**BEFORE THE UNIVERSAL SERVICE FUND (USF) WORKING GROUP**

**COMMENTS OF**
**THE CONSUMER FEDERATION OF AMERICA*,**
**CONSUMER ACTION****

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*** The Consumer Federation of America (CFA) is an association of approximately 200 national, state, and local nonprofit consumer organizations. Founded in 1968, CFA works to advance the consumer interest through research, advocacy, and education. CFA advocates on behalf of consumers throughout the country, with a particular focus on low-income consumers.**

**** Through education and advocacy, 501(c)(3) nonprofit Consumer Action fights for strong consumer rights and policies that promote fairness and financial prosperity for underrepresented consumers nationwide.**

**SEPTMBER 15, 2025**

**CONTENTS**

## A. INTRODUCTION

We believe it is important to lay out the main thrust of the comments at the beginning, rather than the end, since this establishes the context of the recommendations.

Almost exactly a decade and a half ago I presented a paper entitled *The Socio-Economics of Digital Exclusion in America* at the 38TH Research Conference on Communications, Information and Internet Policy of the 2010 Telecommunications Policy Research Conference.[1] That paper provided the basis for numerous comments on universal service offered in response the Federal Communications Commission notices and requests for comments about universal service. [2] We will not present those papers here, but they are a launch pad for these comments in response to the FCC's recent request. We will include certain of the exhibits from that document updated with the most recent data available. Moreover, we have included as an Appendix with the policy recommendations and answers to the questions asked by the FCC 15 years ago. Many of the answers remain the same. That exercise provides the basis for the general conclusion that guides our answers to the FCC's questions.

There are five observations that underly these comments.

(1) Broadband access and use are immensely important to individual households and the U.S. economy.
(2) The FCC and the U.S. have made significant progress toward the goal of universal service as it pertains to broadband.
(3) However, there remains a significant, even remarkable, shortfall in achieving universal service as we came to define it in the pre-broadband era.
(4) The FCC has programs in place to achieve the goal, but the challenges remain substantial.
(5) Thus, above all, U.S. policy should not consider shrinking or abandoning the universal service programs; those programs should be expanded and improved.

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[1] Hereafter, Cooper, 2010a.

[2] The key documents also include Cooper, Mark, 2010b, *The Challenge of Digital Exclusion In America: A Review of the Social Science Literature and Its Implications For The U.S. National Broadband Plan*, Consumer Federation of America.

The growth of broadband has been so remarkable and so recent that we may not recognize what a recent phenomenon it is. As Figure 1 shows (upper graph), household broadband penetration was virtually zero at the start of the 21st century; today it is almost 80 percent. Yet, as shown in the lower graph of Figure 1, the 20th century communications technologies penetrated to 90+% in less time (except for telephones, the growth of which paused in the Great Depression and World War II), in less time. Broadband is still lagging by about 20% and it is extremely important, as identified in the graph. I have shown that there are many benefits to the growth of broadband (Figure 2) and that households that remain without broadband while its use spreads, lead to greater deprivation (Figure 3).

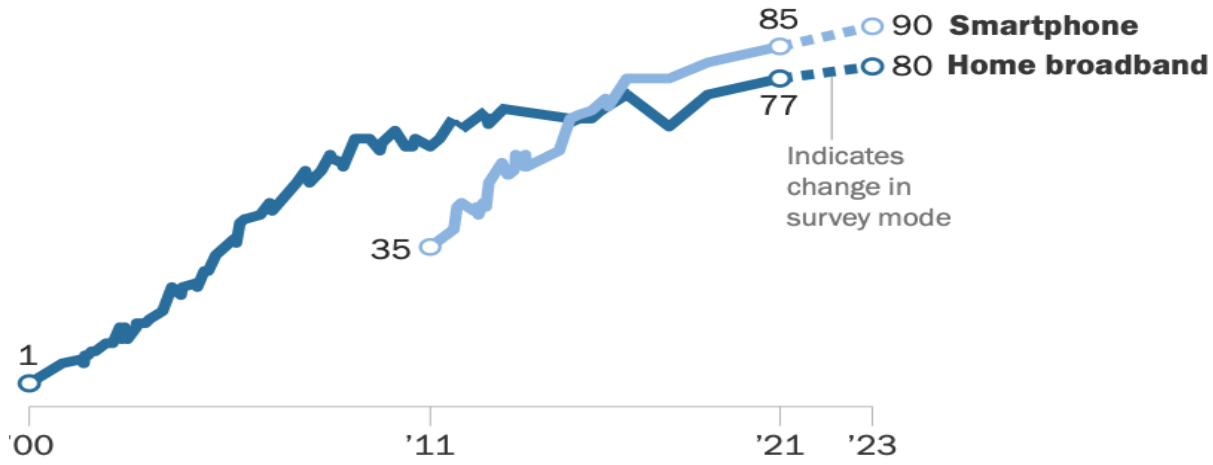
### B. IS THERE STILL A DIGITAL DIVIDE?

Ten years ago it was clear that a digital divide existed. Framed broadly, with regard to use of the Internet, National Telecommunications and Information Administration (NTIA) concluded that "too many Americans still rely on slow, narrowband Internet access or do not use the Internet at all."[3] In the earlier paper, I concluded that:

> While income is a powerful predictor of adoption, as shown above, it is not the only background determinant of digital adoption. Income and education are highly correlated socioeconomic variables, and both affect adoption. Age is also a critical demographic factor. Race/ethnicity also plays a role, but controlling for income and education shows that a large part of the effect of race and ethnicity is through their impact on income and education. Because people of color tend to have lower incomes and less educations, in America, the racial and ethnic dimension of digital exclusion overlap are accounted for by the income and education factors. The influence of gender on access and use has declined over time, although it continues to be important in some aspects of use.[4]

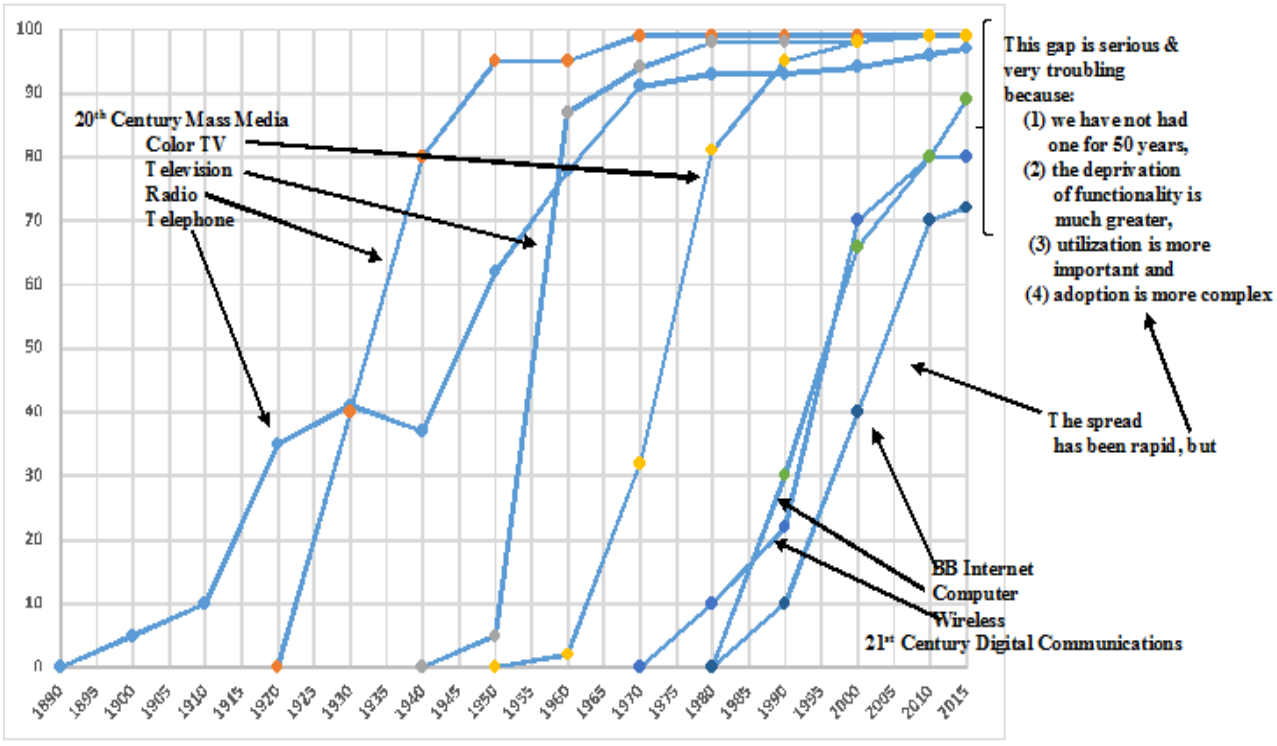
[3] Cooper, 2010a. at 13.
[4] Id at 15. There are some groups with much lower penetration like indigenous peoples, see Mejía, Daniela, 2024, ,"Broadband Access in Tribal Areas Lags Rest of the Nation," *U.S. Bureau of the Census*, June 18,

**FIGURE 1: % OF HOUSEHOLDS THAT SAY THEY OWN OR SUBSCRIBE TO**




Source: Gelles-Watnick, 2024, *Americans' Use of Mobile Technology and Home Broadband, Pew Research Center, January 31*

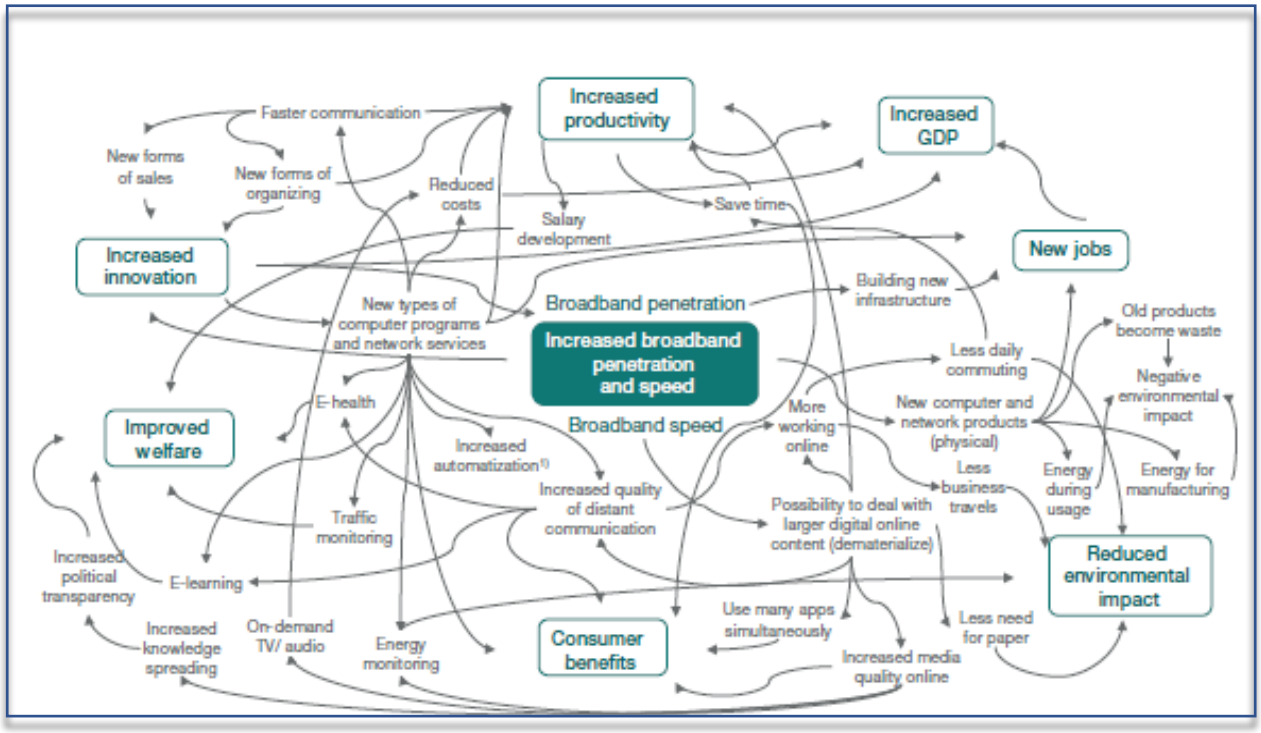
**LONG-TERM UNIVERSAL SERVICE: % OF HOUSEHOLDS WITH COMMUNICATION TECHNOLOGIES**




Source: U. S. Bureau of the Census, *Statistical Abstract of the United States,* various; U.S. Department of Commerce, *Historical Statistics of the United States,* 1975; Federal Communications Commission, *Local Competition and Broadband Reports*, various.

