their household, by age

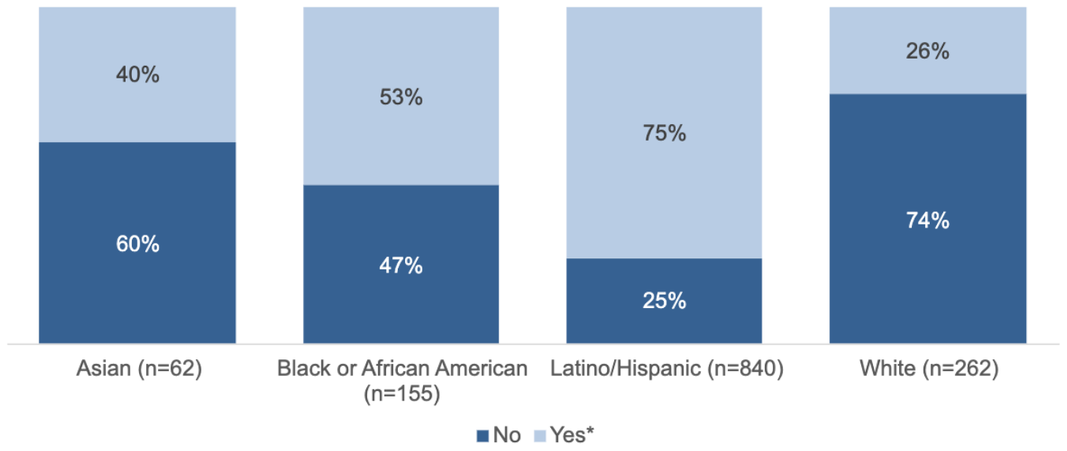


Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Interest in technology skills training by race/ethnicity

A strong majority (74%) of survey respondents identifying as Latino/Hispanic-alone indicated interest in training, as did a majority of respondents (53%) identifying as Black or African American alone (Figure 19).

Figure 19: Interest in basic technology skills training for respondents or someone in their household, by race and ethnicity

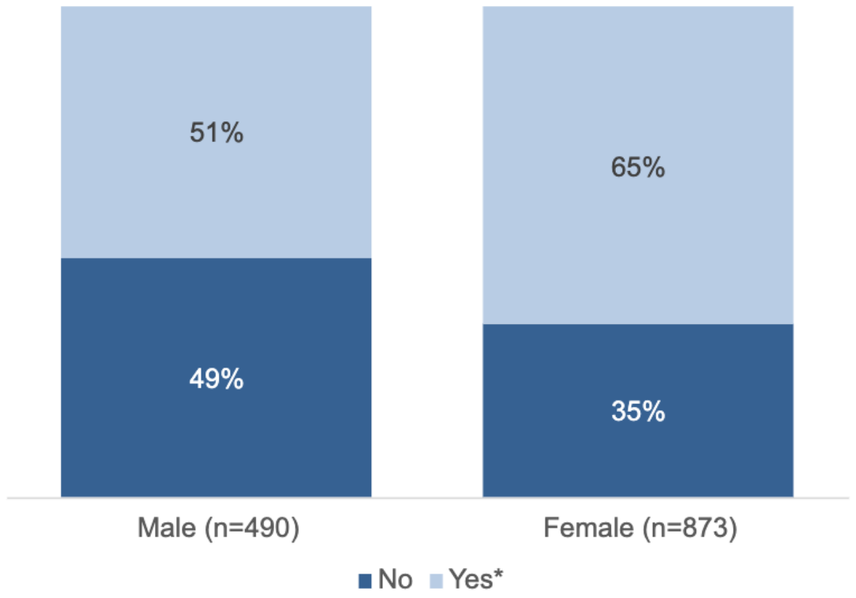


Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Interest in technology skills training, by gender

Respondents identifying as female were more likely to express interest in free basic technology training than those identifying as male 64% to 51% (Figure 20).

Figure 20: Interest in basic technology skills training for respondents or someone in their household, by gender

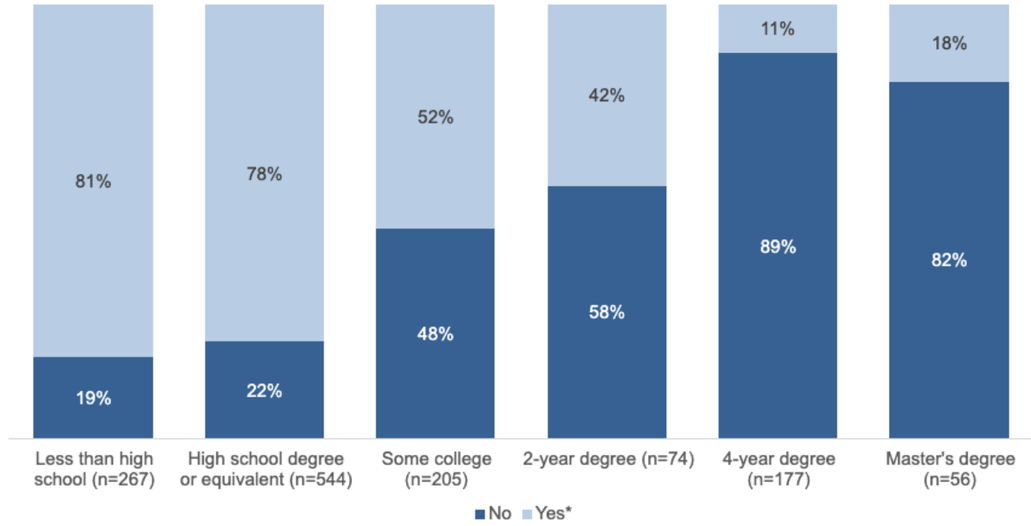


Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Interest in technology skills training, by education level

The higher the education attainment, the lower the proportion of respondents that are interested in digital skills training for themselves or someone in their household with 81% of those with less than a high school degree compared to 18% of those with a Master's degree expressing interest (Figure 21).

Figure 21: Interest in basic technology skills training for respondents or someone in their household, by education level



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

4.3.4 What digital skills topics do people want to know

In this study, participants most frequently expressed interest in learning how to:

- Maintain safety online and while using devices, including how to:
  - Manage passwords and credentials
  - Identify security threats such as scams and fake websites
  - Protect against viruses

- Protect personal data and maintain privacy
  - Desire for self-determination/ownership of their data
    - Tiredness of spam, popups
  - Understand, identify, and manage cookies
  - Everybody requires emails to do anything, and then the spam comes in
  - Identify signs of phishing, block and report spam, unsubscribe from unwanted mailing lists
  - Avoid and stop robocalls and texts[21]
  - Use a Virtual Private Network (VPN)
  - Knowing consumer rights (such as anti-spam laws and the do-not-call list)

- Maintain a healthy device, including how to:
  - Backup and archive data
  - Retrieve archived data and data backups
  - Transfer data from one device or location to another
  - Clean your device to improve its performance
  - Recover if your device has a virus
  - Troubleshoot, maintain, and repair devices

- Use browser history

- Query AI tools

21 Federal Communications Commission, 2024: https://www.fcc.gov/consumers/guides/stop-unwanted-robocalls-and-texts

- Use digital devices like a smartphone or tablet including:
  - Understand signal bars and reception quality

- Access public internet

- Complete an online job application

- Understand what the internet is and how it works, including transmission methods (such as Wi-Fi, fiber, mobile, satellite, cable, or copper)

- Identify and navigate to trustworthy information online

- Identify and use parental controls on devices to control:
  - Time on device
  - What sites/apps are accessible on a device
  - Ability to purchase things on a device
  - Privacy settings

- Navigate internet plan selection, including how to:
  - Understand upselling and hidden fees
  - Compare the benefits and costs of ISP plans
  - Desire for freedom of choice
  - Knowing consumer rights (such as regulations on anti-competitive arrangements in multi-tenant environments)

- Know where to get help
  - Self-help options (such as YouTube, Google, Reddit)

4.4 Internet service availability, quality, and reliability

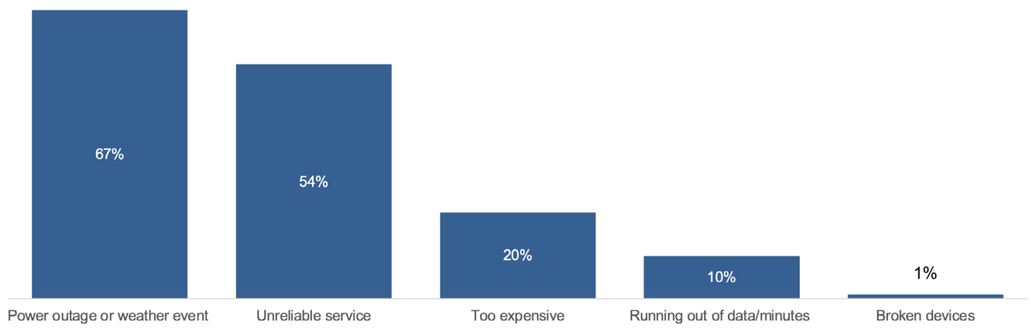
Disruptions to internet availability, quality and reliability came up as barriers for internet access both in and outside the home. In the survey of those with internet at home in the last 12 months, 44% indicated they experienced home internet disruption and 22% had mobile internet disruption. Of those without internet at home, in the last 12 months, 39% experienced mobile internet disruption. Additionally, 8.7% of survey respondents did not have mobile internet. In the community circles, some participants described how internet quality would be negatively impacted in whole geographies during large events. In densely populated areas, during peak usage times, and during large events, it is common for the internet to slow down when many people use the internet simultaneously. For example, participants described internet quality drastically declining during large community events such as races at the Circuit of the Americas, music festivals at parks, and conferences downtown.

4.4.1 Causes for disruption

Internet in the home

Study participants cited many common reasons for loss or disruption of internet in the home.

Figure 22: Loss or disruption of internet at home, by cause (n=516)[22]



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

22 Home internet does not typically have restrictions on data or minutes like mobile internet does. This data attributing disruption of home internet to data or minutes limitation could be either 1) an error due to the way the data was collected and the survey questions were worded or 2) indicative of situations where participants are using their phone as a hotspot for home internet or if they have a hotspot from a mobile provider with an associated data plan.

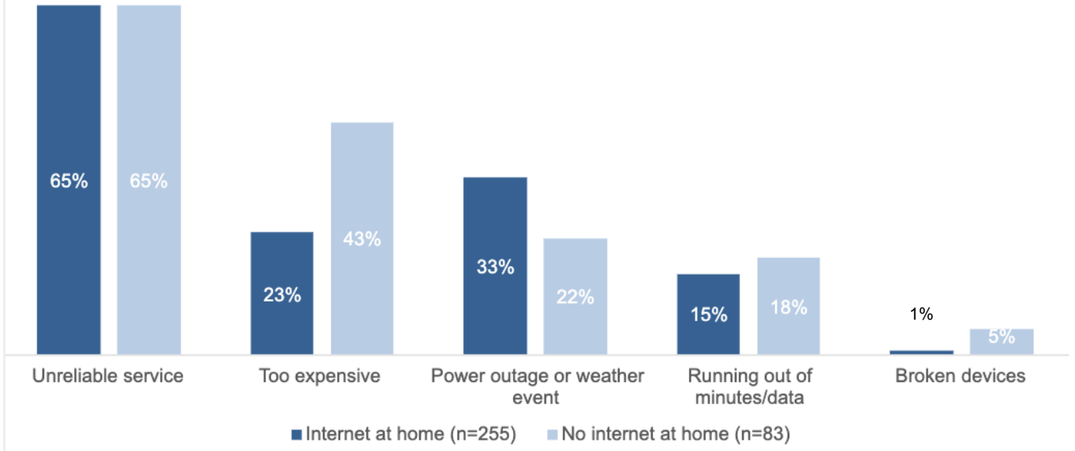
In the survey, the primary factor was power outages and weather events (Figure 22). It is worth noting the survey was conducted during the winter season when there are more frequent weather disruptions and challenges to the power grid. In recent years, the area has seen many significant winter weather events causing widespread power challenges or outages which may have been fresh in people's minds. Participants in the advisory workshops and community circles also referenced power outages, often weather related, as a cause of internet disruption. Participants described inequitable electrical power quality distribution across the city with longer power outages on the east side than the west side of Austin. They also described how this compounds challenges during emergencies in accessing resources and information, such as finding a hospital or trying to identify key problems by accessing outage maps online. Community members also expressed needing to make difficult decisions between living in more affordable areas with less reliable internet service or less affordable areas with more reliable internet service.

Community circle participants also noted that home internet service quality was often unreliable, particularly during peak usage times. This led some community members to re-arrange their lives and schedules to avoid having multiple family members using the internet at the same time.

Mobile internet outside the home

The primary cause for disruption for mobile internet was unreliable service (Figure 23). Survey respondents also stated causes for loss or disruption of mobile internet was due to it being too expensive, power outages/weather events, and running out of data or minutes. It was less frequently referenced that broken devices were a cause for disruption, although in community circles, device quality was referenced as a key challenge.

Figure 23: Loss or disruption of mobile internet, by cause for those with and without home internet



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Many community circle participants described real-time challenges in meeting their needs due to disruptions to mobile internet availability, quality, and reliability. For example, being outside the home, but needing to look up information online during an emergency. They also noted inconsistent internet reliability across geographies. During one community circle, a participant described Austin as a "dead zone metropolis." Participants described that more affluent areas seem to generally have better service. One family described needing to purchase multiple mobile plans with different ISPs so they could conduct business across a larger geographic area.

Comparing home and mobile disruption for those with and without home internet

When comparing survey responses regarding mobile disruption to home internet disruption for those with internet at home, there are two main differences. "Unreliable Service" was reported at higher rates for mobile disruption, while "Power Outage/Weather Event" was reported at lower rates for home internet disruption.

When disaggregating responses between those who have and do not have internet at home, additional variances arise. For those that do not have internet at home, cost was a much higher reported factor in mobile disruption. Likewise, running out of data/minutes and broken devices were reported at higher rates for this group. On the other hand, power outages/weather events were reported at lower rates for those with no internet at home.

