



**Digital Inclusion:
Bringing The Rest Of America
Online With Broadband**

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Formed in 1994, the US Internet Industry Association is the primary trade association for companies engaged in Internet commerce, content and connectivity. USIIA serves its members through legislative advocacy and professional services. The association is headquartered in Washington, D.C.

Daniel T. Kent. Daniel T. Kent is the founder and a member of the Board of Directors of Net Literacy.Org.

In 2003 and while in middle school, Daniel Kent used the money that he had been saving to buy a car to form Net Literacy (www.netliteracy.org), a digital inclusion nonprofit where students comprise 50% of the board of directors. Since then, Net Literacy has increased computer access to over 100,000 individuals and its Internet safety awareness campaign has been viewed by hundreds of thousands of students and parents. Daniel's contributions in reducing the digital divide have been honored by our nation's leadership, ranging from President Clinton in NYC to President Bush in a White House ceremony.

Daniel believes that youth should be engaged in helping to solve today's challenges facing Americans, and has served on the youth boards of America's Promise, Do Something, and the US Public Service Academy. He has been honored with the National Kindness Award, the National "Prudential Spirit of the Community Award," the "National BRICK Award," twice received the National "Points of Light Award," and was named "Citizen of the Year" by several Gannett newspapers. He has served as a White House Intern and currently is a sophomore at Haverford College.

In 2009, he received the Governor's Award, was named a state Honoree for the "Above & Beyond Citizens Honor" by the Congressional Medal of Honor Society, and is a state "Jefferson Award For Public Service" honoree.

David P. McClure is President and Chief Executive Officer of the US Internet Industry Association. A technologist by education and experience, McClure has held positions in the Internet, computing, aerospace and environmental services industries. He is widely published on technical and business topics, and is the author of more than 50 white papers related to Internet and Broadband policy, governance and economics.

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EXECUTIVE SUMMARY

The United States must immediately begin to focus new and expanded energy, priorities and resources toward increasing the adoption rate for high-speed Internet services, or it will never reach its stated goal of ubiquitous broadband and digital inclusion.

Over the past eight years, the commercial Internet industry has done a remarkable job of deploying a new and dramatic broadband technology to American consumers. Industry growth rates have averaged 17 percent, and nearly 2/3 of American consumers now use broadband connections.

But as noted by Robert Quinn, AT&T's Senior Vice-President of Federal Regulatory, "... many Americans still do not have access to broadband, and of those that do have access, nearly half of them do not purchase it for a range of reasons, including lack of necessary internet-enabled devices, affordability issues and relevancy. An inclusive approach to a national broadband strategy will also look at increasing the adoption of broadband service."¹

It will be necessary to complete the buildout of the broadband infrastructure in order to gain a sufficient subscriber base to further reduce consumer costs, and to reach the 10 percent of Americans who are not using broadband because of issues of price and availability. But the broader issue is adoption of broadband by those who have access available and still cannot use the Internet for a variety of reasons.

The allocation of \$450 million to fund programs of adoption under the American Recovery and Reinvestment Act provides a unique opportunity and a call to action for America. This position paper proposes a community-based approach to achieving ubiquitous adoption of broadband, based on five programs to:

- Create a national Digital Inclusion initiative
- Create community center education programs to communicate the value proposition for broadband
- Create a flexible and customizable curriculum for use in each center
- Provide for a "Student Net Literacy Corps," and
- Provide computers to low-income Americans who do not have them.

¹ AT&T Statement On A National Broadband Plan, issued April 8, 2009.

INTRODUCTION: THE BROADBAND PARADOX

The United States must immediately begin to shift its focus, priorities and resources toward increasing the adoption rate for high-speed Internet services, or it will never reach its stated goal of ubiquitous broadband.

Since March of 2005, when broadband became the dominant form of Internet access in the United States by surpassing the number of dial-up connections at 30 percent penetration of the residential markets,² the deployment of infrastructure has been rapid and effective. The United States today boasts one of the best infrastructures in the world,³ the highest penetration of secure Internet servers in the world,⁴ and a broadband market that is the largest of any in the OECD with 75 million subscribers. In fact, US broadband subscribers consistently represent 30% of all broadband connections in the OECD.⁵ Further, the United States currently has broadband available to 91 percent of all homes, and 57 percent of Americans use broadband to access the Internet from their homes, according to the Washington Post.⁶

Despite this strong deployment of broadband infrastructure in the United States and the active engagement of policymakers at the federal, state and local levels, efforts to promulgate broadband nationwide have been judged a failure both at home and abroad. As *The Wall Street Journal's* Jesse Drucker notes, "The U.S. needs some big-picture thinking by policy makers about broadband. The first thing they need to do is admit that U.S. broadband isn't keeping pace with the global market."⁷

The Organization for Economic Co-Development ranks the United States 15th in the world for broadband penetration.⁸

Therein lies the paradox -- the United States, which created the concept of the Internet and many of its underlying technologies, and which has invested upwards of half a trillion dollars to deploy and expand its broadband networks -- is widely viewed as having failed at broadband.

