



July 26, 2021

Via data@ntia.gov

Rafi Goldberg
National Telecommunications and Information Administration (NTIA)
U.S. Department of Commerce
1401 Constitution Avenue, N.W., Room 4725
Washington, D.C. 20230

Re: Notice, Request for Public Comments. National Telecommunications and Information Administration (NTIA) Internet Use Survey Questionnaire Development [OMB Control Number 0660-0021]

Dear Mr. Goldberg:

Enclosed for filing in the above referenced Public Notice are reply comments of the Rehabilitation Engineering Research Center for Wireless Inclusive Technologies (Wireless RERC) and the Center for the Development and Application of Internet of Things Technologies (CDAIT).

Should you have any questions concerning this filing, please do not hesitate to contact me via email at

Respectfully submitted,

A handwritten signature in blue ink that reads "S. LaForce".

Salimah LaForce
Project Director, Wireless RERC
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Enclosure

The Wireless RERC at the Center for Advanced Communications Policy (CACP) and the Center for the Development and Application of Internet of Things Technologies (CDAIT) at the Georgia Institute of Technology offer the following comments on the Public Notice requesting input on NTIA's Draft Internet Use Survey. CACP focuses on key issues that influence the development, implementation, and adoption of cutting-edge, advanced communications technologies. CACP work includes assessing policy issues and production of regulatory filings, identifying future options for innovation, and articulating a clearer vision of the ever-changing technology landscape. CACP evaluates technological trends that can impact issues as diverse as wearable technologies, communications, technology access by people with disabilities, and emergency communications. CDAIT fosters the development of interdisciplinary Internet of Things (IoT) research and education that bridges industry partners with researchers and other collaborators who share similar interests. CDAIT is a global, nonprofit, partner-funded center of excellence in IoT that stimulates creativity, productivity gains, and revenue generation while addressing critical societal issues such as inclusivity, privacy, trust, ethics, regulation, and policy.

CACP is the home of the Wireless RERC. The Wireless RERC mission is to research, evaluate and develop innovative wireless technologies and products that meet the needs, enhance independence, and improve the quality of life and community participation of people with disabilities. We believe it is essential that information and communications technologies (ICT) and services are developed and deployed in an accessible, equitable, and inclusive manner. Our expertise in wireless technology access and the need for broadband to deliver robust internet services to people with disabilities leads us to offer several recommendations to ensure that information is also gathered on availability and usage amongst people with disabilities. A robust broadband deployment and adoption strategy 1) must take into account availability, affordability, and usability, as well as 2,) be developed in conjunction with a variety of industry, consumer, and public interests (Baker and Moon, 2020; Baker, Gandy, & Zeagler, 2015). The use of well-developed and reliable longitudinal data such as the NTIA Internet Use Survey is particularly important in formulating internet-related policy and adoption strategies.

Further, for many deaf and hard-of-hearing people, information and communications technology (ICT) based applications that use data-centric text, video-based communications, and online interactivity are critical broadband wireless device functions to social engagement and

community participation. This access provides a source for news and vital information, allows for communications without an intermediary, assists during emergencies, facilitates telemedicine, and is a key route to employment. However, while a wide variety of advanced wireless technologies and broadband services have become available in the U.S., significant issues involving access to, affordability, and *accessibility* of these technologies still exist for several critical populations, including people with disabilities, the aging, and other vulnerable socio-economically disadvantaged populations.

The comments respectfully submitted below provides the Department of Commerce with our subject expertise on the matter.¹

(A) Evaluate whether the proposed information collection is necessary for the proper functions of the Department, including whether the information will have practical utility

A broad search of several research databases, including EBSCO and Google Scholar, shows that the NTIA Internet Use Survey provides researchers and data scientists with vital information on digital technology. The data offered in this survey has allowed scholars to examine the digital divide, the future of voting, broadband access, social inequality, economic inclusion, internet use patterns, and more (Robinson et al., 2021; McHenry, 2017; Neogi, 2012; Howard, 2010). More specifically, the Wireless RERC team and CACP researchers have extensively utilized the data collected to inform our research agenda (Moon et al., 2019; Bricout and Baker, 2010).

