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CAN DO MORE TO SPUR ADOPTION

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SUMMARY

Two years after the delivery of the National Broadband Plan (NBP), home broadband adoption rates remain roughly what they were in 2009. During the intervening time, however, adoption of smart-phones has taken off in America. This makes a problem identified in the NBP—the cost of not being connected to the Internet—even more severe now than it was two years ago.

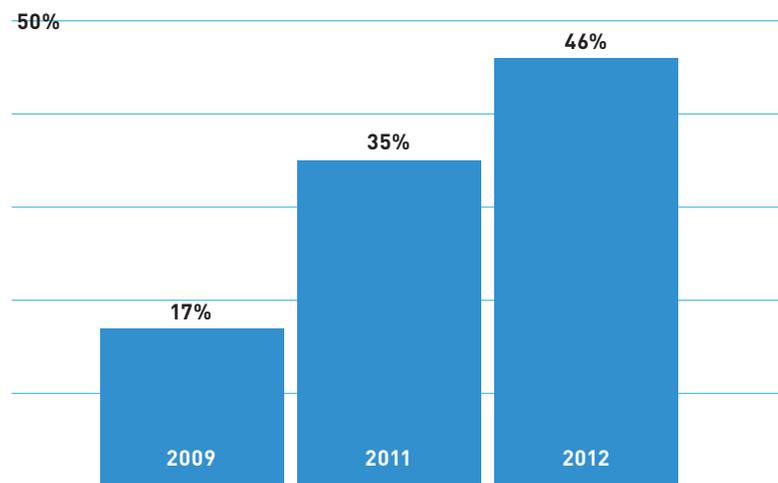
Fortunately, an outgrowth of the NBP and the 2009 American Recovery and Reinvestment Act has been the emergence of an infrastructure to promote broadband adoption in the United States. These initiatives, many in nascent stages, represent well-intentioned and laudable efforts to increase broadband adoption. Yet they suffer from lack of coordination—both among diffuse programs and across levels of government—and insufficient attention to assessing program outcomes. Neglect of coordination and assessment is a problem for two reasons. First, it means stakeholders are flying blind when it comes to understanding best practices to improve broadband adoption. Second, to the extent that poor policy coordination hampers efforts to increase broadband adoption, we run the risk of having a less inclusive society, a smaller domestic market for tech goods and services, and a less innovative economy.

When the Federal Communications Commission (FCC) released the National Broadband Plan (NBP) two years ago, one of the plan's goals was to create the conditions that would get more Americans using broadband. At the time, two-thirds of Americans were broadband users at home, meaning that nearly 100 million Americans did not have access at home to a technology the NBP called a "foundation for a better way of life."

Since that time, there has been a great deal of dynamism in the world of information and communications technology (ICT). A recent survey by the Pew Research Center's Internet & American Life Project found that nearly half (46%) of adult Americans by February 2012 had smartphones (up from 17% in late 2009 and 35% in April 2011).¹ This adoption rate is stunning. It took roughly 9 years for 50% of Americans to subscribe to broadband at home. If we date the beginning of the smartphone era to the release of the iPhone in mid-2007, smartphones will hit the half-way mark in only 5 years. To take another point of comparison, home broadband

adoption grew from 37% to 47% in two years' time (2005 to 2007), while smartphones have traveled that path in just 10 months.

Apps usage, which was non-existent a few years ago, grew markedly from mid-2010 to the end of 2011. During this period, smartphone users more than doubled the time they spent using apps—from 43 minutes to 94 minutes per day. The number of monthly app downloads (for both Android and Apple's iOS) grew from nearly 400,000 at the start of 2010 to 2.1 billion by August 2011.² More than 100 million Americans routinely email, check in, tweet, text, and otherwise scratch information-seeking and sharing itches—all on the go. The explosion in demand for mobile devices and apps shapes the job market; as Michael Mandel recently documented for TechNet, the United States was home to approximately 466,000 app developer jobs at the end of 2011.³