Figure 24: Loss or disruption of mobile and home internet for those with and without home internet, by cause

Survey responses	No internet at home - Mobile internet disruption (n=83)	With internet at home - Mobile internet disruption (n=255)	With internet at home - Home internet disruption (n=516)
"Unreliable Service"	65%	65%	54%
"Too Expensive"	43%	23%	20%
"Power Outage/ Weather Event"	22%	33%	67%
"Running out of Data or Minutes"	18%	15%	10%
"Broken Devices"	5%	1%	1%

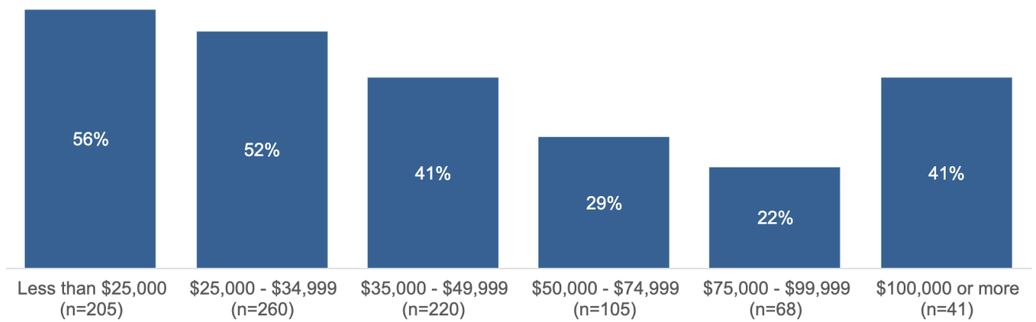
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

4.4.2 Who is impacted by disruption

When disaggregating survey data on home internet disruption by demographic categories, disruption was higher for respondents who:

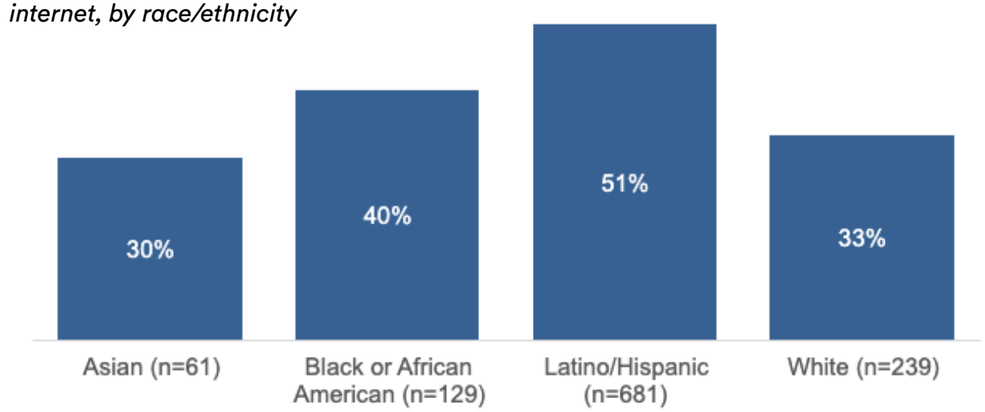
- Have lower income
- Identify as Latino/Hispanic
- Are older
- Are employed part time or unemployed
- Have lower educational attainment
- Identify as female

Figure 25: Percentage of survey respondents who experienced loss or disruption of home internet, by annual individual earnings



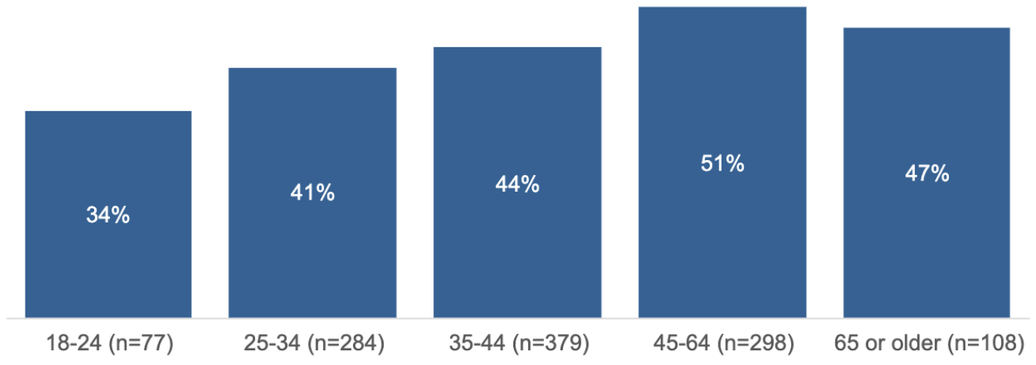
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Figure 26: Percentage of survey respondents who experienced loss or disruption of home internet, by race/ethnicity



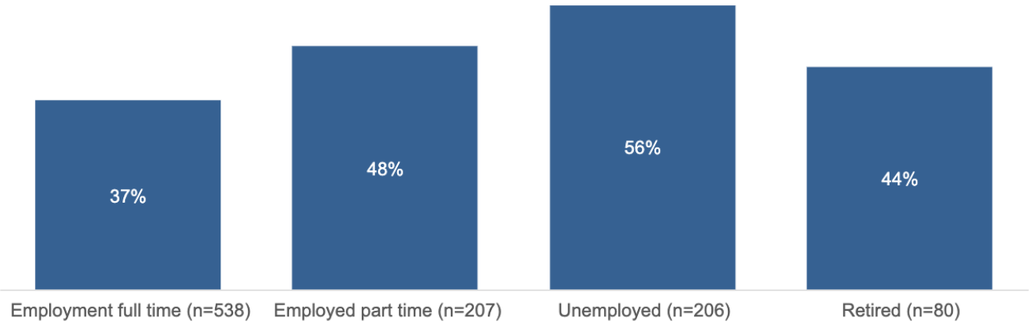
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Figure 27: Percentage of survey respondents who experienced loss or disruption of home internet, by age



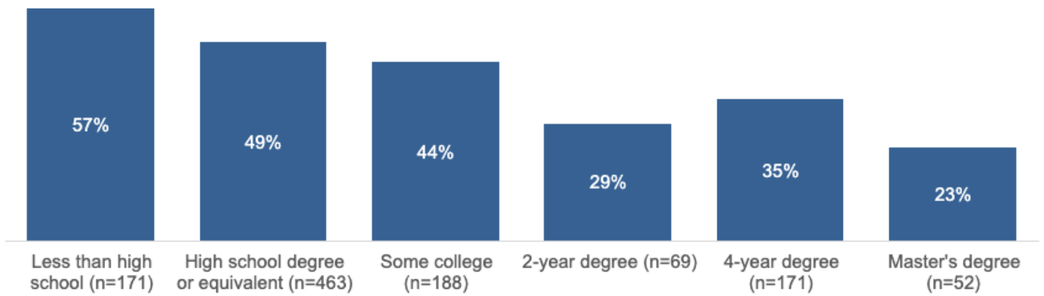
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Figure 28: Percentage of survey respondents who experienced loss or disruption of home internet, by employment status



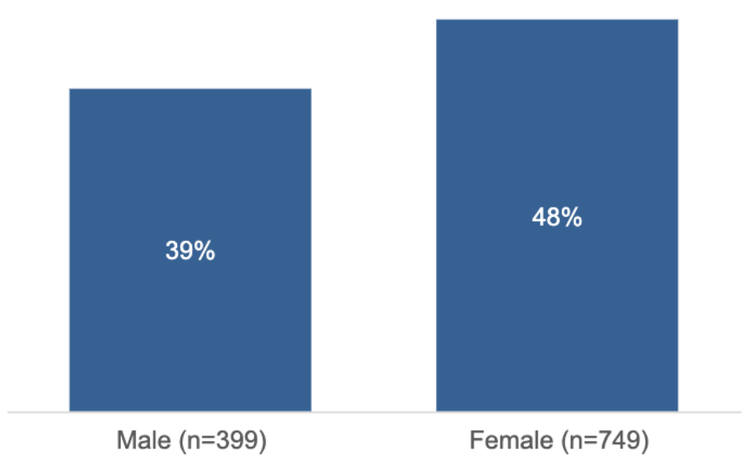
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Figure 29: Percentage of survey respondents who experienced loss or disruption of home internet, by education level



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Figure 30: Percentage of survey respondents who experienced loss or disruption of home internet, by gender



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

4.4.3 What is impacted by disruption

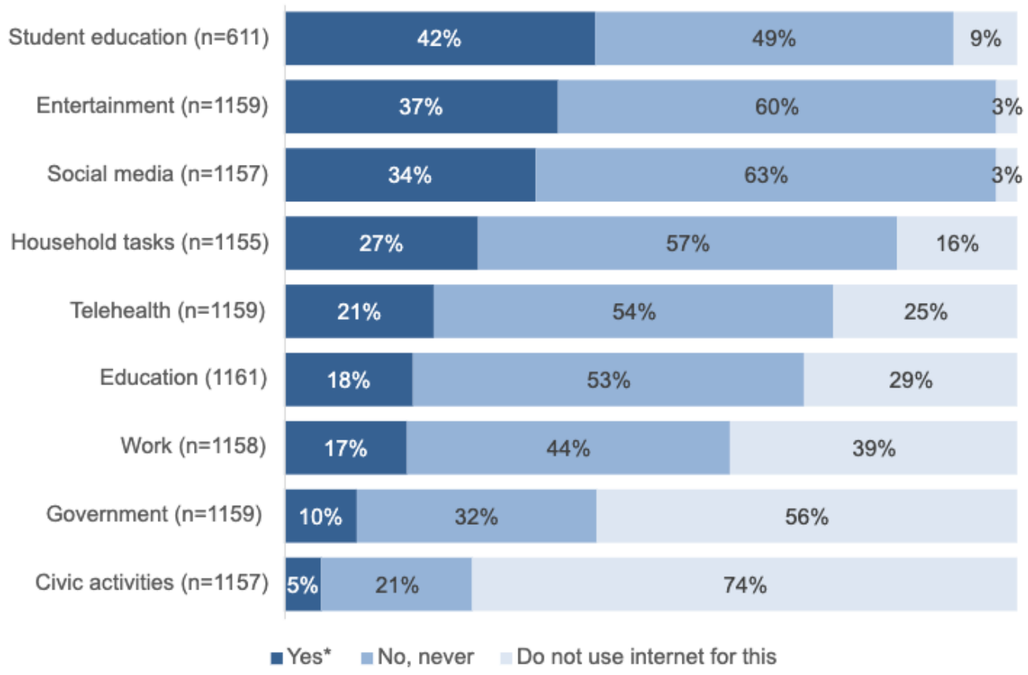
As an increasing proportion of daily and important functions are more efficiently (or only) accomplishable through the internet, the effects of inequitable internet access will compound other existing inequalities. Study participants described the impact of lacking internet or adequate devices as having the potential to create significant consequences or negative outcomes for individuals or families, particularly if they are already facing other challenges.

Examples were:

- Loss of public transportation and way finding
- Disruption of health devices connected to the internet
- Missing important communications including those:
  - Tied to personal safety
  - Regarding vital benefits and/or services, leading to loss or delay in receiving benefits and/or services
  - Relating to case management or parole officer check-ins, which can be mandatory
  - About the submission of vital information to a requestor, which can result in the loss of home, custody, ability to pay bond, or loss/increase in price of a service
  - From employers, which can result in loss of jobs or other disciplinary action
- Loss of the ability to receive and seek immediate safety or emergency notifications
- Loss of the ability to independently solve problems online
- Having to take more risks to access internet (such as joining an insecure network) that could result in cyber-attacks or loss of information
- Loss of work, especially gig workers (such as artists and ride-share company drivers)

As shown in the Figure 31, the loss of internet connectivity or device impacted various activities differently. For those with internet at home, the highest proportion expressed disruption impacting their use of the internet for student education, entertainment, and social media.

Figure 31: Percentage of survey respondents with internet at home whose use of internet was impacted by loss of internet connectivity or device, by activity [23]



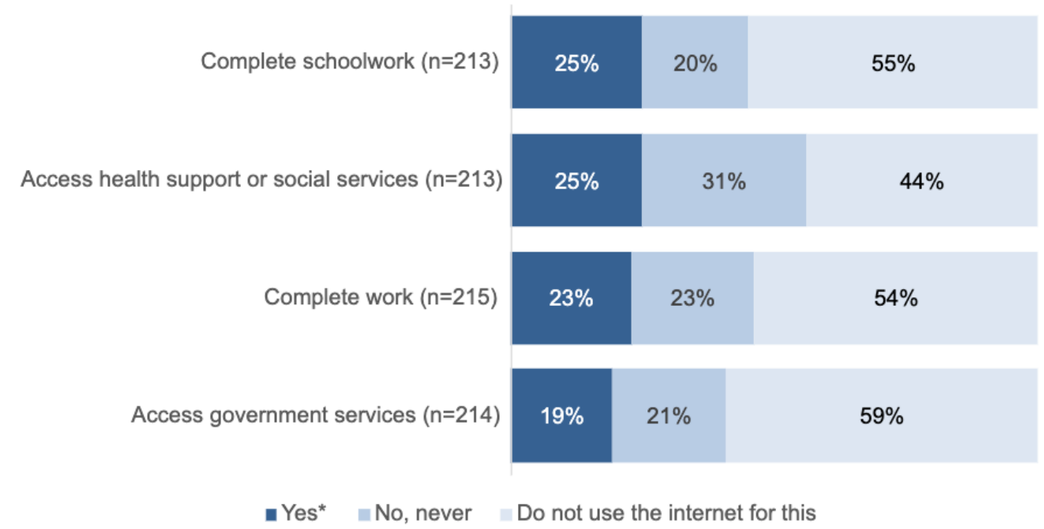
Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

Most survey respondents with internet at home indicated that they did not use the internet for civic (such as registering to vote) or government related activities (such as obtaining a driver's license or accessing essential services). During the community circles, many participants complained about the usefulness and accessibility of government websites which provides a key opportunity for governments to improve on.

23 All rows in this figure sum to 100% except for the Government row. This is because of a nuance of the data collection. For each of the other categories, there were four response options ("Yes many times", "Yes sometimes", "No never", and "I do not use the internet for this"). For the Government category, there was an additional response option ("Prefer not to say"). This additional option was added due to feedback that some folks may be less comfortable providing feedback relating to government. This difference along with blank responses causes this slight discrepancy between categories.

