PUBLIC NOTICE

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Comments – NBP Public Notice # 16
GN Docket Nos. 09-47, 09-51, 09-137

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Below are comments from Digital Impact Group ("DIG") in response to the questions posed in this Public Notice.

Additionally, the FCC has asked DIG to comment on the comparative likelihood of specific population subgroups to engage in example positive behaviors as a result of their participation in broadband adoption programming. To that end, drawing on data collected by the OMG Center for Collaborative Learning as part of a two-year evaluation of DIG's programs, DIG has attached a series of charts that seek to respond to that request. The data suggest that comprehensive broadband adoption programs as described in our comments below are successful in driving ongoing use (at least once a week) by participants, resulting in direct improvement in their ability to access educational, employment and other life opportunities online. The data reflect some variation among subgroups within the target population. For example:

- **Younger participants' (37 years old and under) use of the internet to find educational and employment opportunities was extremely high overall, and high relative to older participants.**
- **Even for older users, finding educational opportunities ranked highly compared to other tasks.**
- **People who had some access to computers prior to entering the program were more likely to shop and manage personal finances online than those who did not, but this variation did not persist across other activities.**

For ease of review, our responses to the specific questions posed in the Public Notice are found in bold following each question in the body of the notice, below.

The American Recovery and Reinvestment Act of 2009 (Recovery Act)[1] directs the Commission to create the National Broadband Plan (NBP) by February 17, 2010, to ensure that every American has

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[1] American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009) ("Recovery Act"). *See also Section 706 Sixth Report NOI*; *Comment Sought on International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act*, GN Docket No. 09-47, Public Notice, 24 FCC Rcd 3908 (2009).

access to broadband capability and to establish benchmarks for meeting that goal.[2] Closely related to the provision of broadband access are broadband adoption and usage, by which consumers can be empowered to utilize broadband connections for job creation, economic development, health care, education, civic engagement, and other purposes beneficial to the nation and society.

While broadband adoption rates have increased in the United States in recent years, the United States remains behind other developed nations with an overall home broadband adoption rate of 63% of adults and with adoption rates for some demographic groups significantly below that average.[3] Successful efforts to increase broadband adoption will spur additional demand for access, in addition to ensuring effective utilization of both existing and newly deployed access by consumers as envisioned by the Recovery Act. In this Public Notice, we seek comment on measuring broadband adoption, quantifying the individual costs to non-adopters, measuring the cost to society of having a large group of non-adopters, and identifying and remedying barriers to adoption. We also seek data about existing adoption programs and studies, in order to contribute to and facilitate the Commission's development of the NBP pursuant to the Recovery Act.

1. **Measuring broadband adoption**. The Recovery Act requires that the NBP include a detailed strategy for achieving maximum utilization of broadband infrastructure and service. Maximum utilization can only be achieved by increasing broadband adoption rates. As the Commission establishes goals to maximize utilization of broadband, how should we measure adoption? Adoption statistics often focus on individual or household subscription rates. Is that the best way to measure adoption? If not, what are the alternatives?

DIG firmly believes that a household has not fully adopted broadband until always-on access is available in the home – just like it is for mainstream adopters. In fact, for low-income families, which represent the bulk of non-adopters and face multiple barriers to adoption, the lack of a home-based connection may be even more problematic than for more affluent families. Unlike more affluent workers, low-income individuals do not commonly have access to a broadband connection in the workplace. Furthermore, they often work more than one job – many of them at odd hours – restricting their ability to use public terminals. Adoption statistics, especially for vulnerable populations, absolutely must focus on household subscriptions.

a. Is someone who frequently accesses broadband at work or in the library, but not at home, an "adopter?" Is the use of a web-enabled smart phone sufficient to make someone an "adopter" of broadband?

Accessing broadband in public places does not constitute full adoption. Many online activities, such as searching for financial or health information, require a greater degree of privacy than is offered in public places. Libraries also place strict limits on the amount of time one can spend on a terminal, creating a barrier to more sophisticated, time-intensive activities.