² Horrigan J. B., Home Broadband Adoption 2008, 2008

³ 2008 Global Information Technology Report, World Economic Forum, at www.weforum.org

⁴ LECG Ltd, 2009

⁵ OECD Broadband Portal at <http://www.oecd.org/sti/ict/broadband>

⁶ "Broadband's Cost Gives Non-Subscribers Pause, Poll Finds," Washington Post, January 22, 2009.

⁷ "For U.S. Consumers, Broadband Service Is Slow and Expensive" Jesse Drucker, *The Wall Street Journal*, November 16, 2005

⁸ OECD Broadband Portal at <http://www.oecd.org/sti/ict/broadband>

The OECD rankings themselves have been criticized for their failures in methodology and accuracy. The Phoenix Center For Advanced Legal and Economic Public Policy Studies, for example, notes that the US scores better than either Japan or South Korea when the OECD rankings are normalized for efficiency rather than using raw subscription data.⁹

But the answer to the paradox lies not in criticism of the OECD and other studies. Rather, it lies in understanding what those studies are actually saying about broadband penetration in America.

The OECD rankings, and others with similar metrics for measuring "broadband success," are a measure of broadband adoption, not a measure of how effectively the broadband infrastructure has been deployed or managed. The rankings measure how many residents subscribe to broadband, not how many have access to broadband.¹⁰

US public policy related to the Internet and broadband has, for the past decade, largely ignored the issue of adoption. As noted by Larry Irving, co-chair of the Internet Innovation Alliance and former chair of the NTIA, "To paraphrase Mark Twain, for the past decade, there has been a lot of talk in Washington about broadband, but no one has done much about it."¹¹

Instead, public policy has focused primarily on issues related to deployment of broadband networks and their management – intra-modal competition, open access, inter-carrier compensation, network neutrality, taxation of Internet access, regulation of content, copyright enforcement and law enforcement access to subscriber data. As important as these policy discussions may be, they have served to divert attention and resources from the more critical discussion of how to achieve ubiquitous adoption of broadband.

The Pew Internet and American Life Project has made extensive, multi-year studies of adoption in the US, and finds that even if we achieved deployment to every residence and business in America, we would still have approximately 29 percent of the population that does not or cannot make use of broadband.¹²

⁹ "The Broadband Efficiency Index: What Really Drives Broadband Adoption Across the OECD?" George S. Ford, PhD, Thomas M. Koutsky and Lawrence J. Spiwak, The Phoenix Center, May, 2008

¹⁰ "Broadband Subscribers Per 100 Inhabitants, June, 2008, at <http://www.oecd.org/dataoecd/21/35/39574709.xls>

¹¹ "Broadband Adoption and Availability Must Be Addressed By Washington," Larry Irving, <http://www.afronetizen.com>.

¹² "Stimulating Broadband: If Obama builds it, will they log on?", John Horrigan, January 21, 2009, at <http://www.pewinternet.org/Reports/2009/Stimulating-Broadband-If-Obama-builds-it-will-they-log-on.aspx>

Chief economist George Ford of the Phoenix Center goes even further, noting that even if we were to achieve 100 percent deployment of wireline (cable or telephony-based) broadband in American, our ranking on the OECD adoption scale would actually drop from 15th place to 20th.¹³ Ford's assessment of the OECD rankings notes that, "This finding suggests that public policy's role for broadband adoption may be more effective if it is targeted at improving or mitigating the adverse effects of those underlying demographic and economic conditions, such as computer ownership and education programs."¹⁴

John Horrigan of the Pew Internet and American Life Project similarly notes that at present only 4.51 percent of consumers surveyed have failed to adopt broadband because it is not available where they live.¹⁵

This is not to suggest that the issues of infrastructure should be ignored. It will be necessary to complete the buildout of the broadband infrastructure in order to gain a sufficient subscriber base to further reduce consumer costs, and to reach the 10 percent of Americans who are not using broadband because of issues of price and availability.

But as noted by Robert Quinn, AT&T's Senior Vice-President of Federal Regulatory, "... many Americans still do not have access to broadband, and of those that do have access, nearly half of them do not purchase it for a range of reasons, including lack of necessary internet-enabled devices, affordability issues and relevancy. An inclusive approach to a national broadband strategy will also look at increasing the adoption of broadband service."¹⁶

The American Recovery and Reinvestment Act of 2009 authorized the expenditure of \$7.2 billion for broadband and telecommunications initiatives. Of this, the majority will be used for targeted infrastructure investments, further construction of high-speed networks, and other deployment issues such as mapping broadband availability. But the Act also provides that "not less than \$200,000,000 shall be available for competitive grants for expanding public computer center capacity, including at community colleges and public libraries;" and that "not less than \$250,000,000 shall be available for competitive grants for innovative programs to encourage sustainable adoption of broadband service."¹⁷

¹³ "Developing A National Broadband Strategy," George S. Ford, Phoenix Center, July 28, 2008.