As shown in Figure 32, for those without internet at home, the lack of internet connectivity impacted various activity differently.

Figure 32: Percentage of survey respondents without internet at home unable to complete activities or access services



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

4.5 - Access inside and outside the home

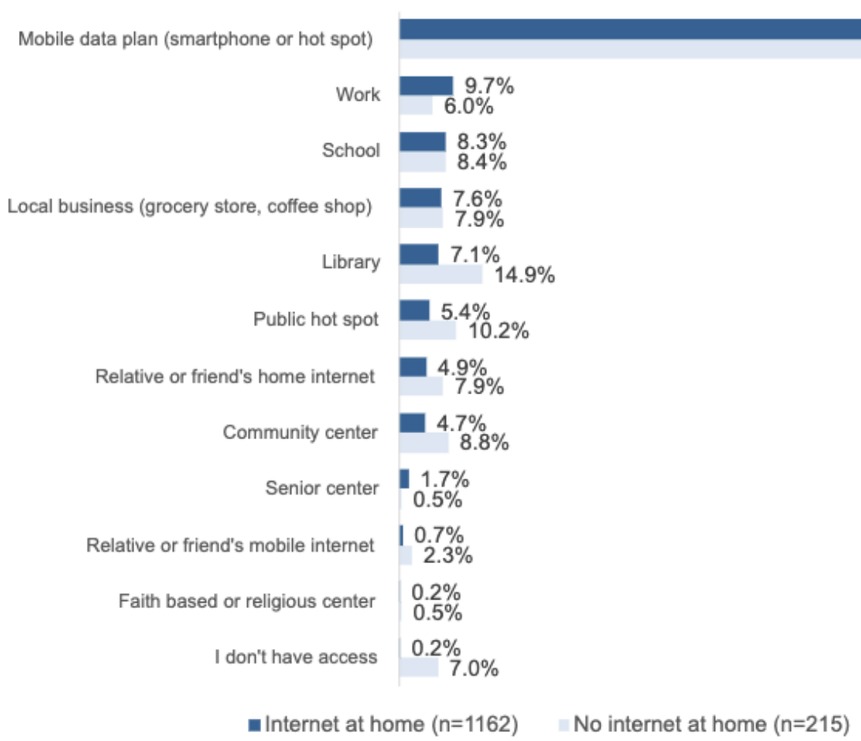
Of the 1,382 survey respondents, 15.7% respondents did not have internet at home. Of the 84.3% who did have internet at home, 95% had internet through a wired option (e.g. cable, fiber). 80% had internet at home through mobile data on a smartphone and 10% had internet at home through mobile data on a hot spot. Only 3% of respondents had internet through satellite. 80% of those with internet at home, indicated more than one way that they got internet at home (e.g. wired and mobile).

8.3% of respondents with internet at home indicated that the internet did not meet their needs. 5.9% of respondents with multiple sources of internet indicated that their internet at home did not meet their needs, while 17.7% of those with only one source of internet

indicated that their internet at home did not meet their needs. Though the total number of respondents using satellite for internet was small proportionally (3%) in the sample, a disproportionate percentage of those who used satellite 28.2%, either alone or with another source, indicated that the internet did not meet their needs.

While home internet access is important, connectivity on the go is also a key component of digital access. In the study, when asked how participants regularly access the internet outside the home, "mobile data" was the most utilized in both the survey and community circles.

Figure 33: Internet access points outside the home, for those with and without home internet



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

4.5.1 Computers to thrive and mobile to survive

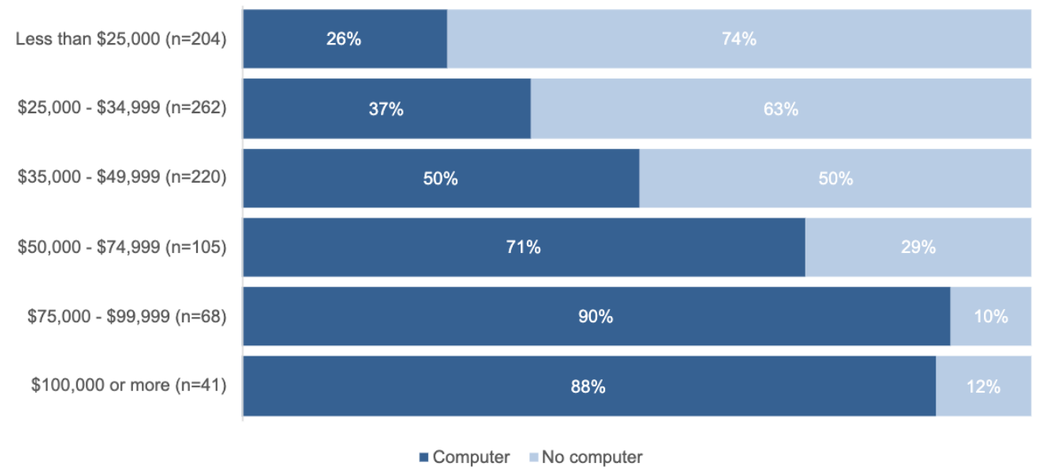
Computers to thrive

Many activities are more easily or fully accomplishable on laptop or desktop computers. This includes complex creative tasks, such as filling out complex forms, submitting documents, utilizing spreadsheets, editing/creating digital music, and creating video games. While some tasks can be done on a smartphone to some degree, the scale and quality possible is higher on computers.

However, not everyone regularly uses a computer.

Of those in the survey sample who had internet at home, 49% (568 out of 1161 respondents) reported regularly accessing the internet through a computer. When disaggregating survey results by annual individual earnings, a higher proportion of individuals with higher earnings regularly use a computer to access the internet (88% for those earning more than $100,000 annually versus 26% for those earning less than $25,000 annually) as shown in Figure 34.

Figure 34: Percentage of survey respondents who had internet access at home and reported regular computer use to access the internet, by annual individual earnings



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

The Pew Research Center also found Americans with lower incomes have lower levels of technology adoption[24] (41% of adults with household incomes below $30,000 a year do not have a desktop or laptop computer compared to 8% of adults with household incomes earning $100,000 or more a year).

Mobile to survive

While home internet accessed through computers provides many benefits, mobile connectivity through smartphones is vital as well because it provides connectivity on-the-go.

The Pew Research Center shows the majority of Americans - 97% - own a cellphone of some kind, with 9 out of 10 owning a smartphone[25].

The American Community Survey shows 93.9% of Travis County households have a smartphone device and 87.2% have cellular data plans[26].

This data mirrors our survey as shown in Figure 33, with the majority of participants who say they use mobile data to access the internet outside the house (99% of those with internet at home, 91% of those without internet at home). No other source of internet outside the home came close to this result.

In community circles, individuals often stated if they could not afford both mobile and home internet, they would choose cellular internet subscriptions over home internet. As we heard, mobile internet is required for transportation, way finding, making purchases, checking bank balances to avoid over drafting their account, finding key information on the go, and communicating. Participants also mentioned the importance of some key mobile device features, such as cameras.

Some populations are exclusively dependent on mobile internet which restricts their ability to fully gain the benefits provided by computers. According to Pew Research Center, 15% of the US population is "smartphone dependent[27]". When broken out demographically, this includes:

24 Pew Research Center, 2021: https://www.pewresearch.org/short-reads/2021/06/22/digital-divide-persists-even-as-americans-with-lower-incomes-make-gains-in-tech-adoption
25 Pew Research Center, 2024: https://www.pewresearch.org/internet/fact-sheet/mobile
26 American Community Survey 5-year estimate, 2022: Table S2801
27 Pew Research Center, 2024: https://www.pewresearch.org/internet/2024/01/31/americans-use-of-mobile-technology-and-home-broadband

- 21% of the Black population
- 20% of those identifying as Hispanic
- 20% of those 18-29
- 16% of those 65+
- 24% of those with Highschool degree or less
- 28% of those with household income less than $30,000 annually

8.4% of Travis County households had cellular plans but no other type of internet and 5.5% had only a smartphone device[28].

Those who are smartphone-dependent face higher risks of losing their lifeline to connectivity due to spotty networks, running out of minutes or data, weather events, or loss of battery life. Study participants described a lack of physical places to charge devices with many institutions covering charging outlets. Older devices often have shorter battery lifespans and require frequent recharging. A battery's lifespan can also be influenced by the way a device is charged and environmental conditions (such as letting a smartphone's battery run out completely or regularly exposing a device to extreme temperatures).

Loss of mobile internet can also have dangerous consequences as detailed in section 4.4.3.

4.5.2 Location based access outside the home

While mobile data is the most utilized technology to access internet outside the home, many tasks remain difficult to accomplish using a mobile device alone. For study participants without home internet, the library is an important place to connect to internet outside the home (15%).

Many participants also described an expectation of publicly available internet outside the home, which could help when individuals have poor mobile data or lose access to the internet at home.

28 American Community Survey 5-year estimate, 2022: Table S2801

Examples of challenges that go along with accessing internet outside the home include:

- Lack of knowledge of locations with internet access.
- Transportation to a location with internet access.
- Locations with internet access are not designed to accommodate families with children.
- Locations with internet access may have limited hours of operation, limited devices, or limited needed technology features, such as webcams.
- Locations with internet access are often not set up for private communications, such as telemedicine visits with doctors or video calls with probation officers.

4.6 Technology support

When asked how community members get assistance with the internet or technology, respondents primarily pointed to self-help solutions like Google and YouTube. However, self-help technology solutions can require technology redundancy such as the need for multiple devices to troubleshoot one device on another device or multiple sources of internet. Self-help also requires higher-level digital skills and an ability to navigate large amounts of information on the internet.

Respondents also mentioned public resources as a place to receive technology support such as libraries or retail sites. However, these resources had their own barriers to access. Access barriers included transportation to and from these sites, limited hours of operations, limited locations, requirements to make a purchase to access the internet at retail sites, and security risks.

Customer support sources were also referenced, however, participants described fears or experiences of upselling, going in-person to be told to go online, language barriers, and long waits and re-routing to multiple people.

4.7 Consumer protection concerns

Study participants noted various concerns around consumer protection, including spams, scams, data privacy and ownership, unfair or confusing marketing practices, planned obsolescence and lack of affordable repair options, and internet options in multi-tenant environments.

4.7.1 Spams, scams, and data privacy and ownership

Study participants frequently expressed frustration at the high volume of spam and scam calls and emails. Many participants expressed their dislike that “everything requires an email address and phone number” and that this information is often resold to others, resulting in more spam and scams. Participants voiced that people should own their data and contact information should not be sold or shared.

4.7.2 Unfair or confusing marketing practices

Study participants expressed confusion when researching, comparing, and selecting the right internet plan to fit their needs. There are many different ways that finding and comparing costs are difficult, such as the following:

- Prices and provider options vary by location
- There is a lack of place to directly compare costs of different plans from different providers, requiring communication with each provider to compare costs
- Promotional pricing, bundling, and upselling make true prices less clear

4.7.3 Planned obsolescence and lack of affordable repair options

In the community circles, participants shared that smartphones were expensive, easy to break, and had limited affordable repair options. Consumer Reports highlights the stakes of access to affordable repair options[29]:

> “A broken screen or dead battery is a major inconvenience for anyone, but for those who depend on smartphones to access the internet, it’s a much more serious problem. The harder it is to get that phone fixed, the longer its owner is cut off from vital connections.”

29 Consumer Reports, 2022: https://www.consumerreports.org/consumer-rights/people-want-to-get-phones-appliances-fixed-but-often-cant-a1117945195
30 Federal Trade Commission, 2021: https://www.ftc.gov/system/files/documents/reports/nixing-fix-ftc-report-congress-repair-restrictions/nixing_the_fix_report_final_5521_630pm-508_002.pdf

The Federal Trade Commission (FTC), the federal entity tasked with consumer protection, reported that "...the burden of repair restrictions may fall more heavily on communities of color and lower-income communities[30]."

The FTC also notes manufacturers are using strategies to make repair by independent groups and individuals more difficult including:

- Product designs that complicate or prevent repair
- Unavailability of parts and repair information
- Designs that make independent repairs less safe
- Policies or statements that steer consumers to manufacturer repair networks
- Application of patent rights and enforcement of trademarks
- Disparagement of non-Original Equipment Manufacturer (OEM) parts and independent repair
- Software locks and firmware updates or end user license agreements

4.7.4 Internet options in multi-tenant environments (MTEs)

In the community circles, participants shared experiences of having limited internet choices in multi-tenant environments (MTEs)[31] such as apartments, duplexes, condominiums, and mobile home parks. Some participants shared that their apartment complex bundled internet costs with rent or only offered one internet service provider.

To promote competition and consumer choice, the Federal Communications Commission (FCC) regulates agreements between ISPs and landlords including:

- Prohibiting ISPs from entering into exclusive revenue sharing agreements with landlords (agreements where the landlord received profits in exchange for only allowing one internet provider access to the dwelling)
- Prohibiting ISPs from entering into graduated revenue sharing agreements with landlords (I.e.: percentage of profits go up for the landlord as more tenants utilize that provider)
- Requiring ISPs to disclose in plain language when they have an exclusive marketing agreement with a landlord

31 MTEs are also known as multi-dwelling units (MDUs).

FCC regulations do not:

- Place any restriction on landlords independently limiting ISP choices;
- Prohibit bulk billing arrangements, wherein a landlord provides all residents with the same service and distributing the costs of the bulk arrangement across all tenant; or
- Require ACP discounts applied to bulk arrangements to be allocated to individual eligible households.

4.8 Need for accessibility features

In the community circles, the need for accessibility features often came up. For the older adult population and population with disabilities, specific topics that were mentioned were:

- Larger touchscreen and buttons can be useful for individuals with poor vision and those with limited hand and finger control.
- Accessible devices and software that have convenient zoom/magnification options and content with larger font are useful for individuals with poor vision.
- Accessibility technology, such as screen-reading programs and text-to-voice/voice-to-text tech, should be available for public technology resources.

Some community members also noted that technology can get in the way for folks with limited hearing who may prefer face-to-face interaction for ease of lip-reading.