[2] Recovery Act § 6001(k).

[3] *See* Pew Internet & American Life Project, Home Broadband Adoption 2009, at 3-4 (2009), *available at* http://www.pewinternet.org/~/media//Files/Reports/2009/Home-Broadband-Adoption-2009.pdf (2009 Pew Broadband Adoption Study).

Data show that internet users who can afford to access the Internet at home subscribe to residential broadband accounts. Of those who use the internet at all, only 72% of those making under $25,000 a year have a home connection, compared to 94% of those making over $50,000. (US Census, Current Population Survey, Computer and Internet Use Supplement, 2007)

Smart phones are best employed for casual use – reading and composing short, text-based emails, viewing online media and basic social networking. But developing a resume, filling out an application for employment or public benefits, engaging in e-commerce or online banking, and many other activities that benefit full adopters, are cumbersome, if not impossible, on such devices.

b. Should adoption be measured more by the manner, type or frequency of use of certain types of applications? If so, will those applications be standard across all groups of people?

DIG believes that adoption is a process that occurs across a continuum – individuals engage in activities that are increasingly involved as they move through the process. In this conception, full adoption is not achieved until users engage in time- and skills- intensive activities that relate to their initial motivations for getting connected. These activities will surely vary by population, but in general they require a level of privacy, ongoing availability and time-intensiveness that presupposes always-on access in the home.

That said, the kinds of activities and frequency of engagement are good proxies for adoption, and there may be some benefit to measuring them instead of relying on household penetration data that is hard to access.

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

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?
   b. Do these costs vary by demographic or other factors?
   c. Which of these costs absolutely depend on broadband technology rather than access to the Internet more generally?
   d. Which of these costs absolutely depend on access at home (fixed or mobile)?
   e. Are there certain minimum hardware requirements necessary for an individual to overcome the costs of exclusion?
   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.

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.[4] 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 list is accurate, but not comprehensive. Digital Impact Group has found that in addition to the barriers cited above, lack of credit, low basic literacy and technophobia are major additional barriers to broadband adoption. Regarding the credit barrier, with a few notable exceptions, most ISPs require a credit card to secure and regularly pay for monthly service, require a credit check to be passed, and enforce a 2-year contract period for most customers, with high early termination fees. Many members of the low-income, non-adopted population do not possess formal banking relationships and as such, do not have a credit card, perhaps have poor or no credit, and may have difficulty with regular monthly payment. Non-payment by such customers actually exacerbates an already tenuous overall credit situation, further decreasing the likelihood of broadband adoption by these individuals.

Additionally, basic literacy, as opposed to digital literacy, has been identified in our research as another barrier to adoption by many members of the target population.

Technophobia takes two forms. The first is lack of basic confidence in one's ability to utilize broadband technology without inadvertently damaging equipment he/she cannot afford to repair or replace. The second is a fear of transmitting personal data over the internet, and a corollary concern regarding the safety of information coming to the user and the user's family.

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?

Yes, DIG's experience and research shows that the concerns mentioned above persist within the non-adopting community and are an element of a common "technophobia" exhibited by participants in many of our programs. The following are specific examples from formal focus groups of DIG participants conducted by the OMG Center for Collaborative Learning as part of a two-year evaluation of DIG's programs:

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[4] 2009 Pew Broadband Adoption Study.

[5] *See*, *e.g.*, The Advanced Communications Law & Policy Institute, New York Law School, Barriers to Broadband Adoption: A Report to the Federal Communications Commission, *available at* http://www.nyls.edu/user_files/1/3/4/30/83/ACLP%20Report%20to%20the%20FCC%20-%20Barriers%20to%20BB%20Adoption.pdf; Comments of Intel Corporation (June 8, 2009); Comments of Verizon and Verizon Wireless, Report on Rural Broadband Strategy, GN Docket No. 09-29, at 3 (March 25, 2009).