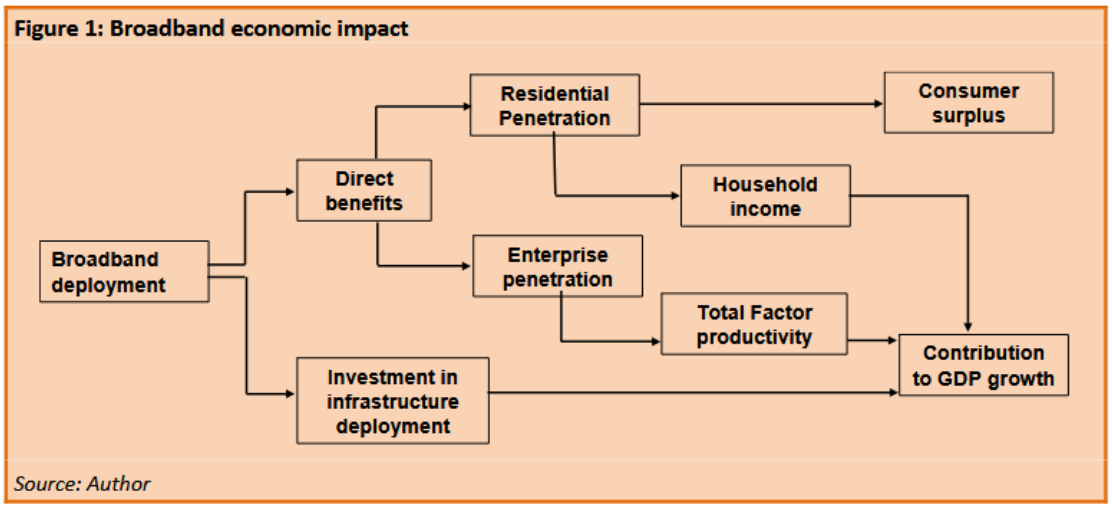
**FIGURE 2: SCHEMATIC OF EFFECTS STEMMING FROM THE DIGITAL REVOLUTION AND DEPLOYMENT AND ADOPTION OF BROADBAND**

**MACROECONOMIC LEVEL BENEFITS**



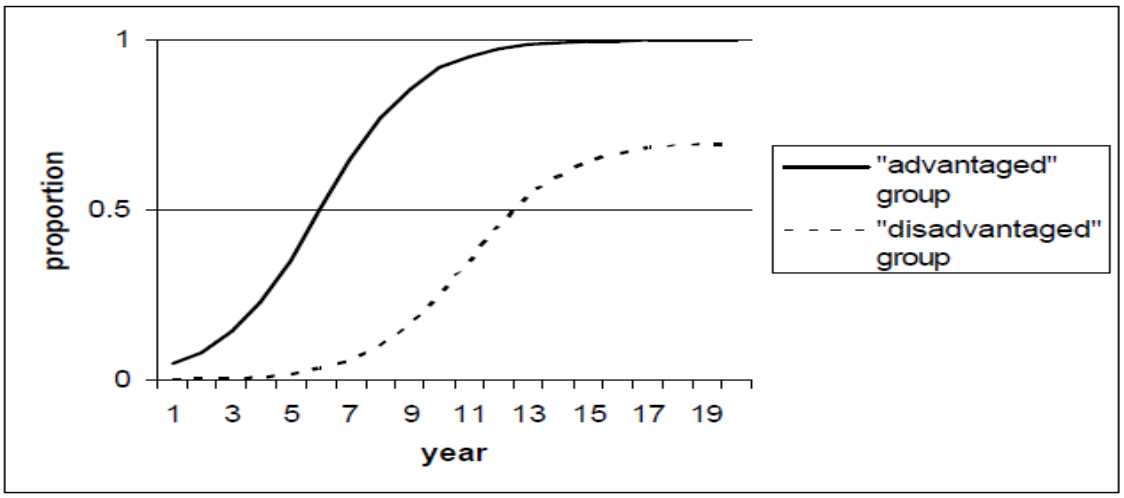

**INDIVIDUAL-LEVEL BENEFITS**

Broadband economic impact



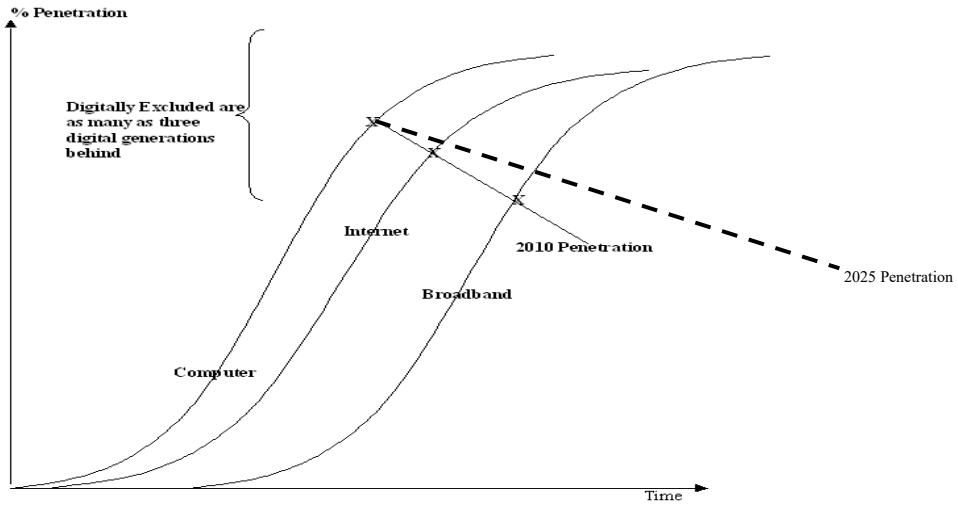

Source: Ericsson, Arthur D. Little, and Chalmers University, *Socioeconomic Effects of Broadband Speed*, September 2013. A much simpler version that conveys the same message can be found in International Telecommunications Union, *Impact of Broadband on the Economy,* April 2012, p. 3.

**FIGURE 3: NORMALIZATION V. STRATIFICATION MODELS OF DIFFUSION**




**Source: Steven P. Martin and John P. Robinson, "The Income Digital Divide: An International Perspective," *IT & Society,* 7 (1) 2004, p. 4.**

## Stratified Diffusion with Cumulative Technology and Digital Exclusion




As Table 1 shows, there is a substantial gap in adoption and use of broadband and its key services. The greatest difference is between income, with lower income households being at a substantial disadvantage, but there is at least 15 percent difference in education, age, racial and lower rate. Gender no longer shows these differences, but indigenous peoples have a lower rate. By these basic measures there is a continuing significant challenge.

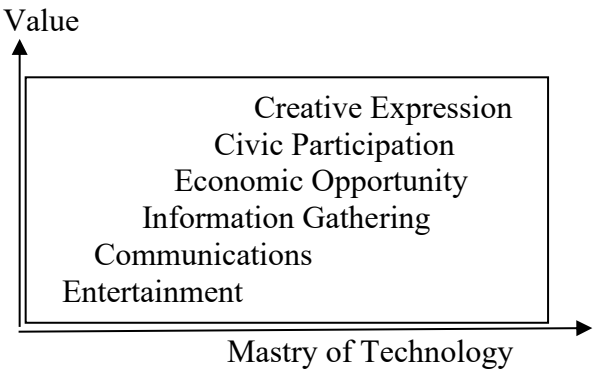
The hierarchy of use compounds the problem in the sense that "all" citizens should be able to engage in all activities. The broad findings of the literature on the impact of connectivity

can be rendered in a more meaningful fashion by comparing the activities in key realms of daily life of individuals who have broadband at home to those who do not have the Internet at home.

**TABLE 1: DIFFERENCES IN BROADBAND SUBSCRIPTION AND USE, CIRCA 2024**

| Penetration & Use Worst v. Best | Deficit (%) |
|---|---|
| Broadband Subscription | |
| 30k v. 100k income | 35 |
| High School v. College | 25 |
| 65+ v.18-29 age | 17 |
| Rural v. Suburb | 12 |
| Black v. White | 10 |
| Social Media Use | |
| Rural v. Suburb | 15 |
| HS v. Coll | 24 |

**FIGURE 4: HIERARCHY OF INTERNET ACTIVITY**




Source: Pew Research Center, Internet Broadband Factsheet, Social Media Fact Sheet, November 13. 2024.

Focusing on counts of important daily activities that affect economic and civic engagement is a convenient way to highlight the difference between the connected and the disconnected, but the ease of the measurement should not obscure important qualitative and nuanced conception of use. The literature identifies at least six types of activities on the Internet that are placed in a rough hierarchy of policy relevance.[5] As Table 2: shows, by the first decade of the 21st century, Internet use had become very widespread. Figure 5 shows that those without the Internet at home were at a severe disadvantage in their ability to conduct activity. That is, the higher the ranking, the more compelling the case is for public policy intervention. These are generally assessed according to their "value" in society and the extent to which the usage demonstrates (or requires) mastery of the technology.