SHARE OF ADULTS WITH SMARTPHONES

HOME BROADBAND ADOPTION SLOWS DOWN

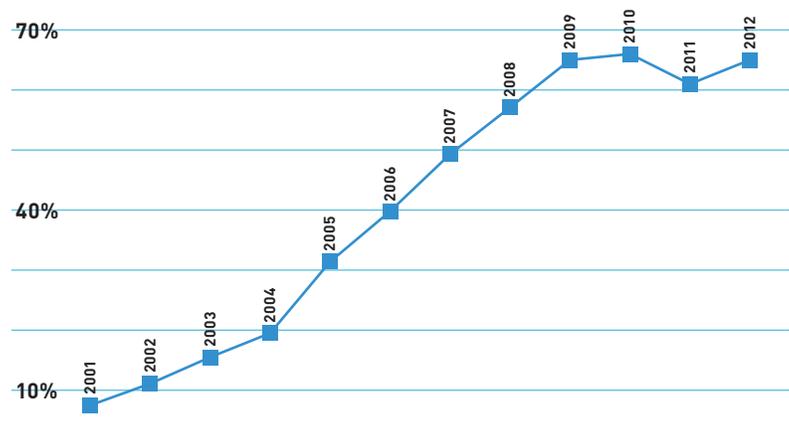
One thing that has not changed—or changed very much—is the overall share of Americans who have broadband at home. The FCC’s survey of Americans in the fall of 2009 found that 65% of Americans had broadband at home. Similarly, a February 2012 survey by the Pew Research Center’s Internet & American Life Project found that 65% of Americans have broadband at home. The National Telecommunications & Information Administration pegged home broadband adoption at 68% as of the fall of 2010.⁴ The picture is clear: Since 2009 there has not been much change in the percentage of Americans with broadband at home. The chart below shows how broadband adoption has leveled off since 2009.

Several reasons are behind this plateau in broadband adoption. First, the last third of the population without broadband has all the characteristics associated with not adopting information technology. This group is older, less educated, and poorer.⁵ As the NTIA’s 2011 survey shows, just 43% of low-income (households with annual incomes below \$25,000) Americans have broadband at home and 46% of those without a high school degree have broadband, compared with the 68% average.

Second, the economic recession has contributed to the stalling of broadband adoption. A 2009 Pew survey found that 9% of Internet users said the recession had led them to cut

back or cancel Internet access service during the previous 12 months—a figure that rose to 16% for low-income Americans (those whose household incomes are \$30,000 or less).⁶ Analyst Craig Moffett has pointed out how stagnating incomes—particularly for middle and lower income Americans—mean the days of consumers spending more and more on communication services may be over. For the bottom two income quintiles of households (a number whose size corresponds roughly to the one-third of non-adopting broadband households and whose household income is below \$29,000 annually), real incomes have been falling over the last five years. As Moffett notes, there is “virtually no headroom after paying for food, shelter, transportation, and healthcare” to buy home broadband or smartphone service.⁷

There are historical examples of bad economic times putting the breaks on tech adoption. During the Great Depression, the upward path of telephone adoption actually reversed, falling from 42% in 1929 to 31% in 1934. Electricity use at home leveled off at about 67% during the Great Depression before resuming its climb.



SMARTPHONES ARE FOR THE WIRED, NOT NON-BROADBAND SUBSCRIBERS

Intuitively, one might think home broadband adoption has slowed because people without a home broadband connection are choosing smartphone Internet access instead. This turns out not to be true. For the most part, people who have a smartphone are adding to their portfolio of access tools. According to Pew's February 2012 survey, 83% of those with smartphone also have broadband at home—about the same share recorded in April 2011, when 82% of smartphone users said they had broadband at home. Put differently, in February 2012 just 23% of non-broadband users had a smartphone, a somewhat higher figure than that registered in April 2011, when 16% said this.

These patterns suggest, in the context of slightly rising broadband adoption (in the Pew surveys, home broadband adoption

was 61% of all adults in 2011 and 65% in 2012), that only a small increment of smartphone adoption comes from people who use a smartphone as their main means of online access. To be sure, if one were to add “smartphone only” users to broadband users, the overall figure from broadband adoption would rise from 65% to 73%, using Pew's February 2012 numbers.⁸ However, although this 8 percentage point difference is notable, its significance is quite limited. Because carriers are instituting caps on the amount of data people may consume on a monthly basis, the smartphone has limited utility as a means of sole online access. Additionally, the vast majority of smartphones run on 3G networks, where speeds are a fraction of those available over wireline networks and highly variable depending on location and network congestion.