On a federal level, collecting this data is vital to the Federal Communications Commission's regulatory policies related to broadband expansion, their Emergency Broadband Benefit program, governmental funding allocations to telecommunication providers, and best practices for emergency management communications to the public. As it relates specifically to the Department of Commerce and NTIA, this data offers the agency an opportunity to fulfill its mission of "expand[ing] broadband Internet access and adoption in America, expand the use of spectrum by all users, and ensure that the Internet remains an engine for continued innovation

¹ The contents of this filing were developed with support from a grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant number 90RE5025-01-00). NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS). Filing content does not necessarily represent NIDILRR, ACL, HHS policy, and you should not assume endorsement by the Federal Government.

and economic growth (U.S. Department of Commerce, 2021)" by identifying barriers to adoption and opportunities for improved access.

Finally, we note that technological deployment relying on complex structures such as the internet requires coordination across a number of technological and political domains, the engagement of industry, and end-users and providers. In thinking about how to best design approaches, strategies, and policies to facilitate internet access and usability, it is helpful to consider that the internet not only provides direct connectivity (e.g., cellphones, wireless devices) but also provides a substrate to allow for a wide range of direct end-user devices (ranging from voice assistants to smartwatches) as well as to devices that can enhance to quality of life of users and that rely on the internet infrastructure (e.g., sensors, data collection devices, electronic signage, online mapping applications, etc. (CDAIT, 2018). Therefore, the internet should be thought of as a collection of technologies and include societal impacts and benefits as well as social outcomes that can be advanced, enhanced, and simplified by the use of "smart" technologies. Through data-informed policies governing data capturing, sharing, and processing, both the private and public sectors can devise specific, data-driven solutions integrating social, economic, policy, and contextual inputs. A solid example, the NTIA Internet Use Survey, has informed industry activities and helps technology developers better design technology that is accessible, usable, and inclusive (Moon, Baker, & Goughnour, 2019, Choi and Chen, 2020, Lee, 2019, CDAIT, 2018)

(B) Evaluate the accuracy of our estimate of the time and cost burden for this proposed collection, including the validity of the methodology and assumptions used

The U.S. Census Bureau proposes administering the NTIA Internet Use Survey via personal visits and live telephone interviews using computer-assisted telephone interviewing and computer-assisted personal interviewing. The Wireless RERC strongly urges the U.S. Census Bureau to ensure that interviewers conducting personal visits are properly equipped to communicate with people who have disabilities such as speech impairments, hearing, and visual disabilities. The Wireless RERC suggests additional information be provided or prepared on the procedures for conducting the in-person and telephone interviews in an inclusive manner. One in four Americans has a disability (Okoro, Hollis, Cyrus, & Griffin-Blake, 2018). Based on prior administrations of the survey, the prospective sample size could be approximately 140,000,

which means that there is a likelihood of encountering an estimated 35,000 individuals with disabilities. As such, the interviewers must be prepared to offer accommodations to ensure that the respondents can accurately answer the questions. This may include the provision of an American Sign Language (ASL) interpreter for people who are Deaf and whose primary language is ASL, which may be achieved using a video remote interpreting service or live in-person interpreting. Additionally, for people who are hard of hearing, they may require real-time captions for in-person interviews, or captioned telephone or telecommunications relay service for telephone interviews.

Given that the NTIA Internet Use Survey is designed to capture internet use, we recommend that online data collection techniques be employed to enhance validity. There is evidence that online surveys are at least as reliable and, with some populations, might improve response rates (Barreto et al., 2018; Lehdonvirta et al., 2021) though there are considerations that must be made (Houtenville et al., 2021). Should NTIA and the Census Bureau decide to provide an online option to complete the survey, it should be designed to work with screen reader technology for respondents who are blind or have low vision. There are accessibility guidelines for the optimal presentation of online information (CACP, 2014; Web Accessibility Initiative, 2018) that should be referenced in the design of the survey interface.

Additionally, in light of the COVID-19 rate of infection throughout the U.S. and how it disproportionately impacts people with disabilities (Massachusetts General Hospital, 2021), the in-person interviewing team should identify safeguards to ensure reduced risk of infection for this sometimes medically vulnerable population. People with disabilities are more likely than those without disabilities to have chronic health conditions (CDC, 2021), and unnecessarily exposing this population to potential COVID-19 carriers provides more harm than good. **As noted above, as a method of enhancing survey response, in addition to extensive in-person interviewing teams, we propose "mail-in" and online options so that people with and without disabilities can engage with this survey without unnecessary exposure to others.** Enabling self-administration of the survey would also be less costly in terms of human resources and be more expedient. Further, it is not outside of the methods used by the U.S. Census Bureau's administration of the American Community Survey and the Decennial Census, as both have used mail-in and online survey options.