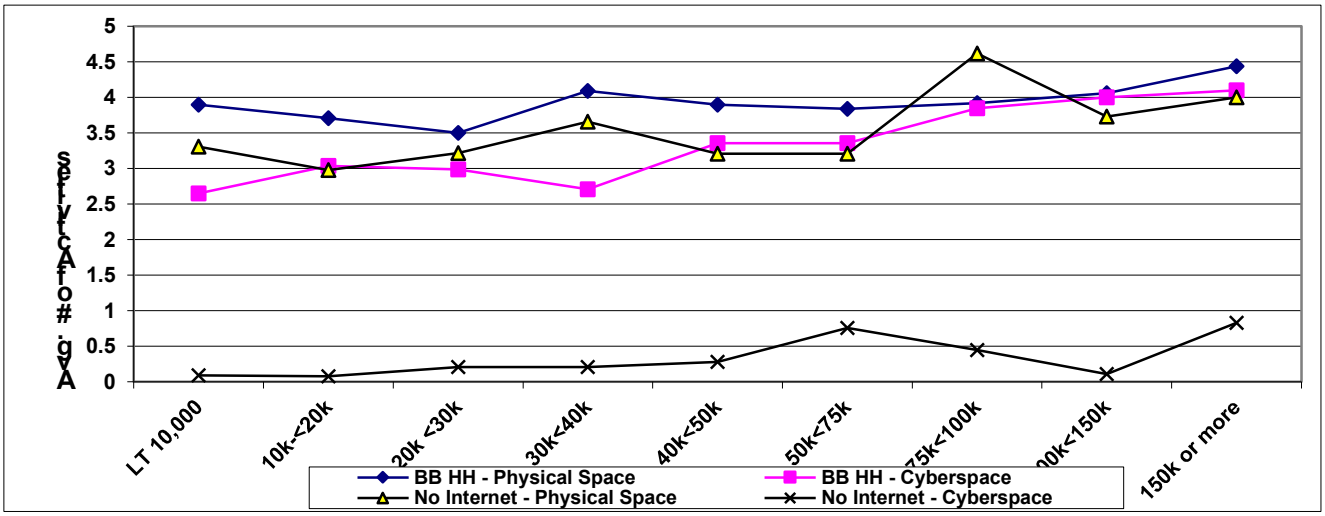
[5] This ranking of uses foreshadows the difference in perspective between the commercial operators of broadband networks, who emphasize high profit one-way push entertainment applications, and critics of over commercialization of the communications infrastructure, who emphasize participation and creation of content by users of broadband

**TABLE 2: INTERNET ACTIVITIES ACROSS TIME (PERCENT OF RESPONDENTS)**

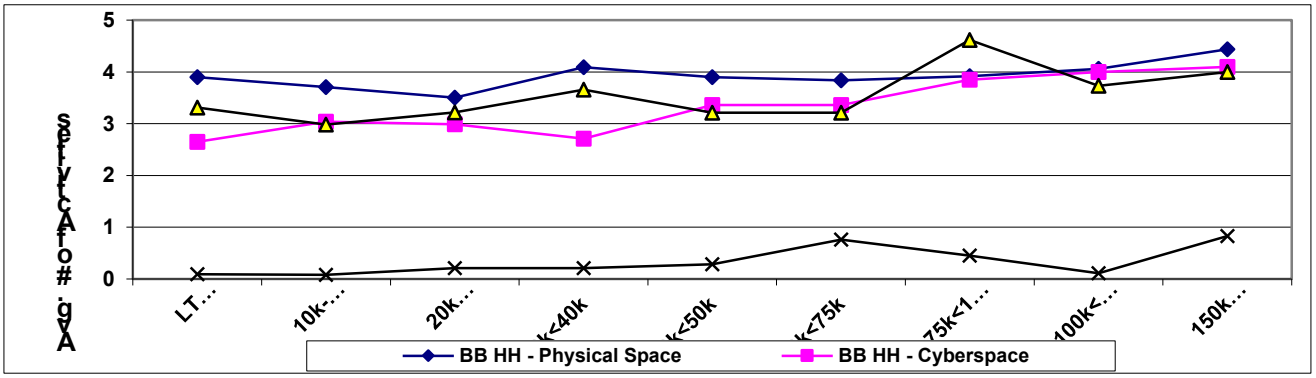
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do it | Yester- | Do it | Yester- | Do it | Yester- | Do it | Yester- | Do it | Yester- | Do it | Yester- | Do it | Yester- | Do it | Yester- | Do it | Yester- | Do it | Yester- |
| Activity | | day | | Day | | day | | day | | Day | | day | | day | | day | | day | | day |
| E-Mail | 91-93 | 43-52 | 93-95 | 42-53 | 93-95 | 46-51 | 91-93 | 48-53 | 93 | 45-51 | 90-91 | 49-54 | 90-91 | 52-53 | 90-92 | 56-60 | 89-92 | 56-60 | 89-90 | 57-58 |
| Buy a Product | 46 -49 | 3-4 | 51-59 | 2-6 | 67-62 | 3-4 | 61 | 5 | 65-67 | 3 | 67 | | 71 | 6 | 66-71 | 6-7 | | | 75 | 8 |
| Look For a Job | 38 | 5 | | | 47 | 4 | 43 | 7 | 42 | 4 | 44 | 7 | 46 | 5 | | | 47 | 6 | 52 | 9 |
| Bank online | 18 | 4 | | | 30-32 | 7-10 | 34 | 9 | | | 41-43 | 12-15 | | | 53 | 21 | 55 | 19 | 57 | 24 |
| Rate a Product | | | | | | | | | 26 | 2 | 30 | 3 | | | 32 | 3 | | | 31 | 3 |
| Do an Auction | | | 15-17 | 2-3 | 20-22 | 3-4 | | | 23 | 3 | 24 | 3 | 27 | 3 | 26 | 3 | | | 27 | 3 |
| Craig's List | | | | | | | | | | | 22 | 6 | 30 | 4-6 | 32 | 6 | | | 49 | 9 |
| | | | | | | | | | | | | | | | | | | | | |
| Visit Gov't Site | 47-51 | 6-7 | 57-60 | 5-7 | 56-62 | 8-10 | 65-67 | 9-11 | 54 | 10 | | | 66 | 14 | | | 59-66 | 10-13 | | |
| | | | | | | | | | | | | | | | | | | | | |
| Network Site | | | | | | | | | | | 7-11 | 2-3 | 16 | 9 | | | 29-35 | 13-19 | 45-47 | 27 |
| | | | | | | | | | | | | | | | | | | | | |
| Watch Video on a share site | | | | | | | | | | | | | 33 | 8 | 48 | 15 | | | 62 | 19 |
| | | | | | | | | | | | | | | | | | | | | |
| Write a Blog | | | | | 3-7 | 1 | | | 5 | 1 | | | 7-10 | 1-2 | 8-13 | 5 | 11-13 | 5 | 11 | 2 |
| Read a Blog | | | | | | | | | 17 | 3 | 23-27 | 5-7 | | | 29 | 10 | 32-36 | 10-12 | | |
| Post Comment | | | | | | | | | | | | | | | 18-22 | | | | 26 | 8 |
| Work on Others' Web site | | | | | | | | | | | | | 11-13 | | 13 | | | | 15 | 4 |
| | | | | | | | | | | | | | | | | | | | | |
| Remix | | | | | | | | | | | 18 | 3 | | | 9 | | 11-17 | 3 | 15 | 2 |
| Share own Stuff | | | | | | | | | | | | | 19 | | 22 | | | | 30 | 4 |
| Twitter | | | | | | | | | | | | | | | | | 6-11 | 2-4 | 11-19 | 5-9 |

**Source: Pew Internet and American Life Project, Trend Data**

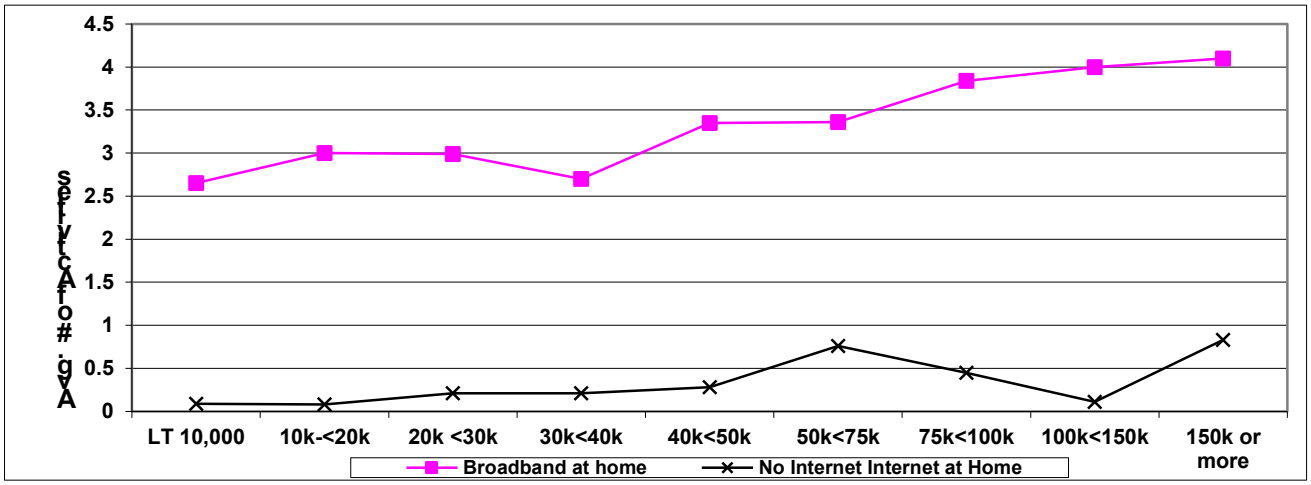
**Figure 5: Number of Internet Activities Yesterday by Income and Connectivity**




**Economic Activities**




**Political Activities**

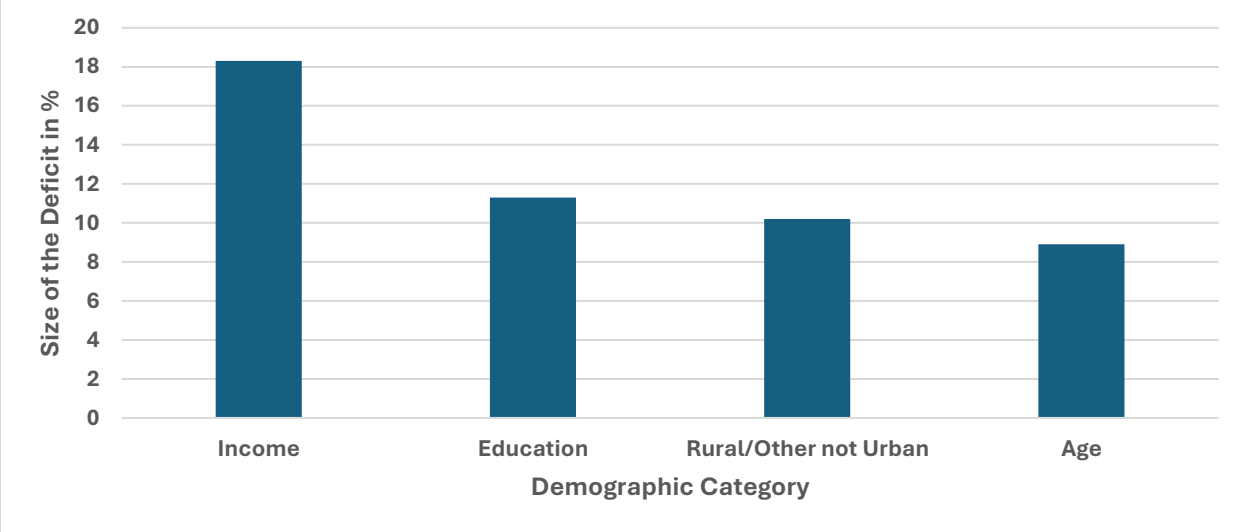



**Source: Pew Internet and American Life Project, *Spring Tracking*, March 2009.**

While the judgments are "subjective," there is general agreement on the ranking of uses. Creative expression embodies the production and sharing of content online. This is generally deemed to be the highest level of use. Civic participation and access to economic opportunities are also rated highly. Information gathering and communications have become quite routine and are less often singled out as the standard that needs to be achieved. Finally, entertainment is seen as least important from the public policy point of view.[6] Universal service should include all the levels.