4.9 Issues of trust

Throughout this study, the topic of trust of technology, government, internet service providers were widely prevalent among participants. Study participants expressed:

- Distrust of government in particular for certain populations, such as justice impacted individuals, immigrants, and refugees;
- Distrust for ISPs because of the difficulty of comparing internet options, confusing pricing structures, upselling, the difficulty of transferring providers, and unclear/confusing data limits[32];
- Concern that personal information would be sold to spammers and are therefore reluctance sharing contact information;
- Challenges navigating the vast amount of information and resources online, and how to identify what is trustworthy; and
- The importance of having a trusted person (such as family, social workers, or school staff) to assist with navigating digital resources or solving technology problems.

32 Some participants described difficulty tracking their data use and how to know when they are close to or exceeding their limit. For some participants, this led to limiting important activity to avoid running over data limits.

5 Recommendations

The findings lead to questions that can frame possible responses. The following section is organized as "How might we..." questions that flow from the findings[33], and recommendations that are responsive to those questions. Importantly, the "we" refers to the Austin/Travis County community and the recommendations are not directed to specific entities.

For some of the recommendations, we added "ideas for further exploration." These are ideas related to the recommendation that may be worth exploring.

33 In this study, "How might we..." (HMW) statements were a method used twice to frame findings into opportunities; once to analyze feedback during the qualitative data collection activities and once to organize recommendations.

5.1 How might we support all populations in accessing affordable, reliable, high-speed internet?

5.1.1 Provide targeted support to populations that have higher digital barriers

The findings in this report show that digital barriers are not evenly distributed throughout the Austin/Travis County community. Support should be particularly focused on populations identified in Finding 4.1.

Ideas for further exploration

- Explore diverse methods to increase internet infrastructure that could increase competition and reduce costs such at Wi-Fi mesh networks.

Related findings
To learn more, read:
Finding 4.1 Who is and is not connected

5.1.2 Identify and support strategies to make sure all consumers know what low-cost internet options are available and how to compare and sign up for plans

Throughout this research, cost and affordability of internet was highlighted as a primary barrier to accessing and using the internet. As the landscape of affordable internet options continues to develop, whether it be changes in federally supported internet subscriptions subsidies or new ISP competitors moving into the local market, strategies should be developed and implemented to ensure that anyone who wants to be connected to the internet can easily understand the prices of the different options available to them.

Ideas for further exploration

- Explore the existence of centralized marketplaces for internet plans, much like there are for health and other insurance plans, and (if useful) support the implementation of these marketplaces
- Information hubs where information on low-cost internet options can be kept
- Increase awareness of the Broadband Consumer Labels[34] which is required by the FCC for ISPs to display at the point-of-sale clear, easy-to-understand, and accurate information about the cost of performance of broadband services by April 10, 2024[35].

Related findings
To learn more, read:
Finding 4.2 The cost of connecting
Finding 4.7.2 Unfair or confusing market practices

5.1.3 Increase availability, accessibility, and awareness of free public-access internet options

Internet needs to be accessible to all, both in and outside of the home. Public internet access locations (such as computer labs or public locations with accessible wi-fi) should be abundant, accessible, and easy to find.

Ideas for further exploration

- Transportation options to get to public internet access points
- Public internet access points designed to be child-friendly
- Public internet access points with after-hour and weekend hours of operation
- Public computer labs should be equipped with robust features, like webcams and private spaces for private communications (like telehealth visits) and device charging stations
- Emergency response locations should have resilient internet/phone connectivity and charging stations.

Related findings
To learn more, read:
Finding 4.5.2 Location based access outside the home

5.1.4 Support mobile connectivity

The vast majority of the population use mobile phones and data, and people increasingly rely on their smartphones to navigate life outside the home. Loss of mobile internet can have dangerous consequences, such as losing the ability to engage in critical communications or losing wayfinding capability. For these reasons, the ability to stay connected while outside the home should be supported through publicly accessible Wi-Fi and public device charging stations in public locations such as bus stops, buses, smart kiosks, shelters, and community centers.

Related findings
Finding 4.5.1 Computers to thrive and mobile to survive

34 This is intended to help when comparison shopping that fits individual's needs and budget. If a provider is not displaying their labels or has posted inaccurate information about its fees or service plans, consumers can file a complaint with the FCC Consumer Complaint Center at https://consumercomplaints.fcc.gov.
35 Federal Communications Commission, 2024: https://www.fcc.gov/broadbandlabels

5.1.5 Advocate for the accessibility of services, programs, and information online, especially on mobile

Because the majority of the population use and rely on their smartphones, ensure content can be viewed on mobile for audiences of all ages and requirements. Access to social services and programs should be fully accomplishable on mobile devices and designed with intermittent internet, low bandwidth, and limited data requirements.

Ideas for further exploration

- Update government online services and websites for enhanced accessibility

Related findings
To learn more, read:
Finding 4.4.3 What is impacted by disruption
Finding 4.5.1 Computers to thrive and mobile to survive

5.2 How might we promote and maintain the community's access to quality, low-cost devices?

5.2.1 Identify, support, and promote sources of low-cost devices

There are clear benefits of having a connected laptop or desktop in the home. Many important online tasks like searching for work or filling out online forms, or offline tasks like drafting documents (like resumes) or spreadsheets (like household budgets), are much easier on laptops or desktops.

However, the cost of devices presents one of the higher cost barriers that individuals might face when trying to get connected. This is why it is important to support programs and initiatives that provide low-cost devices to those who need them and to make sure that existing low-cost device resources are known.

Ideas for further exploration

- Support/implement/maintain computer refurbishment programs

Related findings
To learn more, read:
Finding 4.1.4 Who is and is not connected by income

5.2.2 Increase the availability, awareness, and affordability of options to have devices repaired or receive technology support

Another challenge confirmed by this study is how to keep devices running well. To do this, there needs to be robust affordable options to troubleshoot and repair devices. This can be done by providing more numerous and affordable device troubleshooting and repair options (such as supporting individuals who provide technology support to their family or community members) and by increasing the accessibility and usability of existing troubleshooting and repair options by making them multi-lingual and more geographically accessible.

Ideas for further exploration

- Explore technology “fix it” clinics

Related findings
To learn more, read:
Finding 4.6 Technology support

5.2.3 Support the ability of consumers to repair their own devices

In addition to providing device troubleshooting and repair support, consumers should also be able to repair their own devices. This “right to repair” should be supported where possible and manufacturers should be encouraged to design devices to be easily and affordably repaired.

Ideas for further exploration

- Loaner technology repair kits and repair classes

Related findings
To learn more, read:
Finding 4.7.3 Planned obsolescence and lack of affordable repair options

5.3 How might we improve the community’s access to free digital skills training and development opportunities?

5.3.1 Teach community members what they want to know

This study has shown significant community interest in free digital skills training. Participants were interested in learning more about the topics listed in Finding 4.3.4, and these topics should therefore be included in trainings made available to the community.

In addition, digital skills training services and resources that currently exist in the community should be identified, promoted, and supported.

Higher digital skills are increasingly tied to higher income earning potential. This fact should be advertised to draw more interest to digital skills training. Additional focus should also be placed on teaching more advanced digital skills that can enhance their earning potential even more.

Related findings
To learn more, read:
Finding 4.3 Lack of digital skills
Finding 4.3.4 What digital skills topics do people want to know

5.3.2 Provide digital skills training in diverse ways that meet different learning styles, contexts, and schedules

Every individual has different needs and in order to reach all populations that want digital skills training, the training must be offered in many different ways.

Offer trainings that meet individuals with varying digital skills. Recognize that many people may not have had much experience with internet and computer technology when they were in school or at work. Some individuals want to understand globally how the internet works and others may want to learn how to achieve specific tasks. Some may do well in a group setting while others may learn better 1:1. Some individuals desire to learn how to complete digital tasks independently rather than depending on others to accomplish it for them. They may need repetition and practice. Offer training that is culturally and linguistically responsive by being available in multiple languages. Work through digital navigators and trusted community members utilizing intergenerational relationships, digital native students, and train-the-trainer models.

Improve the accessibility to training options by providing in-person, online, and self-paced learning options and by providing training at geographically accessible locations. Provide flexible schedules during nights and weekends. Create spaces designed where children can be present, private rooms for private communications, and increase availability of devices and technology features such as webcams.

Finally, training should account for the accessibility challenges faced by individuals with disabilities both physically and cognitively.

Related findings
To learn more, read:
Finding 4.3 Lack of digital skills
Finding 4.8 Need for accessibility features

5.4 How might we advocate for consumer's rights on issues relating to digital equity?

5.4.1 Support people's ownership of their own data as a default

Study participants are well aware of the fact that their data is being used by websites and apps. This was identified as one major cause for concern for participants that made them more wary of utilizing technology.

For this reason, people should own their own data by default. Entities that retain, analyze, monetize, or transfer consumer's data to another party may have details included in their "Terms and Conditions," but they are often long and cumbersome for the average user. Consumers should be given a clear and succinct indication of how their data will be collected and used, for what purpose, and by what entity. The individual should also be given the option to accept terms and conditions. In cases where the consumer consents to sharing their data, the entity should still follow all current laws and regulations protecting personal data. Furthermore, data use preferences should be easily manageable in user profiles for applications where the user can manage their settings.

Related findings
To learn more, read:
Finding 4.7.1 Spams, Scams, and Data Privacy and Ownership

5.4.2 Provide the public with information on anti-spam laws

Study participants frequently expressed frustration with unwanted and unsolicited communications, both online and over the phone, and concern regarding their safety online. Current laws and regulations that limit spam and protect the public's right to be removed from email lists should be shared with the community[36].

36 Federal Trade Commission, 2024: https://www.ftc.gov/business-guidance/resources/can-spam-act-compliance-guide-business

Ideas for further exploration

- Safety and security educational videos
- One-pagers describing rules and regulations on anti-spam laws

Related findings
To learn more, read:
Finding 4.7.1 Spams, Scams, and Data Privacy and Ownership

5.4.3 Support the decision-making autonomy of tenants when it comes to their decisions about internet and technology

In this study, some participants expressed concern over the lack of internet options to their multi-tenant environment, internet being automatically included in rent price, and the relationships between ISP's and landlords.

For this reason, information on current FCC rules that regulate the kinds of agreements service providers may enter into with landlords and prohibit certain anti-competitive arrangements should be provided to the public.

Ideas for further exploration

- Provide information on the appropriate complaint process for violations of this FCC rule[37].
- Support efforts to provide maximum transparency and choice of internet plans for tenants.

Related findings
To learn more, read:
Finding 4.7.4 Internet options in multi-tenant environments (MTEs)

37 Federal Communications Commission, 2024: "How to Report Suspected Violations" https://www.fcc.gov/consumers/guides/consumer-faq-rules-service-providers-multiple-tenant-environments

6 How to get engaged

We hope that everyone can find useful information in this report to drive change, whether it is using the data for advocacy, designing programs, building funding opportunities, or making policy change.

Beyond this report, there are resources and ways to get engaged in Central Texas to increase digital access.

Share your voice

Do you have thoughts, ideas, or questions about this report?

Contact Travis County's Technology and Operations department at internet@traviscountytx.gov.

Contact the City of Austin's Telecommunications and Regulatory Affairs (TARA) at digital.inclusion@austintexas.gov.

Build strategy and solutions

Building on the insights from this study, the City of Austin will be building a strategic plan for digital inclusion. If you want to get involved in the planning work, contact jesse.rodriguez@austintexas.gov.

Join a network

Digital Empowerment Community of Austin (DECA) is a network of non-profits, educational institutions, and other stakeholders working to improve our community's ability to participate in digital society. DECA has been meeting since 2016 to connect, share resources, and identify opportunities to work together. This network is open and informal. If you want to attend a meeting, sign up for the newsletter or join the listserv, visit digitalatx.org.

Share digital access resources

Access the English and Spanish Travis County and City of Austin Central Texas resource guide for digital needs.

7 Thank you

This project was a large community effort.

Thank you to everyone that participated in this process including those who gave their time to participate in surveys, advisory workshops, the non-profit working group, community circles, and community data co-interpretation and recommendation sessions.

Thank you to the members of the following organizattions for their input, support, and consultation at different stages of this project:

- 212 Catalysts / African American Leadership Institute
- AGE of Central Texas
- American International Translators LLC
- Austin Free-Net
- Austin Mutual Aid
- Austin Urban Technology Movement
- AVANCE-Austin
- Camp Fire Central Texas
- City of Austin Community Technology and Telecommunications Commission
- City of Austin Food Planning and/or Office of Sustainability
- City of Austin Law Department
- City of Austin Office of Resilience
- City of Austin Planning Department, Demographics Division
- City of Austin Public Information Office
- City of Austin Telecommunications and Regulatory Affairs
- Community Tech Network
- Digital Empowerment Community of Austin
- East Austin Conservancy
- Economic Growth Business Incubator
- FUSE Corps
- Goodwill Central Texas
- Greater Austin Hispanic Chamber of Commerce
- Knowbility
- Latinitas
- Meals on Wheels Central Texas
- Measure
- PCPrime
- Peloton U
- Purdue Center for Regional Development
- Rare Academy
- Senior Access
- St. Davids Foundation
- The Museum of Human Achievement
- Travis County Attorney Office
- Travis County Auditor
- Travis County Health and Human Services, Research and Planning Division
- Travis County Planning and Budget Office, Economic Development and Strategic Investments, Community Engagement and Diversity, Equity, and Inclusion Team
- Travis County Precinct 4 Outreach Team
- Travis County Public Information Office
- Travis County Purchasing
- Travis County Services for the Deaf and Hard of Hearing
- Travis County Technology and Operations Finance and Administration Team
- Travis County Transportation and Natural Resources, Environmental Resilience Program
- Travis County Transportation and Natural Resources, Geographic Information System Team
- United Way for Greater Austin
- University of Texas at Austin, Dell Medical School, Population Health Department, Community Engagement and Health Equity Division

8 About this report

This report is the product of the collaboration between Travis County Technology and Operations and the City of Austin Office of Telecommunications and Regulatory Affairs (TARA) now called Community Technology. Funding support was provided by St. David's Foundation, City of Austin, and Travis County.