- **A mother with the desire to find an online job so that she can work from home is afraid that the opportunities are all illegitimate.**
- **A parent is afraid to enter her personal information online.**
- **Another parent is afraid to give out her e-mail because she thinks people can hack her account with it.**
- **A business owner with little previous access to technology is cautious of trying to figure out how to use his new printer because he says he doesn't want to waste resources (e.g., printer ink, etc.).**
- **Two other business owners don't share access to the technology with others in their household for fear it will get broken.**

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

Currently, information about service offerings - specifically media advertising - makes the assumption that its audience members already have broadband access and/or familiarity with the benefits of broadband. References to faster speeds and various applications mean little or nothing to someone who has never been connected to the internet. Simple and clear information that differentiates non-adopters from current users looking to improve what they already have should be explored and implemented. Unlike cell phone service, gas and electric, broadband service it not universally understood as a utility that is necessary to connect to family, friends, etc.; it is instead seen as a luxury that most low-income families cannot afford. In addition, some service providers do not advertise packages that offer lower cost broadband service even if they offer it, so non-adopters are again left unaware of the full menu of options and are led to believe there is nothing that fits their budgets.

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?

DIG has addressed the relevance barrier by integrating broadband adoption programs within other social services or educational programs already being accessed by the target population. For example, DIG has offered a broadband adoption program that is integrated into an existing employment training program offered by a local non-profit organization. The adoption program is co-located within the training center, and content used for training is entirely focused on employment and training issues. Similarly, an adoption program has been integrated into a local Healthy Start program, which provides services and supports to low-income pregnant and parenting mothers and fathers. The program is co-located with the Healthy Start program, and content used for training in this case is focused on the concerns of new parents. In short, integrating broadband adoption programs with other programs and services already sought by the target population is an effective means of making members of those populations aware of the relevance of broadband to their lives. DIG's research shows that program participants continue to use the internet regularly

for purposes directly related to their initial motivations for entering the program after training is concluded.

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?[6]

Broadly speaking, members of the low-income, non-adopted population face multiple barriers. The barriers are: cost of hardware, cost of access, low basic literacy, low digital literacy, lack of ongoing support, lack of credit or other form of electronic payment, lack of awareness of the relevance of broadband, and technophobia. Some groups face additional barriers related to accessibility, as noted by the FCC above.

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?

DIG's experience and research has shown that these barriers can and should be addressed simultaneously, versus singularly or sequentially. For example, most participants in DIG's programs over the past two years have had to face affordability of hardware and service, lack of digital literacy, lack of awareness of the relevance of broadband, credit and payment challenges, technophobia and more. That is why the DIG model is designed to enable participants to earn a comprehensive package of services that addresses all of these barriers simultaneously: through sweat equity, participants earn a "TechPack" that includes an entry level laptop, home broadband service for some period (usually 6 months to one year), relevant and literacy appropriate training, and ongoing customer support.

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?
   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.[7] What other specific federal policies or programs to address affordability of service and hardware should the Commission consider recommending?[8]

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[6] The Commission has recently sought comment on adoption issues unique to Tribal communities and persons with disabilities. Parties do not need to repeat comments already incorporated in responses to those public notices.

[7] *See, e.g.*, *AT&T Comments on the National Broadband Plan NOI*, at 48-51; *AT&T Reply Comments on the National Broadband Plan NOI*, at 15-16; *T-Mobile Comments on the National Broadband Plan NOI*, at 25; *Dell Comments on the National Broadband Plan NOI*, at 3.

[8] The Commission will be releasing a Public Notice seeking additional comments on reform of the Universal Service Fund, and we will seek additional comment establishing Broadband Lifeline and Link Up programs at that time.

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? [9]

Cost is the most concrete among the multitude of barriers to broadband adoption – for some families, the cost of hardware and monthly service fees is simply out of reach regardless of their desire to be online. This must be addressed.

Tax incentives and low-interest loans are best suited to addressing hardware cost, given the one-time nature of hardware expenditures. These programs can alleviate the cost barrier while keeping cost to the government under control. Both leverage existing financial resources in the form of tax credits or customer payment over time. Low-interest loans, in particular, help with the lack of access to credit among low-income families, a major barrier noted in detail in section 3.(a.).