We have noted that there has been improvement, but there remains a significant challenge, Figure 6 shows the ongoing differences between the "best" and "worst" performing groups in for each of the primary demographic factors, generally defined as in Table 1, although the specific categories may be slightly different.

**FIGURE 6: DEFICIT IN HOME INTERNET BY "BEST AND WORST" DEMOGRAPHIC CATEGORIES**




Source: NTIA, Data Explorer, for 2023.

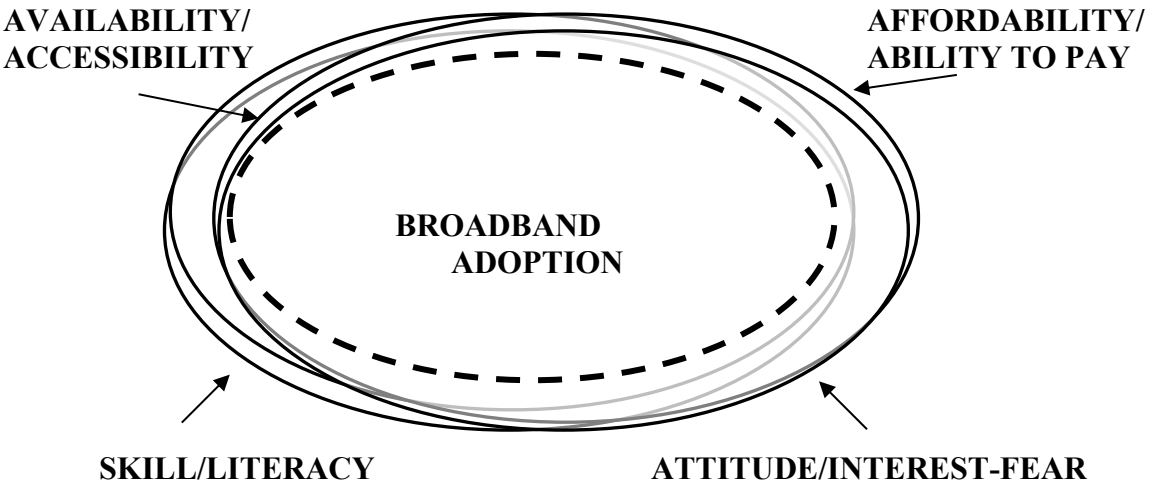
[6] This ranking of uses foreshadows the difference in perspective between the commercial operators of broadband networks, who emphasize high profit one-way push entertainment applications, and critics of over commercialization of the communications infrastructure, who emphasize participation and creation of content by users of broadband

When asked why they do not have internet at home, over one quarter cite cost, equipment and availability, and two thirds say they do not need it. The former is within the purview of the FCC; the latter are shared with other agencies. The point is that there is a large enough deficient to push forward with programs, but also reason to look very hard and long at why the deficit exists.

### C. WHY DOES THE DIGITAL DIVIDE STILL EXIST AND WHAT CAN BE DONE ABOUT IT?

Having concluded that the digital divide still exists and is important, the next questions "why does the digital divide still exist and what is to be done about it?" The 2010 paper proposed a simple, some would say complex, explanation that explains the obstacles to adoption of broadband. As shown in Figure7, the literature identifies four overlapping obstacles to service.

**FIGURE 7: COMPLEX CAUSES OF ICT ADOPTION**




**Source: P. Verdegem and P. Verhoest, "Profiling the Non-User: Rethinking Policy Initiatives Stimulating ICT Acceptance," *Telecommunications Policy,* 31, p. 644.**

In Table 3 these obstacles are defined, from earlier analyses. More importantly, Table 4 gives fuller definitions and matches them with FCC policies that generally respond to each of the obstacles. As shown in Table 54, a decade and a half ago, there were over four dozen policies in place in the advanced industrial nations addressing various aspects of these obstacles.

**TABLE 3: MAJOR CATEGORIES OF FACTORS AFFECTING DIGITAL EXCLUSION**

| | |
|---|---|
| **Availability**: | Physical: proximity and access to ICT equipment and services.<br>Bandwidth (services), Applications (Content), Hardware (Devices |
| **Affordability**: | The user can afford to use the equipment<br>Financial: ability to pay for ICT equipment and services<br>Temporal (time to spend on different activities) |
| **Skill:** | The user has the required cognitive skill and knowledge to use the equipment to identify information needs and finds, uses, evaluates and stores information.<br>Multi-literacies: Technological, Language, Numbers, Creative and critical skills<br>Operational: Navigation, Usability (physiological limitations), Experience<br>Technology Design: 'human-machine' interface, hardware and software designed to meet needs of a population, Complexity, Diversity, Intensity |
| **Attitude:** | The user has the individual inclination and social location to use the technology<br>Psychological: The user feels comfortable about using the equipment.<br>Perception: Interest, Motivation, Relevance, Practical value<br>Social resources (Interpersonal relationships): Co-participation and sharing; Social network positions and relations in workplace, home or community (spaces & places; planning)<br>Organizational forms and regulations that structure access to digital content in particular ways.<br>Cultural: Status credentials appropriate for the user to be in the location and use the equipment<br>Content: meaning and significance to culture or lived reality. Local language, local content, effective user control and interface;<br>Production: ability of individuals to develop content of their own. |

Source: Jan A.G. M. van Dijk, *The Deepening Divide: Inequality in the Information Society* (Thousand Oaks: Sage, 2005), p. 24; Karine Barxilai-Nahon, "Gaps and Bits: Conceptualizing Measurements for Digital Divides/s," *The Information Society,* 2006, 22. p. 273.Dahms, 2009, M., 2009, "Shifting Pocus from Access to Impact: Can Computers Alleviate Poverty?" in Enrico Ferro, et al. (Eds.) Overcoming Digital Divides: Constructing an Equitable and Competitive Information Society (Hershey:IGI Global, 2010), p. 450); Selwyn and Faser, 2009, Beyond Digital Divide: Toward an Agenda for Change, in E. Ferro, et al., (Eds.) Overcoming Digital Divides: Constructing an Equitable and Competitive Information Society (IGI), p. 5, 7; Dunn, 2009, p. 330; Comunello, 2009,pp. 592, 596, 597; Hill, Davies and Williams, "older People and Internet Engagement: Acknowledging Social Moderators of Internet Adoption, Access and Use," Information, Technology & People, 21(3) 244-266.pp. 254-255.

**TABLE 4: OBSTACLES TO UNIVERSAL SERVICE & U.S. (FCC) POLICIES TO OVERCOME THEM**

| Obstacle | Definition | FCC Policy |
|---|---|---|
| **Availability/ Accessibility** | In many cases broadband is not available, and even where it is, it may not be accessible to many households. | High Cost Fund |
| **Affordability/ Ability To Pay** | The service may be too expensive, or the equipment necessary to use it may not be present in the household because it is costly. | Lifeline/Link-up |
| **Skill/Literacy** | Some (all) key members of the household do not possess the skills to use the service | E-rate |
| **Attitude/ Interest-Fear** | Some (all) key members of the household do not perceive the value of the service or fear it will compromise other important values (e.g. privacy) | Rural Hospitals |

## TABLE 5: POLICIES IMPLEMENTED IN ADVANCED INDUSTRIAL NATIONS

**Accessibility** to all technologies for citizens regardless of ability should be a goal that concerns the strategic need for government or other authoritative organisations to stipulate (and monitor adherence to) standards.
Design and usability standards issues

- Mandatory regulations for ICT accessibility for government purchasing (USA)
- Design for all networks and centres (FIN, GR, NL, N)
- Promotion of design for all in appropriate higher education courses and amongst industry (N)
- National resource centres demonstrating participation, accessibility and assistive devices (N)
- Web design and usability standards also encompass issues about:

Accessibility standards and guidance for web developers (A, BG, CZ, DK, EE, FIN, IRL, I, LT, NL, N, PL, RO, UK)

- (naming and shaming) Portals that monitor compliance of government/all web sites with minimum benchmarking standards (NL, PL)
- 'Best on Web' networks, centres or competitions that test and showcase 'off the shelf' products (DK)

Infrastructure issues

- The return path on set top boxes (UK)
- Roll out of dark fibre and other infrastructure (I, NZ)
- WiMax as an alternative to local loop expansion (I, SI, TKY)
- Support for new infrastructure technologies (I)
- Public Access Centres (BG, CZ, FIN, H, I, LV, N, PL, P, RO, UK and others)
- Incentives and encouragement to adopt and utilise technology (all countries)
- Grants and loans for everyone, excluded, children or specific groups to purchase technology (FIN, I, LV, P, RO)
- Free laptop for every child (this will provide benefits for parents and grandparents)

**Literacy** and digital competence: Enhancing basic literacy and technological literacy will improve life chances and facilitate lifelong learning

- National skills strategy (I)
- Lifelong learning goals (BG, CZ, EE, FIN, IRL, LT, NL, N, UK)
- ICT strategy for schools and/or school children (A, D, IRL, NL, N, UK)
- ICT support strategy or policy for teachers, third sector and/or carers (P, RO)
- Awareness and confidence building (A, CZ, EE, FIN, GR, LV, LT, NL, PL, RO, CH, UK)
- Support and training for all or excluded groups (CZ, IRL, LV, LT, NL, UK)
- Online/DVD literacy materials (A, CZ, D, I)
- Online/DVD digital literacy materials (A, CZ, D, I)
- ICT mentors (H, UK)
- Annual contest about ICT for grandparents and grandchildren (HUN)
- Netsafe Now' Once a year event about safety on the internet (DK)

**Technology** to enhance independence and ageing;

- Support and/or funding for the development of assistive technologies
- Establishment of interoperability/compatibility standards for assistive living technologies
- National resource centres and demonstration initiatives and centres on ambient assisted living (I, NL, SI)
- Centres of excellence for inclusive technologies for older people (I)
- Entertainment and communications portal for older people (I, NL, PL, P, RO, S)
- Development of online activities for the University of the 3rd Age (AUS, CZ)

Support to provide older and disabled people with basic digital literacy Awareness and confidence building (A, CZ, EE, FIN, GR, LV, LT, NL, PL, RO, CH, UK)

- 'Connected not excluded' initiative to reduce ICT anxieties for older people (D)
- Development and support for voluntary organisations assisting older people to use ICT (POL)
- Support and training (A, BG, CZ, DK, FIN, I, LT, N, P, S, UK)
- Online/DVD digital literacy materials
- ICT mentors (H, UK)
- Annual contest about ICT for grandparents and grandchildren (H)
- 'Netsafe Now' Once a year event about safety on the internet (DK)

Technology for inclusion:

Simplify the life of users and improve the efficiency of service delivery to all citizens!