¹⁴ "The Broadband Efficiency Index: What Really Drives Broadband Adoption Across the OECD?" George S. Ford, PhD, Thomas M. Koutsky and Lawrence J. Spiwak, The Phoenix Center, May, 2008

¹⁵ "Stimulating Broadband: If Obama builds it, will they log on?", John Horrigan, January 21, 2009, at <http://www.pewinternet.org/Reports/2009/Stimulating-Broadband-If-Obama-builds-it-will-they-log-on.aspx>

¹⁶ AT&T Statement On A National Broadband Plan, issued April 8, 2009.

¹⁷ Public Law 111-5: American Recovery and Reinvestment Act, Title II, "Broadband Technology Opportunities Program"

DEFINING BARRIERS TO ADOPTION

In order to better understand the need for programs to address the broadband adoption rate, it is helpful to consider factors that create barriers to adoption.

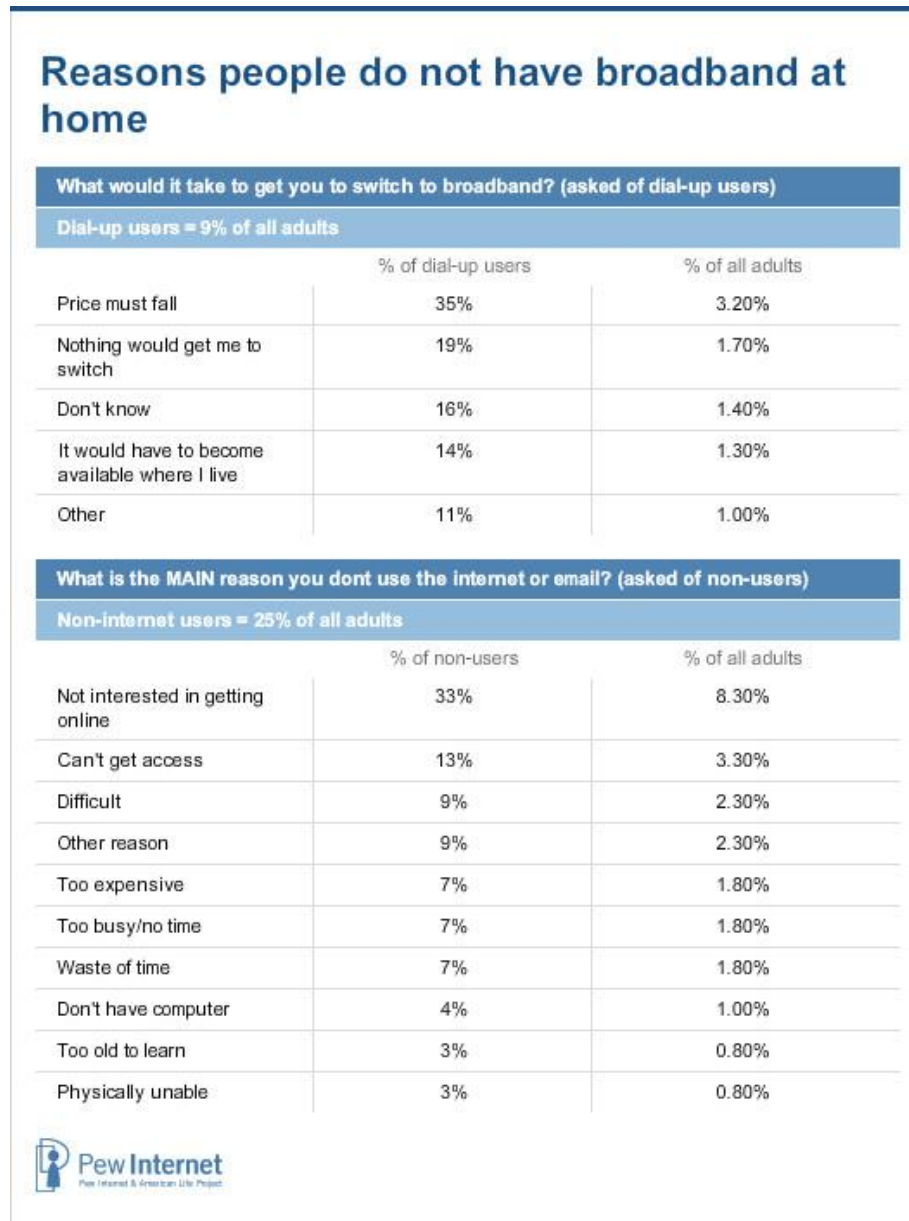
While a number of organizations and individuals – including the OECD and the Phoenix Center – have provided data and insights, the most consistent independent research is that of the Pew Internet & American Life Project. The Pew Internet & American Life Project is one of seven projects that make up the Pew Research Center, a nonpartisan, nonprofit "fact tank" that provides information on the issues, attitudes and trends shaping America and the world. Since March of 2000, the Project has produced reports exploring the impact of the internet on families, communities, work and home, daily life, education, health care, and civic and political life.