A system of graduated subsidies is best suited to addressing the ongoing cost of broadband service. The system can be made more successful and cost-effective by accounting for other barriers, and engaging ISPs appropriately.

The commission has rightly noted that lack of perceived relevance is a pronounced barrier to adoption. Cost and lack of perceived relevance are interconnected – as perceived relevance increases, consumers become willing to pay more for service. Therefore, a system of sliding subsidies that decrease over time is sensible. For example, in the first 3-6 months, a subsidy would cover the bulk of service fees, and as users become more familiar with broadband and its benefits, and incorporate them into their day-to-day lives, they can be asked to pay a greater proportion of the service fees. (See Project Change Access, a joint effort of OneEconomy and Cricket Communications.)

But these kinds of subsidies represent a windfall for internet service providers that, to date, have made little effort to provide service to the vast market of non-adopters. Given this reality, ISPs must be compelled to offer discounts to any customer eligible for subsidies. This structure will help contain costs, and increase the likelihood that customers receiving subsidies will remain connected once subsidies are phased out.

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[9] Cox Communications suggests subsidizing consumers, rather than providers, to ensure consumer control and selection and to prevent any potential program disqualification based on being a current customer. *See Cox Comments on the National Broadband Plan NOI*, at 6. One Economy Corporations suggests expanding the New Market Tax Credit Program to include investments in broadband access and permit tax payers to receive a credit against federal income taxes for making qualified equity investments in designated Community Development Entities, which in turn must be used to provide investments in low income communities. *See Comments of One Economy Corporation on the National Broadband Plan NOI*, at 24.

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?

Bundling services exacerbates the cost barrier. Service providers should be compelled to offer individual services at rates comparable to their share of the full bundled price.

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?[10] Should the government encourage state governments, private industry or other parties to offer such programs?

DIG has found that, in terms of entry-level hardware that is well-suited to new adopters, margins for hardware manufacturers are so slim that aggregating demand has little effect on prices. However, such a program may have other benefits related to the confidence barrier and should not be ruled out without inquiry into these potential outcomes.

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

In any effort to encourage adoption, it is extremely important to ensure a positive first experience with technology for non-adopters. Refurbished computers, in DIG's experience, present major challenges in this regard. We have experienced a high failure rate, even with newer donated unites, which has retarded adoption efforts. Issues range from hard drive failures, little or no battery life, charge circuit failures, and difficulty finding appropriate drivers for older components. These issues proved costly for our organization in terms of staff time devoted to repairs and the cost of replacement parts, which we had to incur because most refurbished machines came without warranty. To compensate for the warranty issue, one provider of refurbished machines agreed to provide an overage of 10% on each order, i.e. DIG received 11 machines for every 10 ordered. This was not sufficient given the high failure rate. In light of dramatic decreases in pricing for entry-level hardware, our conclusion is that refurbished systems do not effectively serve the goal of broadband adoption.

[10] The Korean government initiated a "PC for Everyone" program to provide PCs at low prices, partly through a PC purchase installment saving system. In a later initiative, the Korean government itself purchased 50,000 PCs under a four-year lease, providing them to low-income families. *See* Kenji Kushida and Seung-Youn OH, *Understanding South Korea's and Japan's Spectacular Broadband Development: Strategic Liberalization of the Telecommunications Sectors*, June 2006. Available at http://brie.berkeley.edu/publications/wp175.pdf.

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

For purposes of new users, DIG feels that these programs will be effective even if capped at entry-level systems, or roughly $300 per computer.

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

b. Many non-adopters report that they do not have the skills to use broadband.[11] 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?[12]

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

c. 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.[13] 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?[14] 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

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[11] 2009 Pew Broadband Adoption Study at 41-42. User responses classified as indicative of having insufficient skills include, for example: "too old to learn, difficult and just don't know how."

