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**COMMENTS OF THE BENTON FOUNDATION  
ON THE NATIONAL BROADBAND RESEARCH AGENDA**

The Benton Foundation,<sup>1</sup> American Library Association, Media Mobilizing Project, New America’s Open Technology Institute, Public Knowledge, and Raphael Leung<sup>2</sup> (“Benton *et al*” or “commenters”) submit the following comments in response to the Request for Comment (“RFC”) from the National Telecommunications and Information Administration (“NTIA”) and the National Science Foundation (“NSF”) issued on September 9, 2016.<sup>3</sup>

**A. Broadband Technology**

The RFC seeks comment on broadband technology development and innovation. Specifically, the RFC asks: 1) What are the critical data and research needs in the areas of broadband technology and innovation? 2) What specific technology research proposals, and associated methodologies, should be prioritized to support the advancement of broadband technology? And why? 3) What specific technology research proposals can support federal efforts to foster the access and adoption of broadband technology across rural areas, and other unserved and underserved segments, such as population groups that have traditionally under-utilized broadband technology (e.g., seniors, low-income families, persons with disabilities)?

In designing a National Broadband Research agenda concerning broadband technology, commenters ask that NTIA and NSF:

- Ensure that research addresses the needs of the population groups (e.g., seniors, low-income families, persons with disabilities, people living in rural areas) that market actors usually ignore in the development of new broadband technologies.
- Examine the needs of persons with disabilities in developing new broadband technology platforms, networks, devices, services, and applications.

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<sup>1</sup> The Benton Foundation is a nonprofit organization that works to ensure that media and telecommunications serve the public interest and enhance our democracy. For more information about the work that the Benton Foundation undertakes, please refer to <https://www.benton.org/>. These comments reflect the institutional view of the Foundation and, unless obvious from the text, are not intended to reflect the views of individual Foundation officers, directors, or advisors.

<sup>2</sup> MSc (2016), Oxford Internet Institute

<sup>3</sup> National Telecommunications and Information Administration, Department of Commerce; National Science Foundation Notice and Request for Comment, 81 Fed. Reg. 62479 (September 9, 2016).



- Explore the use of network management or technology to drive down cost of service or enhance quality of service in rural and urban underserved communities.
- Explore the use of government-held resources (spectrum, rights of way, facilities) and the quantitative impact of focusing their use to connect rural and urban underserved communities. How could this impact deployment, cost of service, quality of service, encourage use of state or local resources for broadband, encourage the development of new non-incumbent providers, affect the the number of providers available to communities?
- As telecommunications technology transitions from copper to optical fiber, coaxial cable or wireless, vulnerable citizens may be left with less robust telecommunications access. Encourage research into public safety technology and applications that take into account the patchy telecommunications access of vulnerable communities. Research should explore how to use updated technology and applications to effectively reach vulnerable communities at times of distress (natural disaster, power outage, etc), and to identify gaps in emergency communication access.
- Examine the effects of community broadband efforts (both around deployment and digital inclusion) on broadband competition, innovation, cost of service, quality of service and broadband adoption.

## **B. Broadband Access and Adoption**

The RFC seeks comment on research and evaluation related to programs, services, and applications that drive broadband access, adoption, and utilization for individuals and their families, businesses, and institutions. The RFC's questions cover critical data and research needs, including specific areas for federally-supported research (including business models, public-private partnerships, sustainability drivers, the removal of regulatory barriers). The RFC also seeks input on what specific research and data are needed to understand how rural residents and other population groups that have traditionally under-utilized broadband technology (e.g., seniors, low-income families, persons with disabilities) can better adopt and use broadband.

Concerning broadband access, adoption, and use, the National Broadband Research Agenda should:



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- Identify and examine lessons from other models of critical infrastructure deployment (e.g., electricity, roads, drinking water, and broadcasting) to determine which policies best supported ubiquity.
  - Go beyond simple measures of network coverage and availability to include better data on subscriptions and speed, and engage with actual usage contexts, as called out in *Broadband 2021*.<sup>4</sup>
  - Define and systematically adopt key terms associated with broadband access, adoption, and use (e.g., broadband adoption, digital inclusion, digital equity).
  - Create new measures of broadband adoption that include use outside the home. The data gathered through this research could help deepen our understanding of the ways in which individuals engage in a “workaround ecosystem.”<sup>5</sup>
  - Deepen understanding of the role of public Wi-Fi kiosks<sup>6</sup> in promoting broadband adoption and utilization both inside and outside the home.
  - Employ cross-disciplinary research to deepen understanding of the “human-to-human interactions” that are meaningful to individuals and families, particularly in low-income communities, as they adopt and utilize broadband in their everyday lives.<sup>7</sup> For example, collaborations across the fields of education, social work, community health, and library and information science could positively impact work in this area and generate useful data for broadband adoption and utilization efforts.
  - Conduct systematic and periodic literature reviews of academic work on digital inequalities. Evaluate and identify higher-quality work from peer-reviewed journals, books, reports, conference papers, and commissioned works.
  - Identify the most prevalent reasons for under-utilization and non-usage of broadband. The motivations for under-utilization and non-usage are nuanced and multifaceted. To