(C) Evaluate ways to enhance the quality, utility, and clarity of the information to be collected; and

Since 2001 both CACP and the Wireless RERC have been actively involved with research and regulatory issues concerning accessible ICT. As such, the Wireless RERC conducts a periodic Survey of User Needs (SUN) to identify trends in access to wireless technologies by people with disabilities, including mobile broadband and activities for which they used their wireless devices beyond "core" communication functions. Such activities included money management and personal finances, community mobility; health, wellness, and home environment; and leisure and social activities. Results in the finance category showed that the most commonly indicated uses included shopping online either to compare prices or make purchases (74%), banking online (63%), or paying bills (54%). Only 34% of respondents indicated their use of instant payment applications such as Apple Pay or Google Pay. Regarding community mobility, a sizable majority of respondents used their devices for two uses: navigating and wayfinding through GPS and map-based apps (89%) and locating places of interest such as restaurants and stores (85%). Respondents reported use of wireless devices for tracking personal fitness such as steps taken, calories burned, or nutrition (40%), monitoring personal health such as weight, blood sugar, blood pressure, or heart rate (37%), using wireless devices for home automation such as control of lights, thermostats, or other environmental devices (27%), and using wireless devices to control home security systems (21%). Finally, regarding social/leisure, watching videos and movies or videos on sites such as YouTube were the most commonly indicated recreation and leisure activity (76%), followed closely by social networking on such sites as Facebook, LinkedIn, Twitter, and Instagram, and sharing photos (both at 75% each), listening to audio content such as music, podcasts, radio, or audiobooks (71%), reading or studying (59%), and playing games (56%). (Moon, Griffiths, Mitchell, 2021)

The above-reported results show that people with disabilities are using their mobile devices for many online activities. However, a limitation of our study is the use of convenience sampling, which leaves our sample skewed to older, Caucasian, employed respondents (Table 1).

Table 1: Demographics Summary (Smartphone Ownership)

		%	Mean+SD [Range]
Age	≤59 years of age	64%	53±14 [20-85]
Gender	Female	63%	
Ethnicity	Caucasian	77%	
Income	≥25,000	60%	
Education	≥AS degree	76%	
Work Status	Employed	54%	

A strength of the NTIA Internet Use Survey is the sampling methodology which results in a nationally representative sample. However, the demographic portion of the CPS does not ask for respondents to self-identify if they have a disability. Including such questions would reveal important statistics and may provide additional context to questions such as NOHM: "What are the reasons why [you/members of your household] do not use the Internet at home? Therefore, the Wireless RERC recommends that the following questions be added:

1. Do you identify as a person with a disability?

- Yes
- No

2. (Display if Q1 is "Yes") Do you identify as having any of the following difficulties? (Please check all that apply).

- Deafblindness
- Blindness
- Low Vision or other vision-related limitation
- Deafness
- Hard of Hearing or other hearing-related limitation
- Lower-body physical limitation, such as difficulty in walking or difficulty climbing stairs, or the use of a wheelchair
- Upper-body physical limitation, such as difficulty in reaching, carrying, grasping, or manipulating
- Speech or communication limitation
- Cognitive or learning disability, such as difficulty with memory, learning, or processing information

- Emotional, psychiatric, or behavioral disability
- Other disability not listed above (please describe): _____

A revised instrument that includes the above questions will allow for the data gathered to be analyzed with regard to disability status to determine the specific trends amongst the different disability types. Each group: deaf, blind, cognitive, mobility, have different factors that influence technology adoption, and at varying degrees. The proposed revisions to the survey tool should be designed to facilitate nuanced internet use analyses along socioeconomic, cultural, and demographic dimensions that include disability and other populations characterized as marginalized. To that end, we also recommend that NTIA add questions that would facilitate increased understanding of the various types of ICT people with disabilities use to access the internet and its content. The resultant data could facilitate the development of broadband affordability *and* utilization strategies. Therefore, we recommend the following be added:

1. Do you use any of the following aids to access online content or communicate via an internet-connected PC or laptop? (check all that apply)

- Screen Reader
- Screen magnifier
- Internet Protocol (I.P.) relay
- Augmentative and alternative communication (AAC) device or software
- Text-to-speech technology
- Speech-to-text technology
- Braille Display
- Other (please specify)

On question NOHM, "What are the reasons why [you/members of your household] do not use the Internet at home?" We recommend that you add the response option, "Difficulty using the Internet (i.e., not accessible to my disability)" and/or "The cost of assistive technology/software to access online content."

