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California Emerging Technology Fund

Sustainable Broadband Adoption

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Table of Contents

Executive Summary 3
Introduction 7
1.1 What the Interviewees Told Us 8
Section 2. Impacts 10
2.1 Focus Areas 10
2.2 Digital Literacy 11
2.3 Workforce and Economic Development 14
2.4 Education and Training 15
2.5 Healthcare 17
2.6 Quality of Life/Civic Engagement 18
Section 3. Recovery Act Goals 19
3.1 Provision of Services 19
3.2 Broadband and Economic Growth 26
Section 4. Grant Implementation 28
4.1 Facilitating Conditions 29
4.2 Social Influence 30
4.3 Performance Expectancy 32
4.4 Effort Expectancy 33
Section 5. Techniques, Tools, and Strategies 35
5.1 Techniques, Tools, and Strategies 35
5.2 Challenges 36
Section 6. Conclusions 39
Section 7. Quantitative Analysis 40
Section 8. Next Steps for the BTOP Evaluation Study 41
Notes 42
Glossary 46
Bibliography 47

List of Figures

Figure 1. Words Interviewees Used Frequently 9
Figure 2. Grantee Training Hours Categorized by Focus Area 10
Figure 3. Focus Area Statements Made by Interviewees 11
Figure 4. Adults Completing Training 12
Figure 5. Youth Completing Training 12
Figure 6. Recovery Act Goals Statements Made by Interviewees 19
Figure 7. Print Packets Distributed to Service Population 21
Figure 8. Radio Bilingüe Broadcast Hours 22
Figure 9. Radio Impressions 22
Figure 10. Television Impressions 22
Figure 11. Number of Calls to 2-1-1 23
Figure 12. Referrals 24
Figure 13. Household Subscribers Receiving Discounted Service 25
Figure 14. Computers Distributed to Households 25
Figure 15. Individuals Receiving Technology Assistance from AccessNow 26
Figure 16. New Household Subscribers 26
Figure 17. Direct Jobs Created by CETF 27
Figure 18. Distribution of Grant Implementation Topics by UTAUT Dimension 29
Figure 19. Relationship between Outreach Activities and Calls to 2-1-1 40

Executive Summary

> *"I'll just repeat what people told me. Once they're online they feel like they're part of society. They're having ordinary lives. They're not looking for extraordinary experiences. They just want to be like everyone else. Every commercial leads you to a website. Every piece of printed material leads you to a website. You can't apply for jobs, and your child can't succeed at school unless you are at home on the Internet like other parents. That's really what people got out of it. They weren't starting their own business and building their own websites. The people I worked with just wanted to be like other people."*
> *– CETF Subrecipient*

The California Public Utilities Commission (CPUC) established the California Emerging Technology Fund (CETF) in 2005 as a nonprofit corporation to advance the adoption and usage of broadband technology in underserved communities across the State of California. On February 1, 2010, the National Telecommunications and Information Administration (NTIA) awarded CETF a Broadband Technology Opportunities Program (BTOP) Sustainable Broadband Adoption (SBA) grant for $7,251,295 to implement the Broadband Awareness and Adoption (BAA) project. CETF allocated this funding to eight different subrecipients and partners that provide services and outreach to California residents. The goal of this project is to provide vulnerable and low-income communities throughout the state with the basic tools necessary to adopt broadband technology. CETF has set a goal of eliminating the digital divide in California by 2017.

CETF's BAA project aimed to increase broadband adoption in vulnerable and low-income communities across California where the digital divide is most pronounced, including communities in Los Angeles, the Central Valley, Orange County, San Diego, and the Inland Empire. CETF focused on serving individuals whose computer and broadband use is significantly lower than the rest of California, including individuals living at or near the poverty level, those living and working in rural areas, and the disabled. Grant activities promoted adoption through broadband awareness, access, and training. CETF planned to increase household adoption of broadband in low-income communities by more than 133,000 households through a series of activities that included:[1]

- Identifying the digital literacy needs of vulnerable and low-income communities with low broadband adoption rates.
- Developing partnerships with organizations that serve vulnerable and low-income communities to provide outreach, to raise awareness about the benefits of broadband, and to help people subscribe to broadband services.
- Providing outreach through media campaigns and grassroots mobilization.
- Providing digital literacy training to 678,000 low-income individuals, including 300,000 youth.

CETF distributed funds to subrecipients in order to provide these services to the target population. Specific goals and outcomes of the project include:

- Communicate and engage with low-income and Spanish-speaking non-broadband users in low-adoption areas of California using tailored messages about the benefits and affordability of broadband. The outreach efforts exceeded the goal of reaching 5 million, reaching more than 13 million people since 2010.[2] The outreach campaign focuses on broadcasting media messages encouraging people to attend digital literacy training sessions, to bring their broken computer to a repair workshop, or to call 2-1-1 for referrals. The outreach yielded 282,655 training referrals, and 79,847 individuals attended digital literacy training by the end of 2012.[3]

- Expand the offerings of twenty-seven California 2-1-1 telephone call centers to include broadband services among the offerings for people in need of assistance. Objectives to reach this goal included screening 250,461 callers statewide and generating 45,533 referrals, in addition to helping 11,383 low-income households subscribe to broadband. As of July 2013, California 2-1-1 had nearly reached these objectives, having screened 193,592 callers and generated 44,052 referrals.[4] California 2-1-1 also provided 3,569 callers who needed computers with referrals to free or reduced-price computers and helped 7,478 new households adopt broadband.[5]
- Create an interactive voice response (IVR) telephone system. This system's purpose is to screen 2-1-1 callers for those interested in information about broadband services. The integrated database, customer relationship management system, and telephone call center were required to help 2-1-1 facilitate and support the adoption of broadband services for people with immediate needs. The IVR system was developed and implemented, standardizing systems across the state. This helped 2-1-1 provide the right information at the right time to individuals who needed to know where they could get affordable broadband access and computers.
- Host eighteen AccessNow Computer Help Day events to repair old or outdated equipment, offer subsidized refurbished equipment, provide hands-on computer training to 2,430 participants, and help 200 households connect to the Internet.
- Provide online training and accessibility information to California residents with disabilities and those working with or providing services to them through the Center for Accessible Technology (CforAT) website. Since the grant's inception, there have been 29,435 unique visitors to the website, well above CforAT's goal of 5,000.[6] As of the site visit, CforAT had provided thirty-nine webinars to 1,100 participants.[7] The webinars remain accessible through the website.
- Upgrade Social Interest Solutions' (SIS) One-e-App screening and enrollment system to include broadband awareness information for 75,000 adults and 56,000 youth, and assist 970 low-income households in subscribing to broadband services. SIS upgraded One-e-App, providing broadband information at 26 sites for 35,753 adults and 49,765 youth. The system helped 2,031 low-income households subscribe to broadband.[8]
- Offer refurbished desktop computers (with technical assistance and basic instruction) to Chicana/Latina Foundation (CLF) participants at various locations, including twenty-seven Mi Pueblo Markets locations, Sacred Heart Community Services of San Jose, Redwood City Main Library, and the Third Street Community Center. CLF distributed 1,076 refurbished computers at these locations.[9]
- Install a new public computer lab in Catholic Charities' Family Resource Center offering open lab time and training sessions. Dewey Square Group (DSG) built this and three additional computer labs in churches as part of the Race to Close the Digital Divide. In total, they distributed forty-eight computers to the labs.[10] In addition, DSG developed training materials for use at these and other sites.
- Address broadband access issues through 111 hours of a live call-in program and 111 hours of messages on Radio Bilingüe, reaching 60,000 listeners and facilitating 1,222 new household Internet subscriptions.[11] Radio Bilingüe completed approximately 160 hours of live programming. In addition, the station aired 160 different short messages from 30 to 60 seconds in length more than 12,000 times.[12]

CETF reported that, because of these efforts, 198,743 households adopted broadband services, exceeding its target of 133,000.[13]

CETF serves all of California, including the Bay Area, Central Valley, Los Angeles, Inland Empire, and Orange/San Diego service regions. California's total population is approximately 36.3 million, including 10.2 million in the Los Angeles service region, followed by 7.3 million in the Bay Area, 5.4 million in the Central Valley, 4 million in the Inland Empire, and 3.1 million in the Orange/San Diego service region. CETF targets service to households with an income under $40,000. The Central Valley has the largest percentage of households with an income of less than $40,000, at 35

percent, followed by 33 percent of Los Angeles households, 30 percent of Inland Empire households, 26 percent of Orange/San Diego households, and 20 percent of Bay Area households. The target region is predominantly White, although to a lesser degree than the nation as a whole. Each target region also has large populations self-identified as Asian or "Other." All service regions have more than twice the national percentage of individuals who are Hispanic, with the exception of the Bay Area, which is 8 percentage points higher than the nation. The service area also includes a large percentage of persons speaking languages other than English in the home.[14]

Over the past five years, CETF has helped to fund a survey by the Public Policy Institute of California (PPIC), which tracks Internet adoption and use along with public opinion on broadband issues, including the digital divide and attitudes and behaviors related to the adoption of broadband technology. The most recent PPIC survey, released on June 27, 2013, shows that levels of broadband adoption at home in California have remained stable since 2010, in a range between 69 percent and 73 percent, which is within the margin of error of the survey. A persistent digital divide remains present in the survey results, with geographic location, income, education, age, disability status, and other demographic characteristics associated with levels of broadband adoption. Persons living in more urban locations, with higher-income households, with more education, who are younger, and who do not report a disability, typically have higher levels of broadband adoption at home. Latinos who speak a language other than English as their primary language are especially likely to exhibit lower rates of broadband adoption at home.[15]

This case study is one of fifteen performed by ASR Analytics, LLC (ASR), on a sample of eight Public Computer Center (PCC) and seven SBA grants. It is part of a larger mixed-methods evaluation of the social and economic impacts of BTOP.

The purpose of this case study is to:[16]

- Identify how the grantee maximized the impact of the BTOP investment.
- Identify successful techniques, tools, materials, and strategies used to implement the project.
- Identify any best practices, and gather evidence from third parties, such as consumers and anchor institutions, as to the impact of the project in the community.

This report further investigates the initial impacts reported by the grantee during the first round of visits and identifies additional impacts that occurred in the time between the site visits. The results presented in this report reflect the evaluation study team's observations at the time of the second site visit. This report includes both qualitative and quantitative components. It will serve as a basis for *Interim Report 2*, which will analyze data from fifteen case studies.

ASR collected the information presented here during two field visits to evaluate the social and economic impact of CETF. In October 2011, the evaluation study team met over a three-day period with representatives from CETF and its project partners and subrecipients. The evaluation study team performed a second site visit from January 13-17, 2013.

The evaluation study team held interviews and focus groups at office locations for CETF and the following subrecipients: Radio Bilingüe, 2-1-1 of Fresno, the Dewey Square Group, the Chicana/Latina Foundation, Center for Accessible Technology, Social Interest Solutions, AccessNow, Latino Community Foundation (LCF), and a subrecipient of LCF, the Canal Alliance. In total, ASR performed a combination of ten case study site visit interviews and focus groups and transcribed these discussions. This information, and other information and reports provided by the grantee, were supplemented by Quarterly Performance Progress Reports (PPR), Annual Performance Progress Reports (APR), and other publicly available information. This case study report presents the highlights of those materials as they relate to the goals of the grant-funded program and the requirements of the overall evaluation of the BTOP program. Nothing presented here is intended as an evaluation of CETF or its partners and subrecipients.

Awareness was a primary aspect of CETF's grant activities. One overarching project was the development of a supplement to La Opinión, a newspaper with statewide distribution. The twelve-page supplement provided information on the benefits of broadband, how to take the first steps toward broadband use, and information about each of the partners in the BAA grant. One million print copies were distributed across the state, resulting in at least 1,837,921 print impressions.[17] According to surveys collected after the distribution, approximately 50 percent of the readership had an annual household income of under $40,000. DSG also led an effort that promoted broadband awareness through a run of articles printed on a dedicated page in La Opinión in August 2011 and one week in May 2012. These articles discussed Club Digital and how to get online. The Club Digital website served as a follow-up to these print materials, as an incentive for readers to use the Internet. The Club Digital print materials produced a total of more than 145 million impressions.[18]

CETF reported that the BAA grant facilitated 198,743 new broadband subscriptions, based on data reported by subrecipients.[19] Data collection included direct observation, surveys, and extrapolations made by the grantee based on the number of people reached, as measured by the number of radio, television, and print impressions. Although subscribership started slowly at the beginning of the grant, it grew at a faster rate in the second quarter of 2011 and stayed strong through the end of 2012.

The grantee did not collect data on the activities of most new broadband subscribers. However, the reports provided to the evaluation study team on new subscriber activities indicate that new subscribers are using broadband in ways similar to those pursued by most Californians. PPIC found that, "Among all adults, 60 percent buy goods and services, while 57 percent go to a social networking site…More than half go online for heath or medical information (55 percent) or do banking or manage finances (53 percent). Nearly half look for information about a job (48 percent), or access government resources (47 percent). Fewer go online to apply for a job (40 percent), for educational purposes (39 percent), or to contact a health insurance provider or doctor."[20]

The social and economic benefits of the grant included improved social connections, better employment outcomes (including self-employment), increased communication between teachers and parents, and improved access to social services. Section 1 of the report discusses these impacts.

The BAA project yielded benefits for the communities served that extend beyond the increases in broadband awareness and adoption reported by the grantee. The grant provided an opportunity for CETF to expand its earlier efforts in Los Angeles County into a larger portion of the State of California. In order to reach such a large geographic area, CETF developed new capabilities for managing a large grant and facilitating interactions among partners in grant delivery. This included improved broadband-based technologies for tracking grant progress, and shared decision-making structures to coordinate subrecipient activities. The grantee reports that this will improve their ability to provide services in the future.

In addition to the organizational benefits to CETF, individual partners reported long-term benefits to their organizations. For example, 2-1-1 California improved its IVR systems to increase flexibility and capacity, especially in terms of emergency response. SIS improved the One-e-App system, a broadband-based technology, and added additional components promoting the use of broadband technologies for the management of social services.

Introduction

The California Public Utilities Commission (CPUC) established the California Emerging Technology Fund (CETF) in 2005 as a nonprofit corporation to advance the adoption and usage of broadband technology in underserved communities across the State of California. On February 1, 2010, the National Telecommunications and Information Administration (NTIA) awarded CETF a Broadband Technology Opportunities Program (BTOP) Sustainable Broadband Adoption (SBA) grant for $7,251,295 to implement the Broadband Awareness and Adoption (BAA) project. The goal of this project is to provide vulnerable and low-income communities with the basic tools necessary to adopt broadband technology. CETF targeted its program at vulnerable populations by partnering with the Chicana/Latina Foundation (CLF) and the Latino Community Foundation. The Center for Accessible Technology assisted the project as a whole with accessibility for disabled persons. AccessNow provided free computer maintenance in priority areas. Finally, two groups addressed the needs of geographies where broadband adoption was especially uncommon. Somos Mayfair provided digital literacy training and computer assistance in the Mayfair neighborhood near San Jose, and the Canal Alliance provided similar assistance in the Canal neighborhood near San Francisco.

The project includes components to provide major systems upgrades to information providers such as 2-1-1 and Social Interest Solutions (SIS), as well as a budget for marketing and advertising by the Dewey Square Group (DSG). Radio Bilingüe promoted broadband adoption through dedicated programming and public service announcements distributed by five Spanish-language radio stations in California, and eighty-five more across North America.