During this period, Associate Director of Research John B. Horrigan has studied and written extensively about broadband adoption in the US. His research may be briefly summarized in Illustration #1 from 2009. It is a chart summarizing why the 9 percent of Americans currently using dial-up Internet connections, and the 25 percent who have no Internet connections at all, give for not having broadband.

These two major groups of non-adopters to broadband have differing reasons for their choices. For dial-up users, the reasons tend to be more mechanical in nature – they cite pricing and availability as two of the major disincentives, accounting for nearly half of the respondents. Those who have no Internet access at home have a wider range of mechanical and socio-economic reasons for their choices.

In an August, 2007, presentation on broadband adoption, Horrigan states, "Non-internet users as a group are disproportionately old and poor. The median age of non-internet users is 59, and 25% report having household incomes under \$20,000 per year. It is not, however, simply a question of money or age. Non-internet users do not have very positive attitudes about information technology. Many report worries about information overload and few link information technology to greater control over their lives. Moreover, non-internet users are apt to see the online environment as a dangerous place – that is, a place with inappropriate or irrelevant content. Given that these non-users are people with worries about information technology and not a lot of extra disposable income, luring them online won't be an easy task."¹⁸

¹⁸ "Closing the Broadband Divide," John B. Horrigan, Pew Internet & American Life Project, August, 2007.

Illustration #1¹⁹

Persuading current dial-up users to adopt to broadband at home may be less challenging than persuading non-users. This is because the percentage of dial-up users who are interested in upgrading has remained constant at about 40 percent since 2002. This means that as time passes, an increasing number (though not percentage) are upgrading to broadband. Further, continued falling prices and deployment to the last areas not currently served should provide additional inducement.

¹⁹ "Reasons People Do Not Have Broadband At Home," John B. Horrigan, Pew Internet & American Life Project, January 21, 2009.

With respect to non-users, researchers have noted four key dynamics of non-adoption. The first of these is economic – Americans who are not online typically make less than \$30,000 per year. The second is education – 44 percent do not even have a high school education. The third is age, with 35 percent over the age of 65.²⁰ The fourth and perhaps most difficult to address is the large number (8.3% by Horrigan's data) who simply do not believe the broadband Internet is interesting or relevant to their lives.

Given the strong influence of education on broadband adoption, and the identification of broadband adoption as a national priority, it is natural that computing skills and broadband use are core curriculum items for primary and secondary education. Widely used tests for students such as Virginia's Standards of Learning (SOL) testing have questions related to computing skills. And Virginia did pass this year legislation mandating some education, particularly with respect to computer safety. Such educational efforts may help to reduce the broadband "divides" for future generations, but will not be useful for those who have already completed or dropped out of the educational system.

Since the barriers to broadband adoption occur among the oldest, least educated and least affluent Americans, programs to increase adoption must be designed specifically to appeal to these populations. And they must be designed on a community basis, to reduce the costs and difficulty of travel and unfamiliarity.

Larry Irving, of the Internet Innovation Alliance notes that, "The Obama administration is taking the right steps. They are beginning the task of identifying the gaps in broadband coverage in the United States. In those areas where broadband is not available, particularly in rural and exurban America, they are putting people to work building broadband networks. They are bringing community access points to libraries, community colleges and community technology centers — to the neighborhoods of tens of millions of Americans. And where broadband is available but adoption rates are low, they are promoting adoption by finding community-specific solutions."²¹

There is a template for such community-based programs that also addresses the need for computers. It is a program of digital inclusion active since 2003 and currently operated by Net Literacy and its companion programs for community action.

²⁰ "Degrees of Access," Susannah Fox and Jessica Vitak, "Pew Internet & American Life Project, July 9, 2008, at [http://www.pewinternet.org/Presentations/2008/Degrees-of-Access-\(May-2008-data\).aspx](http://www.pewinternet.org/Presentations/2008/Degrees-of-Access-(May-2008-data).aspx)

²¹ "Broadband Adoption and Availability Must Be Addressed By Washington," Larry Irving, <http://www.afronetizen.com>.