- Single portals (AUS, CZ, EE, GR, LV, LT, NL, P, RO, SI, TKY, UK)
- Interoperability goals, XML schema and guidelines (FIN, D, I, N, P, RO, SI, UK
- Style guidelines and WAI compliance (A, BG, CZ, DK, EE, FIN, IRL, I, LT, NL, N, PL, RO, UK)
- Data sharing (EE, F, LT, N, PL, UK)
- Secure data exchange (EE, F, LT, N, NZ, PL, UK)
- Electronic signatures (A, BG, SL)
- Public key infrastructure from trusted sources (EE)

Promotional issues associated with enhancing the use of technology for inclusion:

- A champion and/or mandatory requirements
- Promoting the benefits of technology for excluded groups
- Providing more opportunities for practitioners, IT specialists and excluded groups to meet together to discuss common needs

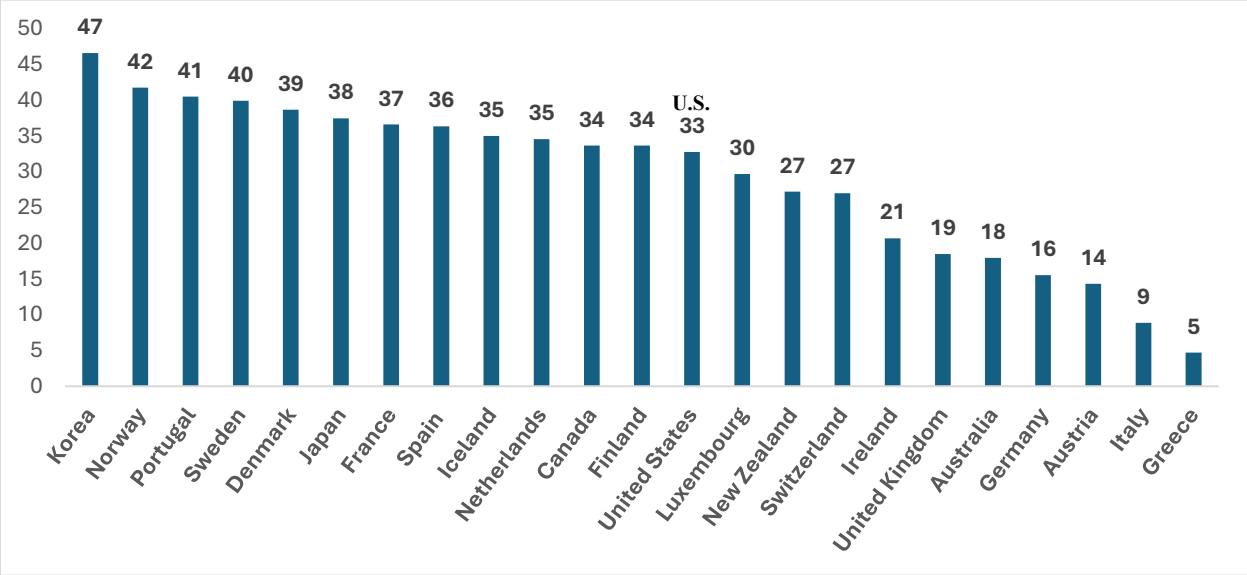
List of Nations

| | | |
|---|---|---|
| A, Austria<br>AUS, Australia<br>BG, Belgium<br>CH, Switzerland<br>CZ, Czechoslovakia<br>D, Germany<br>DK, Denmark<br>EE, Estonia<br>F, France<br>FIN, Finland,<br>GR, Germany<br>H. Hungary<br>IRL, Ireland | I, Italy<br>LT, Lithuania<br>LV, Latvia<br>N, Norway<br>NL, Netherlands<br>NZ, New Zealand<br>P, Portugal<br>POL, Poland<br>RO, Romania<br>SI, Singapore<br>SL, Slovakia<br>TKY, Turkey<br>UK, United Kingdom | Source: Communities and Local Governments, An Analysis of International Digital Strategies: Why Develop a Digital Inclusion Strategy and What Should be the Focus, October 2008. |

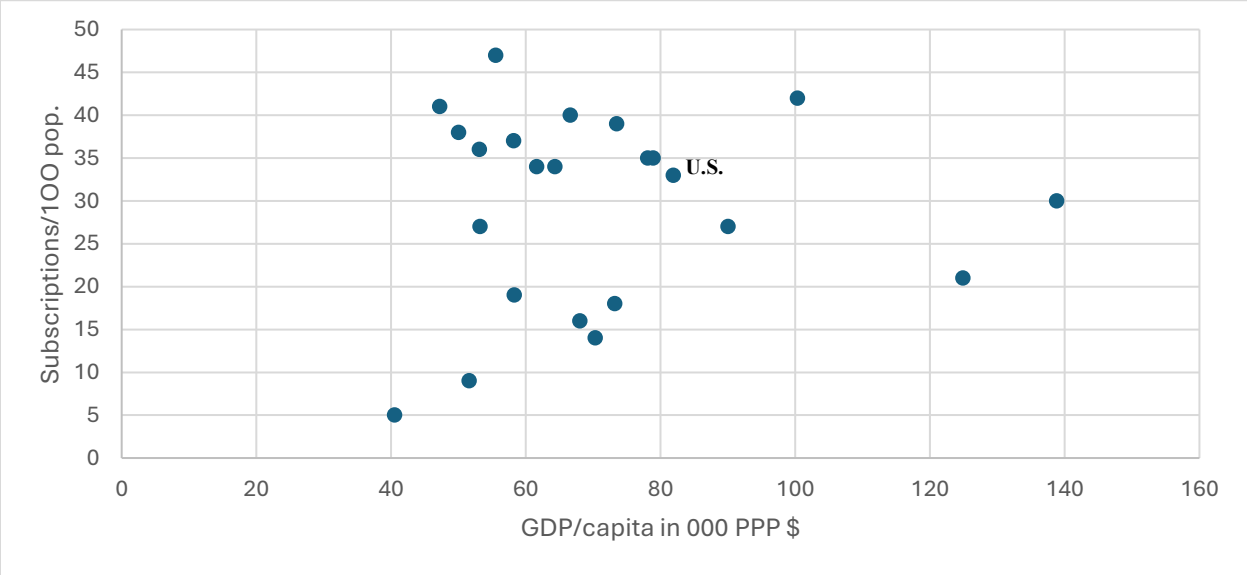
Since the purpose of these comments is to suggest ways to improve the FCC universal service programs, we will not engage in an evaluation of each of the four dozen plus programs. We include the list only to show how much thinking had gone into universal service programs. In fact, any effort to evaluate these policies is difficult, if not impossible, and measured by true broadband subscriptions (Cable and Fiber), the U. S. is in the middle of the pack (see Figure 8). Adjusting for GDP/per capita, the U.S. is in roughly the same position – 12 nations have lower GDP and high subscription rates, and one has higher GDP and higher subscription.

The important point is that having withstood court challenges, the FCC clearly has the authority to pursue such policies. We never doubted this authority, which we believe goes back to the first paragraph of the law that created the FCC.

**FIGURE 8:SUBSCRIPTONS PER 100 INHABITANTS**




**Subs per 100 v. GDP/cap. in Purchasing Power adjusted dollars**




Source: OECD Broadband database.

COMMUNICATIONS ACT OF 1934
AN ACT To provide for the regulation of interstate and foreign communication by wire or radio, and for other purposes.
Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled.

TITLE I--GENERAL PROVISIONS
SEC. 1. [47 U.S.C. 151] PURPOSES OF ACT, CREATION OF FEDERAL COMMUNICATIONS COMMISSION.
For the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of

> the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, for the purpose of promoting safety of life and property through the use of wire and radio communication, and for the purpose of securing a more effective execution of this policy by centralizing authority heretofore granted by law to several agencies and by granting additional authority with respect to interstate and foreign commerce in wire and radio communication, there is hereby created a commission to be known as the "Federal Communications Commission," which shall be constituted as hereinafter provided, and which shall execute and enforce the provisions of this Act.[8]

The first goal of the Communications Act is universal service, entrusted to the oversight of the Federal Communications Commission.

### D. Answers to Specific Questions and Recommendations

**1. How should Congress evaluate the effectiveness of each USF program in achieving their respective missions to uphold universal service?**

Universal means everyone. However, as we have done in Table 1, a comparison of the best performing and worst performing demographic category may be more appropriate, since some households in the best group do not want the service, even though it is available and they have the necessary resources to obtain the service if they desired. By this standard we are far from universal service for the four demographic categories identified.

**2. How well has each USF program fulfilled Section 254 of the Communications Act of 1996?**

Although there has been progress, we have made clear that there is still work to be done. The key concept in section 254k is that universal service is an evolving level of service that allows the FCC to update the goals as the technology advances. The fact that universal service has been achieved for plain old telephone service (POTS) is irrelevant to the goals. Moreover,

[8] Codified as Chapter 5 of Title 47 of the United States Code, 47 U.S.C. § 151 et seq. SEC. 1. [47 U.S.C. 151]

the statute does not allow invidious distinctions (like low-income, rural location, or senior status) to argue for a lower level of service. The stratification model makes clear why this type of distinction is unacceptable.

The model also explains why we do not consider smartphone service as a substitute for true broadband. The digitally disadvantaged migrate toward smartphones to meet some of their needs, but smartphones are just too expensive to provide the functionality that households need for full participation in a broadband society. The evidence shows that lower income and rural people may be driven to this service, but the deficit remains and upper income households with broadband are much less likely to rely on smartphones. Use of a smartphone for Internet service should also not be counted as adoption, for two reasons, (1) use is limited in various ways and (2) it is much more expensive in many of the applications that have come to typify broadband internet use.