CETF administers the BAA program, which relies on the efforts of a coordinated group of subrecipients to achieve results across the State of California. Some grant programs target specific locations within the Bay Area, Central Valley, Los Angeles, Orange County, San Diego, and the Inland Empire. The following is a short description of the subrecipients under the BAA grant:[21]

- **California 2-1-1** is a free phone call center and online database that connects Californians to existing health and human service programs. This database is updated every six months. California 2-1-1 receives more than 1.4 million calls each year.
- **AccessNow** is an organization that holds Computer Help Days, which are one-day events where low-income individuals can receive technical support, training, and free access to the Internet.
- **The Center for Accessible Technology (CforAT)** provides consulting services to improve technological accessibility for people with disabilities. CforAT's Accessible Technology Coalition capitalizes on the experience that CforAT has in leveraging technology to promote access to broadband and technologies that rely on high-speed communication in the disabled community.
- **Social Interest Solutions (SIS)** is a nonprofit technology and solutions provider connecting low-income California families to health and social services programs, decreasing the digital divide. SIS's signature solution, One-e-App, has screened more than 13 million people for a range of federal, state, and local programs over the past ten years.
- **Chicana/Latina Foundation (CLF)** has focused on professional development and leadership among the Latina population for more than thirty years. CLF provides scholarships, leadership institutes, and after-school programs.
- **The Dewey Square Group (DSG)**, founded in 1993, is a public affairs firm that integrates strategy, tools, and tactics to design advocacy campaigns.
- **The Latino Community Foundation (LCF)** endeavors to help Latino children and their families build a better future by providing grants to organizations supporting Latinos, and creating

opportunities for leadership development and public dialog. LCF has eight partners working as a network of organizations that provide community-based services to help improve broadband adoption through greater digital literacy, access to affordable broadband services, and computer systems. Somos Mayfair, which serves the East San Jose neighborhood, and Canal Alliance, which serves the Canal neighborhood of San Rafael, are two of LCF's partners.

- **Radio Bilingüe** is a nonprofit radio network with six full-power radio stations covering the Central Valley. Programming includes music, news, talk, drama, and more in Spanish, along with English and three indigenous languages. Radio programming reaches 60,000 listeners in farm worker communities in the state's interior, the lowest per-capita broadband access area in California.

CETF's expectations for reaching a large population of non- or low-adopters of broadband required a strategy that could scale quickly. CETF oversaw many activities of the BAA partners, which took a portfolio management approach to project activities. This included centralized reporting on project outcomes using the Outcomes Tracker, an online database CETF repurposed for the BAA grant. CETF also held frequent roundtable events for project partners and community organizations in the areas targeted by the grant. CETF characterized this as a "venture philanthropy" approach that uses leadership and management techniques to support disciplined documentation, assessment of key outcomes, and measurement of returns on investment.

1.1 What the Interviewees Told Us

Figure 1 displays words used frequently by interviewees during discussions that took place with ASR. The word cloud displays the 100 words interviewees used most frequently. The purpose of the word cloud is to provide a succinct visual summary of the conversations that occurred. Statements made by ASR personnel during the interviews and focus groups were excluded from the analysis, as were common words, such as prepositions, articles, and conjunctions, which were identified using a standard "stop list."

"People," "computer," "community," and "school" were all used frequently, reflecting the community focus of the grant and the application of grant funds to promote the use of broadband technologies for parents of schoolchildren. Other words, such as "training," "classes," "families," and "information," reflect the activities of the grantee directed toward broadband awareness and education, especially those activities focused on the household as the unit of adoption.

Figure 1. Words Interviewees Used Frequently

Section 2. Impacts

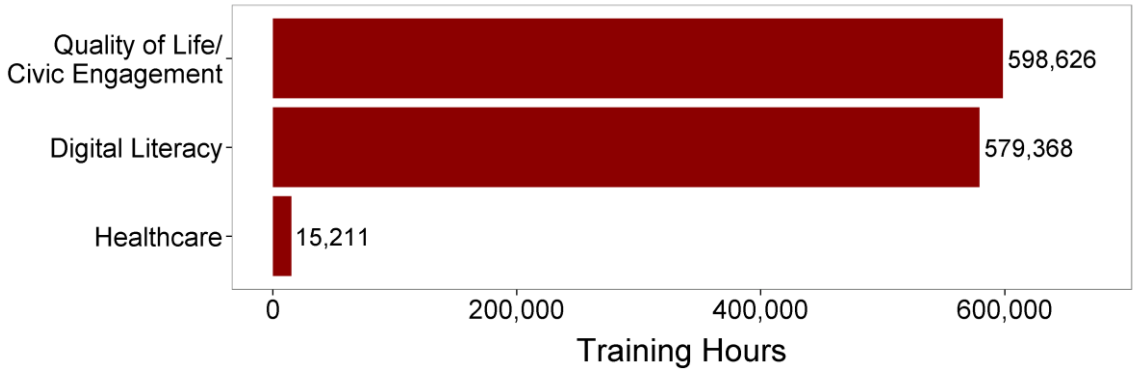
> *"One message that we want everyone to know is that people who are not connected to broadband do understand it's important. They do care. They are not connected because of cost. They are not connected because of accessibility of broadband. They need to be told, 'you can do it.'" – CLF Trainer*

As an SBA project, the goal of BAA was to increase broadband adoption in California. CETF worked toward this goal by increasing broadband awareness and digital literacy in the most underserved parts of California, delivering grant services statewide through eight partner organizations. In implementing the grant, the grantee found that low broadband adoption and use in the areas served by the grant are in part the result of poor availability and high cost. While the grantee did address these issues directly through activities such as providing affordable and free computers and discounted broadband service, other activities aimed at helping the target population more easily overcome these barriers through self-advocacy using digital literacy skills. The major impacts were therefore in the focus area of Digital Literacy.

2.1 Focus Areas

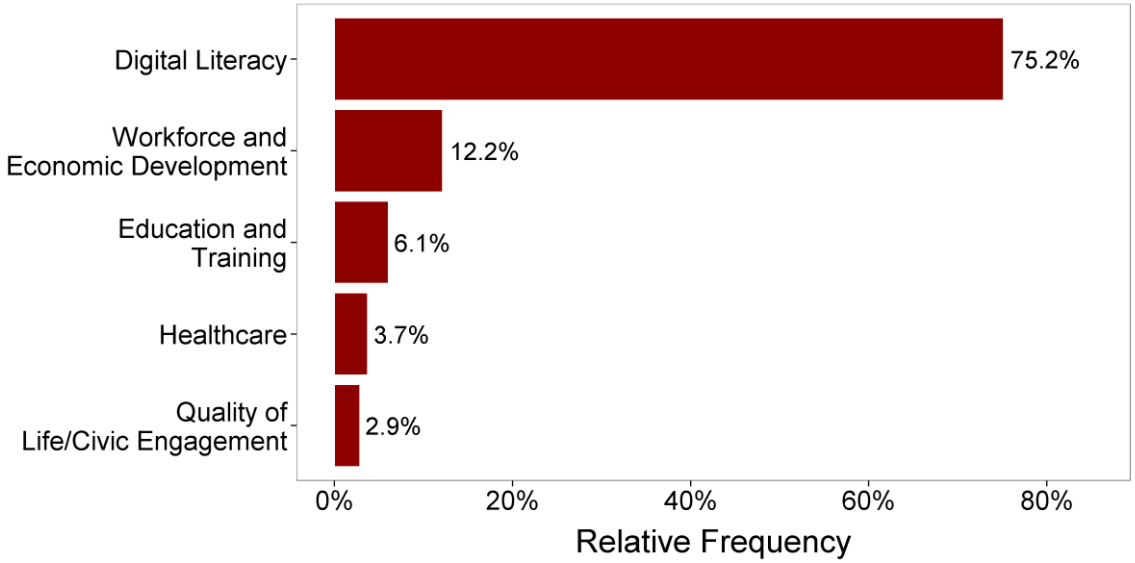
This section describes the impacts of the BAA project in terms of five focus areas where impacts might be found. In order to analyze where impacts should expect to be found for this project, the evaluation study team tabulated the training hours for CETF reported in the 2012 Annual Performance Report (APR) using the focus area categories described in *Interim Report 1*.[22] As shown in Figure 2, CETF reported in its 2012 APR training activities that focused almost entirely on Quality of Life/Civic Engagement or Digital Literacy.[23] Healthcare training activities account for 1 percent of training hours implemented in the grant.

Figure 2. Grantee Training Hours Categorized by Focus Area



The evaluation study team also analyzed the statements grantees made during the interviews and focus groups and categorized them based on focus area. As shown in Figure 3, the majority of the statements made by interviewees related to Digital Literacy, which is in line with the focus of the grant on broadband awareness and adoption. Other areas in which the grantee discussed social or economic impacts include Workforce and Economic Development and Education and Training. Healthcare and Quality of Live/Civic Engagement were also mentioned, although less frequently.

Figure 3. Focus Area Statements Made by Interviewees



2.2 Digital Literacy

> *"One of our favorite students was a 98-year-old woman from Costa Rica. We had to slow everything down for her, but she learned it. She sent her great-great-grandson an e-mail. He wrote back and said, 'Okay, Grandma, who's doing this for you?' and she wrote back, 'It's me.'" – CLF Trainer*

This focus area is fundamental to all the others. Digital Literacy defines a set of skills and abilities that enable an individual to interact with the digital aspects of culture, and to maintain a digital identity. In the National Broadband Plan, the Federal Communications Commission (FCC) defines digital literacy as "the skills needed to use information and communications technology to find, evaluate, create, and communicate information."[24] CETF had Digital Literacy as a primary focus. This section describes the overall Digital Literacy impacts of the grant, as well as specific impacts reported by subrecipients. During the site visit, the evaluation study team gathered information on activities that included all aspects of Digital Literacy training as defined in the taxonomy provided in *Interim Report 1* for this category.

The 2013 Public Policy Institute of California (PPIC) survey finds that digital literacy is the norm in California, "Nearly all Californians (86 percent) use the Internet at least occasionally. Social networking now rivals the purchase of goods and services as the top Internet activity: among all adults, 60 percent buy goods and services, while 57 percent go to a social networking site, an increase of 31 points since 2008."[25]

CETF subrecipients provided training to potential broadband subscribers in order to teach them how to use a computer with a modern operating system, including understanding how to use a keyboard, a mouse, and a visual interface incorporating icons and folders and a web browser. At the inception of the grant, the grantee had hoped to develop resources for both basic and advanced computer skills. However, given the needs of the population for basic training, resources were prioritized to this purpose, and nearly all training provided by CETF was for basic digital literacy skills. Figure 4 and Figure 5 present the number of adults and youth reached in trainings.[26]

Figure 4. Adults Completing Training

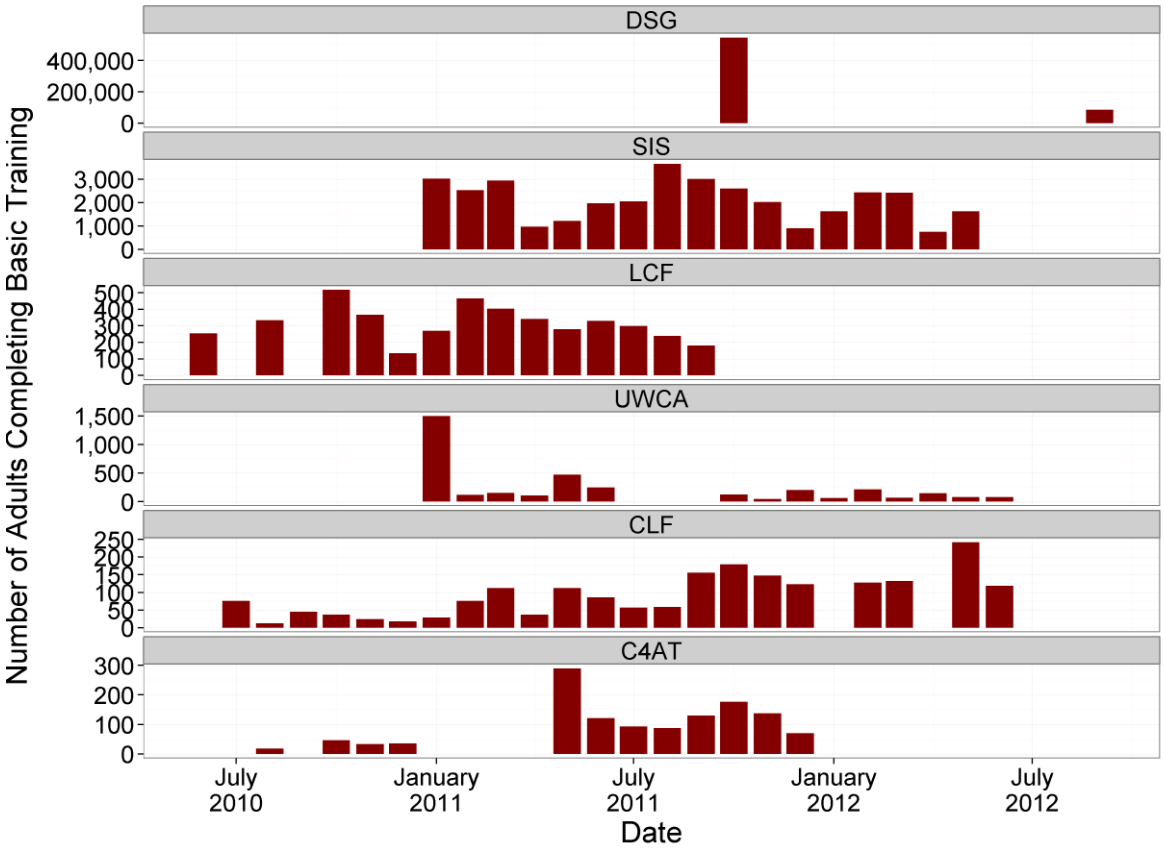
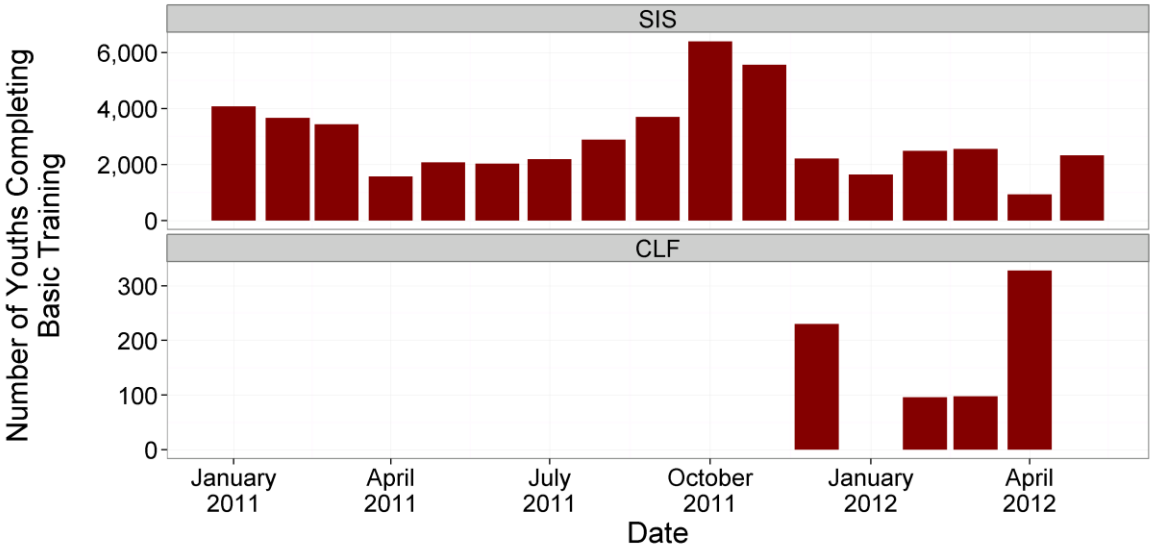