PROGRAMS OF DIGITAL INCLUSION

Digital Inclusion is a term that encompasses activities related to the achievement of an inclusive information society. Under such a definition, new developments in technology convert the prospects of a digital divide into opportunities for "digital cohesion," bringing the benefits of the Internet and related technologies to all segments of the population, including people who are disadvantaged due to education, age, gender, disabilities, ethnicity, and remote geographical areas. Digital Inclusion covers mainly the development of appropriate policies, maintenance of a knowledge base, research & technology development and deployment, & best practices dissemination.

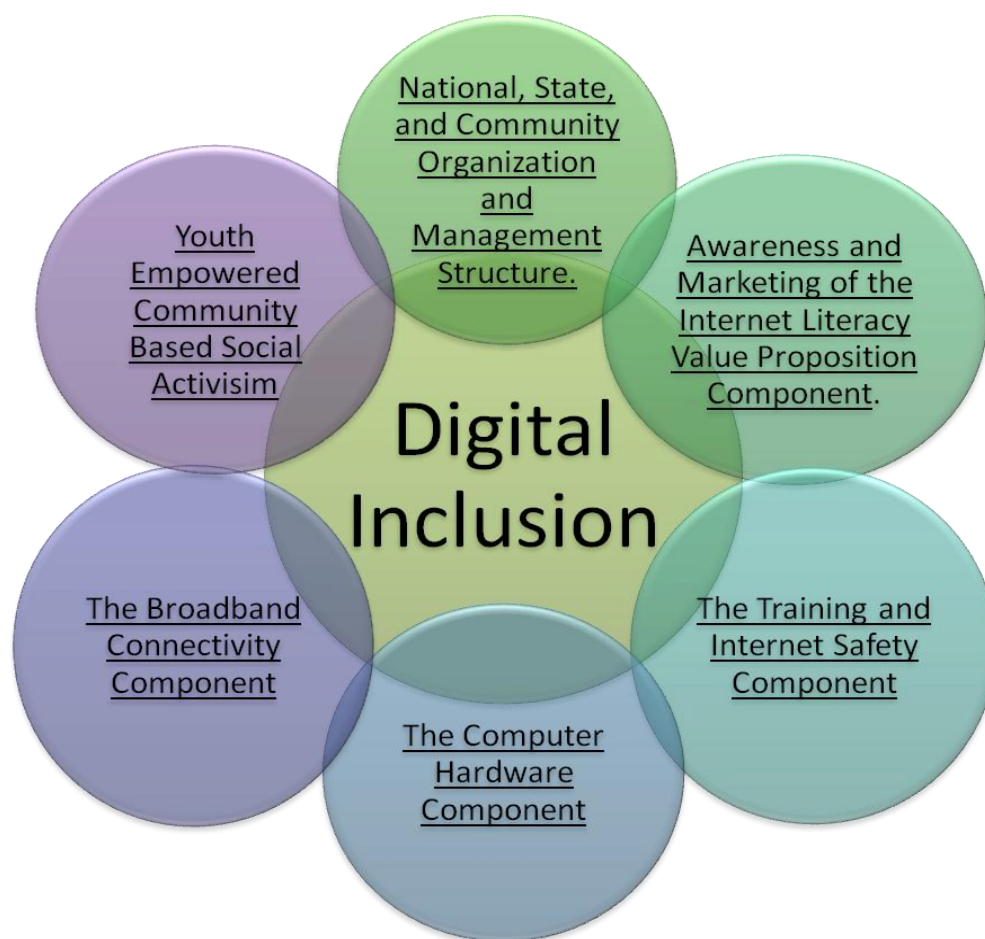


Illustration #2 – Digital Inclusion (courtesy Net Literacy)

A “digital inclusion” strategy requires a holistic and a multifaceted approach that includes all stakeholders and incorporates elements that result in an increase in the nation's digital literacy. The community action is a process – and five components have been identified that should be undertaken in a coordinated manner to maximize the Return On Investment for broadband adoption.

- **Convene a national conference and web site to coordinate community efforts.** On a national basis, the major stakeholders of this initiative should be included in a working group which includes the public, private, and nonprofit sectors. Specifically, trade associations, representatives of faith-based organizations and nonprofits, federal, state and local government, schools, and especially digital inclusion nonprofits that have experience providing the multiple components necessary to reduce digital inclusion should be included in an ongoing dialog made available through an annual national conference.

USIIA proposes to convene the conference and extend invitations and key roles to stakeholders.

In conjunction with this national conference, a "Digital Inclusion" web site will be created to coordinate targets and goals, identify funding priorities, identify and create “best of class” solutions that will serve as a resource data base for local communities utilizing public and private funding to increase computer and Internet literacy, and present digital inclusion structure examples that will provide the communities a menu of alternatives from which to choose or build upon to best meet their constituencies’ requirements.