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9 Appendix

9.1 Methods

9.1.1 Project values and strategy

Following analysis of public data and studies, the Travis County and the City of Austin project team designed the study to prioritize individuals and populations most affected by digital inequities acknowledging and valuing impacted individuals as experts in their own experience and involving communities in the research process. The focus was on populations and areas that are historically and systemically marginalized which included older adults, immigrants and refugees, individuals with disabilities, individuals with low literacy levels, justice impacted individuals, low-income individuals, people with language barriers, racial or ethnic minorities, rural residents, unemployed individuals, unhoused individuals, and veterans and their families.

For the in-person survey, the goal was to prioritize collecting data in areas where there were higher proportions of community members who are often disproportionately impacted by digital inequities. Analyzing American Community Survey Data and other data sources such as the Digital Divide Index (Purdue 2020 and 2021) helped us identify priority census tracts.

For the qualitative data collection activities, the goal was also to prioritize conversations with these populations, prioritizing transparency, practicing continuous learning, being iterative and responsive to community input and feedback, and sharing power.

The project team also analyzed other research, reports, and resources to expand upon, contextualize, and verify findings of this research.

9.1.2 What we did

Using a purposive sampling approach, the study involved multiple data collection activities involving three primary phases:

Phase 1
January – April 2023
In-Person Survey and Advisory Workshops

Phase 2
May – August 2023
Non-Profit Working Group and Community Circles

Phase 3
September – 2024
Community Data Co-Interpretation and Recommendation Sessions, Analysis and Report Writing

9.1.3 How we did it

In-Person Survey
Taking time, technology, and physical constraints into consideration, the project team took an iterative approach to the survey design process which influenced the questions and design of the survey.

First, the project team examined multiple surveys that had been used by other communities to assess digital access. To create the first draft of our survey, we adapted items from multiple existing surveys including Roberto Gallardo's Digital Capital survey, Dona Ana New Mexico's Broadband survey, the 2020 Social Inclusion Taskforce survey, and the 2018 UT Digital Inclusion survey.

The project team created the survey in English and Spanish. The survey was administered verbally in Spanish or English, through interview format, with data entered into an online form, built using the online form builder, JotForm. JotForm was used to collect data on tablets with cellular data plans. JotForm allows offline data collection in areas that have limited or no internet service which was an important consideration. But the form builder also had limitations on survey design which influenced the question design and choices. Additionally, the questions were structured and organized to accommodate data entry on tablets (such as limited screen sizes and touch screen interactions).

Knowing we would be working to reach communities that likely had higher digital needs, the project team also created a resource list packet that was printed and given out to community members after completing the survey and during other outreach activities.

The resource list packet included information about the Affordable Connectivity Program (ACP) and a three-page resource list in English and Spanish which included organizations and contacts who provided key digital resources, such as free or discounted devices, computer labs, digital navigators, and digital skills training. The resource list prioritized free or discounted resources that addressed immediate digital needs and were available to all, not requiring participation in additional programs.

The project team worked with the Travis County Precinct 4 Outreach Team to conduct and administer the survey interviews in-person while providing resource information at the same time. To support resource sharing, the survey was designed to take about 5-10 minutes.

To improve and revise the survey, the project team worked with the Outreach Team, members of organizations who are working explicitly in digital access for different populations, and multiple community groups (including the Digital Empowerment Community of Austin and the Community Technology and Telecommunications Commission).

Using the 2020 Digital Divide Index (DDI)[38], 10 census tracts were prioritized for survey data collection. The Outreach Team created a strategy for reaching these areas.

38 The Digital Divide Index or DDI ranges in value from 0 to 100, where 100 indicates the highest digital divide. It is composed of two scores, also ranging from 0 to 100: the infrastructure/adoption (INFA) score and the socioeconomic (SE) score.

The INFA score groups five variables related to broadband infrastructure and adoption: (1) percentage of total 2019 population without access to fixed broadband of at least 100 Mbps download and 20 Mbps upload as of December 2019; (2) percent of homes without a computing device (desktops, laptops, smartphones, tablets, etc.); (3) percent of homes with no internet access (have no internet subscription, including cellular data plans or dial-up); (4) median maximum advertised download speeds; and (5) median maximum advertised upload speeds.

The SE score groups five variables known to impact technology adoption: (1) percent population ages 65 and over; (2) percent population 25 and over with less than high school; (3) individual poverty rate; (4) percent of noninstitutionalized civilian population with a disability: and (5) a brand new digital inequality or internet income ratio measure (IIR). In other words, these variables indirectly measure adoption since they are potential predictors of lagging technology adoption or reinforcing existing inequalities that also affect adoption.

These two scores are combined to calculate the overall DDI score. If a particular county or census tract has a higher INFA score versus a SE score, efforts should be made to improve broadband infrastructure. If on the other hand, a particular geography has a higher SE score versus an INFA score, efforts should be made to increase digital literacy and exposure to the technology's benefits.

The DDI measures primarily physical access/adoption and socioeconomic characteristics that may limit motivation, skills, and usage. Due to data limitations it was designed as a descriptive and pragmatic tool and is not intended to be comprehensive. Rather, it should help initiate important discussions among community leaders and residents.

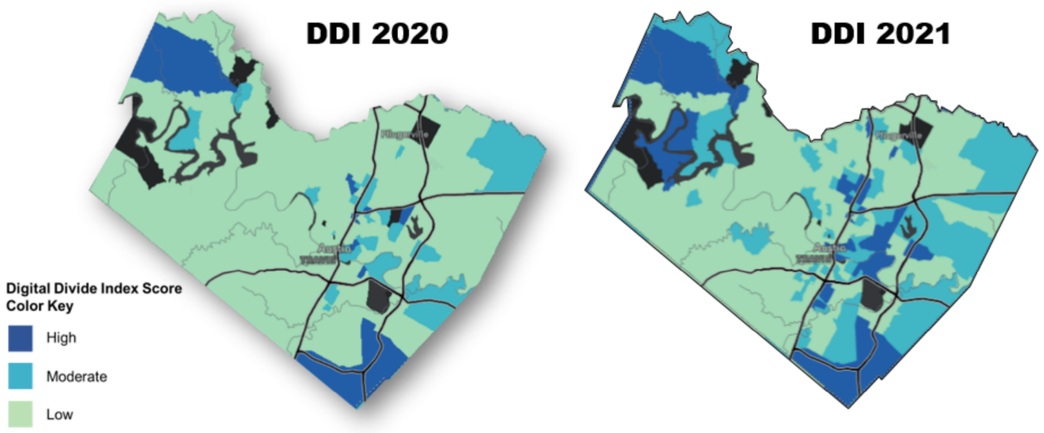
Rural Indiana Stats, 2024: https://pcrd.purdue.edu/ruralindianastats/broadband/ddi.php?variable=ddi-overview&county=Adams#:~:text=If%20on%20the%20other%20hand,among%20community%20leaders%20and%20residents

In late January, we began testing the first iterations of the survey by delivering them in the community. This enabled us to get feedback from the Outreach Team on what was and was not working. Additionally, we included a question asking respondents if they had additional questions they would want included in the survey, as well as open-ended questions about the ways government can support them related to digital access. We intended to use the input from these questions to revise the survey or use them in the community circles.

Using feedback, the survey was adapted into a final, fourth iteration which the Outreach Team began disseminating in February, along with the resource packets. During this initial data collection, it became clear that a door-to-door strategy would significantly limit the sample size. Only a small proportion of people at their home were opening the door to answer the survey. To ensure a larger sample would be collected, the Outreach Team began testing strategies to also collect surveys at grocery stores, community centers, and clinics in areas near target census tracts.

At the same time, new insights were being made available through the Digital Divide Index, which incorporated updated data from the 2021 American Community Survey (ACS). The 2020 digital divide data was built using 2020 American Community Survey and Census data, which was highly disrupted during Covid and often perceived as less reliable than other years. The 2021 data showed a much higher number of census tracts in Travis County that were indicated as being high divide. We also examined 2021 ACS data related to internet access and compared those areas with the DDI data. The DDI formula includes ACS internet access data, so we anticipated overlap.

Figure 35: Digital Divide Index in Travis County

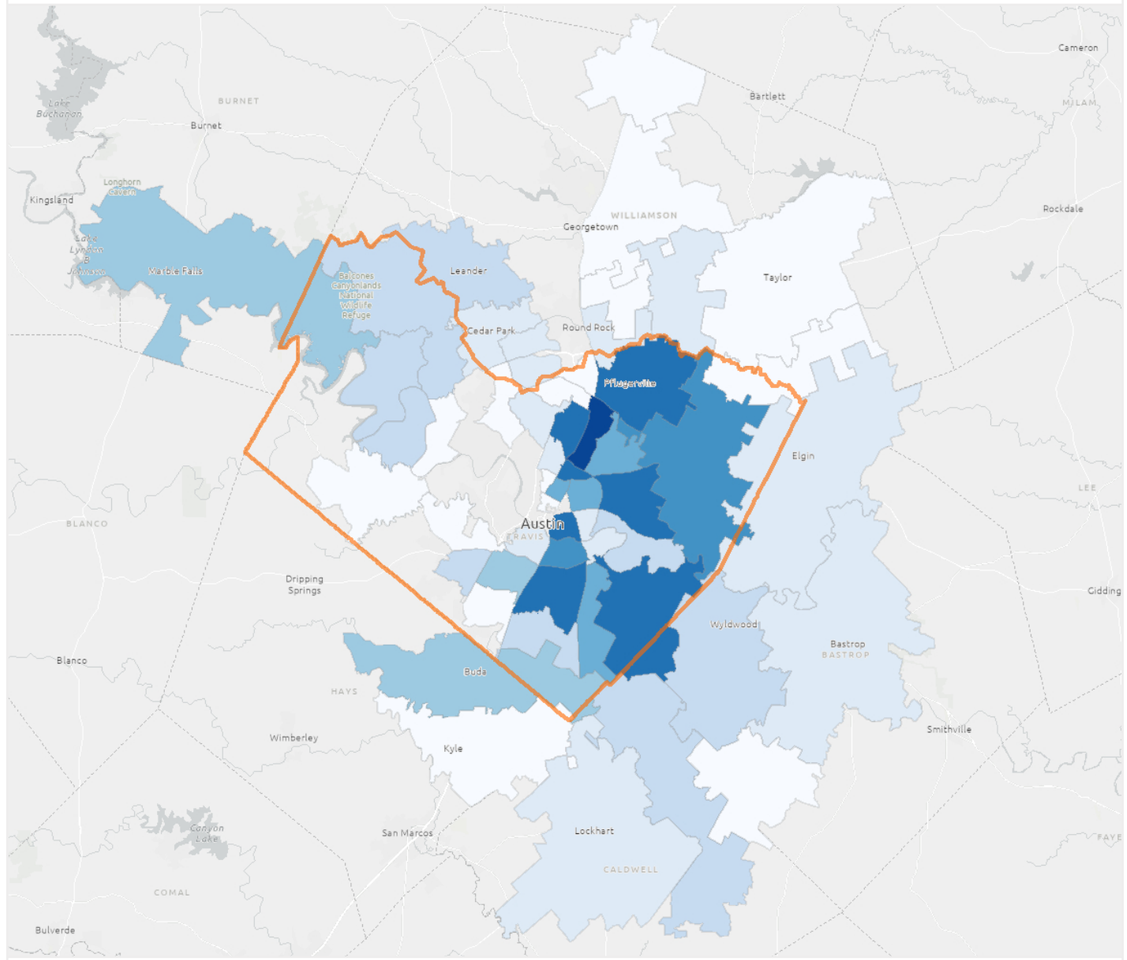


Source: Gallardo, R. (2022). Digital Divide Index (DDI). Purdue Center for Regional Development. http://pcrd.purdue.edu/ddi

Knowing the 2021 DDI data suggested more high divide areas, the Outreach Team scaled out into additional areas for data collection.

The survey did not collect identifying information, such as addresses, however, it did collect zip codes. Zip codes were used to determine if the prioritized geographic areas were being reached. Response rates were tracked by zip code over the course of data collection.

Figure 36: Travis County and City of Austin In-Person Survey Responses by Zip Code[39]



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

39 Note: Survey sample is mapped using GIS, distributed across zip codes using natural breaks classification method with 8 classes.

Respondents were across 52 different zip codes, with 7 responses with an incomplete zip code or left blank.

Approximately, 89% of the total sample population indicated a zip code within the 27 prioritized zip codes that had high divide census tracts. Two zip codes in the priority group did not have any representation in the sample.

Approximately 47% of responses were collected door-to-door and 52% at non-residential locations, such as community centers or events and resource fairs.

The project team regularly evaluated demographic response data to ensure we were reaching populations with disproportionate rates of digital inequities. This data indicated we were successful with the majority of survey respondents indicating that they were lower income, had lower educational attainment, and/or identified with races or ethnicities other than White, with the majority identifying as Latino/Hispanic.

A total of 1,382 analyzable survey responses were collected.

The top zip codes with 5 or more survey responses are listed below:

Zip code	Sample	Zip code	Sample	Zip code	Sample
78753	231	78719	38	78641	9
78724	131	78723	34	78734	9
78758	104	78751	29	78612	8
78744	100	78745	23	78621	7
78660	92	78610	17	78759	7
78702	91	78654	17	78729	6
78752	83	78725	13	78704	5
78617	82	78749	12	78602	5
78741	46	78645	10	78613	5
78653	45	78747	10		
78754	39	78616	10		

Image of post meeting of an in-person advisory workshop

In addition to the survey, this study included multiple qualitative data collection strategies.

Advisory Workshops

A series of advisory workshops were conducted for community members to give feedback and input on the proposed design of the qualitative phases of the project which included community circles and community data co-interpretation and recommendation sessions.

In February and March, the project team hosted three 2-hour advisory workshops. One session was held in-person at Austin Public Library's Terrazas Branch and two sessions were held virtually over Zoom.

Each workshop was limited to 20 participants. Participants could register for only one workshop. A total of 44 individuals participated across the three sessions.

The in-person session and one virtual session were hosted in English and one virtual session was hosted in Spanish. Interpretation was offered at each session.