Figure 5. Youth Completing Training



Subrecipient trainings included the following:

- Somos Mayfair presented single-session two-hour training classes. Somos Mayfair intended to train 480 people, but 550 people total were trained.[27] The Somos Mayfair headquarters and the Ella Marx library each held one class per month. The Caesar Chavez School also hosted classes. Somos Mayfair offered two ongoing six- to eight-week training courses for parents, including information about broadband, Internet access, and how to support their students using online resources. As a result, parents are now able to access information on the progress of their students using broadband and student information systems.
- CforAT presented webinars describing the benefits of broadband resources for those with disabilities and others who might benefit from the use of assistive technologies, including seniors and those who might have developed work-related problems such as repetitive stress injuries. CforAT held 39 webinars, with more than 1,100 people registered as unique attendees. In total, there have been more than 2,000 participants in CforAT webinars, with some individuals attending more than one. CforAT staff members also responded to more than seventy "ask the expert" questions submitted over the web.[28]
- The Canal Alliance provided digital literacy training to forty-eight students per week and reduced the length of its curriculum to better serve the broad need for digital literacy training in the community. [29] As a result, a six-session curriculum replaced the twenty-session curriculum. The mobile lab provided by LCF was essential to delivering training in places where the students could not obtain transportation for night courses. The Canal Alliance is the only location teaching courses in the area, and the training classes maintain a 200-person waiting list.[30] Students report impacts such as being able to find a job or starting their own business because of learning digital literacy skills in the class.
- SIS provided training to approximately 46,500 youth and 33,400 adults in how to apply for public benefits online, using course materials developed by the City of Los Angeles, with additional material on digital literacy.[31] DSG developed part of the training for a computer lab opened at a site provided by Catholic Charities in Fresno.
- CLF implemented a train-the-trainer model that taught approximately twenty-five students to provide instruction in digital literacy to adults, including their parents.[32] Parents were taught basic digital literacy skills, with the goal of obtaining sufficient knowledge to help students with their schoolwork and to monitor their progress toward completion of their schooling.
- As part of Computer Help Days, AccessNow provided one-on-one training tailored to the needs of individuals. Most frequently, participants requested specific information about how to find jobs. The new users appreciated unbiased advice regarding how to choose appropriate resources for their job search, and many are now able to apply for jobs using their digital literacy skills.
- DSG trained approximately 85,000 people based on a follow-up survey with readers of the Club Digital print packet.[33] They found through this survey that a large portion of the readership was using the packet to train themselves, and counted each response that indicated the reader had spent more than an hour and a half and up to six hours with the materials as a training.

CETF subrecipients also assisted users in shopping for and obtaining an affordable broadband connection. One of the largest impediments to broadband adoption and use reported by the grantee is simply the lack of access to broadband service in the areas served by the grant. As an SBA grant, CETF did not have funds devoted to the establishment of infrastructure. CETF and its subrecipients did engage in activities designed to help potential broadband users shop for and obtain an affordable broadband connection with reasonable contract terms, including finding organizations and services that provided discounted or free access to participants. The vast majority of the subscriptions were at the market price. The recent decline in adoptions is likely due to economic conditions that make it difficult to sustain market rate prices for broadband. In addition, CETF subrecipients assisted users in shopping for an affordable computer and in locating organizations and services that distribute free or low-cost computers.

- CLF provided more than 1,076 free computers, including starter Internet subscriptions.[34]
- SIS implemented a $100 rebate program for new broadband subscribers.
- Reading and Beyond, a Radio Bilingüe partner, found that offering microloans to patrons helped them overcome the financial hurdle of upfront costs. Patrons repaid microloans over a three- to six-month period.

2.3 Workforce and Economic Development

> *"A lot of the people we work with are self-employed, have some clients, and are looking to build up that client base. So having broadband technology gives them another tool to find work. They can advertise on Craigslist or just respond to a Craigslist ad and say, 'Hey, I can do your job.'" – Canal Alliance Manager*

This focus area includes activities intended to increase overall employment of the target population, or to assist employed members of that population in finding jobs that offer increased salaries, better benefits, or a more attractive career path, including self-employment. Workforce and Economic Development activities can be performed for one's own benefit, or they may be done on behalf of another person to assist with his or her employment situation. In order for project activities to be included in this category, it must be the intention of the grantee to assist members of the workforce in improving their employment outcomes, and project resources must be devoted to this purpose. While Workforce and Economic Development was not a specific focus of the grantee, the population served by the grant often faces significant employment issues, and subrecipients have undertaken some Workforce and Economic Development activities in response to the needs of new broadband users in their communities.

The 2013 PPIC survey finds that, "A majority of Californians (56 percent) say people without [broadband] are at a major disadvantage when it comes to finding information about job opportunities or gaining new career skills (25 percent say minor disadvantage)."[35] The 2013 PPIC survey also finds that 48 percent of Californians have gone online to find information about a job, and 40 percent have applied for a job online.[36]

Most of the Workforce and Economic Development activities reported by subrecipients concentrated on the fundamentals of finding work for unemployed or underemployed individuals. This included training in how to search for a job, how to fill out an online job application, and how to create and submit a suitable résumé and cover letter. The grantee did not collect quantitative measures of the number of individuals who had improved their employment outcomes. However, interviewees frequently related stories of persons who had successfully used broadband technology to obtain better employment. The primary benefits of Workforce and Economic Development activities undertaken by subrecipients are reduced unemployment among new users of broadband, and an improved level of viability for self-employment as a feasible career alternative. Job seekers were also less constrained geographically in their job searches, as job searches could extend beyond their personal social networks. Specific examples of Workforce and Economic Development benefits reported by the subrecipients include the following:

- The Canal Alliance reports that the BAA project has helped it to bring a job development focus to its computer training classes. An unstable job situation is the most common issue causing people to seek help from the Canal Alliance, which incorporates training on job search techniques, basic résumé construction, and cover letter writing into its Digital Literacy classes. It has found that current job market conditions make the use of e-mail, Craigslist, and online job applications key aspects of a more successful job search, especially for entry-level jobs. In particular, e-mail, which enables asynchronous communication with potential employers, is seen as a useful supplement to or replacement for the use of a cell phone to find employment. Broadband users often found jobs after training by Canal, and many did not return for additional employment assistance.

- CLF partnered with Sacred Heart Community Foundation in San Jose to continue funding for a computer class to train people to search for jobs and find resources to help with unemployment.
- Radio Bilingüe partner Reading and Beyond has a program focused on finding employment for unemployed or underemployed individuals. Five case managers, each with a caseload of approximately fifty people, provide training sponsored by Comcast. One of the most popular classes focuses on online job searches.
- AccessNow reports receiving e-mails from participants in Computer Help Days stating they had found work. AccessNow provided one-on-one training and assistance in rehabilitating broken computer equipment. One of the most frequently requested topics was assistance with job searching. After one Computer Help Day, eight of thirteen participants found employment using their newly repaired equipment and help from AccessNow staff.
- CLF and 2-1-1 stated that having a broadband connection for personal use is superior to having access to broadband resources at an employment center, because individuals looking for work can monitor e-mail and job sites on an ongoing basis, rather than having to go to a job center and wait to use resources in that location. CLF worked with Mi Pueblo, a supermarket with stores in twenty-seven locations, to provide training in digital literacy to its employees so that they can continue to rise through the ranks in that business. CLF held several technology fairs during employee lunch hours to provide training to Mi Pueblo employees.

2.4 Education and Training

> *"When we would go to the junior high school, the parents would always tell me, 'My kids keep asking me for Internet. They say they need it for school. They say they're going to get it in high school.' I think that's the turning point in junior high or high school when kids absolutely need it for school, and parents are hearing it constantly. So they want to know what broadband is all about, and how to find more information on it." – CLF Manager*

This focus area includes activities that lead to a certificate or diploma that would typically be awarded by an educational institution, or that indicates the recipient has received training that is recognized as valuable for career advancement. Examples of certificates or diplomas include the following: community college degrees, four-year college degrees, advanced degrees, general equivalency degrees (GED), certifications in advanced software technologies such as network engineering, and other licenses or certifications that reflect knowledge of a particular subject at a level that would typically be taught at an educational institution.

The major focus of subrecipient Education and Training activities was improving communication between parents and teachers at local K-12 schools. School districts in the areas served by the grant have moved to the use of online resources to link parents with teachers and school administrators to improve educational outcomes. These efforts include developing online portals that present information on class schedules, attendance, grades, school events, and school district resources available to parents. Subrecipients report that parents who receive digital literacy training and suitable equipment are able to use these tools to communicate more effectively with teachers and administrators. These systems are especially helpful to working parents who would not otherwise be able to meet with teachers and school administrators during school hours. The PPIC survey finds that the population served by the BAA project is less likely to use broadband resources to support their children's education. The survey finds that, "79 percent of upper-income parents and 69 percent of middle-income parents communicate with a teacher by e-mail, while 75 percent of lower-income parents do not. And 73 percent of whites do so, while 72 percent of Latino parents do not."[37] Most parents in California visit the website for their child's school at least occasionally. Thirty percent visit often, and 33 percent visit sometimes. Latino parents are much less likely to visit the website of a child's school (57 percent of Latino respondents indicating they never visit the website of their child's school), versus 10 percent of White respondents who never do so.[38]

The necessity of broadband access for completing schoolwork, including writing papers or using digital media for class activities, is a strong motivating factor for parents to obtain broadband. Subrecipients report that students are often promoters of broadband technology because of their need to use broadband technology to complete school assignments. The 2013 PPIC survey finds that most Californians believe that students without broadband access at home are at an academic disadvantage.[39] In rural areas, students without home broadband access must use school or library resources and require assistance with transportation from parents. In more densely populated areas, resources might be located closer to the student's home, but personal safety can be a concern for some students, especially in the evening hours. In the locations served by the grant, public access facilities have limited hours of availability, and frequently limit the amount of time students can use a broadband-connected computer, sometimes to just a half-hour of use. Subrecipients report that home access to broadband improves the academic performance of students.

Respondents also reported that the Common Core initiative is focused on activities that benefit from broadband access, which makes provision of broadband service to families with students important from an educational standpoint. A strong majority (77 percent) of Californians think it is very important for schools to teach students computer and Internet skills.[40]

Schools play a significant role in the activities of the subrecipients of the BAA grant. CLF has made the local school a hub for meetings with the community, because it is a location that many community residents know and a trusted entity in the community. Eligibility for Comcast Internet Essentials was also defined on a school-by-school basis in the sense that students attending Title I schools qualified for Comcast Internet Essentials without further documentation in some areas. However, this practice was not universally observed by Comcast, and it could have been extended to other schools in the area served by the BAA grant.

Specific education-related activities undertaken by subrecipients include the following:

- Somos Mayfair worked with the local school system to assist parents in receiving information on the progress of their students toward academic goals. This included informing parents how to access the school district websites and how to find resources available for elementary, middle school, and high school students, including tutoring support. Representatives from Somos Mayfair indicated that broadband education including both parents and children had the most robust impact on the students' education.
- CLF developed a train-the-trainer program in which approximately twenty-five middle and high school students participated.[41] Students learned to use broadband, and to help adults learn to use broadband resources. The program was successful in training parents to access information on students' progress toward academic goals, including class schedules, reports from teachers, and grades. CLF reports that parents who received training are more comfortable participating in their children's education, including being more likely to visit the school and ask questions, as well as more aware of the activities of the local educational system. Parents were also able to use e-mail to communicate with teachers and administrators. Students who obtained a refurbished computer are able to complete assignments at home, although the lack of printers requires printing of assignments in other locations. Students who participated also demonstrated an increased sense of personal responsibility and community participation.
- Radio Bilingüe used a strategy of setting up tables at local schools to present information about broadband and Comcast Internet Essentials. Sunnyside High School, Fresno Unified, Roosevelt, and Dinuba hosted these events. These schools were chosen because of the prevalence of low-income and minority families in the areas that they serve. Multiple outreach events were held at each school, with Sunnyside receiving approximately fifty visits over a twenty-five-week period. Representatives from Radio Bilingüe provided information during student lunch hours on the Comcast Internet Essentials program, and distributed copies of the broadband supplement from the La Opinión newspaper.

- AccessNow reported attending quarterly meetings for educators in Fresno County who use computers in the classroom. Through this activity, AccessNow was able to meet parents who did not have broadband access and thereby increased its visibility and credibility in the community.
- CLF noted that students spent winter break applying for colleges online using home broadband connections, rather than waiting for hours at school or library facilities during the application season.
- CforAT found that K-12 and higher education groups request training on how to make curriculum, webinars, and YouTube accessible to more students. CforAT presented webinars on what constitutes an accessible webinar platform and how to caption YouTube videos.
- CLF is partnering with Rotary Sunrise to give laptops to twelve students.
- Somos Mayfair has offered two six- to eight-week classes where families learn about broadband, Internet access, and how to support their students through the resources online.

2.5 Healthcare

This category includes broadband-enabled activities undertaken by participants in PCC and SBA programs to improve their own health or that of someone else. This definition includes not only sophisticated tasks, such as viewing one's medical records online, but also more common activities that might not involve a medical provider at all. PPIC found that access to health information was one common use of broadband, with 55 percent of Californians going online to find health information.[42] PPIC also found that, "Higher-income [Californians] are three times more likely than those with lower incomes to contact a medical professional online, and Latinos are least likely among racial/ethnic groups to do so."[43] Three-quarters of Californians believe lack of broadband access is a disadvantage when seeking health information.[44]

Healthcare was not a primary focus of the grant, but there were some healthcare outcomes and impacts noted by subrecipients:

- CforAT noted that individuals who had begun to experience debilitating conditions that could affect their future work prospects attended some of its webinars focusing on adaptive technologies for the disabled. Especially common were repetitive strain injuries (RSI) due to workplace conditions.
- Radio Bilingüe provided programming on broadband health-related resources. These programs taught listeners about Internet resources for preventative healthcare, proper nutrition, and healthy lifestyle choices. On its flagship talk show, Línea Abierta, heard on ninety stations across the United States, Radio Bilingüe presented information on the use of telemedicine and broadband resources, and the ways in which these resources are reducing the distance between a doctor and a patient.
- California 2-1-1 provides health information through its database systems, which were upgraded with grant funds. California 2-1-1 noted the need for healthcare assistance was one main driver of calls to their call centers, and that this need could begin a conversation about the benefits of broadband in improving healthcare outcomes.
- CLF reported training users in how to use online translation software, such as Google Translate. These tools can translate medical information, such as letters from medical providers, so patients or family members could understand medical conditions and treatments better, and could plan appointments and follow-up visits. CLF also provided references to health resources such as ChooseMyPlate.gov, which provided information on healthy nutrition. CETF found that approximately 80 percent of respondents to a survey of Club Digital readers said they learned the most from health-related content published on the website.[45]

2.6 Quality of Life/Civic Engagement

> *"Another user said, 'You can do a lot online instead of going in person, wasting gas, and standing in line. Do it online, and it's done.' Why send people to wait in line and take three buses and spend their whole day in a waiting room when they could just sit down at their computer in their living room and get it done?" – Senior Policy Manager, SIS*

The Quality of Life/Civic Engagement category includes activities that create stronger and more integrated communities, and those that promote interaction between citizens and their governments. Updates to the One-e-App by SIS, and improvements to IVR systems used by 2-1-1 California address this category. The 2013 PPIC survey finds that 47 percent of Californians access government resources online, and that 73 percent believe lack of broadband access is a disadvantage in receiving government services.[46]

Outcomes and impacts noted by the grantee included the following:

- Applications for CalFresh and MediCal are available online, and Internet users can obtain copies of the forms at home and drop them off at the appropriate agency, rather than waiting in line for an appointment with a social worker. These online features save time and money for both the applicant and the state.
- Club Digital included live chats with top government officials about topics of interest to users. These chats included the following participants:
  - Jose Rico of the White House Initiative on Educational Excellence for Hispanic Americans.
  - Mariela Melero, Chief of the Office of Public Engagement, U.S. Citizenship and Immigration Services.
  - Marianella Garcia, Federal Student Aid, U.S. Department of Education.
  - Mayra E. Alvarez from the Department of Health and Human Services.
- Radio Bilingüe partners report that it is easier to communicate with families using e-mail than by cell phone. Radio Bilingüe partners also report that they now receive questions about evolving political issues by e-mail, sometimes before they have heard of the latest developments.