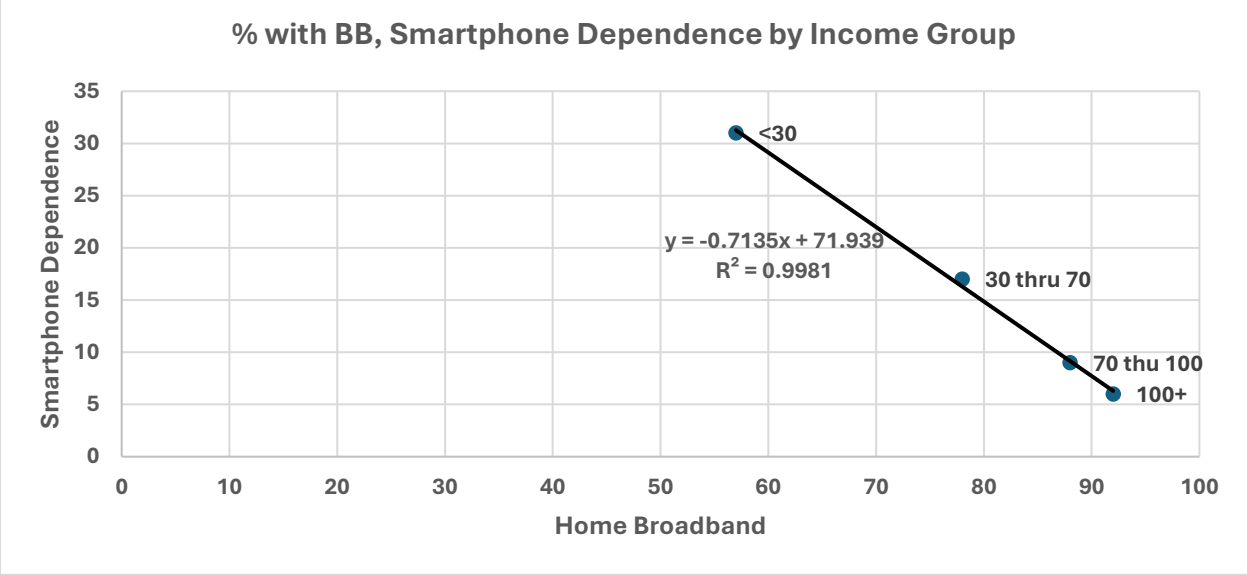
The empirical evidence clearly suggests, as shown in Figure 9, that smartphone use is much less frequent in the high adoption categories, which means people will use it under duress to meet their needs as best they can. Smartphones as universal service turns those without broadband into "second class citizens," paying more for less until they have truly affordable service available. "Second class citizenship" was never the goal of universal service. The effort to achieve universal broadband connectivity must not be abandoned because of smartphones or the underserved will be turned into a permanently disadvantaged category.

**3. Has the FCC adequately assessed each USF program against consistent metrics for performance and advancement of universal service?**

The FCC should choose consistent metrics and apply them over time. With principal responsibility for the basic economic issues of availability and affordability, it should take the

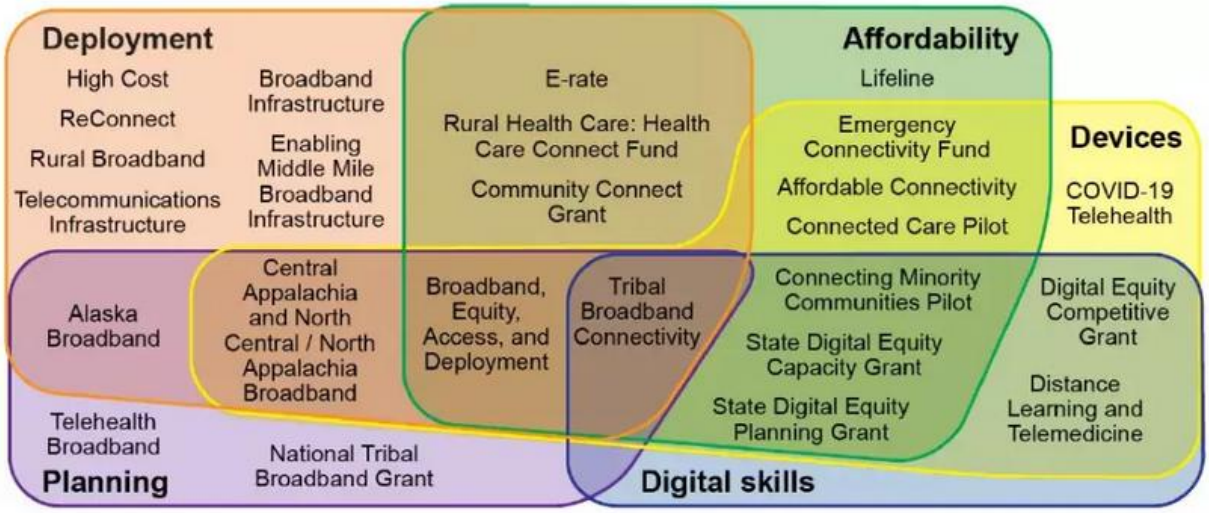
lead in this assessment, but it is also important to recognize the complexity of the causes of universal service. It would be a mistake to attribute any failure to the FCC when there are so many other issue, agencies and programs involved, as shown in Figure 10.

**FIGURE 9: WITH BB, SMARTPHONE DEPENDENCE BY INCOME GROUP (TAKE RATE IN %)**




Source: Pew Research Center, 2024, "Internet, Broadband Fact Sheet, "November 13.

**Figure 10: The Mosaic of 25 Federal Programs with Broadband as a Main Purpose, as of November 2021, by Purpose Category**




Source: GAO, 2023, Closing the Digital Divide for the Millions of Americans without Broadband February 1.

As long as this complexity is recognized, the FCC is responsible for the key launch points for adoption, availability and affordability, so it is appropriate for it to assess the state of

universal service. It should measure adoption from the point where it declares the service to be available. If adoption continues to fall short, the FCC can use a survey to identify the causes of the continuing failure of universal service among the other factors that affect adoption.

**4. Consideration of Reforms: What reforms within the four existing USF programs would most improve their:**

**- Transparency;**
**- Accountability;**
**-Cost-effectiveness;**
**- Administration; and**
**- Role supporting universal service?**

Given the view in this analysis that the problem is very complex, we hesitate to suggest that the USF is not being properly run. Obviously, programs should be transparent, accountable, cost-effective and efficient in administration, but that should not be assessed as somehow failing to achieve universal service. The model of complex causes means that the programs can be well-run, and the goal of universal service will continue to elude agencies.

**5. What reforms would ensure that the USF contribution factor is sufficient to preserve universal service?**

We have not achieved universal service, so there is nothing to preserve. Funding has been made available with the goal of achieving universals service and more funding would be necessary for the key access and affordability metrics. Refinements to better reflect the unique needs of low income, rural and senior households are needed. Funding is an obvious need, but so too is knowledge about what these households need for stimulating positive values and taking precautions to assuage their fears,

**6. What reforms would reduce waste, fraud, and abuse in each of the four USF programs?**

The FCC should make sure that the funds it makes available to support availability and affordability are passed through to the consumer in the form of rates that reflect the value of the subsidy. Close scrutiny of adoption and rates then follows.

**7. What actions would improve coordination and efficiency among USF programs and other FCC programs, as well as broadband programs housed at other federal agencies?**

In response to the above analysis of adoption, the FCC can identify its programs and the programs of other agencies that are intended to overcome the "non-financial" barriers to adoption. **After a sufficient time and effort** to overcome these obstacles, the FCC could declare universal service has been achieved, even though some groups do not rise to the national average because of these social and psychological obstacles are in the way. If adoption does not equal the group average of similarly situated households, FCC could work with the other agencies and congress to address the remaining issues. In other words, because adoption is so good for households and the nation, the FCC should never "just" accept a lower rate of adoption and use, but it should not be "blamed" for that lower level.

**8. For any recommendations on reforms, does the Commission currently have the feasibility and authority to make such changes?**

The FCC certainly has the authority. Congress could cabin that authority by enacting legislation (i.e. subject to concurrence of the Senate and the Executive), but to our knowledge it has not done so. Moreover, we do not believe it is good policy to have the Congress try to micro-manage the very important and complex goal of universal service.

**9. Is the USF administrator, the Universal Service Administrative Company (USAC), sufficiently accountable and transparent? Is USAC's role in need of reform?**

We would hesitate to assess the roles of the USAC until the complex nature of adoption, as discussed above, has been explored.

# APPENDIX
# POLICY RECOMMENDATIONS AND PREVIOUS ANSWERS FROM "THE CHALLENGE OF DIGITAL INCLUSION IN AMERICA: A REVIEW OF THE SOCIAL SCIENCE LITERATURE AND ITS IMPLICATIONS FOR THE U.S. NATIONAL BROADBAND PLAN

## VI. POLICY RECOMMENDATIONS

### A. A BOLD GOAL REQUIRES BOLD ACTION

Given the clear intent of Congress to achieve universal access to, affordability and maximum utilization of broadband and the strong empirical evidence that digital exclusion imposes severe harm on the disconnected individuals as well as our nation as a whole, the FCC should adopt an overarching goal to that guides policy.

- **The FCC should declare the goal of raising the level of broadband adoption to the current level of telephone penetration (over 90%) within the next decade.**

To accomplish that goal public policy will have to systematically address the four major barriers to broadband adoption that have kept about one-third of U.S. households from being included in our digital economy and society – availability, affordability, technology skill and interest.

The FCC has primary responsibility for two of these barriers (availability and affordability). In the existing universal service and high-cost funds that it administers the FCC has a continuous stream of resources to begin promoting universal access to and maximum utilization of broadband. It should initiate the necessary proceedings immediately. As with the lifeline and link up programs from the telephone age, the FCC will have to learn the levels and types of subsidies necessary to achieve the goal by evolving the programs based on real world experience.

Since the FCC has been tasked by Congress to formulate the National Broadband Plan, it should also identify specific actions that other agencies can take to address the full range of barriers to broadband adoption. Policies to address the other two primary barriers to broadband adoption (technology skill and interest) should be implemented through community-based institutions, including schools, libraries and technology centers.

- **The multiple literacies necessary to adopt complex technologies must be in the language that is meaningful and accessible to individual users. These languages are best conveyed by members of the local community.**
- **Similarly, the development of applications and content that are relevant to non-adopters are best developed by members of their communities who have adopted and use the technology.**

The funds made available by the ARRA (American Recovery and Reinvestment Act of 2009), as well as those available to the FCC through its universal funding mechanisms, should be used to deploy a variety of approaches so that the most effective approaches to the long-term solution can be identified. The FCC should acknowledge two facts about the problem of digital exclusion. First, it should declare that immediate steps are necessary to address each of the major barriers to universal broadband adoption and maximum utilization. Second, it should recognize that the immediate steps are just the beginning of what must be a long-term commitment to broadband adoption.

There is a wide range of available technology, education and community-development programs available that can become the vehicle for the broadband adoption initiative. As with the FCC programs to address the barriers most directly subject to its jurisdiction, the agencies addressing the other barriers should immediately add promotion of broadband adoption to the goals of the most appropriate existing programs and evaluate their performance to arrive at the most effective approaches.

The empirical evidence supports the Congressional decision to set a bold goal for universal access and maximum utilization of broadband. The call for a comprehensive National Broadband Plan reflects a recognition of the importance and difficulty of achieving the goal. Congress could not have expected the problem to be solved over night, nor could it have believed that the funds allocated in the ARRA alone would be enough to do the job. It did expect the FCC and the other federal agencies with the jurisdiction and expertise to begin working on the solution immediately, to use the funds allocated to good effect, and to identify the additional steps necessary to accomplish the ultimate goal

***1. Measuring Broadband Adoption:*** Digital inclusion is an extension of the goal of universal service in telecommunications policy. Since the Communications Act of 1934, we have generally defined universal service as the adoption by all households of telephone service. The Telecommunications Act of 1996 explicitly envisions the extension of this concept to advanced telecommunications and information services, of which broadband is a perfect example. Household subscription is the standard that historically has been used to measure universal service, and it is the correct standard to use to assess broadband adoption.