To help with participation, when registering to participate, participants were offered a $50 gift card (HEB, Walmart, or Amazon) or virtual payments (PayPal or Zelle) upon full participation of the 2-hour workshop. Language interpretation and transportation were also offered upon request.

The workshops gave the project team insights into community members' experience and recommendations to adapt and improve the project strategy.

In response to the feedback given, the project team made the following strategic adjustments:

Expand Collaboration

Across all three sessions, trust was brought up as a significant issue for participants. Some participants expressed skepticism about the government's role and intension. Distrust was also expressed about internet service providers.

Participants provided recommendations to increase trust, including to work with organizations and individuals who already have trust in their communities and work to ensure more transparency in the process. For Phase 2, the project team:

- Expanded its strategies to collaborate with trusted organizations in a non-profit working group to co-design the design, implementation, and after-action of the community circles.
- Partnered with Community Technology and Telecommunications Commission (CTTC). The CTTC had been conducting "townhall" listening sessions since 2020.
- Facilitated a non-profit working group to co-design the design, implementation, and after-action of the community circles.
- Conducted data sharing in multiple formats, community resource fairs (e.g. Hope Fest, Tech for All Fest), as well as online convenings.

Expand Accessibility

Participants provided recommendations to make the qualitative data collection activities more accessible. For Phase 2, the project team:

- Provided opportunities to participate in activities both online and in-person
- Accommodated community members who had limited time constraints by providing multiple forms of engagement of drop-in and out online events as well as tabling at resource fair events

- Conducted multiple Spanish-facilitated community circles
- Included Spanish interpreters at in-person resource fairs
- Offered and provided other language translation and interpretation accommodations

Incorporate More Resource Sharing

Participants encouraged incorporating and prioritizing resource and solution sharing. For Phase 2, the project team:

- Created a resource guide with Central Texas digital resources and shared it through all interactions distributing approximately 4000+ copies.
- Conducted data sharing at resource fairs.
- Collaborated with the Travis County Precinct 4 Outreach team to conduct outreach for the Affordable Connectivity Program and directly supported signing up eligible community members for the program. The team distributed approximately 10,000+ ACP flyers, started the application process for 550 community members, of which 170 applications were shepherded to completion and approval resulting in an estimated $61,200 in potential savings or cost reduction for community members ($30 per month for 12 months). It is important to note that the ACP was not re-funded in 2024 by the federal government, and the savings are likely lower.

Non-Profit Working Group

In response to the feedback given in the advisory workshops to work with trusted organizations and individuals, the project team collaborated with the Community Technology and Telecommunications Commission (CTTC) to organize a non-profit working group to co-design and recruit for the community circles. The CTTC Chair and Vice Chair played consultive and advisory roles to design and host the working group while participating and supported during the community circles.

To share information about the working group and recruit non-profits, the project team hosted two information sessions.

Then, the project team released a sign-up process for non-profits interested in participating. Nineteen non-profits signed up, each of whom served at least one community who is historically or systemically marginalized or disproportionately impacted by digital access challenges. The non-profits varied in size from large institutions with sizeable budgets and staff to small organizations with one staff member. Some non-profits had digital access

programming while others had portions of their programming that were related to or aligned to digital access.

The 19 non-profits participated in all the working group activities. The activities included participating in:

- A kick-off meeting
- Planning meetings to provide feedback and input on project documents
- Recruitment of community members to participate in the community circles
- A debrief meeting to discuss and provide feedback on top level insights from the community circles

Approximately half of the non-profits also attended and hosted the circles at their facilities. For their complete participation, the non-profits were paid $2,000 each.

Planning meetings

Over the course of six weeks from June through July, the project team facilitated planning meetings with weekly activities that built upon each other to co-design, plan and prepare for the circles in August. Each week, the working group had a specific goal to achieve. An online whiteboarding tool that all non-profits had access to was used to track notes and weekly outputs for transparency purposes. To accommodate busy schedules and allow for more participation, the project team facilitated two meetings each week with the same agenda.

In the meetings, the working group provided the following input:

Timing

- Generally, ideal timing to have the circles was specific to each group.
  - For example, late morning was often best for the older adult population and weekends were more difficult.
  - For some parents, mornings often work best after school or childcare drop off and evenings were more difficult. For some parents who work during the day, the evenings are better if they have someone to support the children in the evenings.
  - For weekends, Saturday mornings and Sunday afternoons were also referenced as better times in general.

Locations

- Host the circles at locations that are already known or trusted by community members.
- Ensure locations are easy to access (i.e. close to transit stops).
- Some community members may be uncomfortable coming to a government facility.

Accessibility

- Improve the accessibility of the circles.
  - Have culturally responsive translation and interpretation accommodations.
  - Have physical spaces that support community members with disabilities.
  - Provide childcare or activities for children.
  - Be conscious of noise and audio for those who may have hearing challenges.

Recruitment

- Each group requires different recruitment and outreach so provide multiple formats and approaches.

While in the process of using the planning feedback to design communication tools and coordinate sessions, during the third planning week, the project team zoomed out and the agenda turned to trying to better understand impact and goals. Through a series of breakout discussions, participants were asked to brainstorm and share what they would "expect to see, hear, or observe months, years, or generations from now if we were to successfully make progress to address the digital divide through the project?"

The inputs that participants provided were then themed and summarized into a "fish bone diagram" leading toward the outcome statement we had shared and received feedback on:

"A person's identity, such as race, income, age, or abilities, and where a person lives, are not predictors of whether that person has access to affordable, reliable, and quality internet and the tools and skills needed to access and use the internet."

Themes from those conversations were used to create impact statements, which were shared back with the working group for asynchronous feedback. If successful at addressing the digital divide:

- There will be funding available and accessible for digital equity specific work for all organizations.
  - Funding that is specific to the issue of digital equity is needed in large enough amounts to address the issue.
  - There is a challenge in knowing how to find and access funding for this topic.

- High quality, affordable internet will be available to all.
  - Infrastructure improvements are important and needed.
  - High quality internet needs to be affordable and available to all.
- Everyone is aware of the issue of digital equity.
  - Public awareness of this issue and the available resources needs to increase.
  - Need aim for universal impact and for advocacy at multiple policy levels and on many issues.
- There is a collective effort to address digital equity across sectors, industries, and geographies.
  - There needs to be a comprehensive long-lasting plan that is sustainable.
  - Need to build relationships and networks with aligned objectives.
  - Need more industry and technology sector support and resources engaged in solutions.
  - We need an ecosystem of layered support connecting community members to the support they need.
  - Need intermediaries who can support with data, monitoring and compliance while direct service providers can focus on services.
  - Need more autonomy for direct service organizations.
  - Need to share resources and provide tailored support to certain groups (e.g. certificates, resources, trainings).
- Everyone will have access to current devices to meet their individual needs.
  - Devices need to be useful and up to date, refurbished are not always appropriate.
  - Individuals need devices, along with ongoing training on how to maintain and keep their devices safe, as well as support as technology evolves.
  - A laptop should not be a luxury.
- Everyone will have access to technical support to meet their individual needs and help them maintain their devices.
  - Ongoing IT support is needed and that is culturally and linguistically adaptive to the needs of callers.
  - Maintenance of devices is critical and individuals need support to re-use rather than have to buy new.
- Everyone will have the skills needed to achieve their goals and thrive.
  - Tech skills training needs to be useful and adaptive, helping people understand even what the internet is, as well as support for training and use as technology evolves.
  - Tech skills training needs to be accessible.

Images of post meeting community circle notes organized by topics

  - Technology should not be a barrier to achieving specific goals, such as starting a business.
  - Students should have the knowledge, skills, and tools to have their voices heard.
- Everyone can access internet and devices in public spaces that meets their needs.
  - Technology and internet should be accessible in multiple types of locations, home, work, public gathering spaces, and while traveling.
  - Physical accessibility to internet in these spaces is critical, including issues like transportation and walking distances.
  - Mobile computer or internet labs could be useful to community members and to those providing trainings or supports.
  - Neighborhood based technology or internet sites.
  - Expanded public access beyond libraries, both devices and internet.
  - Businesses do not have the needed technology to conduct business (e.g. electric outlets, desks, times).
- Everyone can access information to help them get the technology resources they need.
  - There needs to be multiple ways for people to connect directly to resource support (e.g. Connect ATX call-in option, virtual 211).

- Technology and technology support trainings are designed to meet individual needs and contexts.
  - Trainings that are 1:1 based, as well as group based.
  - Solutions need to be hyperlocal and personal, and/or tailored to work and experience, or specific goals.
  - Technology for remote work needs to be available and supportive of those who are differently abled.
  - Person-to-person strategies are important to help people build digital skills.
- Everyone is aware of the role they can play in reaching digital equity.
  - The mindset needs to change for folks to be aware of this need and right of digital access.

The working group also provided input on the questions that could be asked during the circles which were adapted into a protocol shared with the group to give final feedback. The final questions were:

- What kinds of things make it more difficult for you to get access to or use the internet?
- Are there times that you wish you could get internet or get better internet but can't? What are those times? What is getting in the way?
- When you have challenges with your internet or technology devices, how do you get help?
- Have you seen or heard of creative ways people have navigated challenges to get internet or improve their access to technology?
- Are there resources in your communities that help people access technology, the internet, or help build digital skills?
- If money or resources were not a problem, how would you improve the community's access to internet and technology?

Community Circles

Following the planning meetings, the project team conducted 11 focus groups – which we called "community circles" – in August which included 193 participants in total. All circles were in-person. Nine of the 11 circles were hosted by non-profit working group members.

Nine of the 11 circles were primarily for individuals in the prioritized populations. As encouraged by the advisory workshop participants, 2 of the circles were primarily for individuals who are in roles that provide direct community support such as caseworkers, social workers, and community health workers.

The size and length of time for each circle varied and was dependent on the guidance of the host organization. Most sessions lasted 1 – 2 hours. Two sessions were approximately 30 – 45 minutes due to the host organization's advice to ensure the circles were more accessible.

Of the 11 circles, 9 were facilitated in English and 2 were facilitated in Spanish. For circles where working group hosts anticipated some participants may attend English sessions but speak Spanish, Spanish interpreters were available.

The 6 questions designed during the planning meetings were prioritized so that depending on the length of each circle, specific questions would be prioritized and in specific order.

Two questions that were asked across all 11 circles:

- What kinds of things make it more difficult for you to get access to or use the internet?
- If money or resources were not a problem, how would you improve the community's access to internet and technology?

Across 9 circles, a third question that was asked was:

- When you have challenges with your internet or technology devices, how do you get help?

The remaining 3 questions were asked if there was time.

Each circle was facilitated by one primary project team member and included multiple project team members who documented the conversations on sticky notes. During most circles, sticky notes were placed on a wall or easel for circle participants to view to support transparency. In other cases, notes were taken in full view but without being able to place them on a wall or easel. A total of 1,106 stickie notes were documented which were transcribed into digital sticky notes and replicated on an online whiteboarding tool.

Using multiple rounds of coding, one project team researcher who attend all the circles identified and coded themes across the stickie notes. Themes or codes were first identified by session and question, exported into Excel, then recoded or combined separately to reduce the number of codes. A second review of the notes was performed, and each note was coded separately. For example, in the first round of coding, over 130 codes were identified for the question related to challenges. Reduction and combination resulted in 56

unique codes. Those 56 codes were then used to code individual stickies associated with the challenges question. Notes associated with each question was coded separately, apart from the other questions notes, resulting in their own set of codes. After individual notes were coded, a count was determined for the number of sessions that each code occurred. This accounted for duplication of notes by different note takers. Unduplicated counts of codes were identified to understand frequency of themes across the circles for each question.

Debrief meeting

Following the circles, the project team facilitated a debrief meeting with the working group to share initial insights from the circles, review the analysis process for coding the qualitative data, and receive feedback on how to share the insights with community members. The themes of those feedback included:

- Report back to community members who participated in the study.
- Share the information publicly on a website.
- Share the data with multiple sectors including college students.
- Create one-pagers that could be useful for advocacy or for making it easier to create solutions.
- Create specific, tailored toolkits for information depending on audience that is useful to be shared.
- Keep communication open both directions for feedback.
- Convene organizations, task groups, or workings groups to solve the issues.

Community Data Co-Interpretation and Recommendation Sessions

Once summary descriptive data from the survey and the most frequent themes from the community circles were analyzed, the project team summarized the results by hosting two online events and attending multiple community resource fairs and events. A high-level preliminary summary of the data was shared along with top themes which were converted into “how might we” statements. This was intended to get community member’s feedback and ideas for how to address key issues or challenges that emerged in the study.

The following “how might we” statements were asked:

- How might we improve and increase digital skills training and support?
- How might we increase availability of free or discounted devices?
- How might we increase public or free internet access?
- How might we improve or increase affordable power/charging options outside the home?
- How might we improve internet infrastructure and provider choice?
- How might we improve accessibility?
- How might we expand and improve tech support services?
- How might we improve the experience and coordination of online and in-person services?
- How might we improve and increase security and safety for internet consumers or users?

Materials were available in both English and Spanish with Spanish interpreters available at some events. The resource guide with Central Texas digital resources and ACP flyers were also shared.

In September through November, the project team attended the following events, presenting insights and seeking solutions feedback:

- United Way’s Model Communities
- DECA September Meeting
- Tech for All Fest
- Travis County and City of Austin online event
- Hope Fest
- Del Valle Library Community Dinner event
- Travis County and City of Austin online event

Image of post meeting in-person community data co-interpretation and recommendation session notes organized by topics

In November and December, the project team also hosted online events to share the data with Travis County and City of Austin staff to source ideas and feedback. Staff from University of Texas at Austin Dell Medical School's Population Health, Community Engagement and Health Equity Division supported in the conversations with the City of Austin. This team also played important roles supporting other aspects of the project, including supporting analysis of survey data, data conversation design planning, data reporting, and providing consultative feedback on methodology, especially for analysis.

En español / In Spanish

In English / En inglés

Image of post meeting online community data co-interpretation and recommendation session notes organized by topics

The insights from the community data co-interpretation and recommendation sessions are incorporated into the recommendations in Section 5 of this report.

9.1.4 Sample demographic data

While conducting the survey, advisory workshops, and community circles, a demographic questionnaire was administered. Demographic data was not collected during the community data co-interpretation and recommendation sessions as those events were open and community members could come and go on their own timelines.