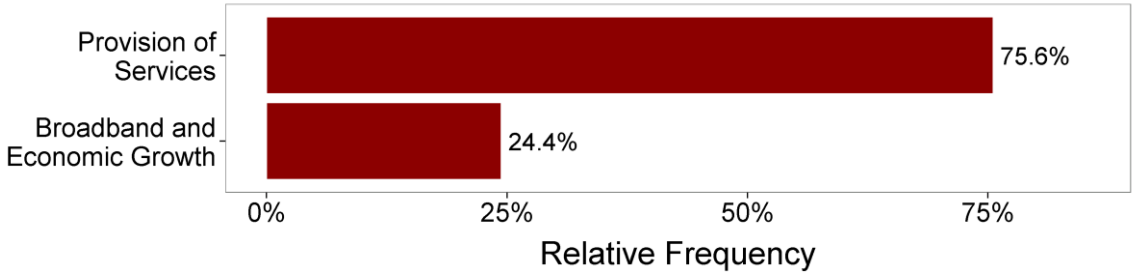
Section 3. Recovery Act Goals

This section describes the activities and outcomes associated with Recovery Act goals and how the BAA SBA project contributed to the achievement of these goals. Of the five Recovery Act goals for the BTOP program as a whole, two relate most directly to PCC and SBA programs:

1. Provide broadband education, awareness, training, access, equipment, and support to
   a. Schools, libraries, medical and healthcare providers, community colleges and other institutions of higher learning, and other community support organizations
   b. Organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband services by vulnerable populations (e.g., low-income, unemployed, seniors)
   c. Job-creating strategic facilities located in state- or federally designated economic development zones
2. Stimulate the demand for broadband, economic growth, and job creation

Figure 6 presents the relative frequency of topics related to Recovery Act goals as discussed during interviews and focus groups. These topics were categorized by the two Recovery Act goals discussed above.

Figure 6. Recovery Act Goals Statements Made by Interviewees



The most frequently mentioned Recovery Act goal was the Provision of Services, which in the case of this grant centered on awareness and access. All partners addressed these goals. Broadband and Economic Growth, while less frequently mentioned, was supported by job creation attributable to the grant, and employment outcomes for participants who gained digital literacy skills. The following sections describe how the BAA grant addressed Recovery Act goals.

3.1 Provision of Services

CETF has set a goal of eliminating the digital divide in California by 2017, defined as 80% of the population using broadband at home. As a first step toward increased broadband adoption, CETF and its partners developed a statewide campaign to promote awareness of the benefits of broadband technology. CETF also addressed issues of access as part of its grant activities.

3.1.1 Broadband Awareness

Awareness was a primary aspect of CETF's grant activities. One overarching project was the development of a supplement to La Opinión, a newspaper with statewide distribution. The twelve-page supplement provided information on the benefits of broadband and how to take the first steps

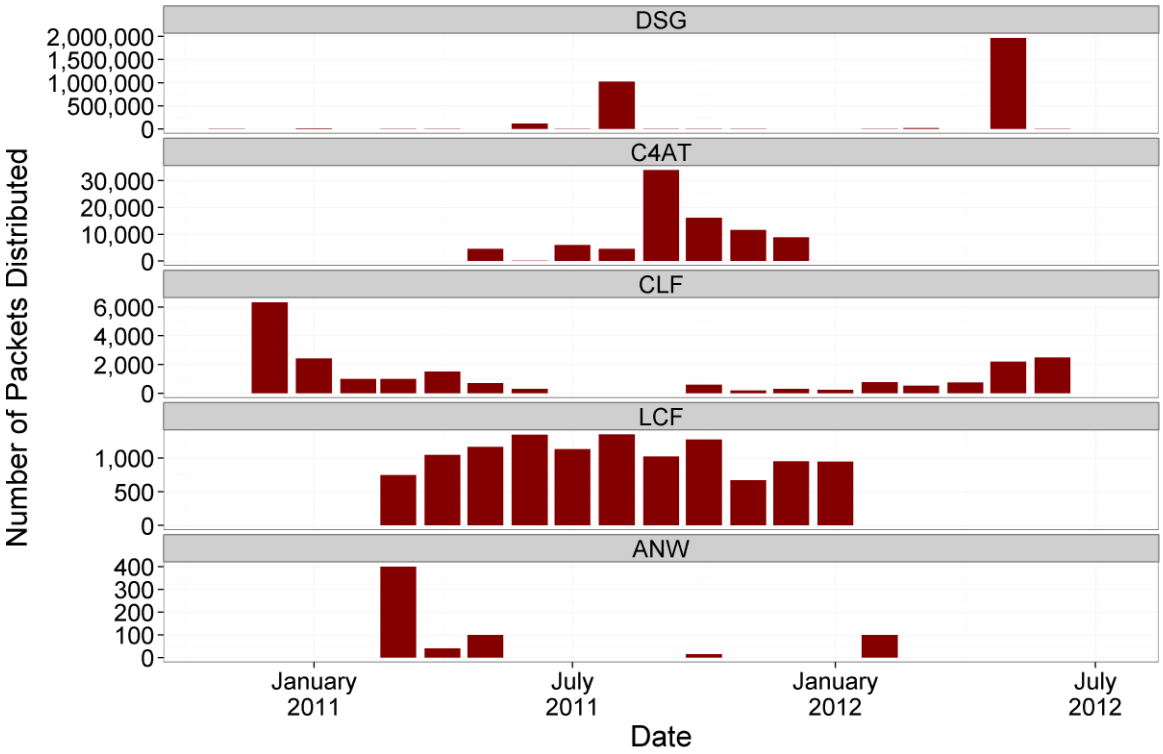
toward broadband usage, as well as information about each of the partners in the BAA grant. At least one million print copies were distributed across the state, resulting in at least 1,837,921 print impressions.[47] According to surveys collected after the distribution, approximately 50 percent of the readership had an annual household income of under $40,000. CETF partner DSG also promoted broadband awareness through a thirty-day run of print materials in August 2011 and a seven-day run in May 2012 that discussed Club Digital and how to get online. The Club Digital website served as a follow-up to these print materials, as an incentive for readers to use the Internet. Club Digital had 145 million print impressions.

In addition to these print impressions, several partners directed print outreach to their target populations, including fliers, posters, and brochures:

- DSG provided local businesses and universities with posters and fliers of monthly events, free classes and lab hours, and details of the Comcast Internet Essentials program. It distributed a total of 3,196,991 pieces, which was 160 percent of the original target.[48]
- CforAT posted 86,115 fliers in its own building and at libraries and senior centers to advertise its training.[49]
- LCF created marketing material that agencies were able to tailor for their own specific needs. Somos Mayfair distributed these materials using their *promotores* model of communication. This model promoted the benefits of broadband on a one-to-one basis within priority communities. A *promotora* is a community member trained to work with others in the community to present the benefits of broadband, as well as provide information on other programmatic activities of Somos Mayfair. Approximately thirty *promotores* went door-to-door in the Mayfair neighborhood, promoting broadband awareness and the presence of free Spanish-language classes in digital literacy. The outreach goal was to reach 300 people, but it reached 1,753 people.[50] *Promotores* also expand their own digital literacy skills using computer stations provided for them at the Somos Mayfair headquarters. Somos Mayfair has found that, over a three-year period, *promotores* were 27 percent more effective in engaging community members and delivering services than its own staff.
- CLF used a community ambassador model to promote the benefits of broadband. This included a program that offered thirty-five scholarships to women in the targeted community. This model was intended to promote broadband awareness in homes, schools, churches, and other community institutions. These ambassadors distributed 21,352 informational packets, and were responsible for signing up individuals for broadband service.[51] One ambassador reported having signed up 140 new subscribers, out of a total of 1,100 reported as part of the project. CLF had an overall goal of educating 5,000 people, with 1,327 expected to subscribe to broadband. As of the second site visit, approximately 1,100 had subscribed.[52]
- AccessNow conducted formal train-the-trainer sessions to prepare participants for conducting a program in their own community. These sessions walked participants through the steps necessary to set up and run a Computer Help Day. They distributed materials in English, Spanish, and Chinese, including outreach and promotional materials and participant surveys for use during these events. AccessNow distributed 655 packets, and during the site visit, the partner reported that at least three organizations were still conducting Computer Help Days.[53]

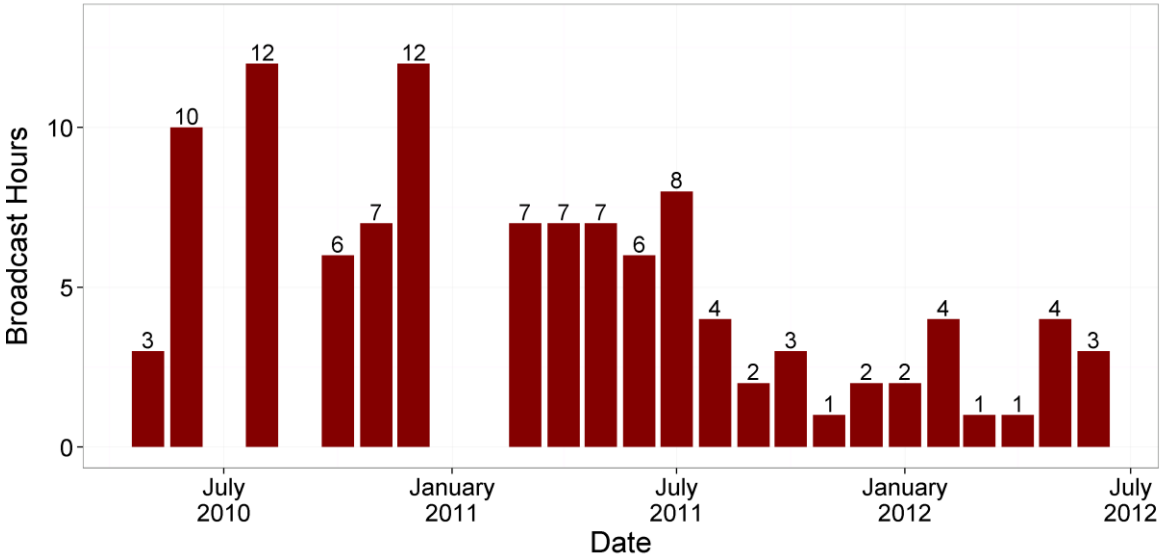
Figure 7 presents a summary of printed outreach activities.[54]

Figure 7. Print Packets Distributed to Service Population



Another method CETF used to raise awareness of broadband was radio broadcast, which in many cases reaches a different audience than print or online media. As a trusted provider of information, Radio Bilingüe was in a unique position to raise awareness to its audience. The station broadcast hour-long talk shows that were usually live in response to calls from a 1-800 number. Radio Bilingüe broadcasted approximately 160 hours of live programming. In addition, Radio Bilingüe aired 160 different short messages from 30 to 60 seconds in length over 12,000 times.[55] The shows and short messages encouraged people to call 2-1-1 for more information on subscribing to broadband and becoming digitally literate. Radio Bilingüe also raised awareness through public outreach events and information provided on its website. Staff members report that the population they serve is excited to learn about broadband, and feel more able to integrate into their communities when using the Internet. Figure 8 presents a summary of these broadcast hours.[56]

Figure 8. Radio Bilingüe Broadcast Hours



In addition to Radio Bilingüe, CETF bought advertising time on both television and radio on multiple stations and in several regions of California. Figure 9 and Figure 10 present the number of impressions from this marketing.[57]

Figure 9. Radio Impressions

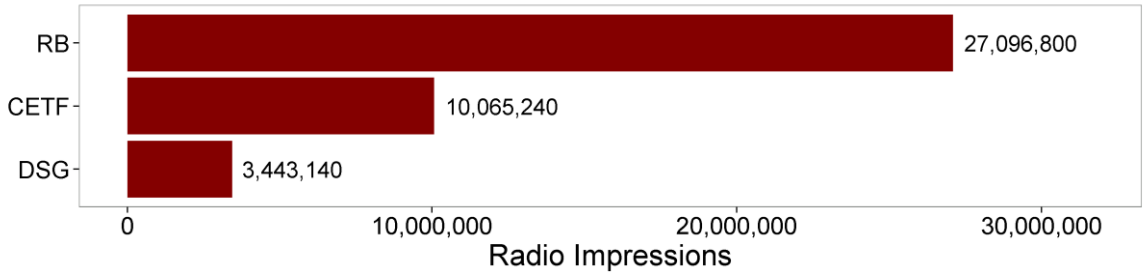
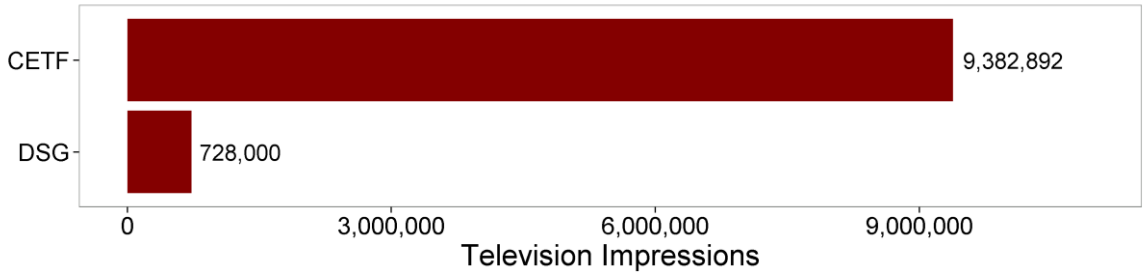


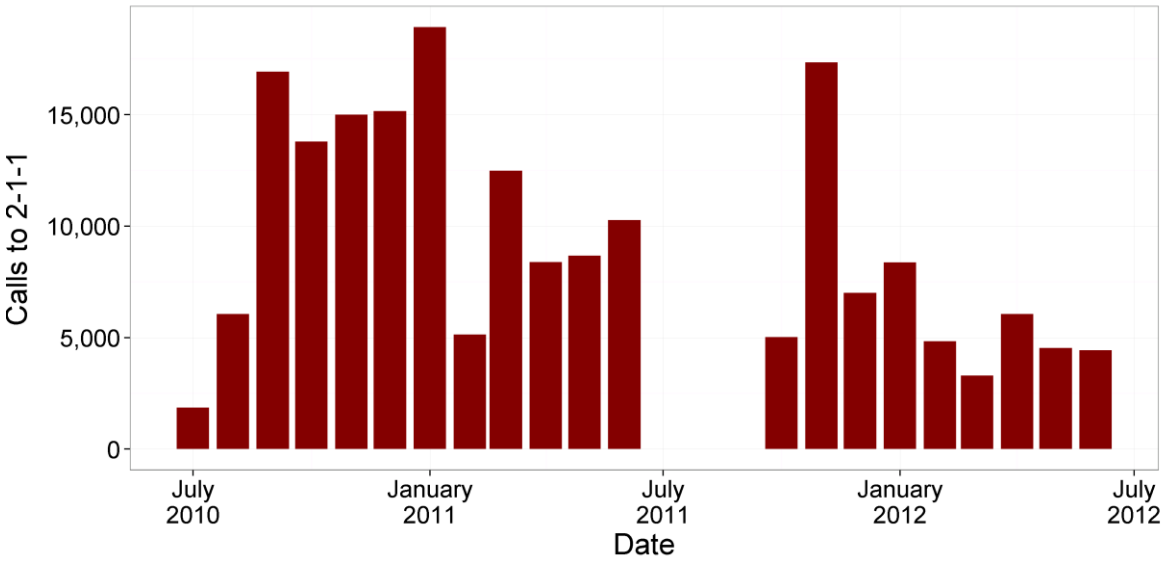
Figure 10. Television Impressions



CETF changed the location and messaging of the advertising as needed, purchasing time on Spanish-language stations aimed at low-income groups as well as creating English and Chinese-language advertisements. These commercials mainly referred listeners to 2-1-1, but some discussed how to purchase broadband service and provided price quotes that were non-provider-specific. DSG and LCF also successfully sought radio and television marketing.