Public comment and input would also be solicited. Each community is unique, and the digital inclusion “best of class” menu would help enable them be aware of, modify, and/or select proven programs that have associated cost and resource estimates. Each state should also establish a working group to coordinate with its own communities in order to customize local structures and goals.

Implementing Digital Inclusion programs in an era of economic uncertainty will require this initiative to be an entrepreneurial venture that has a significant “grass roots” component and utilizes novel ideas to help stretch the available dollars to impact those areas where the digital divide is the greatest.

- Creation of Programs to Communicate the Broadband Value Proposition.** The long-term benefits of digital inclusion are not intuitive to population groups that have the lowest adoption rates, including but not limited to senior citizens, selected minorities populations, and Americans whose income is below the poverty level. As previously noted in data from the Pew Internet and American Life Project, 48% of the nonusers stated (a) they are not interested, (b) they are too busy, or (c) it is a waste of time. While these are three distinctive reasons, a common theme exists that links many of these responses together. While some individuals have immediate challenges (e.g., healthcare issues) that must be resolved prior to focusing on other priorities, many individuals that are not Net literate often do not fully appreciate the value proposition that Net literacy provides and the long term job impact and life consequences that will result from a lack of Internet proficiency.

A “top down” media campaign that includes traditional media should be incorporated to reach individuals who are not Net literate. The media campaigns should be targeted to market segmentation that have lower Internet connectivity and contain messages that overcome the primary objections of nonusers. As appropriate, both national and local media should play a role in this endeavor. Additional Americans can be reached through Internet use demonstrations at locations used by the targeted market segments – including community centers, senior centers, and parent centers in schools.

Net Literacy

Many of the ideas proposed in this document are based on the success of Net Literacy, a community-based, non-profit Digital Inclusion initiative that has operated in the United States since 2003 and was selected by the European Union Study on Digital Inclusion as one of the 91 most promising good practice initiatives based upon an investigation of 32 countries including the EU Member States, the United States, Norway, Iceland, Canada, and India.

Net Literacy has increased computer access to well over 100,000 individuals and has directly and indirectly increased computer, Internet, or Internet safety awareness among hundreds of thousands of individuals.

Its model of engaging “friendly high school student volunteers” to teach seniors citizens residing in independent living facilities on a one-to-one basis has resulted in more than 80% of the “senior citizen students” graduating from 8-12 week programs. Collaborating with the State, the Department of Education, School Districts, and hundreds of nonprofits, student volunteers now repurpose thousands of computers every year for schools as a cost of less than \$15 per computer.

While teaching computer and Internet literacy, the student volunteers, many of which resided in the core city, also learned job skills, life skills, and were able to make a contribution to their community.

The Net Literacy (<http://www.netliteracy.org>) training programs are a proven nontraditional training model with successful track record, are scalable and easily replicable, and available at no cost for use by other non-profits.

A “bottom up” effort should be initiated using organizations and facilities whose constituencies include people who are not Internet literate. These would include senior centers, independent living facilities, faith-based organizations, community centers, schools, public libraries, and nonprofits. Consideration should be given to individuals who do not speak English at home, as these comprise 19.5 percent of the population.²² This “bottom up” initiative would be supported by the media campaign, and will be enhanced by a curriculum that is tailored to the needs to each "computer lab" facility.

Some of these classes in computer literacy and Internet safety are already underway in existing primary and secondary school environments, but other "computer labs" can be created within the facilities of faith-based organizations, community centers, schools (after hours and adult education), and other nonprofits. Since many of the underserved face serious constraints to their time, classes must be conducted at times convenient to the targeted populations. Training courses should be made available by volunteers at no cost to those investing their time to become computer and Internet literate – and graduates should be rewarded at graduation with a computer.

- **Creation of a Training and Internet Safety Curriculum.** Generally, the basic skills of computer, Internet, and Internet safety training should take place where the digital divide is the greatest. And a component of this training must be the availability of applications and tools for Internet safety, such as anti-virus software, antispyware software, security of personal information on the Internet, avoidance of cyber-bullying, and parental filtering software.

The curriculum should be relatively short, and include a presentation of how this knowledge will impact the lives of attendees by showing them how the Internet can provide news, weather, and information, local news about their hometowns, websites about their hobbies, medical information and monitoring services, job search websites, access to local resource websites, and government resource websites, among other relevant topics. An email account should be created for each individual, and email proficiency should be included as an element of the core curriculum.