The demographic questionnaire was anonymous and voluntary. Each question was optional.

In total, 1,554 individuals responded to the demographic questionnaire. However, there were different response rates for the demographic questionnaire across the three data collection activities, and a different response rate to each individual question. Demographic data questionnaire completion was especially low for advisory workshops conducted online.

Figure 37: Demographic response rates, by data collection activity

Data collection activity	Demographic response rate	Demographics administration
In-Person Survey (n=1382)	99.8%	Built into survey as final questions. Verbally administered.
Advisory Workshops (n=44)	52.3%	At conclusion of workshop as participants exited. Administered on paper and on tablets.
Community Circles (n=193)	78.8%	At beginning of workshop during orientation and consent process. Administered on paper.

Source: Travis County and City of Austin Study conducted February 7th, 2023 to December 4th, 2023

In some cases, the number of responses for specific demographic categories or identities, especially within specific data collection activities, were small. To reduce risk of identification but allow for the most demographic categories to be reported, demographic data has been aggregated across the three data collection activities. Generally, if less than 5 responses were available for a specific demographic category, response categories were combined and noted.

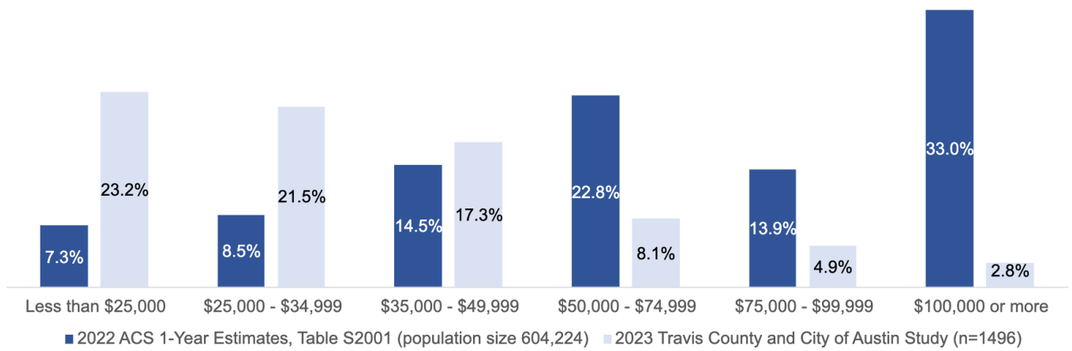
The sampling approach was purposive because the primary goal was to reach individuals often excluded from research in disproportionate numbers and who are more likely to be disproportionately impacted by digital access challenges. Because of this, the study's data is not generalizable across Travis County and the City of Austin.

Each question in the survey was voluntary, so disaggregation comparing multiple responses is only for those who answered all questions included in a comparison. Additionally, across all items where available, disaggregation of "prefer not to answer" was not reported disaggregated with other factors, though it may be included in totals for specific items. This is particularly important when looking at data disaggregated by individual earnings, because a high proportion of respondents either did not respond to that item or chose "prefer not to answer."

By income

We did not collect household income, instead focusing on individual annual earnings data. Figure 38 compares the 2022 American Community Survey's respondents' individual annual incomes to our study's respondents' annual individual earnings.

Figure 38: Sample comparison between 2022 American Community Survey 1-Year Estimates respondents' annual individual income versus Travis County and City of Austin study respondents' annual individual earnings[40]



Source: U.S. Census Bureau's American Community Survey (ACS) 2022 1-year estimates, Table(s) S2001 and Travis County and City of Austin Study conducted February 7th, 2023 to December 4th, 2023

Our sampling approach was purposive; the primary goal was to reach individuals of lower income and prioritize groups who are often excluded. This strategy resulted in our sample being disproportionately representative of lower income populations. It is important to note that our data is not generalizable across Travis County.

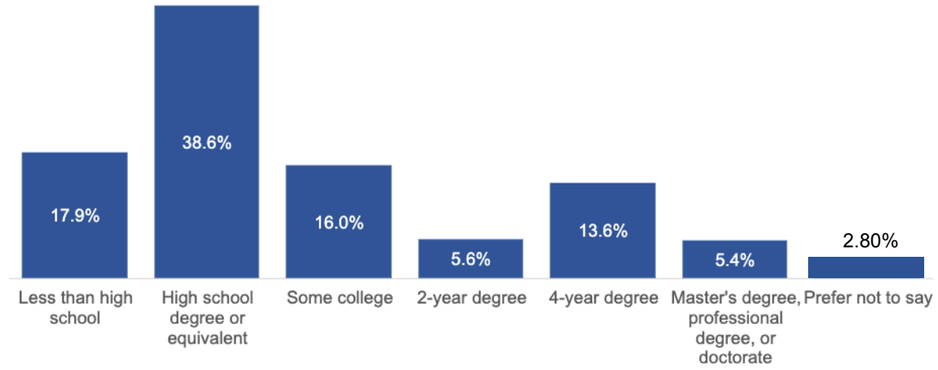
40 Categories of individual earnings are displayed from demographic questionnaire categories. The categories between the ACS and our demographic questionnaire varied. The ACS %-Year estimate 2022 data (Table S2001) is matched based on comparable sample categories. In the ACS, the lowest category is "$1 to $9,999 or loss". The lowest category for the demographic questionnaire survey sample was "Less than $25,000." ACS Income Data Source: U.S. Census Bureau, 2022 American Community Survey 1-Year Estimate, Table S2001, https://data.census.gov/table/ACSST1Y2022.S2001?q=Income+(Households,+Families,+Individuals)&g=050XX00US48453. The sample demographics questionnaire was voluntary and therefore only represents a subsample of the participants. Additionally, the demographic questionnaire had a choice to select "prefer not to answer" which accounted for 22% of respondents to the earnings question.

A note on earnings versus income: Earnings (primarily wages and salary from a job) are usually one source of income. Other sources of income include Social Security payments, pensions, child support, public assistance, annuities, money derived from rental properties, interest and dividends. This difference in terms was not described to our study participants.

By education level

More than two-thirds of respondents had education levels lower than a college degree. The largest group of respondents (38.6%) highest education level was high-school degree or equivalent (Figure 39).

Figure 39: Study respondents, by education level (n=1546)

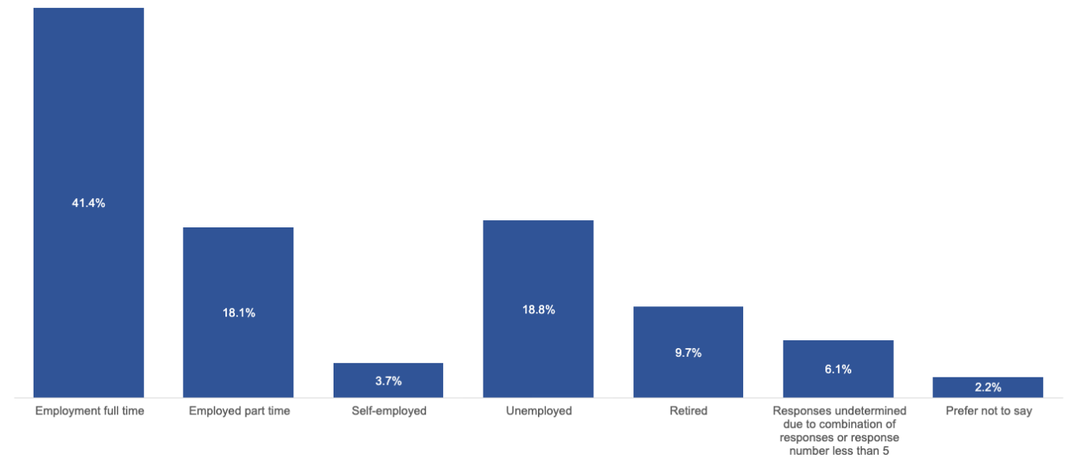


Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

By employment status

The largest group of respondents (41.4%) were employed full time (Figure 40).

Figure 40: Study respondents, by employment status (n=1499)

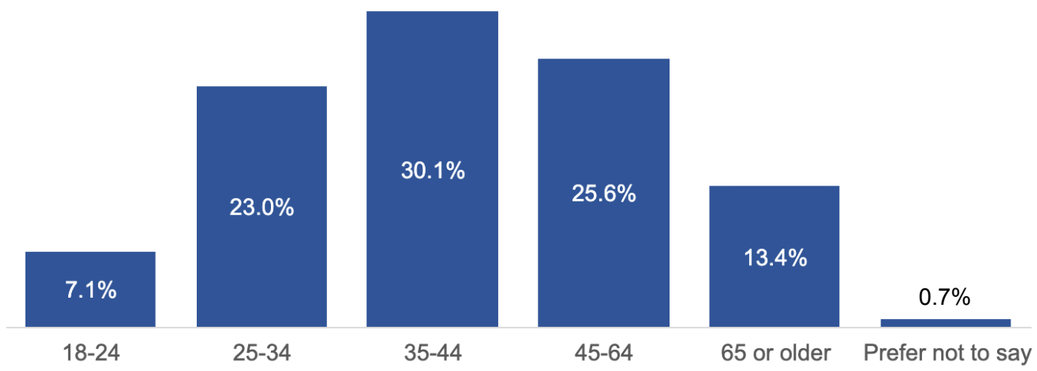


Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

By age

The largest group of respondents (30.1%) were 35 – 44 years old (Figure 41).

Figure 41: Study respondents, by age (n=1547)

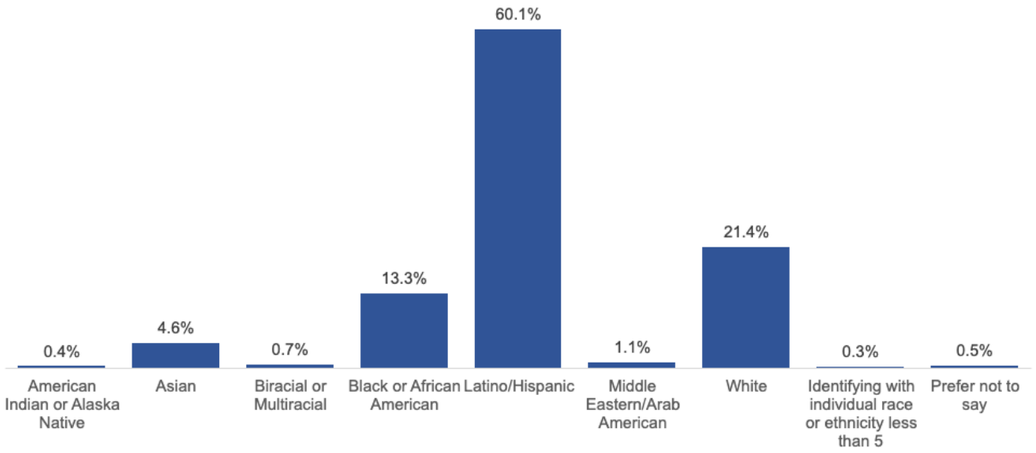


Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

By race/ethnicity

The largest group of respondents (60.1%) were Latino/Hispanic (Figure 42).

Figure 42: Study respondents, by race/ethnicity (n=1551)



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

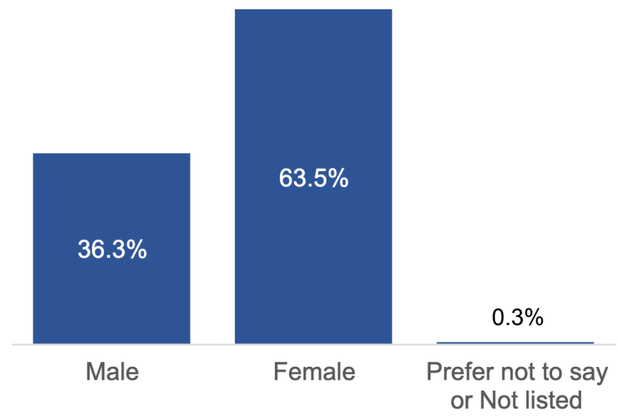
The data shown in the Figure 42 represents all response categories for race and ethnicity that had responses greater than 5. Respondents could choose more than one category and may be represented more than once in this graph. However, because those responses were a smaller percentage of the overall responses, when reporting disaggregated data elsewhere in this report related to other variables, the responses of those who reported multiple identities or identities with particularly small response rates are not included in the disaggregation. Where appropriate, when reporting survey data, the number of responses not included in the disaggregation are noted, but are included in total averages or percentages for specific items or topics.

The project team was able to disaggregate survey data based on some responses, however the sample size was not sufficient to disaggregate based on all response options, particularly those that identified with multiple race or ethnic identities or with identities with small response rates. Fifty-three survey respondents, which account for 3.85% of total survey responses, indicated identities that were from categories with too few respondents or a combination of responses too small to disaggregate.

By gender

The majority of participants who completed the demographic questionnaire identified as female, at 63% (Figure 43).

Figure 43: Study respondents, by gender (n=1544)



Source: Travis County and City of Austin In-Person Survey conducted February 7, 2023 to April 28, 2023

9.1.5 Research Notes

Digital skills

Prior to the survey design, we heard some individuals might not feel comfortable about sharing their digital skills level but may be more comfortable sharing about the skills of others in their household. Because of this, while most of the survey questions were specific to an individual, the digital skills training question asked a person to take a perspective related to their household.