California 2-1-1 also increased awareness of the benefits of broadband by including it as a recommended service for those clients for whom there might be a potential benefit. 2-1-1 screened more than 250,000 callers, as shown in Figure 11.[58]

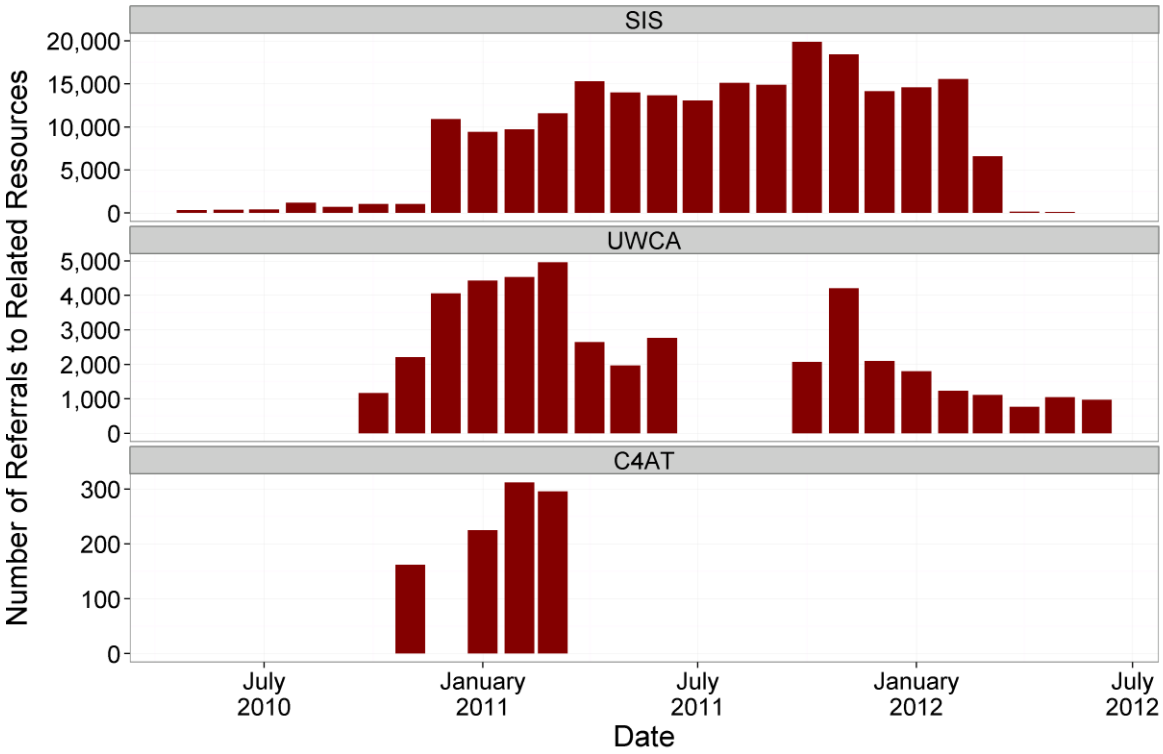
Figure 11. Number of Calls to 2-1-1



Based on an assessment of skill level and technology ownership, they referred more than 45,000 callers to resources for obtaining a computer or digital literacy skills, as shown in Figure 12.[59] Of these, 2-1-1 estimates that 7,478 households have adopted broadband because of the information presented to them during screening calls.[60] However, this number likely understates the level of broadband adoption achieved by the program, because it is based on telephone surveys administered ten to fourteen days after the initial screening call. Callers might have planned for a later installation date, or they might have decided to adopt broadband after the survey call had taken place.

In addition to 2-1-1, SIS and CforAT provided referrals to broadband resources, as shown in Figure 12. SIS's One-e-App took information from users and listed the programs for which they were eligible. SIS prominently featured links to sites with broadband information on the first page of its systems. After SIS staff screened users of One-e-App, they provided users with a customized list of services the users qualified to receive. Users also received information on what broadband was, why it was valuable, and how to sign up for it. In addition, users of One-e-App would have the experience of successfully applying for government services, which would provide a practical demonstration of the benefits of broadband technology. SIS more than doubled its goal of subscribing 970 households to broadband services by subscribing 2,031 households, and attributes a large portion of this to a larger than expected number of referrals in addition to the rebate program for purchasing computers or defraying the cost of installing broadband, discussed below.[61]

Figure 12. Referrals

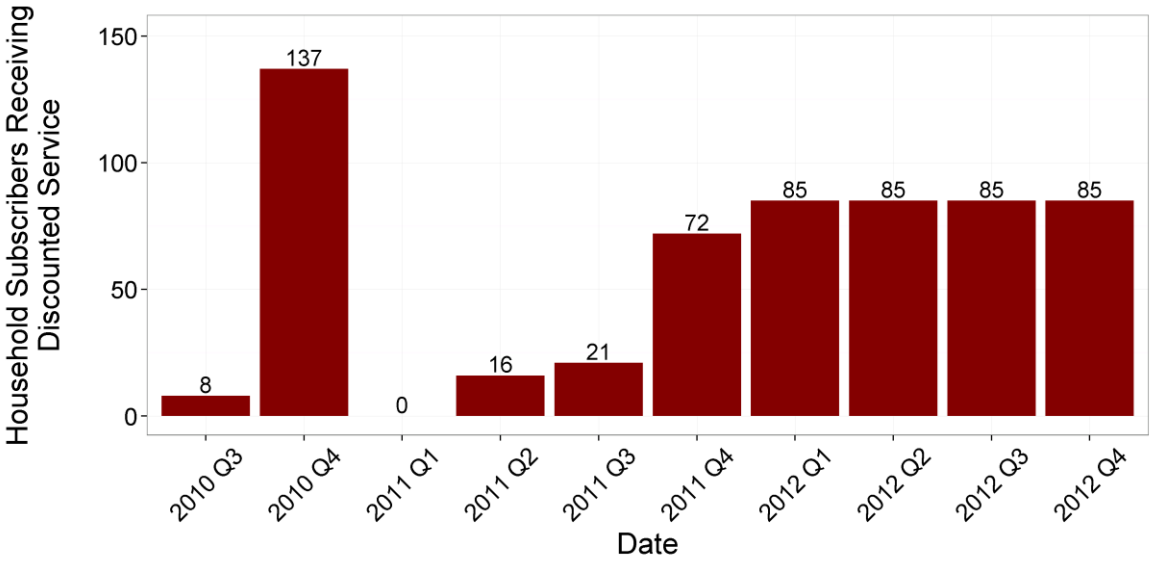


3.1.2 Broadband Access

CETF found that in many cases, individuals in its service area were already aware of broadband but faced other barriers to adoption, including a lack of equipment and the high cost of obtaining subscriptions. In light of these challenges, the BAA grant also provided increased access through support for discounted services, free computers and technical support, and public computer centers.

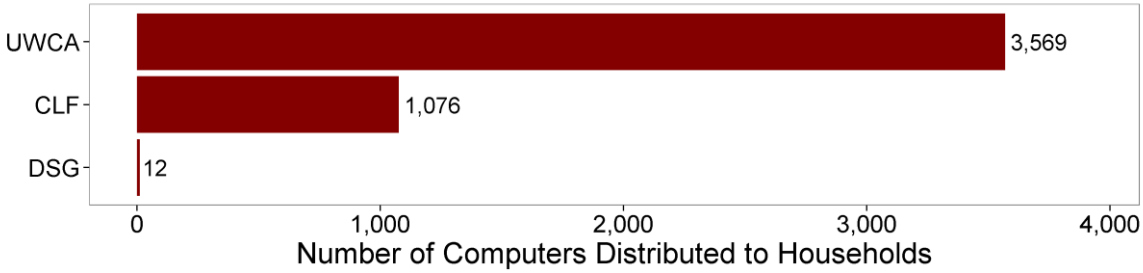
- While implementing referral services mentioned above to help households subscribe to broadband, SIS discovered that cost was keeping many of its clients from obtaining subscriptions. It instituted a Broadband Rebate Program that would reimburse individuals $100 for start-up costs. The subrecipient reported an increase in the subscription rates after this program was in place.
- Some subrecipients partnered with Internet Service Providers (ISP) to provide discounted services. DSG, in partnership with LCF and Comcast, promoted a reduced subscription rate of $9.95 per month in northern California. Community partners of Radio Bilingüe offered microloans for families that could not otherwise afford a computer. Figure 13 presents the total number of household subscribers receiving discounted services in conjunction with the BAA grant.[62] It should be noted that the substantially discounted programs from cable providers were not available in the market until fall 2011, a year prior to this grant ending. The majority of adoptions did occur with higher priced products.

Figure 13. Household Subscribers Receiving Discounted Service



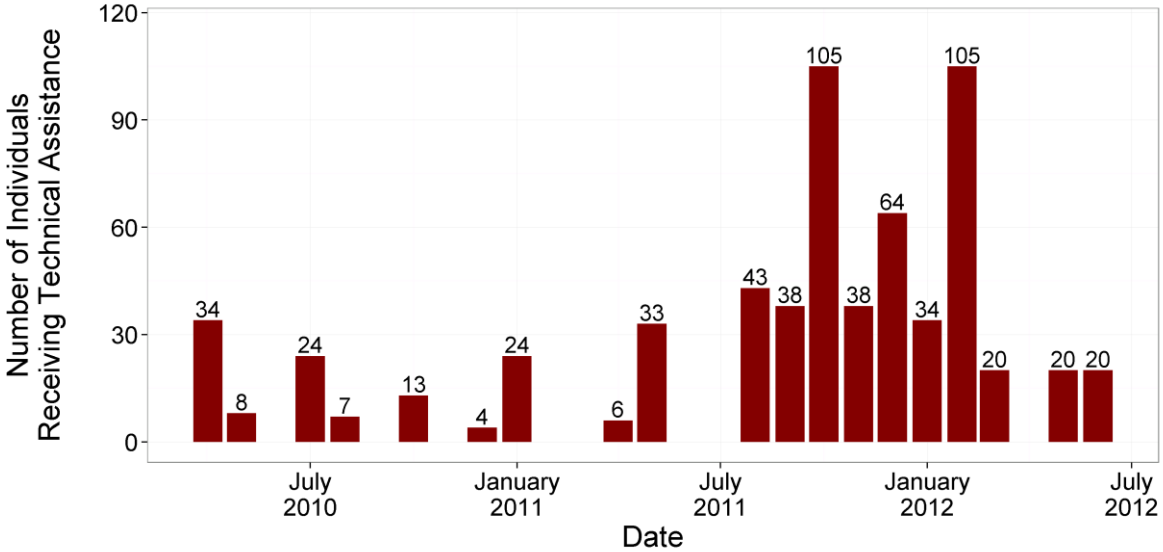
Some subrecipients also offered free computers or computer repair. CLF provided 1,076 free computers, including trial Internet subscriptions.[63] This approach included broadband awareness training, and partnerships with other organizations, such as the Boys & Girls Club in Monterey County, where they held a Computer Help Day. Figure 14 shows computer distributions to households.[64] California 2-1-1 referred callers to other organizations that distributed computers, resulting in 3,569 computers distributed to households.[65] DSG reported that it distributed twelve computers to households in addition to the forty-eight it distributed to institutions to set up public computer labs.[66]

Figure 14. Computers Distributed to Households



AccessNow also hosted Computer Help Days that targeted communities with low broadband adoption, low-income people, those for whom English is a second language, recent immigrants, and seniors. It offered one-day events during which users could receive culturally appropriate technology support and computer advice that matched the needs of the community, which were determined through surveys before the event. In many cases, this involved refurbishing computers that were not working into functional devices that could access the Internet. The Computer Help Days also involved informal tutoring, and by the end of the grant, AccessNow had incorporated a broadband consumer education package developed by DSG and LCF. AccessNow was then able to assist users with finding a broadband provider in their area that was appropriate for them. Figure 15 shows the number of individuals receiving assistance through the Computer Help Days.[67]

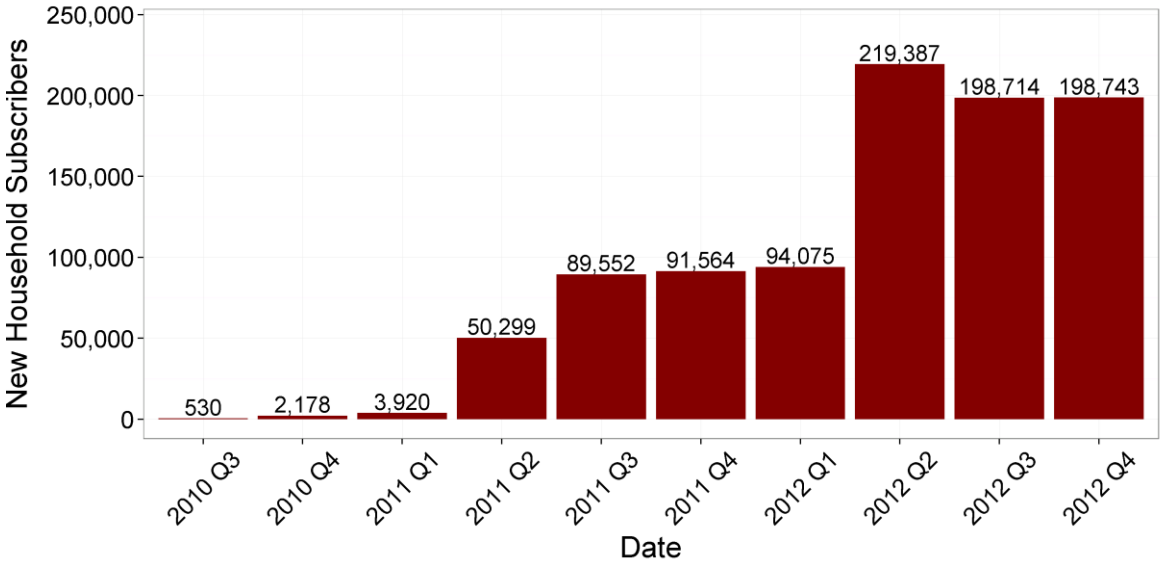
Figure 15. Individuals Receiving Technology Assistance from AccessNow