In a previous request for public comments [Docket No. 200813-0218], Baker and Moon (2020) recommended including questions on the ways in which the connected devices are used to access government and public services. In this iteration of survey questions, we noted that question EGOVTS was included. The utility of this question could be further expanded with a

follow-up question that probes potential barriers to using the internet to access government and public services. In doing so, federal regulatory policies can be adjusted to accommodate the public's needs.

We further recommend additional questions. Affordability is a well-documented barrier to broadband adoption (Townsend, Sathiaseelan, Fairhurst, & Wallace, 2013; Flamm & Chaudhuri, 2007; Brake & Bruer, 2021) and the question "At any point during the past six months, did [you/this household] temporarily lose a home Internet connection due to difficulty paying" is a good metric for service affordability. However, a key requirement of benefiting from the service is *device* affordability. As such, we recommend the addition of a question such as "At any point during the past six months, did [you/this household] temporarily lose a home internet connection due to the inability to replace a broken, lost, or stolen personal computer or laptop?" and "At any point during the past six months, did [you/this household] temporarily lose a mobile internet connection due to the inability to replace a broken, lost, or stolen personal smartphone?"

Additionally, for clarity, we recommend a survey flow revision. The EGOODS question should follow the ESRVCS question, as they are related concepts, and presenting them in sequence is logical. Also, the ESRVCS question appears solely related to app-mediated services, which is fine if the goal of the question is to measure the app economy. However, if the goal of the question is to measure the internet's impact on the gig economy writ large and entrepreneurial pursuits, other services can be offered and marketed online, including live captions, ASL interpretation, transcriptions, personal trainer, consultancy services, among others as was found in recent research concerning the contingent employment experiences of people with disabilities (Moon, Harris, Linden, & LaForce, 2021). We recommend adding additional non-app-mediated examples of services offered online to the ESRVCS question to prompt the respondent to think more globally about using the internet for marketing and delivering their services.

(D) Minimize the reporting burden on those who are to respond, including the use of automated collection techniques or other forms of information technology.

The argument presented in response to Section A on pages three and four herein is equally applicable here. To minimize reporting burden, we recommend additional self-administration options of mail-in and online survey be provided.

In closing, the Wireless RERC, CDAIT, and CACP underscore the importance of considering the accessibility and usability of internet services and the consequential inclusion of people with disabilities in the broader design of data collection that informs public policy. Any national survey tool designed to gather data on the state of technology use in the USA should include questions regarding disability and accessibility. Gathering such data will allow for identifying barriers to internet use and technology adoption by people with disabilities, assisting organizations, manufacturers, developers, and policymakers in devising the appropriate strategies to create a more accessible and usable broadband environment effectively narrow the digital divide.

Moreover, we urge that survey questions be clear, concise, and provided in accessible formats and with appropriate disability access accommodations (e.g., ASL, captions). The amendments offered for the NTIA Internet Use Survey will advance the quality content of the survey questions and aid researchers in producing improved filing recommendations. The proposals made herein are intended to encourage this undertaking and ensure parity of access.

Respectfully submitted,

A handwritten signature in blue ink that reads "S. LaForce".

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Dated this 26th day of July 2021

References

- Baker, P.M.A., Moon N.W., (2020, September 17). Comments filed in response to National Telecommunications and Information Administration (NTIA) *Notice, request for public comments. [Docket No. 200813-0218]. NTIA Internet Use Survey Questionnaire Development*. Washington D.C: NTIA.
- Baker, P.M.A.; Gandy, M. & Zeagler, C. (2015). Innovation and Wearable Computing: A Proposed Framework for Collaborative Policy Design. *IEEE Internet Computing*, 19(5),18-25.
- Barreto, M. A., Frasure-Yokley, L., Vargas, E. D., & Wong, J. (2018). Best practices in collecting online data with Asian, Black, Latino, and White respondents: evidence from the 2016 Collaborative Multiracial Post-election Survey. *Politics, Groups, and Identities*, 6(1), 171-180.
- CACP. (2014). Accessibility Guidelines for Print and Electronic Documents. Available at <https://cacp.gatech.edu/sites/default/files/handouts/accessibility-guidelines-print-electronic-documents.pdf>
- CDC. (2021) People with Certain Medical Conditions [web page]. Available at <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>
- CDAIT. (2018). "Driving New Modes of IoT-facilitated Citizen/User Engagement", July 2018, [online] Available: https://cdait.gatech.edu/sites/default/files/georgia_tech_cdait_thought_leadership_working_group_white_paper_july_9_2018_final.pdf.
- Choi, J. R., & Chen, W. (2020). The Emerging Institutionalization of Global Internet of Things Governance: A Network Approach. *International Journal of Communication*, 14, 25.
- Brake, D., & Bruer, A. (2021). *Broadband Myths: Are High Broadband Prices Holding Back Adoption?* Information Technology and Innovation Foundation.
- Bricout, J. C., & Baker, P. M. (2010). Leveraging online social networks for people with disabilities in emergency communications and recovery. *International journal of emergency management*, 7(1), 59-74.
- Flamm, K., & Chaudhuri, A. (2007). An analysis of the determinants of broadband access. *Telecommunications policy*, 31(6-7), 312-326.