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<sup>4</sup> Krishna Jayakar, Carleen Maitland, Jon Peha, Sharon Stover, and Johannes Bauer. *Broadband 2021: Report of the Interdisciplinary Workshop on the Development of a National Broadband Research Agenda*. Institute for Information Policy, Penn State University. (July 25, 2016) [https://broadband.ist.psu.edu/wp-content/uploads/sites/16/2016/09/Broadband-2021\\_Final\\_Report.pdf](https://broadband.ist.psu.edu/wp-content/uploads/sites/16/2016/09/Broadband-2021_Final_Report.pdf).

<sup>5</sup> Monica Anderson and John Horrigan, “Smartphones help those without broadband get online, but don’t necessarily bridge the digital divide.” Pew research Center (October 3, 2016) <http://www.pewresearch.org/fact-tank/2016/10/03/smartphones-help-those-without-broadband-get-online-but-dont-necessarily-bridge-the-digital-divide/>. (“[T]hose with smartphones but not home broadband rely on a kind of “workaround ecosystem” that is a combination of using their mobile devices along with other resources such as computers and Wi-Fi available at public libraries.”)

<sup>6</sup> For example, see LinkNYC: <https://www.link.nyc>

<sup>7</sup> For example, see Rhinesmith, Colin. “Digital Inclusion and Meaningful Broadband Adoption Initiatives.” Evanston, IL: Benton Foundation, January 2016. [benton.org/broadband-inclusion-adoption-report](http://benton.org/broadband-inclusion-adoption-report).



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supplement insights from quantitative data, the NTIA and NSF can encourage sensitive research with vulnerable groups.

- Encourage community-based participatory research (CBPR) methodologies that include research participants in studies that address barriers to broadband adoption and utilization. Such methodologies might also be used to create new measures of broadband that are adoption rooted in people’s everyday experiences with technology.
- Investigate the role of mobile Wi-Fi hotspot lending programs in libraries<sup>8</sup> across the U.S. to promote broadband adoption and utilization inside and outside the home.
- Explore the impacts of data caps and/or throttling on broadband pricing, adoption, and usage, both on fixed and mobile networks.
- Determine impact of “zero-rating” plans on broadband pricing, adoption, and usage.
- Investigate, through qualitative research, the role of public libraries in promoting broadband adoption in rural areas across the U.S. This research could build on recent quantitative research, which shows that higher rates of broadband adoption can be found in rural areas with public libraries.<sup>9</sup>

### C. Socioeconomic Impacts

The RFC seeks comment on the social and economic impacts of deploying and/or using broadband. Specifically, the RFC asks about broadband’s economic and social impact, and specific socioeconomic research areas that can help measure the effectiveness of federal programs seeking to foster broadband access, adoption, or competition. The RFC also asks which specific research proposals and associated methodologies, regarding the socioeconomic impact of broadband, should be prioritized.

The National Broadband Research Agenda should:

- Identify the role of anchor institutions and community organizations in supporting long-term social and economic development goals through their broadband adoption and utilization programs.

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<sup>8</sup> For example, See the Library HotSpot program at the New York Public Library, <http://hotspot.nypl.org>

<sup>9</sup> For example, see Brian Whitacre and Colin Rhinesmith Public libraries and residential broadband adoption: Do more computers lead to higher rates? *Government Information Quarterly*, (April 2015) 32(2), 164-171. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0740624X15000301>.



- Identify which data gathering tools and methods would be most effective to measure the social and economic outcomes of broadband adoption and utilization efforts by anchor institutions and community organizations.
- Research that explores the costs of not connecting. Encouraging research that provides a quantitative economic estimate will support the determination of the optimal investment level to improve connectivity. Research that explores what current and future growth the economy and society loses as a result of poor broadband access.
- Build on the work done by the Social and Behavioural Sciences Team created by the White House Office of Science and Technology Policy in 2014<sup>10</sup> and explore applying behavioral science to effectively evaluate federal programs seeking to foster broadband access, adoption, or competition. Empirically evaluate program rollouts, short-term outcomes, and long-term outcomes.