THE COST OF DIGITAL EXCLUSION IS RISING

All this means that the cost of digital exclusion—a problem identified in the NBP two years ago—is becoming more of a problem. The NBP's seminal example of the cost of digital exclusion was the observation that many (or most) jobs accept applications only via online submission. Someone who doesn't have broadband access will be excluded from the job market. Broadband access for senior

citizens (just 45% of whom have subscribed, according to NTIA) may be a choice for many unsophisticated older tech users, but the day will soon be on us when seniors' health care providers need them to have broadband access for better service delivery.

Mobile access is a force multiplier for the utility of online access. With mobile access,

users have real time access to health care information, news, comparison shopping and social networking. The power of location-based services, through apps such as Groupon, Living Social, or Point Inside, help people find and get bargains on good and services they want. Location-based services are also in the process of having far-reaching impacts on health care. Think of how location-based services could help

patients manage medication. An app might know what medications you take, know you are in a pharmacy, and prompt you to ask the pharmacist questions.⁹ Notably, according comScore, health care apps are the fastest growing app segment.¹⁰ For all these reasons, those with mobile access have an Internet that is far more valuable than it was when fixed broadband was the primary way to get online.

WHAT TO DO ABOUT IT?

Two trends are in tension today: tepid home broadband adoption and rapid smartphone adoption (predominantly among existing broadband users). Is this circumstance worthy of programmatic intervention to address?

One response is to do nothing. Following this line of thinking, adoption rates wax and wane, but eventually, as with telephones, electricity, and TV, almost everyone will have broadband access—and probably multiple avenues of access with smart portable devices. Rushing the inevitable will only waste resources.

The counterargument is that sooner is better: Steps to get non-adopters online with broadband quickly confer benefits to new subscribers and society that justify the costs of accelerating their adoption path.

Part of this argument relies on the notion of the cost of digital exclusion, i.e., shrinking offline alternatives for things such as job applications makes lack of access costly and unfair to non-adopters. Another element of the argument is that online delivery of important services, such as health care and government benefits, is cheaper than offline means, so that accelerating universal broadband adoption allows expensive-to-maintain offline infrastructure to be decommissioned. Unfortunately, there is little, if any, analysis of the costs of expanding the pool of broadband adopters or the benefits of doing so.

Notwithstanding a dearth of analysis, the past two years have seen the growth of new initiatives to boost broadband adoption. Many communities received funding

from the 2009 American Recovery and Reinvestment Act (ARRA). Under ARRA, the Commerce Department's Broadband Technology Opportunities Program (BTOP) has provided \$250 million for Sustainable Broadband Adoption projects and another \$250 million for Public Computing Centers. These funds have helped shore up many initiatives to encourage broadband adoption

that have been around since the early 2000s, such as Computers for Youth (CFY), One Economy, One Community, Connected Nation, and others. More recently, the FCC announced the Connect to Compete (C2C) initiative, a new non-profit initiative designed to connect qualified low-income individuals to the Internet.

LEVERAGING THE BROADBAND ADOPTION INFRASTRUCTURE: ASSESSMENT AND COORDINATION

These initiatives represent a growing broadband adoption infrastructure in communities around the country. The question is whether this infrastructure is serving its intended purpose.

We need coordination and assessment in order to answer this question. The need for coordination comes from the recognition that efforts to promote broadband adoption are both local and diffuse. A broadband adoption program in Cleveland may offer lessons to one just getting started in South Texas. Unfortunately, disparate programs often exist without means for coordination or information-sharing. A clearinghouse for best practices that assembles program information curated by experts in the field does not exist. This is a recommendation

from the National Broadband Plan that has not yet been implemented.