Providing a follow up help desk is an integral component to the training component, because even an 8 or 12 lesson training program with collateral material will not preclude users from

²² US Census Data, at <http://factfinder.census.gov/servlet/ACSSAFFacts>

experiencing problems that they are unable to resolve. Communities may decide to establish a computer help desk hotline within their county education system or community "hotline" services. Essential to the success of this hotline would be a clear definition of the hotline's scope. A model using components similar to the "Ask Rose"²³ homework helpline provided by Rose-Hulman Institute of Technology could be considered. Net Literacy is in early discussion with a local Indianapolis city college to test a college student manned computer and software help desk to assist the thousands of students receiving computers via Net Literacy programs.

- **Creation of a "Student Net Literacy Corps."** Many individuals who are not Net literate have a general discomfort using technology. To help reduce this dissidence, and to provide a corps of instructors for the community center programs, a portion of the 30 million young Americans in high schools and colleges who have a command of basic computer and Internet literacy can be created. Such a group would be consistent with plans by the Obama administration to utilize a volunteer corps to serve pressing needs in America.

According to the Census Bureau and the *Statistical Abstract of the United States: 2007*, there are in excess of 30 million high school and college students in school in almost every community throughout America. Mobilizing a small percentage of America's "friendly and helpful high school or college students" to conduct one-to-one training could provide the necessary manpower and type of instructors that would reduce the technophobia and concerns of many nonusers. This "Student Net Literacy Corps" could teach students life skills, job skills, and empower students with the opportunity to serve their community, engage in intergenerational programs, and commit to the improvement of the nation through a Digital Inclusion initiative.

- **Creation of a Computer Re-Tasking (CRT) Program.** The funding provided by the Stimulus Bill for stimulation of broadband adoption is not sufficient to provide computers and basic software needed by the tens of millions of Americans who are not connected, and America does not possess the resources to address the digital inclusion challenge in a traditional manner via coupons or rebates. Novel and synergistic programs must be incorporated to address the need for computers by low-income and fixed-income Americans.

Functional personal computers are available from a number of public and private organizations at relatively no cost, since they are deemed "surplus" or obsolete to the current needs of these

²³ See <http://www.askrose.org/>

organizations. Government entities at the federal, state and local levels should establish programs to donate and re-task these functioning computers to meet this need.

The computers should have an operating system, a browser, an application that enables users to write letters, view presentations, and build spreadsheets. In addition, computers could be pre-installed with antivirus and antispyware applications. These could either be applications donated by private software companies or open-source applications available at no cost.

In addition, businesses and other organizations could receive tax credits for providing computers that are to be replaced through computer refreshment programs. As is currently the case in Indiana and in some other states, the state surplus division could serve as the intermediary ensuring that the computers' hard drives were wiped and the equipment was distributed to schools in accordance with state legislation.

The fully loaded "cash" costs to transport, repair, re-task, and load software on a computer, using student volunteers, ranges from \$5 to \$15 per computer, based on the experience of Net Literacy. The cost-per-computer range depends upon whether the program is conducted in an after school program and during weekends, or during a more formal summer program when student volunteers receive a small stipend to compensate them for lunch and transportation costs and a faculty instructor is hired as a contract employee. The aforementioned costs are fully loaded and include overhead costs such as D&O Insurance, P&C Insurance, CPA firm costs, and snacks for volunteers.

CONCLUSIONS

Though there remains a need for better data regarding the nation's broadband infrastructure, and targeted programs to build out and enhance that infrastructure, the larger and more critical issue is how to spur the adoption of broadband among the one-third of Americans who currently do not or will not utilize it.

To this end, the American Recovery and Reinvestment Act of 2009 authorized the expenditure of \$450 million for broadband adoption initiatives. And it appropriately identifies that these funds should be used for targeted and community-based programs. While \$450 million authorized by Congress and the President is a substantial sum of money, the tens of millions of disconnected Americans that must be

addressed require that America's digital inclusion programs must be highly efficient community based grassroots programs that leverage our country's existing resources. It is essential that the United States place a high priority for such programs in an National Broadband Plan, and that we begin the process of bringing together those organizations and agencies best able to address the adoption problem at the local level. This paper concludes that such a program is possible through coordinated public-private partnerships, and that it could be accomplished within the framework set forth by the Congress and the Obama administration.

SOURCES AND CITATIONS

Resources of Note:

<http://www.microsoft.com/industry/government/digitalinclusion.msp>
<http://digitalinclusionforum.com/>
<http://internetinnovation.org/factbook/category/education/>
http://www.oecd.org/document/54/0,3343,en_2649_34225_38690102_1_1_1_1,00.html