#### **D. Opportunities for Federal Leadership in Data Collection and Research**

The RFC seeks comment on implementation of the suggestions and recommendations NTIA and NSF receive and the resources and leadership (e.g., federal government, industry, academia) needed to make the National Broadband Agenda a reality. Specifically, the RFC asks about sharing research, cross-disciplinary collaboration, the federal government's role, expanding current data sets and collecting new data, policy changes to enhance research, and standardizing broadband and commonly-used demographic terms across the research community.

To make the National Broadband Research Agenda a reality, the federal government should:

- Create, fund and support an openly-accessible, broadband research repository. This repository could be housed at an academic institution in collaboration with other researchers and practitioners who need access to current broadband research. This effort could also help external stakeholders to connect their research to those in federal agencies who could act upon the research.
- Create a broadband data portal. Currently, broadband-related data is not cleanly centralized. There are rich, interesting datasets across different agencies and departments: e.g., at the NTIA (Data Central), FCC (<https://www.fcc.gov/reports-research/data>),

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<sup>10</sup> See Executive Office of the President National Science and Technology Council, Social and Behavioral Sciences Team Annual Report. (September 2015)  
[https://www.whitehouse.gov/sites/default/files/microsites/ostp/sbst\\_2015\\_annual\\_report\\_final\\_9\\_14\\_15.pdf](https://www.whitehouse.gov/sites/default/files/microsites/ostp/sbst_2015_annual_report_final_9_14_15.pdf).



Census Bureau (CPS Computer and Internet Use Supplement), etc. Some are linked on GSA's [data.gov](https://data.gov), some are not. For example, there is some data on the National Deaf-Blind Equipment Distribution Program (iCanConnect) in the FCC's Electronic Comments Filing System, but it is not linked to anywhere else. A research portal that centralizes broadband research resources can boost research efficiency, contribute to valuable new insights, and help set the broadband research agenda.

- Encourage visualization of geospatial broadband data. The National Broadband Map and the FCC both offer good mapping resources and have a growing collection of maps and Shapefiles (<https://www.fcc.gov/reports-research/maps/>). Consolidate mapping efforts and ensure geospatial broadband data can be effectively visualized without excessively laborious cleaning or aggregation.
- Fund cross-disciplinary research, particularly across the fields of education, social work, community health, and library and information science, to deepen our understanding of the non-price barriers to broadband access, adoption, and use. These collaborations could also help to create solutions to the persistent challenges facing individuals and families from low-income and other vulnerable communities.
- Fund important research that is difficult to finance otherwise (e.g., large-scale qualitative).
- Encourage public access to data sets that provide information on deployment, access, use, and adoption: geographic information on deployment, number of providers, type of services available, quality of service, cost of service, subscription churn, anonymized data related to data usage, and granular geographic and demographic data of areas of persistent non-adoption and the same on areas of robust high-adoption.
- Provide non-governmental researchers with detailed guidance on how to best shape their research and data to be most useful for future government use or collaboration.
- Provide adequate funding to create and sustain a robust broadband mapping effort in collaboration with state government and community anchor institutions.
- Conduct workshops and webinars to encourage analysts and developers to engage with any data APIs and tools. This will be helpful in moving towards frequently-updated visualization. (Currently, the National Broadband Map updates every six months.) Eventually, this can be helpful in empowering consumers and identifying broadband blackspots.
- Mandate funding for research and evaluation in federally-funded broadband access, adoption, and utilization programs.



- Ensure that all federal agencies engaging in research with vulnerable communities include questions related to broadband access, adoption, and use.
- Wherever possible, use existing institutional identification and locale codes (e.g., Federal-State Cooperative System (FSCS) IDs for public libraries) in any new data collection efforts that involve community anchor institutions to improve comparability across datasets.
- Efforts to increase broadband adoption and advance broadband technology should be undertaken so that personal privacy is not compromised.

Commenters appreciate the opportunity to offer input on the National Broadband Research Agenda. There are many significant opportunities for data collection, analysis, and research to keep pace with, and take advantage of, the massive digital changes that permeate our economy and society, and the commenters request that NTIA and NSF prioritize the needs of traditionally unserved and underserved populations while creating and implementing the Agenda. We look forward to additional opportunities to offer input on the Agenda and the see its publication.

Sincerely,

Amina Fazlullah  
Director of Policy  
Benton Foundation  
(650) 814-8003  
amina@benton.org