[12] *See, e.g.*, Letter from Rey Ramsey, Chief Executive Officer, One Economy Corporation, to Julius Genachowski, Chairman, FCC (Nov. 3, 2009) (One Economy Nov. 3, 2009 *Ex Parte*) (proposing a National Digital Literacy Initiative) .

[13] 2009 Pew Broadband Adoption Study at 41-42. User responses classified as indicative of not believing broadband is relevant include, for example: "not interested in getting on-line, nothing could get me on-line or to switch from dial-up, too busy, or 'other.'"

[14] Qwest suggests that the Commission should focus on program outreach efforts to and by state, local and tribal agencies and provide funding to support cooperative outreach and streamlined enrollment processes. *See Qwest Comments on the National Broadband Plan NOI*, at 15. Time Warner Cable supports the use of Federal funds to support broadband demand-side programs, with a focus on outreach and education, subsidies for low-income customers, and programs to distribute laptops to low-income schools and families. *See, TWC Comments on the National Broadband Plan NOI*, at 20-21; *TWC Reply Comments on the National Broadband Plan*, at 16.

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?[15]

A federally funded and/or sponsored campaign about the relevance should utilize traditional media outlets, as well as non-traditional outlets, such as transit shelters, community billboards, and other environmental placements. Earned media/public relations, i.e. placing articles and editorials about the issue, should also be an integral component of the campaign. Special effort should be made to engage with key local and/or segment-specific media outlets that inform and influence the target populations most directly, including community newsweeklies, tenant newsletters, and public access cable television, and other special interest electronic and print media.

A limited, but targeted paid media strategy should be utilized to demonstrate the various scenarios in which broadband Internet service – in combination with offered training, digital content, and support – can lead to new life opportunities for various segments of the non-adopted population.

In addition to established media outlets, we recommend using the physical landscape of communities as a canvas for the awareness campaign, including creative executions for transit, retail and other neighborhood locations. Recognizing that there are natural gathering places in all communities, we suggest installing environmentally friendly, removable messages to promote the sustainable adoption program. Funds permitting, street teams, equipped with appropriate speaking points, could be extremely effective in the distribution of handbills at community events.

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?

[15] *See, e.g.*, *Broadband Diversity Comments on the National Broadband Plan NOI*, at 34-35; *ZeroDivide Comments on the National Broadband Plan NOI*, at 7; *BOC Comments on the National Broadband Plan NOI*, at 18-19; and *AT&T Reply Comment to the National Broadband Plan NOI*, at 16.

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?

Based upon its research and experience, DIG strongly recommends integrating broadband adoption programs into the work of existing funding and service channels to which members of the target populations are already attached. This would yield, for example, a program to provide subsidized broadband, computers, training, applications and support to K-12 students eligible for the National School Lunch Program, or a program through which low-income post-secondary students could qualify for financing of TechPacks including hardware, access, training and support as part of their federally funded financial aid package, or a program through which expectant mothers participating in Healthy Start programs would qualify for TechPacks based upon achievement of certain key programmatic benchmarks for participation and achievement. This method eliminates the need for an additional qualification process and provides incentives for participants to achieve benchmarks of policy importance.

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?

Private industry includes the key suppliers of computer hardware and internet service. Given that hardware and service are two critical elements to broadband adoption, private industry should be strongly encouraged and incentivized to provide discounted entry level computers and broadband service to qualifying participants in broadband adoption programs. Private industry should work cooperatively with the federal government and the non-profit sector to develop and implement a comprehensive national broadband adoption program that is jointly sponsored and supported by all three sectors.

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

Non-profits should serve as the primary channel for delivering services directly to the target populations. These entities will already have established qualification criteria and management processes in place, can provide the sites for delivering services, and if programs are structured properly, can also benefit from the increased participation and achievement that result from broadband adoption programs being incorporated into their service delivery menus.

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?

In consultation with the FCC and others, DIG has developed a Framework for Understanding and Evaluating the Broadband Adoption Process, which will be shortly submitted to FCC via the ex parte process.