3.2 Broadband and Economic Growth

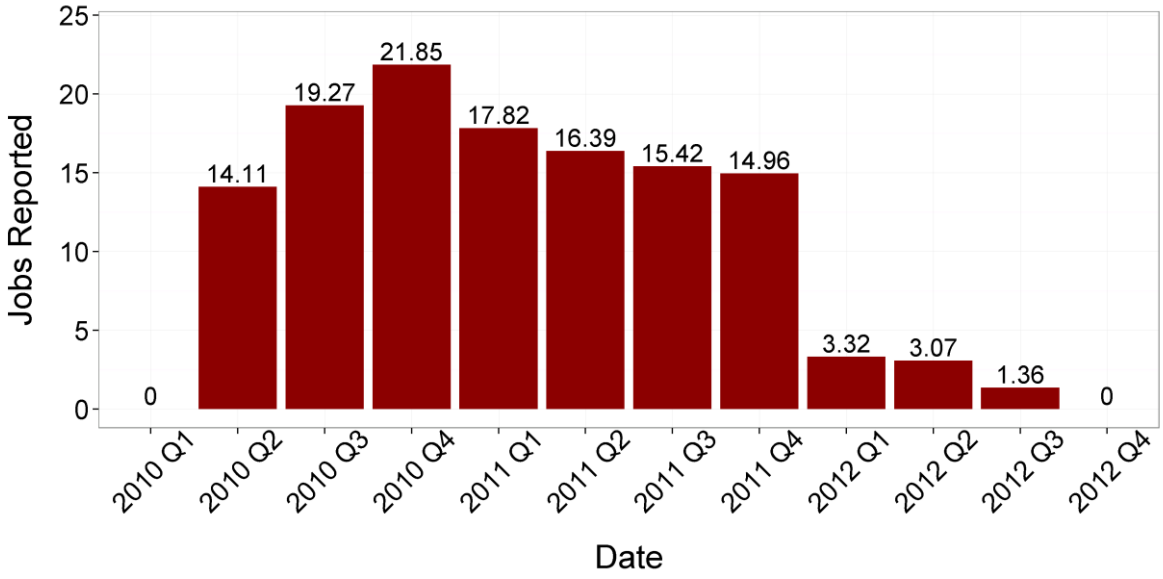
As an SBA grant, the overarching goal of the BAA project was encouraging broadband adoption in California. Figure 16 depicts the levels of new household broadband subscribers throughout California since the beginning of the grant period.[68] These data are based on reporting from the subrecipients, including direct observation, surveys, and extrapolations made by the grantee based on the number of people reached, as measured by the number of radio, television, and print impressions. Although subscribership started slowly at the beginning of the grant, it grew at a faster rate in the second quarter of 2011 and stayed strong through the end of 2012. In total, CETF reported that the BAA grant facilitated 198,743 new subscriptions.[69]

Figure 16. New Household Subscribers



As required by the Recovery Act, CETF reported quarterly on the number of jobs created using federal funds as a direct result of the project. As shown in Figure 17, this has resulted in up to nearly twenty-two jobs created per quarter, peaking in the fourth quarter of 2010 and dropping in the beginning of 2012.[70]

Figure 17. Direct Jobs Created by CETF



It is important to note that the figure above displays only direct jobs created, and does not include indirect or induced job creation. As discussed in Section 2, the BAA grant also produced impacts in the area of Workforce and Economic Development. In addition to jobs created, the project helped to spur economic growth by facilitating individuals' ability to operate a business, and by increasing the skills and knowledge of the workforce.

Section 4. Grant Implementation

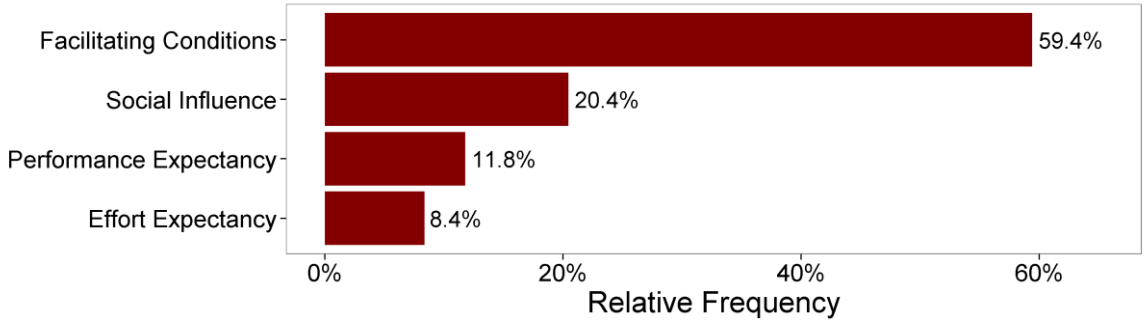
This section describes particular aspects of implementation of the BAA project in order to understand the composition of activities and outcomes observed. The purpose of this section is twofold. First, defining a consistent set of categories for each of the grants in the study sample facilitates cross-case comparison and analysis. Second, presentation of the activities and outcomes for this grant by category simplifies understanding of the focus of the grantees' work. This analysis is based on qualitative observations made during the site visit.

ASR is using a theory-based evaluation approach to examine the social and economic impacts of the BTOP program. This permits deeper understanding of grant features in terms of theory, which helps to explain how the grant activities produce impacts. For the PCC and SBA grants, ASR uses theories of technology adoption to examine factors that shape the demand-side of broadband services. The key theory ASR employs is the unified theory of the acceptance and use of technology (UTAUT), a technology adoption model proposed by Venkatesh et al. (2003).[71] The model is among the top three most frequently cited articles published in the information systems field and the preeminent article explaining the adoption of information systems. The UTAUT model traces its history from theoretical constructs found in literature that have a bearing on a user's intention of technology adoption and use. The UTAUT model is derived from the leading theories of technology adoption, including the theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of personal computer use, diffusion of innovations theory, and social cognitive theory.

UTAUT explains technology acceptance by looking at a user's intention to use an information system and the user's long-term use of that technology. The UTAUT model combines concepts found in earlier models of technology use to posit a unified theory of information technology adoption and use. UTAUT includes four dimensions determining user intention and technology use: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. Each of these dimensions is further classified into constructs constituting the dimension. The subsections below define and discuss each of these dimensions. Venkatesh empirically tested the model and reported that it was successful in explaining more variation in user adoption of technology than other adoption models tested.

Figure 18 presents the relative frequency of topics related to grant implementation as discussed during interviews and focus groups. These topics were placed in four categories, corresponding to the four UTAUT categories listed above. The purpose of this categorization is twofold. First, settling on a consistent set of categories for each of the grants in the study sample facilitates cross-case comparison and analysis. Second, presentation of the activities and outcomes for this case by category simplifies understanding of the focus of the grantee's work. Most of the implementation topics discussed relate to Facilitating Conditions.

Figure 18. Distribution of Grant Implementation Topics by UTAUT Dimension



4.1 Facilitating Conditions

This category captures the degree to which the technical infrastructure available to the user supports potential broadband adoption, and the degree to which there are organizational supports to adoption. This includes access to broadband technology, the extent to which users can choose to use broadband, the compatibility of broadband with their lifestyles and activities, and the cost of using broadband. This also includes the resources needed to support access to the Internet and computers. It includes such things as the broadband connection, computers, workspaces, and clean and safe computer labs.

The BAA project focused predominantly on improving the level of resources and capabilities to implement and operate the sustainable broadband adoption programs. The grantee frequently mentioned Facilitating Conditions in conversations with ASR, as shown in Figure 18, above. The grant also worked to help individual households have the resources needed to support broadband adoption. Specific examples of activities undertaken by the BAA grant to address Facilitating Conditions include the following:

- CETF collaborated with its partners to develop training materials about the different broadband options available in the marketplace and special broadband programs offering affordable broadband subscriptions. The CETF partners developed a broadband education curriculum to help individuals choose a broadband provider and negotiate better rates or reduced costs for modems, services, and installation. CETF provided 729,471 training sessions during the grant period, exceeding its target of 678,000.[72]
- LCF provided a mobile computer lab that enabled its eight subgrantees to provide digital literacy training in convenient locations. The mobile lab was shared among its subgrantees and used frequently. LCF subgrantees deployed the computer lab in places near the households with the greatest need for Internet access and training.
- CforAT provided information on assistive technologies for individuals with disabilities. The compilation of this information reduced the time required to find reliable information, and presented individuals with cost-effective methods for improving access.
- CETF's subrecipients provided resources to fix and repair computers, which accelerated the level of broadband adoption.
- California 2-1-1 provided referrals to broadband resources for callers in immediate need who met screening criteria to determine interest. California 2-1-1 improved systems to organize and share information. This helped 2-1-1 provide the right information at the right time to individuals who needed to know where they could get affordable broadband access and computers.

CETF also found that Facilitating Conditions impeded progress toward grant goals. In particular, few subscription options and high subscription costs, especially upfront costs, led some potential adopters to believe they would not be able to afford to subscribe to broadband, or that the ongoing

cost of broadband would not fit within their budget. CETF and its partners responded to this challenge by focusing on credible affordability messaging of broadband costs where available:

- Radio Bilingüe found that focusing on the $9.95 Comcast Internet Essentials program helped to increase interest in broadband subscription.
- Reading and Beyond, a Radio Bilingüe partner, found that offering microloans to patrons helped them to overcome the financial hurdle of upfront costs. Patrons repaid microloans over a three- to six-month period.
- SIS found that start-up costs were insurmountable for some potential users. In response, it began a program to rebate installation costs such as the cost of a modem, or initial start-up fees. SIS reported this greatly increased uptake of broadband subscriptions.

The living arrangements of some community members made it impossible to improve broadband access as much as desired. In particular, families that shared residences with others sometimes found it difficult to get property owners to approve the installation of multiple broadband connections to the same address. The Comcast Internet Essentials program would support only one connection per address. Families in this situation would have to share a broadband connection with others, or do without. There has been no resolution to this issue. However, Somos Mayfair is working with local organizations and community anchor institutions to explore a WiMax solution for some neighborhoods.

Distribution of information using broadband technology was limited. This problem is common to all grants seeking to improve broadband subscription rates, as the targeted population cannot be reached using broadband technology. However, CETF did not abandon the use of Internet technologies in its project as a result. Rather, CETF planned the Club Digital website to take advantage of dial-up Internet connections that were available in the service area. This limited the use of Adobe Flash and videos, and mandated that information presented load quickly using dial-up connections.

4.2 Social Influence

This category measures the degree to which potential adopters perceive that others will view them favorably or interact with them in a positive way if they adopt broadband technology. This includes friends and family members who might already be using broadband technology. It also includes measures of whether the use of broadband is considered to be a social norm for the social group to which the potential adopter belongs. Components of Social Influence include subjective norms, social factors, and the image associated with broadband use.

Social Influence is a key driver in broadband adoption. Often coworkers, peers, friends, families, and others influence decisions about whether a particular technology or service will be considered and the extent to which the computer technologies and broadband tools will be used. The social interactions from within the work and non-work settings influence norms and behaviors for using broadband. This includes the degree to which a person is influenced by the opinions and decisions of people around them.

According to interviewees, much of the increase in adoption that resulted from grant activities can be attributed to the way partner organizations were able to communicate information about broadband to their target populations. These organizations used existing networks and language-appropriate approaches to reach populations missed by existing ISP marketing. They were also able to give these populations the digital literacy support they needed to facilitate adoption. Social Influence played a key role in the effectiveness of these activities. Examples include the following:

- The BAA project includes a comprehensive communications strategy that reaches the targeted population with messages about the benefits of broadband adoption through many channels: television, radio, print, text message, web pages viewable on dial-up connections, interactions

with community anchor institution partners, webinars, contact with representatives of local organizations and schools, and door-to-door personal contact. The large number of channels used by CETF helps to present the benefits of broadband to the target population through a variety of means. This reinforces the message regarding the value of broadband subscription.

  - The BAA outreach and public awareness campaign is the predominant Social Influence activity. The outreach efforts exceeded the goal of reaching 5 million people by reaching more than 13 million people.[73] The outreach campaign focuses on broadcasting media messages encouraging people to attend digital literacy training sessions or computer repair workshops or call 2-1-1 for referrals. Combined, the reach of these programs grew significantly throughout the grant period.
  - In 2010, CETF made 9 million impressions through outreach activities, exceeding its goal of 5 million impressions. Club Digital reached more than 800,000 Hispanic households.[74] By 2012, *Get Connected!* and Club Digital reached 225 million impressions.[75] It presented broadband educational resources in local newspapers in Los Angeles, Orange County, and San Francisco. The partners produced La Opinión, a sixteen-page bilingual newspaper about broadband and digital literacy resources. The material included how to set up an e-mail account, make decisions for selecting broadband services, stay safe online, shop and bank online, and find college and community college resources online.

- In addition to a large-scale media campaign, CETF subrecipients used grassroots communications techniques, such as door-to-door campaigning and word-of-mouth advertising.
  - The *promotores* model used by Somos Mayfair used one-on-one door-to-door outreach to provide information on broadband and training classes available through the grant.
  - CLF used a community ambassador model to promote the benefits of broadband. This included a program that offered thirty-five scholarships to women in the targeted community. This model intended to promote broadband awareness in homes, schools, churches, and other community institutions. These ambassadors distributed 21,352 informational packets, and were responsible for signing up individuals for broadband service.[76] One ambassador reported to have signed up 140 new subscribers, out of a total of 1,100 reported as part of the project. CLF had an overall goal of educating 5,000 people, with 1,327 expected to subscribe to broadband. As of the site visit, approximately 1,100 had subscribed.[77]
  - The Canal Alliance used flyers, posters, and social media to distribute information about digital literacy training. A program staff member explained, “Flyers, we knew [worked well]. We shared a flyer with English as a second language (ESL) classes and we go to the laundries, we go to the stores in the neighborhoods. We have someone who helped us to post on Facebook. Many people come because someone will say, ‘you have to go to the classes at Canal Alliance.’”
  - Another program director elaborated further, “So that was one thing we were giving out. I don't know if it was 300 flyers a month. So we gave out almost 7,000 flyers through that project and were gauging that maybe a little more than half the people were familiar with what we did, but we were surprised at the number of people who were not. So it was great to be knocking on the doors and going out there and going up into communities outside of those we're covering. It also gave us an opportunity to get on TV.”
- The BAA partners used surveys to understand the specific training and personal development needs of individuals. As one director described, she and her colleagues developed creative ways of conducting surveys to determine the digital literacy needs of people in the farming communities in Central California, “The Boys' & Girls' Club in Salinas has an after-school program. So they surveyed people as they arrived to pick up their kids or drop them off. In Treasure Island and Self-Help for the Elderly, they surveyed people who were waiting in line for the food pantry. It gives people a way to talk about [their needs and what they want to do online].”
- Subrecipients reported that focused attention on the specific needs of individuals helped to significantly increase adoption rates. This included the use of a consumer education package

developed by DSG, and the individual coaching of potential adopters through the process of selecting a broadband subscription.

- CETF subrecipients reported that their activities were more effective at increasing rates of adoption and digital literacy when they were more focused on the cultural background of the population served. Examples of this include the following:
  - Somos Mayfair mentioned that, in addition to digital literacy training, new broadband users who sought to use broadband to communicate with teachers and school administrators needed assurance that doing so was culturally appropriate.
  - Canal Alliance instructors found that patience and cultural competence were keys to delivering digital literacy training and maintaining enrollment in classes. This included an instructor, who was a native Spanish speaker, adjusting course content for the particular dialect of the students.
  - AccessNow held orientations for volunteer technicians before Computer Help Days. These events, held by the community organization sponsoring the Help Day, provided technicians with background on the community and the goals of the community-based organizations.
  - CLF provided training in Spanish, but computer-related terms were often presented in English because most available computer resources would have an English operating system.
  - Radio Bilingüe offered airtime to speakers of the Trique language to discuss the benefits of broadband, as some immigrants to Fresno County speak this language exclusively.
- The CforAT program director also noted that informal outreach on social media sites and newsgroups helps to spread the word about its program offerings through social relationships. “We post to our Facebook page. We're members of fifteen different LinkedIn groups that are related to accessibility or assistive technology. There are some other ListServs where we post a consolidated listing of webinars. That always results in a traffic spike to our site.”
- Participants in digital literacy programs become more comfortable with broadband technology when multiple family members attend training together. Somos Mayfair organized its courses to support training multigenerational family members. One instructor observed, “During our classes, we saw a lot of conversation between family members. It’s one of the things we encourage.”