**a. Public spaces and Smartphones:** Use of the broadband Internet has become so pervasive across all aspects of daily life – economic, social cultural, and civic – that one must conclude that individuals forced to conduct all these activities in public places will be severely constrained in their ability it to fully participate in 21st century society. These institutional settings can provide an occasional opportunity to address the most severe impact of digital exclusion, but they cannot be considered adequate for routine and ongoing access to activity in cyberspace.

At the same time, these institutions can play a vital role in promoting broadband adoption. Broadband adoption requires not only physical access to connections points and the material resources to obtain access, but also motivational interest and functional capabilities to use the technology. Libraries, technology centers and similar locations are ideal environments to expose the digitally excluded to the new technology because the staff has experience with the technology and the portfolio to assist users. Therefore, they are contexts in which key skills can

be learned and the value of the technology can be made evident. We have already explained why Smartphones should not be counted as universal service.

**b. Should adoption be measured more by the manner, type or frequency of use**

Use is the ultimate measure of adoption. Universal service in telecommunications was never measured as the mere availability of telephone service to the household; it was always measured by subscription to the service. Given the nature of telephone service and the approach to pricing (i.e. flat rate local service) once a household subscribed, it could be reasonably assumed that usage would follow. For full participation in digital communications, the question of usage requires closer scrutiny. The nature of digital communications is more complex and the uses of digital communications are more varied than plain old telephone service.

Rather than focus on specific applications, however, the FCC should look to broad categories of types of activities that have been deeply affected by digital communications. Ranked in order of their "policy" relevance as compelling reasons to support universal service, the categories of activities include entertainment, information gathering, personal communications, economic opportunity, civic participation, and creative production.

Further, as the agency that has been charged with drawing up the national broadband plan, the FCC should be cognizant of both the broad scope of impact of broadband and the narrow jurisdiction of federal agencies. The FCC should not restrict its vision to the policies that reside within its jurisdiction. If the FCC identifies specific barriers to broadband adoption that are beyond its reach as the regulator of communications services, it should flag the problem and identify potential solutions in the jurisdiction of other federal agencies or recommend legislation to Congress to create the authority needed to address the problem if no such authority exists at present.

However, recognizing the limits of the FCC authority to address the broad range of issues that affect broadband adoption should not be a justification for inaction. There are key elements of a policy to promote digital inclusion that fall squarely within the scope of FCC authority. Indeed, some of the most important, necessary conditions for broadband adoption – the availability and affordability of service – are at the core of the FCC's mission. The fact that improving these two conditions alone might not solve the entire problem should not be seen as an excuse to do nothing. Improving the availability and affordability of broadband service will improve broadband adoption, without any other actions. The impact of other policies that address the motivation and ability to use broadband service, which are also important determinants of broadband adoption, will be magnified, if the availability and affordability of service have been improved by FCC policy. Thus, FCC policy to promote availability and affordability will contribute directly to broadband adoption.

**c. If we measure adoption using some metric or combination of metrics other than home penetration, how can we benchmark improvements over time?**

For the reasons stated above, the FCC should use home adoption as the metric to measure broadband adoption.

**2. Cost of digital exclusion**. **The Commission would like to understand the costs faced by individual consumers who do not adopt broadband as well as the societal costs of having a large portion of society that remains un-connected to broadband.**

**a. How can the Commission best quantify the costs faced by non-adopters?**

The Commission can certainly conclude, as demonstrated in the attached study, that the dramatic differences in the level of activity in cyberspace between those who have adopted broadband at home and those who have not impose a severe cost on the digitally excluded. It can also demonstrate that the differences in cyberspace between the connected and the disconnected are larger than the difference in physical space. In other words, digital exclusion results in digital deprivation and increases social inequality.

Such a demonstration is an adequate basis to justify policies that close the digital divide and promote digital inclusion. Efforts to monetize the value of digital inclusion will be difficult for several reasons, nor are they called for under the statute.

First, the Communications Act of 1934, as amended by the Telecommunications Act of 1996, makes no mention of a cost benefit test that should be applied to policies to promote universal service. The FCC is charged with ensuring advanced communications and information services that are deemed worthy of universal service support are affordable and available across geographic and demographic groups in a manner such that they reasonably comparable services are priced in a reasonably comparable manner.

Second, many of the activities from which the disconnected are excluded are civic, cultural and political, rather than economic. It is inherently difficult to place a monetary value on sending a letter to the editor, signing a petition, visiting a web site to gather information, or posting a comment on blogs, but these are deemed essential parts of citizen participation on civic life.

Third, while it is possible to identify large direct economic benefits of broadband adoption, a significant part of the economic impact of general purpose technologies, like the set of information and communications technologies that constitute digital communications, is intangible, embodied in network and spillover effects and changes in the organizational structure that result shift the entire production function, rather than create movement along an existing function.

Fourth, the value of the benefits of economic activity in cyberspace is widely recognized, but difficult to quantify and the value of activities to people at different levels of income varies. A dollar of value delivered to a lower income household has a bigger impact, on a relative basis, than a dollar of value delivered to an upper income household.

Thus, efforts to quantify benefits must not only reflect the full range of benefits, their importance to the affected households, as well as the nation, they must also recognize that there are many non-quantifiable benefits that do not enter into the calculation.

**b. Do these costs vary by demographic or other factors?**

Not only do the costs vary by demographic and other factors, but the benefits also vary by these factors.

**c. Which of these costs absolutely depend on broadband technology rather than access to the Internet more generally?**

Broadband is now the standard for access. Dial-up access is disappearing rapidly because the network and its services are now designed with broadband in mind. Thus, it is no longer possible to participate fully in cyberspace with less than broadband service.

**d. Which of these costs absolutely depends on access at home (fixed or mobile)?**

For the reasons stated in response to question 1, the availability of broadband in public places cannot be seen as a measure of adoption. The distinction between fixed and mobile is irrelevant, as long as the mobile access technology can support the use of the network that is adequate to support the activities that are deemed to be essential elements of service. Moreover, just as mobile communications have become a key component of the 21st century communications environment, mobile computers are likely to become a key component of the digital ecology. Mobile broadband is an extremely attractive technology because it can meet the needs for broadband and mobility, as long as the technology delivers "adequate" functionality to conduct activities in cyberspace.

**e. Are there certain minimum hardware requirements necessary for an individual to overcome the costs of exclusion?**

The statute requires reasonably comparable services are reasonably comparable rates. Therefore, the typical level of service that is subscribed to is the standard to which universal service aspires. As the network evolves to higher levels of functionality, so too should the universal service standard. That is the approach that was implicit in the Communications Act when it defined the outcome as "adequate" facilities at reasonable charges for sixty years. This approach was made explicit in the Telecommunications Act of 1996.

**f. What societal benefits are foregone, when a large group of the population has not adopted broadband? We seek input on how to frame this issue (what are the categories of societal costs and benefits) and how to measure it.**

The Congress has identified the range of activities that are at the center of the concern about broadband adoption and use. The list of activities offered by Congress is supported by the social science literature – consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes. Broadband delivers significant societal benefits in all of these areas.

Individuals are harmed and society is diminished when the people of the United States

are unable to access and use broadband to undertake the activities targeted by congress. The study in the Appendix identifies a large number of the recent empirical studies that demonstrate the Congress was correct in its concerns about these activities. For legal and empirical reasons, the FCC should accept this list and the conclusion that universal broadband adoption and maximum broadband utilization will promote the welfare of the public because it will improve societal performance in all of these areas.

**3. Barriers to adoption. The Commission wishes to further understand the reasons why some consumers, who have access to broadband, do not adopt. The 2009 Pew Broadband Adoption Study found, generally, that relevance, price, availability, and usability were the main reasons cited for not using broadband at home. Based on this and other research and comments filed in the record, the Commission believes that the primary barriers non-adopters face include: affordability of service, affordability of hardware, insufficient digital and technical literacy levels, unawareness of the personal relevance and utility of broadband technology and online content and an inability to use existing technology and applications due to physical or mental disabilities.[5]**

**a. Is this an accurate and comprehensive list of barriers faced by non-adopters?**

The barriers to adoption are well-known and a consensus has emerged around a basic set of resources that are necessary to enable a household to adopt. Four broad categories of barriers are clear in the literature – availability, affordability, skills and interest. Since the digitally excluded tend to be lower income households and less well-educated the barriers tend to overlap.

Half of the respondents to a recent survey who do not have Internet or broadband at home identify one of these four factors as the main reason they do not have broadband. One-fifth did not have interest in the service; one-seventh cited cost as the problem; one-seventh said they did not have the service available; one-twentieth said they did not have the necessary skills. The only one of these numbers that can be tested with other objective data is the percentage who said the service was not available. They constituted 4 percent of the total sample, which is reasonable.

**b. Do concerns about consumer protection such as privacy/anonymity, ID theft, child protection, viruses and data preservation, etc. pose a significant barrier to adoption?**

Generally no. The one-quarter of respondents who did not cite any of the four major causes of non-adoption did not cite these factors as the reason they had not adopted service. Less than one half of one percent cited these factors. More refined understanding of the causes of non-adoption would be useful, but the FCC has more than enough data to move forward to address the general causes of non-adoption.

**c. Are non-adopters influenced by a lack of clear, accurate, and sufficient information available to them about broadband service offerings and price?**

As described above, respondents to national surveys who do not have the Internet at home generally give precise responses about why they do not have the Internet that generally fall

into one of the four major categories identified above. To the extent that a lack of interest reflects a lack of appreciation of the technology, the problem may be one of education, not just information.

**d. Which groups are least likely to understand the relevance of broadband? For groups that already understand the relevance but face other barriers, how did they become aware of the relevance and benefit of broadband to their lives?**

The problem is not just the lack of sufficient information about what is out there; it may be a lack of content and applications that are directly relevant to their daily lives.

**e. How do these and other barriers affect specific populations or demographic groups and to what extent do specific populations or demographic groups face multiple barriers?**

The econometric evidence indicates that, statistically speaking, it is a combination of barriers that suppresses the adoption rate and the lack of utilization of the Internet. Moreover, it is important to see the lack of adoption and use as the failure to adopt the entire technology set necessary to use the Internet. Above all, the lack of use of computers is a key factor in the lack of broadband at home and the resulting lack of use of the Internet. Moreover, there are a small set of background characteristics that are associated with a lack of adoption of the technology. Age, income and education are the master background variables that affect computer use, broadband adoption and Internet utilization. Race/ethnicity also play a role, but controlling for income and education shows that a large part of the effect of race and ethnicity is through their impact on income and education. Because people of color tend to have lower incomes and less educations, in America, the racial and ethnic dimension of digital exclusion overlap are accounted for by the income and education factors. The influence of gender on access and use has declined over time, although it continues to be important in some aspects of use. Rural location is a lesser factor that consistently affects the three key technology adoption measures. Rural location is probably acting, in part, as a proxy for a lack of availability.

The sociological model for policy intervention is clear. Policies to increase the technology resources available for older, low income, lesser-educated, rural and black households will target the groups most likely not to have adopted or utilized broadband. The concept of resources needs to be broadly defined to include the material resources necessary to acquire both the hardware and communications services needed to adopt broadband, the skills necessary to use the service, and an understanding of the value of the service to the household.