The clearinghouse would help local authorities understand broadband opportunities better. States would also benefit from greater coordination and understanding of what other states are doing. The stimulus bill created 50 state broadband authorities to manage data collection for the national broadband map and spearhead broadband policy in the states. However, there is wide variability in states' capacities in broadband. Greater coordination among states would help.

Greater policy coordination at the federal level would also help. The FCC is in the process of reforming the Lifeline/Link-up

program, the \$1.2 billion program that subsidizes telephone access for qualified low-income people. The current FCC reform proposal suggests pilot programs be undertaken with carriers to explore effective approaches to delivering a broadband benefit to consumers. At the same time, NTIA has been funding programs that undoubtedly would yield insight to the FCC as it considers Lifeline/Link-up reform and how to support Connect to Compete. Yet there is not much evidence that the two agencies are actively trying to draw lessons from one another or thinking creatively in considering, for example, how Lifeline/Link-up funding might support NTIA's broadband promotion efforts or C2C's emerging models. Congress should also engage in this discussion and consider whether the federal government should devote more resources to broadband adoption programs or modify existing funding mechanisms (e.g., Lifeline/Link-up) to support broadband adoption.

Assessment is a different challenge, but the nascent phases of initiatives such as C2C offer opportunities to meet this challenge. This program—and many others—is in the early stages of reaching out to non-adopters. This presents the chance to ask clients, from the beginning, to share information as to how the program did (or did not) help them become broadband users and, more importantly, broadband's impact on outcomes in their lives (such as job prospects, health care,

or greater convenience). Conducting program assessment takes two things: will and money. As a share of overall program costs, money for assessment is not a huge fraction, even though managers understandably want to use every dollar for programming. The will to do assessment may also be in short supply, even though lack of interest in understanding outcomes and impacts is short-sighted if sustaining programs is a long-term priority.

A commitment to assessment could also sow the seeds for innovation in communities these programs serve. The communities where broadband adoption programs operate often lack resources, and one key resource they lack is data, particularly as it relates to information and communications technologies.

The era of Big Data is upon us. We have opportunities for innovation in product and service delivery based on analysis of large datasets that help facilitate understanding of user behavior in specific contexts. Big Data is a daunting idea to some, as it raises real concerns about privacy of personal information and data security. Yet such data will enable future innovation by the private sector. Developing “Big Social Data” for underserved communities in connection with assessing program outcomes can facilitate social innovation that meets the needs of these communities.

UNDERSTANDING THE STAKES

While talk of program assessment will warm the hearts of social scientists, the stakes are much higher than simply knowing the payoffs of public and private funds invested in broadband adoption. We should make sure that the United States does more with broadband than any other country. Equity is part of this: like electricity and telephone, broadband has become integral to how people conduct their everyday affairs. It seems only fair, then, to take steps to include everyone.

Yet we also need to position our economy to provide the widest scope of economic and social benefits of communication technologies. To be successful in today's economy, organizations need accelerated knowledge flows, the ability to collaborate and solve problems, entrepreneurship, and (for many) the ability to operate at scale. Broadband networks are the enabling technology for each of these needs. The other piece of the

puzzle is connectivity: more people online and with the skills to use broadband are necessary to enable broadband to contribute fully to the nation.

Since the National Broadband Plan was delivered to Congress two years ago, the government and private sector have worked together to buttress an emerging policy infrastructure to support broadband adoption. This is good news, as far as it goes. But so far these efforts have suffered from insufficient coordination and a lack of clear strategy for assessing outcomes. Unless policymakers and private sector stakeholders take action to improve our understanding of these initiatives, we will be both flying blind when it comes to knowing what works and also risking second class status for the U.S. broadband ecosystem.

ABOUT TECHNET

TechNet is the national, bipartisan network of CEOs that promotes the growth of technology industries and the economy by building long-term relationships between technology leaders and policymakers and by advocating a targeted policy agenda. TechNet's members represent more than one million employees in the fields of information technology, biotechnology, e-commerce and finance. TechNet has offices in Washington, D.C., Palo Alto, Sacramento, Seattle, Boston and Austin. Web address: www.technet.org. You can also follow us on Facebook and Twitter at @technetupdate.

ENDNOTES

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