CETF also noted that Social Influence negatively affects awareness and adoption of Broadband in the service area. In particular, CETF reported that promotional materials available from many sources presumed a high school or college level of literacy. This was inappropriate for some of the population served by the grant. CETF found that broadband adoption was more likely when potential users did not have to struggle to comprehend the materials presented to them. In order to facilitate better understanding of materials, CETF stressed materials that were heavy in graphics, where appropriate, and that presented information and training at a moderate pace.

4.3 Performance Expectancy

Performance Expectancy measures the degree to which a potential adopter believes that access to broadband is beneficial for job searching or for an activity in another focus area. Aspects of Performance Expectancy include the perceived usefulness of the new technology, outcomes expectations, and the perceived relative advantage of the technology versus previously used technologies. Examples that address Performance Expectancy as part of the project include the following:

- The BAA grant’s strategy focused on helping the most vulnerable people overcome the digital divide by linking broadband to need. One of the hallmarks of the BAA program is the focus on helping people who face challenges such as unemployment, housing, and childcare. Subrecipients promoted broadband adoption by linking the use of broadband to other services

that potential adopters required, such as job search, health assistance, or obtaining public benefits. This helped make the potential benefit of broadband more concrete to new users.

- California 2-1-1 described the value of broadband to potential adopters after screening them to determine if broadband might facilitate their access to required services. This helped to make the discussion of broadband more immediately relevant.
- SIS placed links to broadband information on the referral screen of One-e-App so users would be presented with information on broadband while applying for public benefits.
- Club Digital focused on activities and benefits that would be the most valuable by the target populations, such as the use of Skype to avoid long-distance charges and expensive travel.
- The Canal Alliance placed broadband within the broader context of the services it provided, which included more comprehensive help on issues of employment and other needs.
- Somos Mayfair and Radio Bilingüe linked broadband adoption and education through partnerships with local schools. This illustrated the value of broadband to parents of school-age children. The grantees formed local partnerships to provide classes that specifically focused on digital literacy skills to help individuals search for jobs. In San Jose, for example, one director described its partnership with the Sacred Heart Community Foundation as being essential.

- The BAA partners continually looked for ways to identify how to meet the life needs of individuals. As the target population became more comfortable using the Internet, the BAA partners also offered digital literacy training to help people use the Internet and computer technology to meet their life and human development needs. Basic keyboarding set the foundation for preparing a résumé. Internet search skills set the foundation for searching and applying for jobs. E-mail skills set the foundation to responding to online ads on Craigslist for new housing or making purchases.
- CforAT provides resources to help people living with disabilities. If a person with limited visibility accesses a website of a service provider that is not compatible with his or her assistive technology to read the text, then that person is unlikely to engage with that service provider and less likely to consider using the Internet if most of the sites or online services are poorly designed. CforAT used the grant to improve the standard practices for the design of websites to improve the online service experience for people with disabilities.

4.4 Effort Expectancy

This category measures the expectations of the potential adopter regarding the difficulty of using broadband to achieve benefits in one or more of the focus areas described above. It includes preconceived ideas about the difficulty of using broadband technology and computers in general, and anxiety or concerns about the risks of broadband use.

Effort Expectancy is a conceptual measure indicating the extent to which people find it easy to use broadband. This includes examining how the various activities of the sustainable broadband adoption program help to make individuals comfortable using Internet and computer devices from personal computers and laptops to smart phones and other mobile devices through digital literacy training. The ease of use depends on not only understanding how to use a computer, but also on how well the technology fits the task that the individual wants to accomplish. For example, individuals will consider how easy is it to use a computer to search for a job, manage banking, or stay in touch with friends. These judgments are based on the task technology fit, the complexity of using various devices, and the quality of the broadband service. Digital literacy training is a central activity among sustainable broadband adoption programs. Individuals are more likely to adopt broadband if they feel comfortable using the Internet and computer technology.

- The BAA program offered a range of digital literacy activities aimed at helping people become comfortable using the Internet and computers, especially in times of uncertainty and need in

their lives. The BAA program exceeded its training goals, providing training to 678,954 adults and 50,517 youth to increase the basic skills for using broadband technology.[78]

- The BAA program provided services to make it convenient and easy for individuals to repair and update their existing computers. AccessNow provided Computer Help Days during which a team of technicians would fix computers on the spot. One of the unexpected results is that the technicians were so enthusiastic about helping that they were very generous in providing parts. One manager said, "We also had some very generous volunteers and very generous technicians who would just replace things for free using their own spare parts. They would just do it. The volunteer technicians were thrilled to have the opportunity to serve their community in a way they couldn't before, which I thought was a nice offshoot of it. I didn't expect that."
- CETF also ensured that its web content was also easy to use and understand. CETF vetted websites to make the site and content easy to use. As one interview participant observed, "Limited literacy is a barrier to going online because a lot of websites, even websites that are purporting to be basic services, are written at a high school or college graduate level of literacy. So it was really valuable to the people participating in the events that CETF had found sites with very easy-to-understand, graphic-heavy information that they could use right away. That way they didn't have to struggle with comprehension."
- AccessNow reported that specificity of training tailored to local circumstances helps to increase adoption, especially information on local plan options and specific information on how to set up the hardware and software required for a broadband connection in a particular neighborhood. The AccessNow representative reported that subscription rates in small, subscription-focused workshops were generally much higher when very specific local information was provided, including one workshop in which all participants subscribed.

Effort Expectancy also affected the BAA project in negative ways. In particular, some members of the communities served noted that subscribing to broadband service was too confusing. One Radio Bilingüe staff member reported that the subscription process for Comcast Internet Essentials resulted in her being disqualified for the program even when she knew she qualified for it. Potential users also feared being upsold to an inappropriate product when applying for broadband service. Subgrantees reported upselling. In many of these instances, the subrecipients worked on behalf of the new users to reduce rates and renegotiate contracts. Some groups of users, including those with limited English or Spanish, also needed extra assistance to complete an application for a broadband connection. Subrecipients worked closely with these individuals to complete the required forms. As an example, Somos Mayfair personnel assisted these individuals by participating in the subscription phone call.

Section 5. Techniques, Tools, and Strategies

This section describes successful techniques, tools, and strategies identified by the grantee. CETF noted many successful techniques, tools, and strategies that it developed over the course of the grant. In general, CETF intended for these techniques, tools, and strategies to develop a learning community based on a Venture Philanthropist approach where grantees were given feedback on whether they were meeting their marks in terms of achieving grant objectives.

5.1 Techniques, Tools, and Strategies

- CETF implemented leadership and management practices to improve the overall performance of the project and the partners. CETF described this strategy as its Venture Philanthropy approach. The practices include the following:
  - Developing routines to share information and knowledge effectively among the eight partners and the CETF staff.
  - Developing databases and visual tools such as dashboards to provide feedback to subrecipients regarding progress. This included posting information about grant progress on the CETF website.
  - CETF held online webinars and conference calls to coordinate due diligence questions, training materials, media, and outreach strategies. Later the group discussed other topics, including federal reporting, project management, and new opportunities to reach subscribers.
  - The partners and the CETF team formed regional working groups and workshops to help partners implement strategies within communities.
- CETF expanded its effort to foster knowledge sharing by creating the Get Connected Roundtables, which brought together all of the California BTOP grantees. Subrecipients found that meeting new partners at roundtables enabled them to obtain referrals to partners with strong community reputations, which in turn increased their credibility in communities they had not yet served. Subrecipients also used the roundtables as an opportunity to discuss progress toward grant goals. In response to feedback from and discussions with their peers, subrecipients reported adjusting their delivery strategies to achieve their objectives more effectively.
  - After a roundtable meeting in which subrecipients discussed challenges in promoting Comcast Internet Essentials, the group developed better processes for signing up new users.
  - CforAT initially believed webinars would be a small component of its overall activities. The webinar series became the most popular activity CforAT undertook.
  - AccessNow changed its focus from giving away computers to repairing computers. It also focused its workshop activities on specific information on how to subscribe to broadband, rather than general workshops on digital literacy.
  - Radio Bilingüe hosted BAA partners as on-air guests and solicited feedback from the community to ensure that the broadband information it broadcast met community needs.
  - DSG discontinued a text message campaign after it found that broadband information did not convey well to members of the community through text message, despite the preponderance of cell phones in the target population.
- CETF selected subrecipients with credibility in the community served. Partnerships with known and trusted community members facilitated better participation in grant activities and thus

accelerated the impact of the grant. Subrecipients were also trusted community members themselves, which facilitated name recognition and further partnering with other entities. The Canal Alliance has leveraged its reputation to increase outreach in the community and to work with other entities such as the Novato schools. CLF is working with Rotary Sunrise to provide twelve students with laptops. Subrecipients also mentioned leveraging relationships with eldercare providers, food pantries, parenting classes, Parks and Recreation programs, the Monterey County Boys & Girls Club, the Redwood City library, the Sacred Heart Community Foundation, and others.

- CETF subrecipients found that connections to brick-and-mortar community anchor institutions facilitated trust in the community, and provided those served by the grant with a more solid connection to the activities of the grantee. Partnership with these institutions also gave program participants a means to keep in contact with subrecipients while broadband subscriptions were being established. This in turn helped to increase the impact of grant activities. Examples of this include the following:
  - Radio Bilingüe set up tables at a local high school, focusing its efforts on the families of the 3,000 to 4,000 students that attended the school. There were between 300 and 400 Internet Essentials subscriptions resulting from this activity, in comparison to 250 new subscriptions in the San Francisco Bay Area.
  - SIS implemented twenty-six self-help computer stations at locations where individuals were used to receiving social assistance.
  - Surveys were performed at food pantries, health clinics, and parenting classes in order to tailor services better to the populations served by those institutions.
  - CLF partnered with Branciforte Middle School to implement a program where students trained parents in digital literacy at the middle school location. This had the effect of both increasing the digital literacy skills of the entire family and providing contact with educational institutions that used broadband.
  - CLF provided training at twenty-seven Mi Pueblo supermarket locations, which allowed employees to receive training during off hours. This had the benefit of improving the digital literacy skills of Mi Pueblo employees, with the goal of improving employment.
  - DSG worked with community anchor institutions, primarily churches, to reach communities where the church was a trusted source of information and advice.
- Comcast Internet Essentials provided assistance in obtaining broadband access at a reduced price in areas where limited resources severely constrained the potential impact of the BAA project. This relationship was not without difficulties, as the process for enrolling new users was not agreed on before the start of the grant. Comcast attended corporate meetings and made changes to the program based on the needs of the populations served by the grants. This helped to make Internet Essentials a more effective program.

5.2 Challenges

- CETF found that a lack of broadband availability and access, in both rural an urban areas, was an impediment to digital literacy training. The level of public-access resources in targeted areas was, in some cases, so inferior that CETF subrecipients found it difficult to schedule training sessions because there simply was no place for them to be held. In part, this was because of the absence of broadband availability in the neighborhoods served by the program. Although schools and libraries did have computer labs, the labs were frequently closed during evening hours when adults would most likely to be able to attend training. In response to this, CETF provided training using a portable computer lab with twenty-one laptops and four mobile broadband hotspots. The mobile computer lab allowed CETF to provide training in sites with available multipurpose space without requiring an open lab. One downside to this was that many organizations shared the laptops, each of which would only get the mobile computer lab

one week per month. Shipping the laptops between organizations took additional time and effort, and the limited availability of the lab constrained the amount of training provided.

- Some potential users have no access to broadband in their neighborhood. Despite the technological advancement of much of California, there remain geographic areas in which broadband is simply not available. Many of these areas are rural locations in the Central Valley. However, there are examples in urban areas as well. In these cases, promotion of broadband awareness does little because adoption is not a possibility. CETF subrecipients in these areas report taking steps to try to encourage broadband provision. Somos Mayfair is working with community members to install wireless broadband in Mayfair to serve areas where no broadband service is available. CLF reported working with small cable Internet companies to route service to ranches and other rural locations without formal street numbers in order to be sure connections were made.
- Potential new users often suffered from a severe lack of knowledge regarding both computer technologies and broadband subscriptions. Examples of this include the following:
  - Significantly overestimating the capacity and cost of a computer that would provide basic broadband access.
  - The belief that a broadband subscription was tied to a particular computer, and that a broken computer meant a new broadband subscription would be required.
  - Thinking computer viruses destroyed computer functionality, when the installation of inexpensive antivirus software would solve most virus issues.

  The grant addressed this lack of knowledge in multiple ways, including the La Opinión supplement, which provided extensive information about broadband connections. However, the prevalence of this issue suggests that these consumer misconceptions might also affect other SBA grants in other areas.
- Some subrecipients reported that volunteers and other workers at their organizations were initially reluctant to refer potential users to ISPs, although these entities were the ones who could provide Internet access. Additional training on the benefits of broadband assisted in overcoming this issue.
- Some individuals served by the grant had the tendency toward initial mistrust of the project. In part, this was because of the prevalence of scams targeting their community. One director explained that, “We spent the first several months of the project just trying to get people to trust us, because we're working with a community that gets taken advantage of a lot. They kept saying, ‘You're going to [take my] free computer back.’ and I said, ‘No, it's yours.’ So it took a while to establish ourselves.”
- Radio Bilingüe found it was not possible to give away all the free broadband subscriptions provided to them by AT&T due to complicated eligibility requirements. They also found that a promotional raffle to gather subscription letters was not successful, with fewer entrants than prizes.
- While not a weakness in this grant, CETF did not receive all of the funding it planned to receive from all potential sources. CETF envisioned the BTOP grant within a larger framework, including funding from other sources. This funding was intended to cover the spectrum from awareness and adoption through advanced use. The CETF BAA grant was to focus on broadband awareness, adoption, and initial digital literacy training. CETF did not receive funding for a grant to provide training that is more advanced. Although the subrecipients achieved the goals of the CETF BAA grant in terms of training, the lack of funding for follow-on courses put pressure on the grantees, as recipients of training better understood the value of broadband and wanted to get more training than could be provided under the BAA grant. Furthermore, CETF did receive a workforce-training grant separate from BAA, but the bridge training between the two funded programs was missing.
- Despite the large proportion of the population in the service area that speaks a language other than English as a primary language, the grantee reported few instances of the use of online English for Speakers of Other Languages (ESOL) tools. This is most likely because of the large

number of individuals that require basic digital literacy training and the lack of broadband availability in some areas. Subrecipients report inquiries by individuals about online ESOL courses, and subrecipients do offer courses for adults to learn English and Spanish. Future incorporation of online resources into these courses has been discussed.

- Caesar Chavez School, which serves the Mayfair area, has an online portal where parents can find information on their children's educational progress. However, broadband is not available in some parts of Mayfair, despite the proximity of Silicon Valley. Somos Mayfair is working with community partners to bridge this gap in order for parents to contribute more easily to their children's educational progress using online resources.
- Subrecipients stated concerns that the Affordable Care Act, through its implementation of online health insurance exchanges, presupposed digital literacy and access to the Internet on the part of the uninsured. The high proportion of uninsured families and the low level of digital literacy in the populations served by the grantees caused the grantees to be concerned that nonprofit community organizations would have to provide assistance with broadband access to health insurance exchanges.