9.1.6 Opportunities for Future Research and Engagement

Throughout the research activities, the project team regularly conducted debriefs and reflected on changes that could have been made or lessons learned that could benefit future research. These are recommendations for near term and longer-term research or insights gathering:

- **Identify and Build Ongoing, Secondary Quantitative Data Collection Resources**: There is a growing body of large, public datasets or existing data initiatives that can provide insights into local digital equity related issues. Rather than conduct regular future primary data collection through surveys, the county and the city may focus on using and improving existing data already collected through third parties, and work with intermediary outlets to analyze and publish that data. This could help elevate the issue related to digital access to additional audiences, as well as reduce the capacity challenges of county and city resources required to collect primary data. Specific examples of how this recommendation could be implemented are below:
  - Data from the American Community Survey could be analyzed and reported in existing annual or biannual reports where internet access is identified as a key factor or determinant of community outcomes, such as Central Health's Poverty Report and Travis County's annual poverty report. There are many tables from the American Community Survey that are useful in tracking digital equity related indicators.
  - For questions pertaining to digital access that are more nuanced, the city and county could work with existing indicator surveys, such as Austin Area Indicators, to create a repeated set of 2-3 questions regarding internet access. Possible question topics to include:
    - Question about affordability of internet service
    - Question about usefulness of internet service
    - Question about consistency of internet access at levels needed to accomplish goals
  - A common complaint by community members was the relationship between power outages and internet service. The county or city could work with utility companies to identify patterns of power outages geographically. How often are there power outages and for how long? Additionally, are there disproportionate number and length of power outages in different areas of the county? How do these areas overlap with areas with higher digital distress or have higher proportions of populations who experience disproportionately higher rates of digital access challenges? This data may be retrievable from public sources or from utility companies themselves. If the data is public, the county could work with a local university to include this study as a course project or graduate thesis project. Building and maintaining relationships with multiple departments at Huston-Tillotson, St. Edwards University, and University of Texas could help facilitate this project. Identify and build relationship with other departments or programs that are working to collect data on topics affected by power outages (such as HHS, APH, emergency response systems, 311, and 211).
    - There are private platforms, such as NextDoor, which may have data that could help identify internet outage patterns. Consider exploring other possible data sources that may not be as frequently identified.
    - Consider working to produce data jams regarding some of the publicly available data. These could be university based or more broadly open.
    - Trust has been identified as a significant issue related to internet use. When exploring collaborations with any data intermediary, consider all potential ethical challenges and unintended impacts on those who provide their data, as well as the potential to impact trust of the data and for those in the collaboration.
- **Collect Purposeful Qualitative Data**: The county and the city can focus shorter term research strategies on qualitative data collection, specifically with individuals who are less likely to be connected, and prioritizing data collection on solutions and opportunities. Different populations have unique challenges related to digital access (such as older adults, recently incarcerated, refugees) and these groups experience the digital transformation through more compounding challenges. The nuanced differences in these challenges are helpful to program designers to help adjust and improve services. Additionally, the context of internet use and use cases are constantly

changing to the adaptation of broader technical and social changes. Qualitative data will help with ongoing program adaptation and service design. Below are specific recommendations:

- Using participatory design strategies, conduct workshops producing more design centric outputs, together with community members. Outputs such as user journeys, user-designed empathy maps, and power maps, could help to contextualize solutions and challenges so that those who are designing solutions or currently offering programs, may adjust their ideas and services to be more useful to end-users. These might be especially useful in addressing each of the "how might we" opportunities derived from recommendations from the needs assessment. If the team focuses on one or two "how might we" opportunities, and hosts collaborative convenings and workshops with community members experiencing specific challenges, as well as those who are working to build solutions, the ideas may be more likely to have success, adoption, and engagement.
- Convene specific groups of organizations who prioritize serving specific populations (such as older adults, formerly incarcerated, refugees) to identify potential modes or networks for peer learning and resource sharing, as well as additional data sources or outlets for secondary data insights.
    - Focus groups with businesses in specific geographies and sectors, could be especially helpful in understanding the challenges that both business and community members have when the internet is not working or is insufficient to achieve their goals.
- **Build Evaluation Strategies Together**: Collective, participatory evaluation strategies should be identified and built along with community members, to help determine if programming and initiatives are effective. This can be done for specific projects or more broadly. Funding and resources are needed to help make these activities more accessible for community members to participate in, such as incentives, childcare, and transportation support, and funding for community organizations to provide collaboration capacity and contributions.

Throughout this project, the project team was iterative in implementing various community engagement activities to share resources and to help design and give feedback to the research process. The following are learnings and recommendations for those wanting to implement community engagement activities in their organization.

- Human-centered design
    - Think and center the people you're trying to reach in the design process.
- Build relationships and trust
    - This should start early as possible. Develop and maintain relationships. Encourage ongoing dialogue. This takes time. Follow through on commitments.
    - Go to the people you're trying to reach. Go where the community is already going such as existing resource fairs, trusted facilities, grocery stores.
- Engage early and often
    - Involve the community in the decision-making process. Seek input at multiple stages of the project.
- Have open and frequent communications
    - Create clear and transparent ways for communications that goes both ways.
- Use diverse engagement methods
    - Use a variety of methods to reach a diverse audience which can include surveys, workshops, focus groups, in person activities, online platforms. Recognize one method will not work for everyone. Tailor engagement strategies to specific needs and preferences of various communities.
- Be inclusive
    - Translate written materials in various languages. When hosting online meetings, use platforms and features that allow for separate audio channels for live language interpretation.
    - Create safe spaces for diverse perspective and voices to be shared and heard.
- Evaluation and learning
    - Continuously improve approach by regularly evaluating what's working and what's not working – and improve opportunities. Be flexible to adapt your plan based on feedback and community needs.

9.2 Survey

Pre-Screener Questions

1.1+- How was this survey conducted?

Please Select

1.2+- What zip code do you live in?

Type all 5 digits

1.3+- What type of home do you live in?

Please Select

1.31+- Please type another option here

1.4+- Notes

2.1+- Do you get internet at home? *

- Yes
- No

2.2+- Notes

3.1+ Does the internet at home meet your needs?

- Yes
- No

3.2+ Notes

4.1+ How do you get internet at home? (Check all that apply.)

- Wired (cable, fiber, includes wifi)
- Mobile data plan (smartphone)
- Mobile data plan (hot spot)
- Satellite
- I don't know
- Other

4.2+ Notes

5.1+ In the past 12 months, have you had loss or disruption of internet at home?

- ○ Yes
- ○ No
- ○ Don't have
- ○ N/A

5.12+ Why did you experience loss or disruption of internet at home?

- ☐ Too expensive
- ☐ Broken devices
- ☐ Unreliable service
- ☐ Power outage or weather event
- ☐ Running out of minutes/data
- ☐ Could not get help needed to setup or use internet
- ☐ Not available at my home
- ☐ Other

5.2+ Notes

6.1+ Outside of the home, where do you regularly access the internet? (Check all that apply.)

- ☐ Mobile data plan (smartphone or hot spot)
- ☐ Library
- ☐ School
- ☐ Work
- ☐ Community center
- ☐ Senior Center
- ☐ Local business (e.g. grocery store, coffee shop)
- ☐ Relative or friend's home internet
- ☐ Relative or friend's mobile internet
- ☐ Public hot spot
- ☐ Faith based or religious center
- ☐ I don't have access
- ☐ Other

6.2+ Notes

7.1+ In the past 12 months, have you had loss or disruption of mobile internet (cellular, hot spot)?

- ( ) Yes
- ( ) No
- ( ) Don't have
- ( ) N/A

7.12+ Why did you experience loss or disruption of mobile internet (cellular, hot spot)?

- [ ] Too expensive
- [ ] Broken devices
- [ ] Unreliable service
- [ ] Power outage or weather event
- [ ] Running out of minutes/data
- [ ] Could not get help needed to setup or use internet
- [ ] Other

7.2+ Notes

8.1+ What devices do you regularly use to access the internet? (Check all that apply.)

- [ ] Smartphone
- [ ] Computer
- [ ] Tablet
- [ ] Other

8.2+ Notes

9.1+ Has your ability to work (remote working, business tasks, marketing, online sales or store) been impacted by loss of internet connectivity or devices?

- ( ) Yes, many times
- ( ) Yes, sometimes
- ( ) No, never
- ( ) I do not use internet for this

9.2+ Notes

10.1+ Has your ability to participate in education related activities (remote learning or teaching, online training) been impacted by loss of internet connectivity or devices?

- ( ) Yes, many times
- ( ) Yes, sometimes
- ( ) No, never
- ( ) I do not use internet for this

10.12+ Do you have school age students in your household?

- ( ) Yes
- ( ) No
- ( ) Prefer not to answer

10.13+ Has loss of internet connectivity or devices impacted the ability of students in your household to participate in education activities (remote learning or teaching, online training)?

- ( ) Yes, many times
- ( ) Yes, sometimes
- ( ) No, never
- ( ) Students in my household do not use internet for this

10.2+ Notes

11.1+ Has your ability to use telehealth (appointments, physical and mental health support, prescriptions) been impacted by loss of internet connectivity or device?

- Yes, many times
- Yes, sometimes
- No, never
- I do not use internet for this

11.2+ Notes

12.1+ Has your ability to do household tasks (pay bills, look for services, online shopping, online banking) been impacted by loss of internet connectivity or device?

- Yes, many times
- Yes, sometimes
- No, never
- I do not use internet for this

12.2+ Notes

13.1+ Has your ability to use social media (social media, email, connecting with family and/or friends) been impacted by loss of internet connectivity or device?

- Yes, many times
- Yes, sometimes
- No, never
- I do not use internet for this

13.2+ Notes

14.1+ Has your ability to access entertainment (movies, music, video games) been impacted by loss of internet connectivity or device?

- Yes, many times
- Yes, sometimes
- No, never
- I do not use internet for this

14.2+ Notes

15.1+ Has your ability to engage in civic activities (register to vote, serve as a juror) been impacted by loss of internet connectivity or device?

- Yes, many times
- Yes, sometimes
- No, never
- I do not use internet for this

15.2+ Notes

16.1+ Has your ability to access government resources and services (food, housing, energy assistance, driver's license) been impacted by loss of internet connectivity or device?

- Yes, many times
- Yes, sometimes
- No, never
- I do not use internet for this
- Prefer not to say

16.2+ Notes

3.1- What is a barrier for you to get internet at home? (Check all that apply.)

- [ ] Price
- [ ] Not available
- [ ] Poor quality or service
- [ ] Credit check or deposit
- [ ] Long-term contract
- [ ] Other

3.2- Notes

4.1- Outside of the home, where do you regularly access the internet? (Check all that apply.)

- [ ] Mobile data plan (smartphone or hot spot)
- [ ] Library
- [ ] School
- [ ] Work
- [ ] Community Center
- [ ] Senior Center
- [ ] Local business (e.g. grocery store, coffee shop)
- [ ] Relative or friend's home internet
- [ ] Relative or friend's mobile internet
- [ ] Public hot spot
- [ ] Faith based or religious center
- [ ] I don't have access
- [ ] Other

4.2- Notes

5.1- In the past 12 months, have you had loss or disruption of mobile internet (cellular, hot spot)?

- ( ) Yes
- ( ) No
- ( ) Don't have
- ( ) N/A

5.2- Why did you experience loss or disruption of mobile internet (cellular, hot spot)?

- [ ] Too expensive
- [ ] Broken devices
- [ ] Unreliable service
- [ ] Power outage or weather event
- [ ] Running out of minutes/data
- [ ] Could not get help needed to setup or use internet
- [ ] Other

5.3- Notes

6.1- What devices do you regularly use to access the internet? (Check all that apply.)

- [ ] Smartphone
- [ ] Computer
- [ ] Tablet
- [ ] Other

6.2- Notes

7.1- Have you been unable to complete work due to lack of internet access?

- ( ) Yes, many times
- ( ) Yes, sometimes
- ( ) No, never
- ( ) I do not use the internet for work

7.2- Notes

8.1- Have you been unable to complete schoolwork due to lack of internet access?

- ( ) Yes, many times
- ( ) Yes, sometimes
- ( ) No, never
- ( ) I do not use the internet for schoolwork

8.2- Notes

9.1- Have you been unable to access health support or social services due to lack of internet access?

- ( ) Yes, many times
- ( ) Yes, sometimes
- ( ) No, never
- ( ) I do not use the internet for health support or social services

9.2- Notes

10.1- Have you been unable to access government services due to lack of internet access?

- ( ) Yes, many times
- ( ) Yes, sometimes
- ( ) No, never
- ( ) I do not use the internet for government services

10.2- Notes

17.1+- How would you rate your technology and computer skills?

- ◯ Never Used
- ◯ Beginner
- ◯ Intermediate
- ◯ Advanced

17.2+- Would you be interested in basic technology skills training for you or someone in your household?

- ◯ No
- ◯ Yes, but only if it were free
- ◯ Yes, and I would be willing to pay for it

17.3+- Do you need assistive technology (magnifiers, voiceover, close captioning) to use internet on your own?

- ◯ Yes, often
- ◯ Yes, sometimes
- ◯ No, never
- ◯ Prefer not to say

17.4+- Notes

18.1+- Do you have any ideas of how Travis County and the City of Austin can help our communities improve internet access?

18.2+- What are your biggest challenges accessing or using the internet?

18.3+- Is there anything you'd like to ask me?

18.4+- Notes

9.3 Demographics Survey

19.3+- What is your gender?

- ○ Male
- ○ Female
- ○ Prefer not to say
- ○ Not listed (please describe)

19.4+- How old are you?

- ○ 18-24
- ○ 25-34
- ○ 35-44
- ○ 45-64
- ○ 65 or older
- ○ Prefer not to say

19.5+- What is your race/ethnicity? (Check all that apply.)

- ☐ White
- ☐ Black or African American
- ☐ Asian
- ☐ American Indian or Alaska Native
- ☐ Native Hawaiian or Pacific Islander
- ☐ Middle Eastern/Arab American
- ☐ Latino/Hispanic
- ☐ Biracial or Multiracial
- ☐ Not listed
- ☐ Prefer not to say

19.6+- What is the highest degree or level of education you have completed?

- ○ Less than high school
- ○ High school degree or equivalent
- ○ Some college
- ○ 2-year degree
- ○ 4-year degree
- ○ Master's degree
- ○ Professional degree
- ○ Doctorate
- ○ Prefer not to say

19.7+- What is your current employment status?

- ☐ Employment full time
- ☐ Employed part time
- ☐ Self-employed
- ☐ Unemployed
- ☐ Student
- ☐ Retired
- ☐ Unable to work
- ☐ Prefer not to say
- ☐ Other

19.8+-What were your individual annual earnings over the past 12 months?

- ○ Less than $25,000
- ○ $25,000 - $34,999
- ○ $35,000 - $49,999
- ○ $50,000 - $74,999
- ○ $75,000 - $99,999
- ○ $100,000 or more
- ○ Prefer not to say

19.91+- Notes