**f. In proposing recommendations to address these barriers, should the Commission prioritize among barriers? For example, should the Commission prioritize based on the amount of resources needed to address the barrier? Is there a better way to prioritize recommendations?**

The four major barriers to adoption should be addressed at the same time because they interact and overlap. If the policy targets one barrier and neglects the others, the results will be disappointing. The FCC needs to approach this important and complex problem broadly and in

the long-term. Some of the barriers to adoption and utilization are related to communications infrastructure that lies squarely within its jurisdiction. However, some of the barriers affect social capital and resources that lie beyond its jurisdiction. The Congress charged the FCC with coming up with a National Broadband Plan that covers all barriers and agencies. The FCC would fail to do the job Congress assigned it in the ARRA, if it shies away from identifying the full range of actions necessary to achieve the goal of universal broadband access and maximum utilization. The FCC would fail to do the job Congress assigned it in the Communications Act, if it does not move swiftly to use the authority it has to implement policies that would promote broadband adoption.

Having identified the barriers to adoption and use, the FCC should identify the agencies that have the jurisdiction or expertise to best implement policies to overcome the barriers and, because it was chosen to conduct the initial study of broadband adoption, it should present its understanding of what those policies should be. These recommendations should be given great weight by the other agencies.

At the same time, the FCC should immediately institute policies to begin overcoming the barriers that fall within its jurisdiction. Its organic statute gives it the authority and its existing universal service programs (lifeline, link up, high-cost fund, etc.) give it the resources to begin addressing the availability and affordability barriers immediately.

**4. Overcoming barriers to adoption. As the Commission develops recommendations to maximize broadband adoption and utilization how can it remedy each barrier faced by non-adopters?**

As the agency with oversight over the nation's communications network, the Commission must play an active role in overcoming the barriers to broadband adoption and use. It has existing authority and non-budgetary resources to implement programs to address the barriers that fall within its jurisdiction.

**Availability:**

Use high-cost funds to promote the deployment of least cost technologies that provide "adequate" service at affordable rates.

Manage the spectrum to promote ubiquitous, availability of wireless broadband at affordable rates, including policies to ensure rapid development of spectrum licenses purchased at auction by private parties and the dedication of a portion of the spectrum to unlicensed use on a national scale with both a set-aside of spectrum nationwide and rules that promote the utilization of white spaces for broadband deployment.

Recommend that e-rate anchor institutions become hot spots providing low-cost access in areas where broadband adoption is below the national average.

Promote a division of labor between the Rural Utility Service and the FCC in allocating resources to ensure universal availability of affordable broadband service.

**Affordability:**

Use lifeline and link up funds to lower the cost of broadband for low-income households, including the construction of fiber highways to lower the cost of service.
Promote middle mile capacity and competition to lower costs and increase availability (including reform of special access).

**Household Technology Resources**

The skill and interest barriers require broad programs of education and application development. The Commission should recognize the importance of anchor institutions – school, libraries, technology centers and other community-based organizations – as the focal point for improving the technology skills and interest of non-adopters. The Commission should call on other agencies (Agriculture, Housing and Urban Development, Health and Human Services, Education, Commerce) quickly task existing programs with commencing broadband adoption initiatives.

**a. Many parties have suggested that the Commission utilize the Lifeline and Link Up programs to support broadband connection charges, devices and service costs for low-income consumers. What other specific federal policies or programs to address affordability of service and hardware should the Commission consider recommending?**

**i. Should the Federal government support the cost of broadband service and associated hardware for low-income consumers through vouchers, tax incentives, or low interest loans? Should support or tax incentives be aimed at consumers, service providers, hardware providers or other parties?**

**ii. Many broadband providers bundle service offerings. How should bundled services be taken into account in developing recommendations focused on the affordability of broadband service?**

**iii. Should the Federal government offer a broadband hardware purchase program, similar to computer purchase programs offered by other countries through which the government would purchase hardware aggregately at a discount and then re-sell the hardware to low-income consumers? Should the government encourage state governments, private industry or other parties to offer such programs?**

**iv. Should the federal government find ways to incentivize private hardware donations? What are the benefits and limitations of refurbished hardware programs?**

**v. Should programs aimed at reducing the cost of hardware be limited to certain types of hardware?**

**vi. How else can broadband hardware and service be made more affordable to low-income consumers?**

Until the Commission begins using the lifeline and link-up programs to support broadband adoption it will have no way of knowing what additional resources are necessary (i.e. the magnitude of the discount necessary to address affordability issues). The first step should be to launch the lifeline and link up support with aggressive efforts to increase adoption and careful analysis of the impact of those efforts to scope out the magnitude of support needed. The

magnitude of the discount in the lifeline and link up programs that support telephone universal service have evolved over time.

To maximize the impact of the subsidization of access, the Commission should make the support directly available to consumers for service. The further removed from the consumer, or the more complex the subsidy is, the smaller the effect is likely to be. A voucher program ensures the consumer gets the benefit and it preserves competitive forces in the marketplace, to the extent that they exist. Transferring funds to network operators that are not tied directly to the adoption of broadband will simply increase the rate of profit of the service providers. Previous attempts to give generalized incentives to network operators in an effort to promote universal broadband service have failed miserably. Loan subsidies assume consumers have the necessary resources to expend and tax benefits assume they have tax liabilities to offset.

**b. Many non-adopters report that they do not have the skills to use broadband. What programs and policies should the federal government adopt to educate consumers and increase technology and digital literacy skills to ensure that individuals have sufficient ability to use hardware and navigate and process digital information and broadband-enabled applications?**

**i. Should the government establish nationwide standards for digital literacy? How would such standards be measured?**

**ii. Many states have started to implement digital literacy standards and curricula. Should the federal government do more to standardize these initiatives? How can the federal government ensure that individuals no longer in school acquire and maintain these skills?**

**iii. Should the federal government create a national digital literacy corps comprised of individuals who conduct outreach and training programs in communities with very low adoption rates?**

**iv. Should some sort of national help desk be created to assist individuals with basic technical questions?**

Federal policy should focus on raising the level of skills in the non-adopting population. The effort to set national standards adds little. Many current adopters would likely not pass such a standard. The workforce best suited to reach and teach the target groups is local, rather than national.

The Pew study found that 50% of non-adopters cite reasons that can be classified as lack of relevance as their primary reason for not using broadband. Should the federal government do more to help non-adopters understand how broadband is relevant to them?

**i. Would a federal outreach campaign utilizing multiple types of media to disperse information about broadband, including its relevance and utility, be effective in increasing adoption and usage rates? What are the best mechanisms to reach specific groups of non-adopters? Are certain types of media more effective than others? Are there community institutions or other organizations who could serve as effective partners to help reach particular groups with below average adoption rates (including but not limited to: Seniors, low-income, African Americans, non-English speaking, Tribal, persons with disabilities)?**

**ii. What types of messaging should a federal outreach campaign include? Would**

**the inclusion of information about how to protect individual privacy and against other online risks in such a campaign be effective in increasing adoption and usage rates?**

**iii. What, if any, information about broadband would be better dispersed at the state, local or Tribal level?**

**iv. How can the Federal government, private industry, and other governmental and non-governmental entities help spur the creation of relevant content and applications for population and demographic groups that include high rates of non-adoption?**

Our review of the data finds interest to be substantially less than half, but still a significant part of the problem. Unfortunately, the framing of the questions seems to presume that the respondents do not understand the technology. In fact, it may well be that the technology (or those developing and deploying it) does not understand the respondents. That is, the technology does not deliver applications and content that are attentive to the needs of the respondents. Moreover, the questions imply that what is needed is some sort of push advertising campaign from the government to better inform non-adopters. On both counts a more productive framing may be to approach the problem as the need for a community-based pull campaign. The educational effort needs to come from the community and emphasize needs and approaches that are relevant to the community. Here the anchor institutions can play a vital role to develop outreach, and educational materials, as well as community-relevant applications.

**d. For each program or policy recommendation above or newly proposed, please consider and comment on the following issues:**

**i. Are there existing federal programs that can be modified to implement the recommendation?**

**ii. What would the program cost to implement, and what expenses would be covered by the program?**

**iii. How should these programs be funded? Are there other federal expenditures that broadband adoption and use could reduce or eliminate to defray some or all of the costs of new programs?**

**iv. Should eligibility to participate be limited to certain populations, and if so, how?**

**v. If new federal programs and policies need to be established, what are they, and which federal agencies or departments are best positioned to administer these programs or policies?**

**e. What role should state, local or Tribal governments have in developing and administering adoption programs and how should the federal government encourage such involvement?**

**f. What role should private industry have in developing and administering adoption programs and how should the federal government encourage such involvement?**

**g. What role should non-profits have in developing and administering adoption programs and how should the federal government encourage such involvement?**

**h. How should the success of each program or policy be measured, what data is necessary to evaluate success and how should such data be collected?**

**5. Learning from existing programs. As we consider which recommendations to maximize adoption and utilization should be included in the National Broadband Plan, the Commission would like to rely on data and lessons learned from existing demand stimulation efforts. The Commission asks all parties to submit any quantitative data,**

**studies, or analyses regarding both successful and unsuccessful programmatic efforts to address broadband adoption and usage. Although anecdotal information may be helpful, such data beyond anecdotal information will better enable the Commission to make specific policy recommendations.**

**For each program, please address, where possible:**

**a. What are the program goals? Does the program focus on a specific barrier, such as digital literacy, or does it address multiple barriers, for example, by providing free or discounted equipment and service in conjunction with skills training and education about relevance?**

**b. What state, local or Tribal governmental entities were involved? What entities from the private and non-profit sectors were involved?**

**c. How successful has the program been, and how was success measured?**

**d. For programs that include digital literacy training, what is the curriculum? Which of the following categories of digital literacy subject matter are addressed by the program?**

**i. hardware usage**

**ii. software and applications usage**

**iii. web navigation**

**iv. managing and assessing the quality of online content**

**v. purchase of hardware (specs) and broadband service that fit the program participant's technology needs and budget**

**e. If the program is focused on digital literacy or includes specific content or applications is it customized for particular groups?**

**f. How many consumers and what size community are served by the program? Is the program focused on particular demographics or special groups, such as the elderly,**

**persons with disabilities, Indian tribe members, or non-English-speaking populations, or is it offered to the general public?**

**g. To how many participants and to what size community or geographic area could this program be effectively scaled, if at all?**

**h. What are the program costs, in total and per participant? What is provided for these costs? For example, do these costs cover any equipment that participants may take home with them, either during the program's duration or permanently?**

**i. What challenges did the program experience?**

**j. What, if any, consensus is there among existing adoption programs, locally or nationally, on best**

Because of a long period of inaction, the U.S. lacks experience with specific policies to promote broadband adoption and address the problem of digital exclusion. The U.S. does have existing programs within the FCC and other federal agencies that address similar and even related problems. To answer these questions the U.S. needs to gain real world experience by funding a variety of approaches to promoting broadband adoption. It should include in the initial programs a strong evaluation component so that it can rapidly adjust the program to achieve maximum effectiveness. The evaluation should recognize the qualitative nature of several of the barriers to broadband adoption and the fact that the modification of attitudes and skills requires time.