Section 6. Conclusions

CETF's BAA project aimed to increase broadband adoption in vulnerable and low-income communities across California where the digital divide is most pronounced, including communities in Los Angeles, the Central Valley, Orange County, San Diego, and the Inland Empire. CETF focused on serving individuals whose computer and broadband use is significantly lower than the rest of California, including individuals living at or near the poverty level, those living and working in rural areas, and the disabled. Grant activities promoted adoption through broadband awareness, access, and training. CETF planned to increase household adoption of broadband in low-income communities by more than 133,000 households. CETF reported that, due to their efforts, 198,743 households adopted broadband services.

The grantee did not collect data on the activities of most new broadband subscribers. However, the reports provided to the evaluation study team on new subscriber activities indicate that new subscribers are using broadband in ways similar to those pursued by most Californians. The social and economic benefits of the grant included improved social connections, better employment outcomes (including self-employment), increased communication between teachers and parents, and improved access to social services.

In addition to the observed social and economic benefits of the BAA project, individual partners reported long-term benefits to their organizations. For example, 2-1-1 California improved its IVR systems to increase flexibility and capacity, especially in terms of emergency response. SIS improved the One-e-App system, a broadband-based technology, and added additional components promoting the use of broadband technologies for the management of social services.

CETF relied on a "venture philanthropy" approach to project management. CETF selected subrecipients with credibility in the community served. Partnerships with known and trusted community members facilitated better participation in grant activities and thus accelerated the impact of the grant. CETF subrecipients found that connections to brick-and-mortar community anchor institutions also facilitated trust in the community, and provided those served by the grant with a more solid connection to project activities.

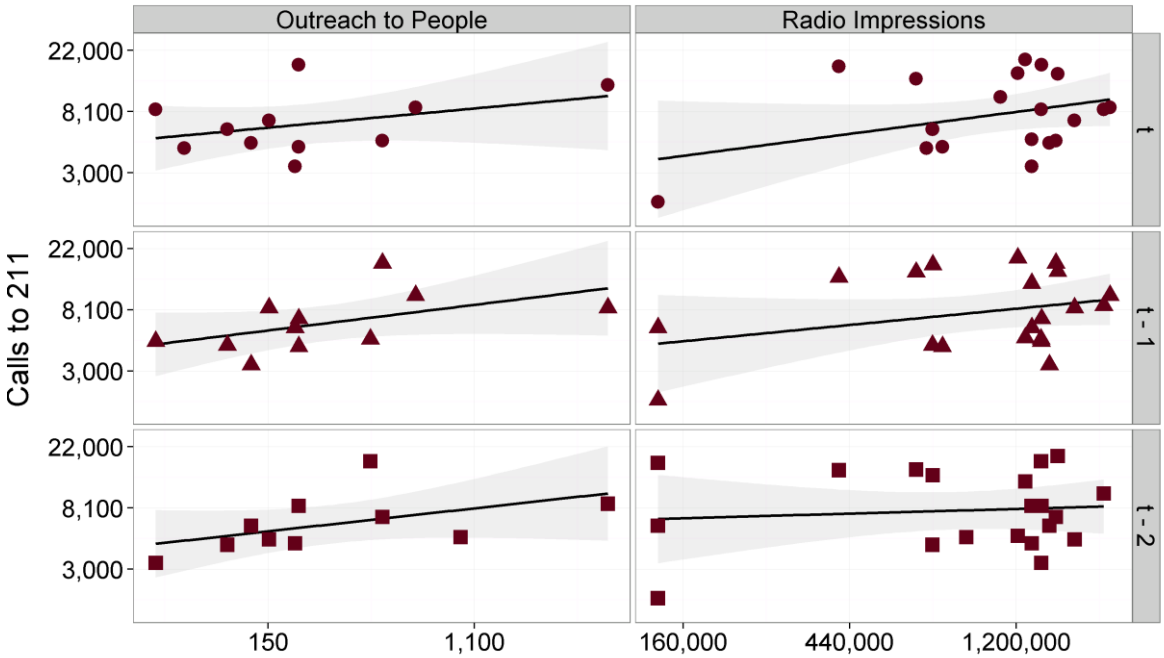
The BAA project also revealed an ongoing need for improved broadband availability in some areas of California. Despite the technological advancement of much of California, there remain geographic areas in which broadband is simply not available. Many of these areas are rural locations in the Central Valley. However, there are examples in urban areas as well. In these cases, promotion of broadband awareness does little because adoption is not a possibility.

Section 7. Quantitative Analysis

A significant portion of the BAA project focused on raising awareness of broadband in California. The grantee reported on the number of materials distributed, individuals reached, and media impressions. Using data reported monthly in the grantee's online database, ASR created the scatterplots shown in Figure 19.[79] These scatterplots show the relationship between outreach by Radio Bilingüe, as measured by both counts of in person events and radio impressions, and interest in broadband, measured by calls to California 2-1-1. The first row of scatterplots represents the correlation of these measures in the same month. The second row presents the correlation between outreach and calls to California 2-1-1 in the month following, and the third row presents the correlation between outreach activities and calls to California 2-1-1 two months later.

The data suggest that as the BAA grant reached more individuals in its outreach and marketing, more calls were placed to 2-1-1. This result, however, is not statistically significant.

Figure 19. Relationship between Outreach Activities and Calls to 2-1-1



Section 8. Next Steps for the BTOP Evaluation Study

In early 2014, ASR will deliver *Interim Report 2* to NTIA. This report will include a summary of the second round of case study visits to the fifteen PCC and SBA grants, allowing for an analysis of the impacts of the grants over time. *Interim Report 2* will also summarize the findings from case study visits to twelve Comprehensive Community Infrastructure (CCI) grants. These visits will take place in the fall of 2013 and result in a set of twelve case study reports delivered to NTIA over several months.

For the PCC and SBA projects, *Interim Report 2* will provide an update to and refinement of the analysis presented in *Interim Report 1*. For the CCI projects, *Interim Report 2* will summarize the activities underway by twelve CCI grantees and the impacts these projects intend to have on broadband availability and adoption for community anchor institutions, communities, and individuals.

The subrecipients will continue their services after the BTOP grant, and several staff members report that the increased partnerships and in some cases a new orientation toward technology will facilitate even better services to target populations than before the BTOP grant. Several grantees also report that increased capacity will facilitate future activities. ASR will check in with CETF in the second quarter of 2014 to learn more about the sustainability of the project.

Finally, in September 2014, ASR will deliver a *Final Report* that quantitatively and qualitatively measures the economic and social impact of BTOP grants (including CCI, PCC, and SBA). The centerpiece of the *Final Report* will be an assessment of how and to what extent BTOP grant awards have achieved economic and social benefits in areas served by the grantees. To the extent that such information is available, results from studies performed by the grantees will round out the conclusions presented.

Notes

[1] National Telecommunications and Information Administration, "California Emerging Technology Fund Broadband Awareness and Adoption Fact Sheet", 2010, http://www2.ntia.doc.gov/files/grantees/CETF_BTOP_Factsheet_FINAL.pdf.

[2] National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11" (Washington, DC: Distributed by National Telecommunications and Information Administration, 2013).

[3] National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11."

[4] California Emerging Technology Fund, "CETF Online MasterTrak", June 11, 2013.

[5] California Emerging Technology Fund, "CETF Online MasterTrak."

[6] California Emerging Technology Fund, "CETF Online MasterTrak."

[7] Grantee, in discussion with the evaluation study team.

[8] California Emerging Technology Fund, "CETF Online MasterTrak."

[9] California Emerging Technology Fund, "CETF Online MasterTrak."

[10] California Emerging Technology Fund, "CETF Online MasterTrak."

[11] California Emerging Technology Fund, "CETF Online MasterTrak."

[12] Grantee, in discussion with the evaluation study team.

[13] National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11."

[14] United States Census Bureau, "2005-2009 ACS 5-year Summary File," *American Community Survey*, 2011, http://www.census.gov/acs/www/data_documentation/summary_file/.

[15] Mark Baldassare et al., *Californians and Information Technology*, *PPIC Statewide Survey* (San Francisco, CA, CA: (c) Public Policy Institute of California, June 2013), http://www.ppic.org/main/publication.asp?i=1064.

[16] National Telecommunications and Information Administration, "Statement of Work for Broadband Technology Opportunities Program (BTOP) Evaluation Study", July 26, 2010, 6.

[17] These figures were provided by the grantee during the grantee's comment period for the draft of this report.

[18] California Emerging Technology Fund, "CETF Online MasterTrak."

[19] National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11."

[20] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online," *press release* (San Francisco, CA, June 26, 2013), http://www.ppic.org/main/pressrelease.asp?i=1376.

[21] More complete descriptions of all project partners and their activities may be found in the first round case study report.

[22] ASR Analytics, *Progress towards BTOP Goals: Interim Report on PCC and SBA Case Studies*, *Broadband Technology Opportunities Program Evaluation Study (Order Number D10PD18645)* (Potomac, MD, December 5, 2012), http://www.ntia.doc.gov/report/2012/progress-towards-btop-goals-interim-report-pcc-and-sba-case-studies.

National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11."

[23] All Quality of Life/Civic Engagement hours are attributable to One-e-App training in the City of Los Angeles.

[24] Federal Communications Commission, *Connecting America: The National Broadband Plan*, 2010, http://www.broadband.gov/plan/.

[25] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online."

[26] California Emerging Technology Fund, "CETF Online MasterTrak."

[27] Grantee, in discussion with the evaluation study team.

[28] Grantee, in discussion with the evaluation study team.

[29] Grantee, in discussion with the evaluation study team.

[30] Grantee, in discussion with the evaluation study team.

[31] Grantee, in discussion with the evaluation study team.

[32] Grantee, in discussion with the evaluation study team.

[33] Grantee, in discussion with the evaluation study team.

[34] California Emerging Technology Fund, "CETF Online MasterTrak."

[35] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online."

[36] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online."

[37] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online."

[38] Baldassare et al., *Californians and Information Technology*.

[39] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online."

[40] Baldassare et al., *Californians and Information Technology*.

[41] Grantee, in discussion with the evaluation study team.

[42] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online."

[43] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online."

[44] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online."

[45] Grantee, in discussion with the evaluation study team.

[46] Public Policy Institute of California, "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online."

[47] These numbers are as reported in the first quarter of 2013 PPR. Based on interviews with the grantee, they may actually be as high as 800,000 copies of the supplement distributed and 2,000,000 individuals reached.

[48] California Emerging Technology Fund, "CETF Online MasterTrak."

[49] California Emerging Technology Fund, "CETF Online MasterTrak."

[50] Grantee, in discussion with the evaluation study team.

[51] California Emerging Technology Fund, "CETF Online MasterTrak."

[52] Grantee, in discussion with the evaluation study team.

[53] California Emerging Technology Fund, "CETF Online MasterTrak."

[54] California Emerging Technology Fund, "CETF Online MasterTrak."

[55] Grantee, in discussion with the evaluation study team.

[56] California Emerging Technology Fund, "CETF Online MasterTrak."

[57] California Emerging Technology Fund, "CETF Online MasterTrak."

[58] California Emerging Technology Fund, "CETF Online MasterTrak."

[59] California Emerging Technology Fund, "CETF Online MasterTrak."

[60] California Emerging Technology Fund, "CETF Online MasterTrak."

[61] California Emerging Technology Fund, "CETF Online MasterTrak."

[62] California Emerging Technology Fund, "CETF Online MasterTrak."

[63] California Emerging Technology Fund, "CETF Online MasterTrak."

[64] California Emerging Technology Fund, "CETF Online MasterTrak."

[65] California Emerging Technology Fund, "CETF Online MasterTrak."

[66] California Emerging Technology Fund, "CETF Online MasterTrak."

[67] California Emerging Technology Fund, "CETF Online MasterTrak."

[68] National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11."

[69] National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11."

[70] The Recovery Accountability and Transparency Board, "Recovery API," *Recovery.gov* (Washington, DC, March 20, 2013), http://www.recovery.gov/FAQ/Developer/Pages/RecoveryAPI.aspx.

[71] Viswanath Venkatesh et al., "User Acceptance of Information Technology: Toward a Unified View," *MIS Quarterly* 27, no. 3 (September 2003): 425–478.

[72] California Emerging Technology Fund, "CETF Online MasterTrak."

[73] National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11."

[74] National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11."

[75] National Telecommunications and Information Administration, "Post-Award Monitoring (PAM) Database 2013-03-11."

[76] California Emerging Technology Fund, “CETF Online MasterTrak.”

[77] Grantee, in discussion with the evaluation study team.

[78] California Emerging Technology Fund, “CETF Online MasterTrak.”

[79] California Emerging Technology Fund, “CETF Online MasterTrak.”

Glossary

Acronym	Definition
APR	Annual Performance Progress Report
ASR	ASR Analytics, LLC
BAA	Broadband Awareness and Adoption
BTOP	Broadband Technology Opportunities Program
CCI	Comprehensive Community Infrastructure
CETF	California Emerging Technology Fund
CforAT	Center for Affordable Technology
CLF	Chicana/Latina Foundation
CPUC	California Public Utilities Commission
DSG	Dewey Square Group
ESL	English as a second language
ESOL	English for Speakers of Other Languages
FCC	Federal Communications Commission
GED	General equivalency degree
ISP	Internet Service Provider
IVR	Interactive Voice Response
LCF	Latino Community Foundation
NTIA	National Telecommunications and Information Administration
PCC	Public Computer Center
PPIC	Public Policy Institute of California
PPR	Quarterly Performance Progress Report
RSI	Repetitive Strain Injuries
SBA	Sustainable Broadband Adoption
SIS	Social Interest Solutions
UTAUT	Universal Theory of Acceptance and Use of Technology

Bibliography

ASR Analytics. *Progress towards BTOP Goals: Interim Report on PCC and SBA Case Studies*. *Broadband Technology Opportunities Program Evaluation Study (Order Number D10PD18645)*. Potomac, MD, December 5, 2012. http://www.ntia.doc.gov/report/2012/progress-towards-btop-goals-interim-report-pcc-and-sba-case-studies.

Baldassare, Mark, Dean Bonner, Sonjak Petek, and Jui Shrestha. *Californians and Information Technology*. *PPIC Statewide Survey*. San Francisco, CA, CA: (c) Public Policy Institute of California, June 2013. http://www.ppic.org/main/publication.asp?i=1064.

California Emerging Technology Fund. "CETF Online MasterTrak", June 11, 2013.

Federal Communications Commission. *Connecting America: The National Broadband Plan*, 2010. http://www.broadband.gov/plan/.

National Telecommunications and Information Administration. "California Emerging Technology Fund Broadband Awareness and Adoption Fact Sheet", 2010. http://www2.ntia.doc.gov/files/grantees/CETF_BTOP_Factsheet_FINAL.pdf.

———. "Post-Award Monitoring (PAM) Database 2013-03-11". Washington, DC: Distributed by National Telecommunications and Information Administration, 2013.

———. "Statement of Work for Broadband Technology Opportunities Program (BTOP) Evaluation Study", July 26, 2010.

Public Policy Institute of California. "Big Gains in Californians' Use of Cell Phones, Tablets to Go Online." *press release*. San Francisco, CA, June 26, 2013. http://www.ppic.org/main/pressrelease.asp?i=1376.

The Recovery Accountability and Transparency Board. "Recovery API." *Recovery.gov*. Washington, DC, March 20, 2013. http://www.recovery.gov/FAQ/Developer/Pages/RecoveryAPI.aspx.

United States Census Bureau. "2005-2009 ACS 5-year Summary File." *American Community Survey*, 2011. http://www.census.gov/acs/www/data_documentation/summary_file/.

Venkatesh, Viswanath, Michael G. Morris, Gordon B. Davis, and Fred D. Davis. "User Acceptance of Information Technology: Toward a Unified View." *MIS Quarterly* 27, no. 3 (September 2003): 425–478.