Works Cited

- Atkinson, R. D. (2008, December 23). The Right Broadband Stimulus Package. *The Huffington Post* .
- Atkinson, R. D., Castro, D., & Ezell, S. J. (2009). *The Digital Road to Recover: A stimulus Plan to Create Jobs, Boost Productivity and Revitalize America*. Washington D.C.: The Information Technology & Innovation Foundation.
- Broadband Data Services Improvement. (2008, October 10). *Public Law 110-385* .
- Corbin, K. (2009, January 28). Broadband Stimulus Could Top \$9 Billion. *InternetNews.com* .
- Crandall, R. W., & Jackson, C. L. (2001). *500 Billion Opportunity*. Washington DC: Criterion Economics.
- Crandall, R., Lehr, W., & Litan, R. (2007). *The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data*. Washington DC: The Brookings Institution.
- Economic Research Service. (February 2009). *Rural Broadband At A Glance*. Washington DC: United States Department of Agriculture.
- Economics and Statistics Administration and the National Telecommunications and Information Administration. (2004). *A Nation Online: Entering the Broadband Age*. Washington DC: U.S. Department of Commerce.
- Estabrook, L., Witt, E., & Rainie, L. (2007). *Information searches that solve problems, How people use the internet, libraries and government agencies when they need help*. Washington D.C.: Pew Internet & American Life Project.
- Fairlie, R. W. (2003). *The Effects of Home Computers on School Enrollment*. Santa Cruz: The University of California, Santa Cruz.
- Handler, C. E. (2009, February 23). The Struggle Over 'Net Neutrality'. *E-Commerce Law & Strategy* .
- Hansell, S. (2009, February 29). Surprise: America is No. 1 in Broadband. *The New York Times* .
- Hesseldahl, A. (2008, 12 31). Bringing Broadband to the Urban Poor. *BusinessWeek* .
- Horrigan, J. B. (2008). *Home Broadband Adoption 2008*. Washington D.C.: Pew Internet and American Life Project.

Horrigan, J. B. (2009). *Obama's Online Opportunities II*. Washington D.C.: Pew Internet & American Life Project.

Horrigan, J. B. (2007). *Why We Don't Know Enough About Broadband in the U.S.* Washington D.C.: The Pew Internet & American Life Project.

Intel Corporation. (2005). *Enabling the Worldwide Information Society - Assessing The Impact of Government Assisted PC Programs*. Intel Corporation.

Intel. (2005). *Government ICT Policy Primer*. Intel Corporation.

Jones, S., & Fox, S. (2009). *Pew Internet Project Data Memo*. Washington D.C.: Pew Internet & American Life Project.

LECG Ltd. (2009). *Connectivity Scorecard 2009: United States*. London: LECG Ltd.

Manjoo, F. (2009, February 9). Tech for America. *Slate.com* .

McClure, D. (2009). *Toward a National Broadband Plan*. Reasoned Response.com.

OECD. (2008). *Broadband Growth and Policies in OECD Countries*. OECD.

OECD. (2008). *OECD broadband statistics (June 2008)*. Paris: OECD.

Puma, M. J., Chaplin, D. D., Olson, K. M., & Pandjiris, a. C. (2002). *The Ingetrated Studies of Educational Technology: A Formative Evaluation of the E-Rate Program*. Washington D.C.: The Urban Institute.

Sanchez, J. (2009, February 11). Broadband stimulus passes, but many questions linger. *Ars Technica* .

Settanni, C. (2008, April 30). Digital Inclusion - What's Going On Nationally? *Digital Inclusion Forum.com*

Stansbury, M. (2009, February 10). Benton: Unviersal broadband a necessity. *eSchoolNews* .

Tessler, J. (2009, Februrary 6). Broadband funding in stimulus plan sparks debate. *AP Newswire* .

The Bureau of Labor and Statistics. (2002). *Consumer Expenditure Survey Data, 1992 and 2002*. Washington D.C.: The Bureau of Labor and Statistics.

The Economist Magazine. (2009, January 29). Not so fast. *The Economist Magazine* , p. 18.

The Economist Magazine. (2009, January 31). Paved with good intentions. *The Economist Magazine* , p. 71.

The FCC. (2008). *Getting Broadband*. Washington, DC:
<http://www.fcc.gov/cgb/consumerfacts/highspeedinternet.html>.

The Prime Minister's Strategy Unit and Department of Trade and Industry. (2005). *Connecting the UK: the Digital Strategy*. London: Prime Minister's Strategy Unit.

U.S. Department of Commerce. (2000). *Falling Through the Net: Toward Digital Inclusion*. Washington D.C.: US Department of Commerce.

US Department of Agriculture. (2009). *2007 Census of Agriculture: Demographics*. Washington D.C.: US Department of Agriculture.

Wynne, M. E., & Cooper, L. F. (2007). *Power Up: The Campaign for Digital Inclusion - Digital Inclusion Imperatives Offer Municipalities New Social and Economic Opportunities*. Microsoft.

Wynne, M. E., Perry, K. A., & Cooper, L. F. *Invoating for Inclusion: A Digital Inclusion Guide for Those Leading the Way*. Microsoft.