- Houtenville, A. J., Phillips, K. G., & Sundar, V. (2021). Usefulness of Internet Surveys to Identify People with Disabilities: A Cautionary Tale. *Journal of Survey Statistics and Methodology*, 9(2), 285-308
- Howard, P. N., Busch, L., & Sheets, P. (2010). Comparing digital divides: Internet access and social inequality in Canada and the United States. *Canadian Journal of Communication*, 35(1).
- Lee, G. (2019). What roles should the government play in fostering the advancement of the internet of things? *Telecommunications Policy*, 43(5), 434-444.
- Lehdonvirta, V., Oksanen, A., Räsänen, P., & Blank, G. (2021). Social media, web, and panel surveys: using non-probability samples in social and policy research. *Policy & internet*, 13(1), 134-155.
- Massachusetts General Hospital (2021). COVID-19's Impact on People with Disabilities. Retrieved from <https://www.massgeneral.org/news/coronavirus/Covid-19s-impact-on-people-with-disabilities>
- McHenry, G., Goldberg, R. M., Lewis, M., Carlson, E., & Mehta, I. (2017). Digital and economic inclusion: How Internet adoption impacts banking status. *Available at SSRN* 2944394.
- Moon, N. W., Baker, P. M., & Goughnour, K. (2019). Designing wearable technologies for users with disabilities: Accessibility, usability, and connectivity factors. *Journal of Rehabilitation and Assistive Technologies Engineering*, 6, 2055668319862137.
- Moon, N., Griffiths, P., Mitchell, H. (2021). Survey of User Needs, SUNspot 21-02: Wireless Technology Features Used by Individuals with Disabilities, 2019-2020 [Wireless RERC Research Brief 21-02]. Available at <http://www.wirelessrerc.gatech.edu/reports>
- Moon, N, Harris, F., Linden, A., LaForce, S. (2021). Participation of individuals with disabilities in contingent employment and the "Gig Economy": Findings from interview and survey research. *Assistive Technology*. (In review)
- Neogi, P. K., Brocca, J., McConnaughey, J. W., & Goldberg, R. M. (2012). Online and on point: broadband usage in Canada and the United States.
- Okoro, C. A., Hollis, N. D., Cyrus, A. C., & Griffin-Blake, S. (2018). Prevalence of disabilities and health care access by disability status and type among adults. *Morbidity and*

- Mortality Weekly Report*, 67(32), 882–887. Retrieved from <https://www.cdc.gov/mmwr/volumes/67/wr/mm6732a3.htm>
- Robinson, A., Schaller, H., Goldberg, R. M., & Carlson, E. (2021). Is a Digital Nation a Voting Nation? Using Survey Data to Examine the Relationship Between Internet Use and Voting in the United States. TPRC48: The 48th Research Conference on Communication, Information and Internet Policy, Available at SSRN: <https://ssrn.com/abstract=3760187>
- Townsend, L., Sathiaseelan, A., Fairhurst, G., & Wallace, C. (2013). Enhanced broadband access as a solution to the social and economic problems of the rural digital divide. *Local Economy*, 28(6), 580-595.
- U.S. Department of Commerce (2021). *Women in Commerce's NTIA Leadership Making a Difference in Tech Equity*. Retrieved from <https://www.commerce.gov/news/blog/2021/03/women-commerces-ntia-leadership-making-difference-tech-equity>
- WAI. (2018, June 22). Web Content Accessibility Guidelines (WCAG) overview. Available at <https://www.w3.org/WAI/standards-guidelines/wcag/>